

DL. PM 71-2008

càtalog de projectes d'investigació i memòria d'investigació



Universitat de
les Illes Balears



Govern
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Conselleria d'Economia,
Hisenda i Innovació



Fira
DE LA CIÈNCIA
DE LES ILLES BALEARS

Universitat de les Illes Balears

**CATÀLEG DE PROJECTES D'INVESTIGACIÓ
2007**

Palma, 2008

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**PROJECTES DE RECERCA
EN EL MARC DE LA UNIÓ EUROPEA**

DEPARTAMENT DE BIOLOGIA

Referència: INCO-CT-2004-509140.

Títol: *Improvement of native perennial forage plants for sustainability of Mediterranean farming systems.*

Acrònim: PERMED.

Centre: Departament de Biologia. Edifici Guillem Colom Casasnovas.

Investigador responsable: CIFRE LLOMPART, Josep.

Categoría: P. Col. (àrea de coneixement: Producció Vegetal).

Inici: 2004 **Fi:** 2008

Socis

Institut Nacional de la Recherche Agronomique d'Algérie (Algèria)

Institut Nacional de la Recherche Agronomique (Marroc)

Institut des Regions Arides (Tunísia)

Consiglio Nazionale delle Richerche (Itàlia)

Instituto de Investigaçao Agraria e das Pescas (Portugal)

Universitat de Barcelona (Espanya)

Institution de Recherche et d'Enseignement Supérieur Agronomique (Tunísia)

Istituto Sperimentale per le Coltura Foraggere (Itàlia)

Coordinador: Institut Nacional de la Recherche Agronomique (França)

Summary

The amount of water available to agriculture in the Mediterranean is declining because of increasing population pressure and greater incidence of drought. Therefore, the efficiency of the use of water for agricultural production must be maximized, and in this context perennial forage species have a number of advantages in comparison to the predominantly used annuals. They can utilize water throughout the whole year besides being able to halt rangeland degradation, restore soil fertility and enhance forage production, thereby contributing to greater sustainability of rain-fed agricultural systems in the southern European Union and North Africa.

Despite these advantages, the small size of individual national markets has so far worked against the development of a viable forage industry based on perennials. Therefore, by adopting a multi-national approach and targeting the key breeding objectives of superior drought resistance and water use efficiency (WUE), this project aims to produce commercially viable cultivars of a select number of species of broad regional interest and adaptation.

Ten research groups from southern Europe and North Africa will combine to work on species including lucerne, cocksfoot, tall fescue and sulla to enhance cultivar development across environments ranging from the sub-humid to arid. Complementary Workpackages will (i) complete North African forage germplasm collection and evaluation, (ii) assess the use of molecular genetics in breeding of drought resistant lucerne, (iii) evaluate elite forage populations across the region for high WUE and adaptation to drought as bases for new cultivars, (iv) enhance knowledge of physiological traits for drought survival and WUE, and (v) determine optimal use of perennial forages in four representative farming systems. Their results will contribute to the development of technical packages for easy on-farm adoption across the western Mediterranean, thereby ensuring a long-term interest of the seed industry.

Referència: FP-2005-SSP-5A

Títol: *Surveillance network of Reoviruses, Bluetongue and African Horse Sickness, in the Mediterranean basin and Europe.*

Acrònim: MED REO NET

Centre: Departament de Biologia. Edifici Guillem Colom Casasnovas.

Investigador responsable: MIRANDA CHUECA, Miguel Ángel.

Categoría: TEU (àrea de coneixement: Zoologia).

Inici: 2007 **Fi:** 2009

Socis

Centre de coopération internationale en recherche agronomique pour le développement
(França)

Agence française de Sécurité sanitaire des aliments (França)

Istituto Zooprofilattico Sperimentale "G. Caporale" (Itàlia)

University of Liverpool (Regne Unit)

Institute for Animal Health (Regne Unit)

Swiss Federal Veterinary Office (Suïssa)

Institut National de Médecine vétérinaire (Algèria)

Institut de la Recherche Vétérinaire de Tunisie (Tunísia)

Laboratoire National d'Epidémiologie et des Zoonoses (Marroc)

Central veterinary control and research institute (Turquia)

National Diagnostic and Research Veterinary Medical Institute (Bulgaria)

Fundació Centre de Recerca en Sanitat Animal (Espanya)

Universidad Complutense de Madrid, Facultad de Veterinaria (Espanya)

Institute of Infectious and Parasitic Diseases (Grècia)

Lisbon University (Portugal)

Agricultural Research Council (Sudàfrica)

Federal Institute for Animal Health (Alemanya)

Centre d'étude et de recherches vétérinaires et agrochimiques (Bèlgica)

Lelystad Stichting Dienst Landbouwkundig Onderzoek (Holanda)

Danish Institute for Food and Veterinary Research (Dinamarca)

Summary

Bluetongue virus (BT) and African horse sickness virus (AHSV) are reoviruses transmitted by vectors species belonging to the Culicoides genus that affect respectively ruminants and Equidae.

BT disease has occurred sporadically in the Mediterranean region in the past, involving relatively short lived epizootics. Since 1998, large BT outbreaks affected different countries around the Mediterranean. The virus has extended further north than ever. This geographical expansion is mainly due to the northern extension of the main afro-tropical BT vector C. imicola. During summer 2006, BT outbreaks were recorded in Belgium, Germany, Netherlands and France with European Culicoides species probably involved in this emergence. This episode highlighted the potential of BT to further established in Europe and presents a major risk to the livestock industry.

AHSV outbreaks have occurred in Southern Europe in the past, especially in Spain from 1987 to 1991. It causes one of the most severe diseases in horses. It is closely related to BT and is transmitted by the same Culicoides vectors, hence regions at risk of BT can be regarded at risk of AHSV.

Apart from BT and AHS, another Culicoides-borne virus, Epizootic hemorrhagic disease virus (EHDV) has been detected in 2004 in Morocco and in 2006 in Israel.

Considerable advances and expertise already exist on these both Culicoides-borne diseases, the viral agents which cause them, the vector, their spread, etc, but in many cases it is not readily accessible or could be significantly enhanced by better communication between the research centres involved, and improved dissemination of data.

The coordination action will gather and share information on BT, AHS and EHD, (i) promote regional studies on the risks of introduction of new strains and spread with inclusion of neighbouring areas (North Africa, Turkey) as an early warning, (ii) survey the expansion of *C. imicola* in new northern territories taking into account the potential novel vectors group in Europe and (iii) improve information technology for storage, communication and sharing of vector and sentinel surveillance and vaccination data. The consortium is bringing together national and international reference laboratories working on vectors, detection of infection, and surveillance and risk assessment around Mediterranean.

DEPARTAMENT DE BIOLOGIA FONAMENTAL I CIÈNCIES DE LA SALUT

Referència: FOOD-CT-2004-506360.

Modalitat: Network of exellence.

Títol: *European nutrigenomics organisation-linking genomics, nutrition and health research.*

Acrònim: NUGO.

Centre: Departament de Biologia Fonamental i Ciències de la Salut. Edifici Guillem Colom Casasnovas.

Investigador responsable: PALOU OLIVER, Andreu.

Categoría: CU (àrea de coneixement: Bioquímica i Biologia Molecular).

Inici: 2004 **Fi:** 2009

Socis

Nederlandse Organisatie voor Toegepast Natuurwetenschappelijk Onderzoek (Holanda)
Rikilt (Holanda)

Nutrition and Toxicology Research Institute Maastricht (Holanda)
Rijksinstituut voor Volksgezondheid en Milieu (Holanda)

University College Cork, National University of Ireland (Irlanda)

Trinity College Dublin (Irlanda)

University of Ulster (Regne Unit)

Deutsches Institut fuer Ernaehrungsorschung (Alemania)

Technische Universitaet Muenchen (Alemania)

Institute of Food Research (Regne Unit)

Rowett Research Institute (Regne Unit)

University of Reading (Regne Unit)

Universita degli Studi di Firenze (Itàlia)

Uniwersytet Jagiellonski (Polònia)

Lunds Universitet (Suècia)

University of Newcastle upon Tyne (Regne Unit)

Instiut Nacional de la Sante et de la Recherche Medicale (França)

Universitetet I Oslo (Noruega)

European Molecular Biology Laboratory (Alemania)

Topshare International BV (Holanda)

Coordinador: Wageningen Universiteit (Holanda)

Summary

The primary aim of NuGO is integration, making future nutrigenomics research easier. Twenty-two partners organisations from ten European countries form the core of The European Nutrigenomics Organisation (NuGO). The specific aims of NuGO are to:

Strengthen the European scientific and technological excellence in nutrigenomics by bringing together the critical mass of resources and expertise needed to offer leadership in this rapidly developing field

Define individual response to nutrients and refine the requirements for population sub-groups based on genetic variations (nutrigenetics), sex, and the different life-stages

Determine the relative health benefits and risks of food compounds for different population sub-groups and improve public health

Spread excellence in nutrigenomics beyond the partnership through training, sharing of methods and facilities, dissemination and exploitation, and enter into dialogue with stakeholder groups. Support the competitive arm of the European food industry, facilitating its growth as a knowledge-based business, with a view to evidence-based healthier food production

Promote understanding in the ethical, social, legal, economical and scientific issues of concern in nutrigenomics

There are four related activities to help this process, each with complementary tasks:

Integration Activities which will harmonise, stimulate and facilitate new technologies, informatics and systems for common use, and underpin research activities

Joint Research Activities, which exploit the technological and scientific innovations in a number of key areas of nutrition and health research as well as consolidate the research effort in Europe

Spreading of Excellence will build upon the acquired knowledge, sharing it with stakeholder groups including researchers, industry, society and healthcare

NuGO is funded by the European Commission's Research Directorate General under the Food Quality and Safety Priority of the Sixth Framework Programme for Research and Technological Development. The project began in January 2004 and will be funded until December 2009, but expects to be self-funding after this date.

Referència: FP6-2004-FOOD-3-A 016181-2.

Modalitat: Integrated Project.

Títol: *Identification and prevention of dietary - and lifestyle- induced health effects in children and infants.*

Acrònim: IDEFICS

Centre: Departament de Biologia Fonamental i Ciències de la Salut. Edifici Guillem Colom Casasnovas.

Investigador responsable: PALOU OLIVER, Andreu.

Categoría: CU (àrea de coneixement: Bioquímica i Biologia Molecular).

Inici: 2006 **Fi:** 2011

Socis

University of Bremen (Alemanya)

Ghent University, Faculty of Medicine and Health Sciences (Bèlgica)

Research & Education Foundation of Child Health (Xipre)

University Joseph Fourier (França)

Verein zur Förderung des Technologietransfer ander Hochschule Bremerhaven (Alemanya)

University of Glasgow (Regne Unit)

Lancaster University (Regne Unit)

University of Pécs (Hungria)

University Cattolica del Sacro Cuore (Itàlia)

National Research Council, Institute of Food Sciences (Itàlia)

National Cancer Institute (Itàlia)

University of Milan (Itàlia)

Universitat de Saragossa (Espanya)

Universitat de les Illes Balears (Espanya)

Göteborg University (Suècia)

European Food Information Council (Bèlgica)

Laboratoriumsmedizin Dortmund (Alemanya)

BioTel Ltd (Regne Unit)

Pécs TV Communication Ltd (Hungria)

Agorà Med srl (Itàlia)

National Institute for Health Development (Estònia)

Gockel desing (Alemanya)

Copenhagen Business School (Dinamarca)

Summary

The environment of infants and children has drastically changed in Europe during the last decades as reflected in alterations of behaviour, unhealthy dietary habits, and low physical activity. Nutrition obviously plays a part in the development of overweight in childhood. Moreover, dietary factors are also thought to be involved in the development of metabolic syndrome, type II diabetes etc. In this IP, we focus on overweight and obesity as major components of the metabolic syndrome and on musculoskeletal disorders. The latter share risk factors with overweight but they are also of interest on their own. To stop the resulting epidemic of diet- and lifestyle-induced morbidity, evidence-based efficient approaches are needed. The IP shall identify risk profile inventories for children susceptible to any of these disorders and their comorbid conditions and shall devise tailored prevention strategies that are effective, easy to implement and that account for the needs of different social groups. Genetic

and non-genetic factors, psychosocial factors and social settings will be considered in the research. Population-based studies will investigate the impact of sensory perception and provide results concerning internal and external factors, children's consumer behaviour and short and long-term effects of food choices. The IP will consider societies' use of information on individual risk factors as well as on individuals' rights and responsibilities. The ethical implications of a „right not to know“ of genetic factors and the use of individual data will be addressed. The IP will propose a knowledge-based set of guidelines on dietary and lifestyle activities for health promotion and disease prevention in children for health professionals, stakeholders, channels, and consumers at a pan European level and for individual countries.

DEPARTAMENT DE CIÈNCIES MATEMÀTIQUES I INFORMÀTICA

Referència: INTAS-04-77-7178.

Modalitat: Information technology.

Títol: *Global and local protein matching.*

Centre: Departament de Ciències Matemàtiques i Informàtica. Edifici Anselm Turmeda.

Investigador responsable: ROCHA CÁRDENAS, Jairo.

Categoría: Contr. dr. (àrea de coneixement: Ciències de la Computació i Intel·ligència Artificial).

Inici: 2005 **Fi:** 2007

Socis

University of York (Regne Unit)

Belarusian Research Institute of Microbiology and Epidemiology (Bielorússia)

Moscow State University (Rússia)

United Institute of Informatics Problems (Bielorússia)

Coordinador: Universitat de les Illes Balears

Summary

A novel method based on EM-SVD apply to protein comparison will be developed both for global and local similarities. A method for prediction of local antigen sites in primary structure as well as their comparison will be developed. The methods, that combine the stochastic approach of Expectation Maximization with the use of spectral graph theory for the Singular Value Decomposition, are expected to outperform most popular matching algorithms for proteins. This belief is supported by the fact that the EM-SVD approach has been very successful in image matching. The application of the methods above to real proteins as well as in vitro verification will be fulfilled. The databases with the results of comparison as well as the developed software will be available at the web site.

DEPARTAMENT D'ECONOMIA APLICADA

Referència: GOCE-CT-2003-003933.

Modalitat: Integrating and strengthening the European Research Area.

Títol: *Thresholds of environmental sustainability.*

Acrònim: THRESHOLDS.

Centre: Departament d'Economia Aplicada. Edifici Gaspar Melchor de Jovellanos.

Investigador responsable: RIERA FONT, Antoni.

Categoría: TU (àrea de coneixement: Economia Aplicada).

Inici: 2005 **Fi:** 2008

Socis

Istituto di Studi per l'Integrazione dei Sistemi (Itàlia)

Universitaet Stuttgart (Alemanya)

Uppsala University (Suècia)

National Environmental Research Institute (Dinamarca)

European Comission (Bèlgica)

Suomen Ympäristökeskus (Finlàndia)

University of Southern Denmark (Dinamarca)

University of Kalmar (Suècia)

Université Pierre et Marie Curie (França)

Norsk Institutt for Vannforskning (Noruega)

Intitut Français de Recherche pour l'Exploitation de la Mer (França)

Université Libre de Bruxelles (Bèlgica)

University of Oslo (Noruega)

Ringkjoebing County (Dinamarca)

University of Bath (Regne Unit)

TerrAquat (Alemanya)

Centrale Recherche SA (França)

ARDMPI (França)

Intitut of Oceanology (Bulgària)

University of Tartu (Estònia)

Coordinador: Consell Superior d'Investigacions Científiques (Espanya)

Summary

THRESHOLDS seeks to contribute to the development of Sustainability Science and through the implementation of a procedure for policy formulation based on the development of a target setting process that integrates scientific knowledge on thresholds of indicators of environmental sustainability, the socio-economic activities that impinge in these indicators and the components of their vulnerability, and the evaluation of the resultant externalities associated with these socioeconomic activities.

THRESHOLDS carries out innovative crosscutting research to develop, improve and integrate tools and methods to provide the basis to formulate sustainable strategies through research to deliver the scientific tools to identify Thresholds and Points of Nonreturn of Environmental Sustainability and externality valuations required to define targets for the

development of the European sustainable Development Strategy. The THRESHOLDS IP will confront complex behaviour of ecosystems, such as regime shifts between alternative stable states, and complexity in valuation of the sectors affecting environmental quality, such as nonlinear cost-accommodate to the complexity of the socio-economic and environmental systems. The tools developed will be applied to cas estudies in the European coastal zone, where policy needs are pressing, involving increasing levels of complexity, from local to pan-European.

THRESHOLDS IP will draw on the extensive data sets and research results produced on the basis of national efforts as well as previous framework programmes, which have focussed on major environmental problems and have delivered models and data which can be used to define Theresholds and Points of No Return. The THRESHOLDS IP, will, therefore, build on the European Research Area concept and add value to the applications of results derived from nbational and FP 6-funde research.

DEPARTAMENT DE FÍSICA

Referència: RII3-CT-2004-506222.

Modalitat: Research infrastructures action.

Títol: *Integrated large infrasctructures for astroparticle science.*

Acrònim: ILIAS.

Centre: Departament de Física. Edifici Mateu Orfila i Rotger.

Investigadora responsable: SINTES OLIVES, Alícia Magdalena.

Categoría: TEU (àrea de coneixement: Física Teòrica).

Inici: 2005 **Fi:** 2008

Socis

Centre National de la Recherche Scientifique (França)

Istituto Nazionale di Fisica Nucleare (Itàlia)

Universitat de Zaragoza (Espanya)

University of Sheffield (Regne Unit)

Czech Technical University (Txèquia)

University of Southern Denmark (Dinamarca)

University of Jyväskylä (Finländia)

Max Planck Society for he Advancement of Science (Alemanya)

Technische Universität München (Alemanya)

Eberhard Karls Universität Tübingen (Alemanya)

Aristotle University of Thessaloniki (Grècia)

Istituto di Fotonica e Nanotecnologie (Itàlia)

European Gravitational Observatory (Itàlia)

Leiden University (Holanda)

Comenius University (Eslovàquia)

European Organization for Nuclear Research (Suïssa)

Bogazici University (Turquia)

University of Glasgow (Regne Unit)

University College London (Regne Unit)

Coordinador: European Gravitational Observatory (Itàlia)

Summary

ILLIAS is an integrated infrastructure initiative that has pulled together all of Europe's leading infrastructures in astroparticle Physics to produce a focused, coherent and integrated project to improve the existing infrastructures and their operation as well as to organise and structure the scientific community to prepare the best infrastructures for the future. ILIAS results from an extensive consultation of the community and an internal review process through the Astroparticle Physics European Co-ordination (ApPEC).

ILLIAS has 20 participants. In addition, there are numerous institutions that will contribute to the activities of ILIAS (but are not signatories to the contract). ILIAS will strengthen the new coordination by focusing on the following three scientific poles:

- Physics in deep underground laboratories.
- Gravitational wave detection.
- Theoretical astroparticle physics.

Referència: 2A701.

Modalitat: MEDEA.

Títol: *Parasitic extraction and optimization for efficient microelectronic system design and application.*

Acronim: PARACHUTE.

Centre: Departament de Física. Edifici Mateu Orfila i Rotger.

Investigador responsable: SEGURA FUSTER, Jaume A.

Categoría: CU (àrea de coneixement: Tecnologia Electrònica).

Inici: 2005 **Fi:** 2007

Socis

AIRBUS (França)
ALCATEL (Alemanya)
ATMEL, S. A. (França)
BOSCH (Alemanya)
EADS (França)
Infineon Technologies AG (Alemanya)
iRoC Technologies (França)
Magneti Marelli Sistemi Elettronici (Italia)
Philips (Holanda)
Conti TEMIC Microelectronic (Alemanya)
ZUKEN GmbH (Alemanya)
CEM2/Montpellier University II (França)
Universitat Carlos III (Espanya)
Centre de Recherches du Cyclotron (Bèlgica)
Universitat de les Illes Balears (Espanya)
University Joseph Fourier (França)
Fraunhofer Institute Reliability and Microintegration (Alemanya)

Summary

Present design solutions to handle natural and artificial disturbances in combination with Parasitic Effects focus on optimization of technology rather than analysis at various design levels such as cells, IP blocks, IC applications, IC package, high density system structures, (sub-)system or even product level. Furthermore, the existing design solutions have not yet been optimized, because of lacking an integral (top-down) overview and an integral analysis that is necessary to optimize the application when using nanometer technologies. Therefore the overall technical objective of this project is to initiate a paradigm change in the IC development and system application community in Europe regarding induced physical noise in nanometer circuits. The innovation proposed in this project is the development of new integral design approach and the necessary models, algorithms and tools that take into account all the level of IC, IC package, and HDP/HDI/PCB to allow optimizing of the application in the context of a parasitic environment, especially electromagnetic interferences and particle radiation. The new integral design approach leads to the necessary paradigm change (Top Down Approach by Design to Noise Margin and Model Based Development) introduced by the PARACHUTE consortia.

INSTITUT MEDITERRANI D'ESTUDIS AVANÇATS (IMEDEA)

Referència: GOCE-CT-2003-505446.

Modalitat: Network of excellence.

Títol: *Marine biodiversity and ecosystem functioning.*

Acrònim: MARBEF.

Centre: Institut Mediterrani d'Estudis Avançats (IMEDEA).

Investigador responsable: DUARTE QUESADA, Carlos.

Categoría: Professor d'investigació del CSIC.

Inici: 2004 **Fi:** 2009

Socis

The Natural History Museum (Regne Unit)

Plymouth Marine Laboratory (Regne Unit)

The University Court of the University of St Andrews (Regne Unit)

Stazione Zoologica Anton Dohrn (Itàlia)

Vlaams Instituut Voor de Zee (Bèlgica)

Ecological Consultancy Services, LTD (Irlanda)

Natural Environment Research Council (Regne Unit)

Senchenbergische Naturforschende Gesellschaft (Alemanya)

Max Planck Gesellschaft zur Foerderung der Wissenschaften E.V. (alemanya)

Universidade dos Acores (Portugal)

Instytut Oceanologii (Polònia)

Stiftung Alfred Wegener Institut fuer Polar und Meeresforschung (Alemanya)

Abo Akademi University (Finlàndia)

University of Southampton (Regne Unit)

Nacionalni Institut za Biologijo (Eslovènia)

Danmarks Fiskeriundersoegelser (Dinamarca)

Institut fuer Ostseeforschung Warnemuende (Alemanya)

Consell Superior d'Investigacions Científiques (Espanya)

Universiteit Gent (Bèlgica)

Consorcio Nazionale Interuniversitario per le Scienze del Mare (Italia)

Sir Alister Hardy Foundation for Ocean Science (Regne Unit)

National University of Ireland (Irlanda)

Institut fuer Meereskunde an der Universitaet (Alemanya)

Rijksuniversiteit Groningen (Holanda)

Consiglio Nazionale delle Ricerche (Itàlia)

University of Hull (Regne Unit)

Syddansk Universiteit (Dinamarca)

Akvaplan-Niva AS (Noruega)

Netherlands Institute for Fisheries Research (Holanda)

Centro Interdisciplinar de Investigação Marinha e Ambiental (Portugal)

Universitetet i Oslo (Noruega)

Klaipedos Universitetas (Lituània)

Institut Français de Recherche pour l'Exploitation de la Mer (França)

Universiteit van Amsterdam (Holanda)

The Center for Environment, Fisheries and Aquaculture Science (Regne Unit)
Uniwersytet Gdanski (Polònia)
Expert Center for Taxonomic Identification (Holanda)
Rijkinstituut voor Kust en Zee (Holanda)
Institute of Marine Biology of Crete (Grècia)
Marine Biological Association of the United Kingdom (Regne Unit)
Centre National de la Recherche Scientifique (França)
Nationale Natuurhistorisch Museum (Holanda)
Goteborg Universitet (Suècia)
Universiteit Maastricht (Holanda)
University of Wales (Regne Unit)
Wageningen Universiteit (Holanda)
Università degli Studi dei Pisa (Itàlia)
Stichting Nederlands Instituut loor Onderzoek der Zee (Holanda)
Havforskningsinstitutet (Noruega)
Coordinador: Netherlands Institute of Ecology (Holanda)

Summary

The creation of the network of excellence MARBEF (Marine Biodiversity and Ecosystem Functioning) aims at integrating research efforts by forming a dedicated group of marine scientists and institutes and creating a virtual European institute with a long-term research programme and dedicated links with industry and the public at large. This involves besides coordination of research the training, exchange and outreach activities in several relevant fields of science, including marine ecology and biogeochemistry, fisheries biology, taxonomy and socio-economic sciences. Better integration of research is also required to support the legal obligations of the EU and its member states and associated states for the Convention for Biological Diversity, the OSPAR and Barcelona conventions as well as several EU directives (Bird Directive, Habitat Directive, Water Framework Directive). The network will also improve links with the large and growing number of industries depending on the sustainable use and exploitation of marine biodiversity. This includes tourism, fisheries and aquaculture but also new industries that explore and commercialise marine genetic and chemical products.

Referència: SIP3-CT-2003-502885.

Títol: *Marine Environment and Security for the European Area.*

Acrònim: MERSEA.

Investigador responsable: ÁLVAREZ DÍAZ, Alberto.

Categoría: Investigador científico del CSIC.

Inici: 2004 **Fi:** 2008

Summary

MERSEA aims to develop a European system for operational monitoring and forecasting on global and regional scales of the ocean physics, biogeochemistry and ecosystems. The prediction time scales of interest extend from days to months. This integrated system will be the Ocean component of the future GMES system. At the core of the system is the collection, validation and assimilation of remote sensed and in situ data into ocean circulation models that allow for the self consistent merging of the data types, interpolation in time and space for uniform coverage, nowcasting (i.e. data synthesis in real-time), forecasting, and hindcasting, and delivery of information products.

The project will develop Marine Applications addressing the needs of both intermediate and end-users, whether institutional or from the private sector, with the objective to improve the safety and efficiency of maritime transport and naval operations ; to enable the sustainable exploitation and management of ocean resources (offshore oil and gas industry, fisheries); to more efficiently mitigate the effects of environmental hazards and pollution crisis (oil spills, harmful algal blooms) ; to improve contribution to ocean climate variability studies and seasonal climate prediction and its effects on coastal populations; to improve national security and reduce public health risks ; and to advance marine research with the aim to better understand the global climate, the ocean and its ecosystems.

The project will lead to a single high-resolution global ocean forecasting system shared by European partners together with a coordinated network of regional systems for European waters which will provide the platform required for coastal forecasting systems. During the project the main preoperational systems will be transitioned towards operational status and three of the centres will converge on a single ocean model framework suitable for both the deep ocean and shelf-seas.

Referència: STREP FP6-2003-Global-2.

Títol: *Life cycle transformations among HAB species, and the environmental and physiological factors that regulate them.*

Acrònim: SEED.

Investigador responsable: BASTERRECHEA OYARZÁBAL, Gotzon.

Inici: 2004 **Fi:** 2007

Summary

SEED aims to understand how and to what extent anthropogenic forces influence the non-vegetative stages of the life cycles of harmful algal species thereby contributing to the increase in harmful algal blooms in European marine, brackish and fresh waters systems. The overall objectives are to improve and extend our understanding of the transition between the different life history stages to identify the environmental and physiological factors that regulate those transitions, and hence the relative importance of anthropogenic versus natural causes, and to integrate the recent acquire knowledge in the development of new simulation model or refining existing ones. This will allow improved prediction, mitigation and management strategies. The approach of SEED is comparative, from species to ecosystem level. It is imperative to recognize common patterns of response among species to facilitate the development of conceptual and numerical models of HAB dynamics. SEED will focus on an array of target HAB species, ranging from marine to brackish to fresh water organisms, and covering a broad range of phylogenetic types. SEED research is multifaceted, as the problems in life history transitions are complex and processes occur over a wide range of scales. SEED will combine field studies and laboratory experiments. Field work is centered on areas where ongoing monitoring programs and much baseline information about distribution of species and physical-chemical data already exists. The innovation is to implement the most appropriate research strategies to be applied to the non-vegetative phases which determine the success of HABs and their expansion due to anthropogenic forcing. Moreover, a mitigation strategy, analogous to sterile insect releases that are an effective element of agricultural pest control on land will be investigated for the dormancy stages of HAS.

Referència: GOCE-CT-2004-505403. Network of Excellence.

Títol: *Implementation of high-throughput genomic approaches to investigate the functioning of marine ecosystems and the biology of marine organisms.*

Acrònim: MARINE GENOMICS.

Investigador responsable: ROSSELLÓ MORA, Ramon.

Categoría: Científic titular del CSIC.

Inici: 2004 **Fi:** 2008

Summary

Experts in genomics, proteomics and bioinformatics from several Centres of Excellence in genomics in Europe will be grouped and networked with marine biologists who can make use of high-throughput genomics data. The network aims among others at sharing existing technological platforms; enabling access to major genomic centres; establishing a common DNA Stock Centre and a common Bioinformatics Centre. Marine Genomics will also develop complementary dissemination strategies, targeting public, private and institutional communities with the purpose of enhancing the integration of marine biologists in the ERA.

Referència: 022745 (SSP8).

Títol: *Probabilistic assessment, management and advice model for fishery management in the case of poor data availability.*

Acrònim: POORFISH.

Investigadora responsable: MORALES NIN, Beatriu.

Categoría: Científica titular del CSIC.

Inici: 2005 **Fi:** 2008

Socis

The Secretary of State for Environment, Food and Rural Affairs (Regne Unit)

Institute de Recherche pour le Developpement (França)

Helsingin Yliopisto (Finlàndia)

Suomen Ymparistokeskus (Finlàndia)

Coordinador: Univesity of Portsmouth (Regne Unit)

Referència: LIFE03 NAT/E/000061. Programa LIFE.

Títol: *Modelo demográfico de la metapoblación de gaviota de Audouin: factores locales y repercusión de las actuaciones de conservación. Influencia de las actividades pesqueras en la dinámica de poblaciones locales y en los procesos de emigración-inmigración.*

Acrònim: AUDOMUR.

Investigador responsable: ORO DE RIVAS, Daniel.

Categoría: Científic titular del CSIC.

Inici: 2004 **Fi:** 2007

Referència: 2004-04-4.3-f-099

Títol: *Développement d'un réseau interrégional du surveillance de la qualité des eaux côtières par des bio-intégrateurs pour la protection durable de la Méditerranée Occidentale.*

Acrònim: MYTILOS.

Investigador responsable: DEUDERO COMPANY, Salud.

Categoría: Contr. dr. (àrea de coneixement: Zoologia)

Inici: 2004 **Fi:** 2007

Socis

Toulon Var Technologies –TVT- (França)

Institut Français de Recherche pour l'Exploitation de la Mer (França)

Instituto Español de Oceanografía (IEO) (Espanya)

Instituto Centrale per la Ricerca Scientifica e Tecnologica Applicata al Mare (Itàlia)

Parco Scientifico e Tecnologico della Sicilia S.c.p.a. (Itàlia)

Instituto Mediterraneo de Estudios Avanzados –IMEDEA- (Espanya)

Institut d'Investigacions Químiques i Ambientals de Barcelona (Espanya)

Institut National des Sciences et Technologies de la Mer (França)

INSTITUT DE FÍSICA INTERDISCIPLINÀRIA DE SISTEMES COMPLEXOS (IFISC)

Referència: FP6-2005-NEST-Path-043251

Títol: *Ecological Diversity and Evolutionary Networks.*

Acrònim: EDEN.

Investigador responsable: HERNÁNDEZ GARCÍA, Emilio.

Categoría: TU (àrea de coneixement: Física de la Matèria Condensada)

Inici: 2007 **Fi:** 2009

Socis

Centro do Ciencias do Mar (Portugal)

Leipzig University (Alemanya)

Helsinki University of Technology (Finlàndia)

Summary

Biological systems and their highly organized constituents are paradigms of Complexity. The study of Complex Networks, representing interactions among components, has become central in the science of Complex Systems. The EDEN proposal aims at considering in depth the representation of ecological and evolutionary relationships among biological entities – organisms, populations, taxa– in terms of networks by developing methods to construct them from genetic data and by expanding the toolbox for their analysis.

Evolutionary relationships between species are usually represented in phylogenies, i.e. evolutionary trees. Intraspecific gene genealogies and population structure are also conventionally represented as tree-like objects. However, processes such as sexual reproduction or lateral gene transfer introduce cycles and need richer structures –networks– to be properly represented. EDEN will develop tools to build networks of ecological and of evolutionary relationships from genetic data, and study them with the modern methods of network theory. More specifically, EDEN will focus on:

- Networks of genetic diversity, constructed from genetic data of a large sample of marine plants in coastal ecosystems. Innovative network methods will be developed to address questions on population structure, gene flow, evolution, biogeography and conservation of these threatened ecosystems.
- The tools of reticulate evolution, and novel approaches based on network theory will be used to build and analyze phylogenies with rich structure beyond trees. The aim is to gain biological insight on the evolution of life, from specific lineages to the entire spectrum of life forms, by evolving from the present concept of a ‘Tree of Life’ to a more flexible concept of ‘Network of Trees’.

The synergy between extensive data collection and analysis together with individual-based modelling (including genetic, ecological, and spatial factors) will be pursued in all these focus cases.

Referència: FP6-2005-NEST-Path-043268

Títol: *Pattern Resilience.*

Acrònim: PATRES.

Investigador responsable: SAN MIGUEL RUIBAL, Maximino.

Categoría: CU (àrea de coneixement: Física de la Matèria Condensada)

Inici: 2007 **Fi:** 2009

Socis

Cemagref. Laboratoire d'Ingénierie des Systèmes Complexes (França)

University of Surrey (Regne Unit)

Helmholtz Centre for Environmental Research (Alemanya)

Centre National de la Recherche Scientifique (França)

Referència: FP6-2005-NEST-Path-043309

Títol: *Global Approach to Brain Activity: From Cognition to Disease.*

Acrònim: GABA.

Investigador responsable: MIRASSO SANTOS, Claudio.

Categoría: TU (àrea de coneixement: Física de la Matèria Condensada)

Inici: 2007 **Fi:** 2009

Summary

Synchronization is a ubiquitous phenomenon in Nature, and has been identified as one of the main features of complex biological systems. Its study has originated new fundamental insights and analysis tools in both local and global dynamical models stemming from divergent disciplines. Neuronal synchronization, at a wide range of spatial scales, is considered a major orchestrator of brain integration processes. GABA aims to determine the functional role of normal and aberrant synchronization mechanisms in the emergence of higher cerebral functions in health and disease, by using tools borrowed from nonlinear dynamics and complexity theory. To that end, it is necessary to understand how local and long-range interactions scale up to a global activity in the brain.

To accomplish this goal, we recollect and analyze collective brain responses (multichannel-EEG, intracranial EEG, magnetoencephalographic recordings and local field potentials) and single-neuron activity under different normal and abnormal physiological conditions: from cognitive performance (sensory processing, attention, and memory in humans and non-human primates) to pathological mechanisms underlying Alzheimer's disease and epilepsy. We apply linear and nonlinear methods, as well as tools from stochastic analysis and from the theories of complex networks and delayed dynamical systems. Such approaches have proven in the past to be very useful in the characterization of complex systems in generic models, and are here applied to obtain a better understanding of how higher cerebral functions arise in the normal brain. Results from this approach are expected to contribute to the early diagnosis of Alzheimer's disease and to the anticipation of epileptic seizures. Additionally, insights arising within GABA are also expected to revert into new paradigms and an increased knowledge of the collective dynamics of other complex networks, in fields such as sociology and engineering.

Referència: MSCF-CT-2004-013119.

Modalitat: Marie Curie conferences and training courses.

Títol: *Interactive training and research in nonlinear science from physics to biology.*

Acrònim: PHYSBIO.

Centre: Departament de Física. Edifici Mateu Orfila i Rotger.

Investigador responsable: TORAL GARCÉS, Raúl.

Categoría: CU (àrea de coneixement: Física de la Matèria Condensada).

Inici: 2005 **Fi:** 2008

Socis

Centre National de la Recherche Scientifique (França)

Universität Bayreuth (Alemanya)

Coordinador: Research Institute for Solid State Physics and Optics (Hongria)

Summary

A new shift in the understanding of stochastic processes has emerged in the last decades. Since they were first analyzed about one hundred years ago (the pioneering works of Einstein, Langevin, Perrin, Smoluchovsky, etc.), the noise terms in physical, chemical, engineering and biological systems had commonly been considered to be a nuisance, something to be avoided or, in those cases where the noise is intrinsic to the system, to be minimize as much as possible. This point of view has changed recently with the discovery that in nonlinear systems noise can actually have a constructive effect that induces new ordering phenomena. This change was originated in the already classic works on stochastic resonance, originally aiming to explain the observed periodicity of the Earth's ice ages as a subtle entanglement between a nonlinear climatic model, the periodic changes in solar radiation due to the variations in the ellipticity of the earth's orbit, and noise in the form of random variations of the total solar emission. This work instantly opened a door. Many other constructive effects have since been found, such as noise -induced transitions and noise -induced phase transitions, noise -induced transport (Brownian motors, ratchets, etc), noise -sustained patterns, synchronization induced by noise, etc. In all the examples, the nonlinearities play an essential role.

Many applications of those phenomena have been found in different fields, mainly of physical and biological interest.

Stochastic processes are usually not covered, or only very superficially, in the academic programs and therefore there is need to start at a low level in the training. The proposed course will address a wide audience, including, physicists, chemists, biologists, mathematicians, electrical engineers, etc.

Since one of the major tools in this field is that of numerical simulations, special attention will be devoted to the application of numerical algorithms for stochastic processes.

Referència: 034743.

Modalitat: Information society technologies.

Títol: *Integrated optical logic and memory using ultrafast micro-ring bistable semiconductor lasers.*

Acrònim: IOLOS.

Centre: Departament de Física. Edifici Mateu Orfila i Rotger.

Investigador responsable: SCIRÉ, Alessandro.

Categoría: Investigador contractat.

Inici: 2006 **Fi:** 2009

Socis

University of Glasgow (Escòcia)

Universita degli Studi di Pavia (Itàlia)

Vrije Universiteit Brussel (Bèlgica)

Intense Limited (Regne Unit)

Siemens, S.A. (Portugal)

Coordinador: University of Bristol (Regne Unit)

Summary

The research proposed by IOLOS aims to develop a new and universal building block, thereby creating the necessary integration technologies for future all-optical digital and logic functional sub-systems. The key approach is the exploitation of the strong and robust directional optical bi-stability in semiconductor ring lasers (SRLs) as the fundamental mechanism for all-optical digital building blocks - from which digital functions of all types can be synthesised. The central concept is that the switching between two digital logic states within an SRL device (the two possible directions of operation) can be triggered by an external optical signal - and can occur at ultra-high speeds, being limited solely by the round-trip time of the optical laser cavity. The innovation lies in the development of proven technologies that enable the progressive down-scaling of the dimensions of micro-SRLs to less than 20 microns, thus allowing optically induced switching times of < 10 ps.

IOLOS will develop theoretical understanding and numerical models for the design and optimisation of the directional bistability and switching speed of micro-SRLs. IOLOS will study the ultimate limits of device down scaling, thus predicting future technological development capability. IOLOS will further develop technologies to monolithically integrate the SRL bistable devices into functional all-optical digital and logic chips that incorporate optical access couplers, passive waveguides, and all-optical gates. These chips will be used to realise and demonstrate all-optical set/reset flip-flop function, all-optical threshold devices for all-optical data regeneration and retiming, and optical memory units with all-optical write, read, and reset control functions.

Referència: FP6/2005/IST/5.

Modalitat: Information society technologies.

Títol: *Photonic integrated components applied to secure chaoS encoded optical communications systems.*

Acrònim: PICASSO.

Centre: Departament de Física. Edifici Mateu Orfila i Rotger.

Investigador responsable: MIRASSO SANTOS, Claudio Rubén.

Categoría: TU (àrea de coneixement: Física de la Matèria Condensada).

Inici: 2006 **Fi:** 2009

Socis

Fraunhofer Gesellschaft zur Foerderung der Angewandten Forschun E.V. (Alemanya)

University of Wales, Bangor (Gales)

Universite de Franche-Comte (França)

Eblana Photonics Limited (Irlanda)

Phoenix Photonics Limited (Regne Unit)

Attica Telecommunications, S.A. (Grècia)

Universita degli Studi di Pavia (Itàlia)

Coordinador: National and Kapodistrian University of Athens (Grècia)

Referència: LSHB-CT-2004-005137.

Modalitat: Network of excellence.

Títol: *Biosimulation. A new tool in drug development.*

Acrònim: BioSim.

Centre: Institut Mediterrani d'Estudis Avançats (IMEDEA).

Investigador responsable: TORAL GARCÉS, Raúl.

Categoría: CU (àrea de coneixement: Física de la Matèria Condensada).

Inici: 2004 **Fi:** 2009

Socis

VrijeUniversiteit Amsterdam/Faculteit Aard en Levenswetenschappen (Holanda)

The Chancellor, Master and Scholars of the University of Oxford (Regne Unit)

Phillips-Universitaet Marburg (Alemany)

University of Manchester (Regne Unit)

Universitaet Postdam (Alemany)

Forshungszentrum Juelich GmbH (Alemany)

Lund University (Suècia)

Linkoeping University (Suècia)

Université Libre de Bruxelles (Bèlgica)

Universitat de València (Espanya)

University of Copenhaguen (Dinamarca)

University of Warwick (Regne Unit)

University of Sheffield (Regne Unit)

Danish University of Pharmaceutical Sciences (Dinamarca)

Technische Universitatet of Dresden (Alemany)

Institute of Experimental Pharmacology (Eslovàquia)

Institut of Enzymology (Hongria)

Charite Universitätsmedizin Berlin (Alemany)

University of Bordeaux 2 (França)

University of Leeds (Regne Unit)

Institut National de la Sante et de la Recherche Medicale (França)

EML Research gGmbH (Alemany)

Simcyp Limited (Regne Unit)

InNetics AB (Suècia)

MXM Laboratories, SA (França)

InterActive Systems GmbH (Alemany)

Fraunhofer-Chalmers Research Centre for Industrial Mathematics (Suècia)

SOLVO Biotechnology Inc. (Hongria)

Zealand Pharma A/S (Dinamarca)

Novo Nordisk A/S (Dinamarca)

Danish Medicines Agency (Dinamarca)

Agencia Española de Medicamentos y Productos Sanitarios (Espanya)

Medicines Evaluation Board (Holanda)

Medical Products Agency (Suècia)

Lasdale Limited (Regne Unit)

Coordinador: Technical University of Denmark (Dinamarca)

Summary

The BIOSIM network focuses on the structuring of efforts devoted to the development of simulation models for the design, selection and testing of drugs. In silico simulation models using pharmacokinetic, function mechanism and side-effect describing parameters and interaction profiles should be developed for biological systems (cells and tissues) enabling to predict the efficacy of drugs. The integration of regulatory and industrial aspects is particularly important to the success of research under this line. International competition in the pharmaceutical industry is increasingly becoming a competition with respect to the ability to understand complex biological processes and exploit the rapidly growing amount of biological information. The methods that are currently applied in the development of new medicines suffer from the lack of effective means to evaluate, combine, and accumulate biological knowledge. Essential improvements must involve the use of computational models that can provide a dynamic and more quantitative description of the relevant biological, pathological, and pharmacokinetic processes.

The BIOSIM Network of Excellence aims to restructure and strengthen the area of biosimulation by focusing on the development of professional, physiologically-based models that can help the pharmaceutical industry develop safe and effective drugs at significantly lower costs. The modelling approach is strongly recommended by the American Food and Drug Administration that already uses mathematical models in its evaluation of applications for drug approval. Academic institutions in Europe have significant expertise in biological modelling, and several groups are individually at the research front in their specific areas. At the present, however, the research is strongly fragmented, and the industry itself has relatively few qualified experts in the field. The Network will provide a new forum for collaboration across disciplinary boundaries as well as between industry, regulatory authorities, and academia. The BioSim Network involves 26 academic organisations, 9 small and medium-sized enterprises, 1 large pharmaceutical company, and the Danish, Spanish, Dutch, and Swedish regulatory agencies. The Network collaborates with the European Federation for Pharmaceutical Sciences (EUFEPS).

Referència: 015539.

Modalitat: Integrating and strengtherning the European Researcch Area.

Títol: *Open network for connecting excellence in complex systems.*

Acrònim: ONCE-CS.

Centre: Departament de Física. Edifici Mateu Orfila i Rotger.

Investigador responsable: SAN MIGUEL RUIBAL, Maximino.

Categoría: CU (àrea de coneixement: Física de la Matèria Condensada).

Inici: 2005 **Fi:** 2008

Socis

Centre National de la Recherche Scientifique (França)

Ecole Normale Supérieure de Lyon (França)

University of Oxford (Regne Unit)

Fondazione Istituto per l'Intercambio Scientifico (Itàlia)

International University Bremen (Alemanya)

University of Surrey (Regne Unit)

Institut National de Recherche en Informatique et en Automatique (França)

Collegium Budapest (Hongria)

Politechnika Warszawska (Polònia)

Koebenhavns Universitet (Dinamarca)

Universidad de Chile (Xile)

Genopole Evry (França)

Max-Planck Gesellschaft zur Foerderung der Wissenschaften (Alemanya)

Santa Fe Institute (EUA)

Universitaet Wien (Àustria)

Vrije Universiteit Brussel (Bèlgica)

The London School of Economics and Political Science (Regne Unit)

Budapesti Muszaki es Gazdasagtudomany Egyetem (Hongria)

Institut za Matematiko, Fiziko in Mehaniko (Eslovènia)

Protolife S.R.L. (Itàlia)

Ecole Polytechnique Federale de Laussane (Suïssa)

Hadassah Medical Organization (Israel)

Coordinador: The Open University (Regne Unit)

Summary

ONCE-CS will strengthen the network of the Complex Systems community in Europe by coordinating the currently fragmented organisation of meetings, workshops, and conferences. It will connect the different parts of the community reducing the possibility of clashing events as currently happens. It will organise Thematic Institutes, Thematic Schools, and Thematic Workshops where these are needed to coordinate the academic community, and connect it better to industry and government. It will pay special attention to integrating the new and applicant states. It will actively link the European CS community to the rest of the world. ONCE-CS has strong mission in coordinating education in the CS community. It will do this by combining existing open-source methods for individual scientists to create interdisciplinary courses, using a well managed and well indexed database open sources resources such as images, videoclips, text, presentations, software, data and so on. It will use the well-supported open source authoring and content management software. ONCE-CS will coordinate scientific research in the community by

providing open source simulation software and open source data sets provided by the CS community, allowing replication of innovative experiments, rapid research progress arising from them, and rapid dissemination. The ONCE-CS project centres on the web-based Portal which will use robust professionally-managed industrial hardware-software infrastructure to provide all the above services to the community. The content of the interactive portal will be community driven. The success of ONCE-CS can be measured objectively by network measures including the number of new nodes and links added, vertically in terms of countries, institutions, individuals, and horizontally in terms of the academic, industry and government networks.

CENTRE DE RECERCA ECONÒMICA

Referència: 036961-2

Modalitat: VIPM-VI Programa Marc de la Unió Europea.

Títol: *Climate Change and Impact Research: the Mediterranean Environment.*

Acrònim: CIRCE.

Investigador responsable: ROSSELLÓ NADAL, Jaume.

Categoría: TU (àrea de coneixement: Economia Aplicada)

Inici: 2007 **Fi:** 2011

Summary

CIRCE aims at developing for the first time an assessment of the climate change impacts in the Mediterranean area. The objectives of the project are: (i) To predict and to quantify physical impacts of climate change in the Mediterranean area; (ii) To evaluate the consequences of climate change for the society and the economy of the populations located in this area; (iii) To develop an integrated approach to understand combined effects of climate change, and (iv) To identify adaptation and mitigation strategies in collaboration with regional stakeholders.

CIRCE wants to understand and to explain how climate will change in the Mediterranean area. The project will investigate how global and Mediterranean climates interact, how the radiative properties of the atmosphere and the radiative fluxes vary, the interaction between cloudiness and aerosol, the modifications in the water cycle. Recent observed modifications in the climate variables and detected trends will be compared.

The economic and social consequences of climate change shall be evaluated by analysing direct impacts on migration, tourism and energy markets together with indirect impacts on the economic system. CIRCE will moreover investigate the consequences on agriculture, forests and ecosystems, human health and air quality. The variability of extreme events in the future scenario and their impacts will be assessed.

A rigorous common framework, including a set of quantitative indicators developed specifically for the Mediterranean environment will be developed and used in collaboration with regional stakeholders. The results will be incorporated in a decision support system tool and disseminated to the relevant users. Possible adaptation and mitigation strategies will be identified.

**PROJECTES FINANÇATS PER EL GOVERN ESPANYOL
I PER EL GOVERN DE LES ILLES BALEARS**

DEPARTAMENT DE BIOLOGIA

Referència: SAF2004-05249. Ministeri d'Educació i Ciència.

Modalitat: Programa nacional de biomedicina.

Título: Bases moleculares del efecto hipotensor del ácido hidroxioleico.

Acrònim: BMEHAB.

Centre: Institut Universitari d'Investigacions en Ciències de la Salut (IUNICS).

Investigador responsable: ESCRIBÁ RUIZ, Pablo Vicente.

Categoría: TU (àrea de coneixement: Biologia Cel·lular).

Inici: 2004 Fim: 2007

<u>Membres de l'equip</u>	<u>Categoría</u>	<u>Dedicació (EDP)</u>
Escribá Ruiz, Pablo Vicente	TU	0.5
Barceló Mairata, Francisca	TU	0.5
López Bellan, Alicia	Tèc.	1
Barturen Fernández, Fernando		0.5
Serra Trespallé, Juan Enrique		1
Egea Merlos, Carolina	B	0.5

Investigadors d'altres entitats

Bachiler, Daniel UCLA School of Medicine

EDP del grup investigador de l'entitat sol·licitant: 3.5.

Summary

The project would continue project SAF2001-0839, entitled "Pharmacological modulation of blood pressure through lipids that alter the structure of membranes". As a result of such project, we designed and patented a molecule, 2-hydroxyoleic acid (2OHOA), which has a marked hypotensive activity, lacks of side-effects and has an oral administration. In this project we propose the study of the molecular bases of the pharmacological effects mediated by this compound, which can be a valuable tool in the treatment of cardiovascular pathologies. The present study will be carried out at five levels. (1) Study of the modulation of the membrane lipid structure by 2OHOA. (2) Research on the effect of such modulation on the plasma membrane-protein interactions of signaling proteins involved in the control of blood pressure. (3) Study of the regulation of membrane lipid levels after 2OHOA treatments. (4) Regulation of the expression of signaling proteins (G protein-coupled receptor pathways) involved in blood pressure regulation. (5) Generation of an animal model (knockout for PKC α) and investigation of the signaling mechanisms modulated by 2OHOA to exert its action. For these reasons, the present project has a great interest in basic science. Being cardiovascular pathologies the main cause of death in our country, the clinical implication of this project result of special relevance.

Referència: SAF2004-03685. Ministeri d'Educació i Ciència.

Modalitat: Programa nacional de biomedicina.

Títol: *La vía de señalización del receptor FAS/FADD en la adicción a opiáceos.*

Centre: Departament de Biologia. Edifici Guillem Colom Casasnovas.

Investigador responsable: GARCÍA SEVILLA, Jesús A.

Categoría: CU (àrea de coneixement: Farmacologia).

Inici: 2004 **Fi:** 2007

Membres de l'equip	Categoría	Dedicació (EDP)
García Sevilla, Jesús A.	CU	1
Miralles Socias, Antoni	TU	1
Moranta Mesquida, David	B	1
García Fuster, Maria J.	B	1

Investigadors d'altres entitats

Saus Sarrias, Carles	IB-SALUT
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EDP del grup investigador de l'entitat sol·licitant: 4.

Summary

The aim of this project is to investigate the interactions between opioid receptors and the signaling pathway of the Fas/FADD (Fas Associated-Death Domain) receptor, involved in the regulation of apoptosis and neuronal plasticity. Previously, it has been shown that opiate addiction (tolerance and dependence) is associated with increases of native and glycosylated Fas in rat brain. This project postulates that opiate drugs and opiate addiction modulate key elements of the Fas receptor pathway (Fas aggregates, adaptor FADD and caspases 8 and 3) and/or other apoptotic proteins of the mitochondrial pathway (cytchrome C, Bax, Bid) in brain, and that the interactions between opioid receptors and Fas might be mediated directly (protein contacts between Gi/FADD) or indirectly through other intracellular signaling proteins (p35/cdk-5, ERK1/2). The main aims are: 1) to quantitate the acute and chronic effects of opiate drugs (agonists and antagonists of μ -, δ -, κ -opioid receptors) on the signaling pathway of Fas; 2) to identify the opioid receptor type (animals genetically deficient in opioid receptors) that modulates the effector complex Fas/FADD; 3) to localize the groups of neurones that co-express both Fas and opioid receptors; and 4) to investigate in vivo and in vitro some mechanisms related to opioid receptors/Fas and ERK-cdk5/Fas interactions.

Referència: CGL2004-00838/BOS. Ministeri d'Educació i Ciència.

Modalitat: Programa nacional de biodiversitat, ciències de la terra i canvi global.

Títol: *Análisis de secuencias multilocus en estudios de taxonomía, filogenia y evolución de pseudomonas.*

Acrònim: PseudoMLSA.

Centre: Departament de Biologia. Edifici Guillem Colom Casasnovas.

Investigadora responsable: GARCÍA-VALDÉS PUUKITS, Elena.

Categoría: TU (àrea de coneixement: Microbiologia).

Inici: 2004 **Fi:** 2007

Membres de l'equip	Categoría	Dedicació (EDP)
García-Valdés Pukkits, Elena	TU	1
Lalucat Jo, Jordi	CU	0.5
Bennàsar Figueras, Antoni	Contr. dr.	0.5
Cladera Cerdà, Aina	B	1
Ramon Manera, Cristina	Tèc.	1
Rúa Amo, Beatriz	Tèc.	0.5

EDP del grup investigador de l'entitat sol·licitant: 4.5.

Summary

The genus *Pseudomonas* includes many species of environmental, clinical, agricultural and biotechnological interests. It is well defined phenotypically and genotypically. However, numerous new species are being described continuously within the genus. The accepted method for discriminating bacterial species is the DNA-DNA hybridization, but this method has limitations (time consuming, needs experience to be done, does not define distances between species, is not accumulative). In this project, we propose the development of a new, accumulative and reliable method for the species definition in the genus *Pseudomonas* based on the MLST (Multilocus Sequence Typing) method. Main objectives of the project are:

1. Maintenance of a well described *Pseudomonas* strains collection.
2. Construction of a sequence-based database of selected genes of members of the genus.
3. Implementation of analytical bioinformatic tools for the multi-sequence-based identification of *Pseudomonas* species.

Referència: AGL2005-06927-C02-01/AGR. Ministeri d'Educació i Ciència.

Modalitat: Programa nacional de recursos i tecnologies agroalimentàries.

Títol: *Optimización del uso del agua en la vid: regulación y control fisiológico y agronómico y efectos en la calidad del fruto.*

Acrònim: AGUAVID.

Centre: Departament de Biologia. Edifici Guillem Colom Casasnovas.

Investigador responsable: MEDRANO GIL, Hipólito.

Categoría: CU (àrea de coneixement: Fisiologia Vegetal).

Inici: 2005 **Fi:** 2008

Membres de l'equip	Categoría	Dedicació (EDP)
Medrano Gil, Hipólito	CU	1
Bota Salort, Josefina	Col.	0.5
Gulias León, Javier	Aj.	1
Cifre Llompart, Josep	Col.	0.5
Sánchez Forss, Antonio L.	Tèc.	0.5
Vadell Adrover, Jaume	TEU	0.5

Investigadors d'altres entitats		
García Escudero, Enrique	Govern de La Rioja	
Ibáñez Pascual, Sergio	Govern de La Rioja	
Schubert, Andrea	Università degli Studi di Torino	

EDP del grup investigador de l'entitat sol·licitant: 4.

Referència: CTM2005-01783/MAR. Ministeri d'Educació i Ciència.

Modalitat: Programa nacional de ciències i tecnologies mediambientals.

Títol: *Respuesta de comunidades microbianas marinas a contaminación por hidrocarburos: diversificación, funcionalidad y mecanismos genéticos de adaptación.*

Centre: Departament de Biologia. Edifici Guillem Colom Casasnovas.

Investigadora responsable: NOGALES FERNÁNDEZ, Balbina.

Categoría: INVESTIGADORA CONTRACTADA.

Inici: 2005 **Fi:** 2008

Membres de l'equip	Categoría	Dedicació (EDP)
Nogales Fernández, Balbina	Inv.	1
Bosch Zaragoza, Rafael	TEU	1
Martín Cardona, Celia	B	1
Lanfranconi, Mariana Patricia	B	1
Christie Oleza, Joseph Alexander	B	1

EDP del grup investigador de l'entitat sol·licitant: 5.

Summary

Hydrocarbon pollution is very frequent in the marine environment and it is especially important in coastal areas, which have great economical and recreational relevance. The conservation of the integrity of the ecosystem is paramount for a sustainable development of the coastal environment. Therefore, a good knowledge on the impact that hydrocarbon pollution has in the coastal ecosystem is necessary.

Despite the fact that microorganisms are the main players in hydrocarbon degradation in marine environments, information on the microbial communities in hydrocarbon polluted environments, their functionality and adaptation mechanisms is scarce. This project proposes a study of microbial communities of coastal environments, in order to elucidate the impact of hydrocarbon pollution on them. The analysis will be based in the use of molecular biology techniques, the analysis of environmental samples, experiments in microcosms subjected to different treatments, and with the isolation of bacteria from the environments studied. Firstly, the structure and composition of the microbial communities in the presence and absence of hydrocarbons will be compared and changes in response to pollution will be analysed. Special attention will be dedicated to the study of two important marine bacterial groups, SAR11 and *Roseobacter* groups. Secondly, the changes in community global gene expression will be analysed, as well as the expression of selected functional genes, important for the functionality of the community (photosynthesis, carbon fixation, processes in the nitrogen cycle, hydrocarbon degradation genes). Following these two approaches, the response of the communities by proliferation and/or disappearance of certain microorganisms will be determined, but also information about the functional response of the community to the presence of pollutants will be obtained by following changes in gene expression. Finally, mechanisms for the genetic adaptation of bacterial populations within the community to the stress caused by hydrocarbon pollution will be studied. In particular, the role of insertion sequences and hypermutation in the adaptation to the presence of hydrocarbons in the environment will be analysed.

Referència: BFU2005-03102/BFI. Ministeri d'Educació i Ciència.

Modalitat: Programa nacional de biologia fonamental.

Títol: *Efecto de la sequía sobre la fotosíntesis y la respiración: aclimatación y recuperación.*

Acrònim: FORESAR.

Centre: Departament de Biologia. Edifici Guillem Colom Casasnovas.

Investigador responsable: FLEXAS SANS, Jaume.

Categoría: TEU (àrea de coneixement: Fisiologia Vegetal).

Inici: 2005 **Fi:** 2008

Membres de l'equip	Categoría	Dedicació (EDP)
Flexas Sans, Jaume	TEU	1
Ribas Carbó, Miquel	Inv.	1
Galmés Galmés, Jeroni	Aj.	1
Pons Ros, Rosa	As.	0.5

Investigadors d'altres entitats

Lambers, Johannes Thieo University of Western Australia

EDP del grup investigador de l'entitat sol·licitant: 3.5.

Summary

The study the combined responses of photosynthesis and respiration to water stress is of significant importance to understand the underlying physiological mechanisms that permit plants to survive under arid and semi-arid conditions, with an important effect on agricultural production and water economy. In the previous project the physiological basis of these processes were determined as a function of the intensity of the stress and its timing. However, it is important not only to know the response of these processes during the imposition of the stress but also its acclimation and its recovery capacity. The present proposal intends to study these aspects rather unknown regardless of its unmistakable relevance.

The core of this proposal is the hypothesis that foresees that the intensity of the stress would affect the recovery of both the photosynthetic and the respiratory metabolism after the stress. It also predicts that the physiological response to both the stress imposition and its recovery will depend on previous acclimation to the stress. Furthermore, the hypothesis suggests that photosynthesis and respiration interact closely during the stress, its acclimation and its recovery, and particularly, the hypothesis gives an important role to the cyanide-resistant alternative respiration during the recovery period. These interactions between intensity, acclimation and recovery and between photosynthesis and respiration should have a clear sign with the specific patterns of gene expression. The specific objectives of this proposal are the following:

1. To confirm that CO₂ availability at the chloroplast level is the main limiting factor of photosynthesis under water stress conditions and during plant recovery.
2. To elucidate how the intensity of water stress affects the velocity and the degree of the photosynthetic recovery after re-hydration, as well to find out which physiological mechanisms are the most limiting for each recovery case.

3. To discover the main physiological adjustments contributing to the acclimation of photosynthesis and respiration to water stress.
4. To study the regulation of respiration in different tissues under simulated and its relation with photosynthesis and the total plant carbon balance.
5. To analyse the possible role of the cyanide-resistant respiration on the recovery of photosynthesis after severe water stress.
6. To relate gene expression with the physiological response to different water stress scenarios.

Referència: AGL2005-06150/GAN. Ministeri d'Educació i Ciència.

Modalitat: Programa nacional de recursos i tecnologies agroalimentàries.

Títol: *Desarrollo de estrategias de control de las poblaciones de culicoides (Diptera; Ceratopogonidae), vectores del virus de la lengua azul.*

Centre: Departament de Biologia. Edifici Guillem Colom Casasnovas.

Investigador responsable: MIRANDA CHUECA, Miguel Ángel.

Categoría: TEU (àrea de coneixement: Zoologia).

Inici: 2005 **Fi:** 2008

Membres de l'equip	Categoría	Dedicació (EDP)
Miranda Chueca, Miguel Ángel	TEU	1
Rincón Otero, Cristina	As.	1
Investigadors d'altres entitats		
Borràs Borràs, David	Institut de Biologia Animal	

EDP del grup investigador de l'entitat sol·licitant: 2.

Summary

The Blue Tongue (BT) is a disease of ruminants with a wide distribution in the Mediterranean Basin. BT is included in the List A from the OIE that includes obligatory declaration diseases that have important impact on the economy of farmers and affects very seriously the trade of animals in the areas where it is present.

In recent years the BT has been detected in our country. Firstly, during 2000 and 2003 in the Balearic Islands, and secondly, during autumn 2004 in the South of Spain, in particular in Andalucia and Extremadura regions. In all these episodes, the main hypothesis that explains the incursion of BT virus (BTV) in Spain is based on the fact that the BTV could be introduced by vector insects that are transported by air streams from the neighboring areas that are already infected with the BTV. Within these areas we should include Corsica, Sardinia and Sicily in the case of the introduction in the Balearics, and Morocco in the case of the Peninsula.

The vectors are the only way for transmitting the virus among animals, thus, they have an enormous importance in epidemiology issues and for this reason, the main objectives from this proposal have been focused on the following points:

- 1.- To study the biology of the vectors as a basic background knowledge for controlling their populations. This objective is specially focused on the larvae and pupae environmental breeding sites.
- 2.- To evaluate the activity periods of *Culicoides* adults in relationship with their haematofagous feeding behavior, in order to develop efficacious strategies for controlling them.
- 3.- To evaluate which strategies related with farming managing could decrease *Culicoides* populations, specially those related with managing of possible breeding sites.
- 4.- To evaluate the efficacy of insecticides and repellents as a method for the reduction of bite rate and then causing a decrease of the virus transmission.

Referència: SAF2005-01466. Ministeri d'Educació i Ciència.

Modalitat: Programa nacional de biomedicina.

Títol: Caracterización molecular de nuevos mecanismos de resistencia a los antimicrobianos.

Centre: Departament de Biologia. Edifici Guillem Colom Casasnovas.

Investigador responsable: ALBERTÍ SERRANO, Sebastià.

Categoría: TEU (àrea de coneixement: Microbiologia).

Inici: 2005 **Fi:** 2008

Membres de l'equip	Categoría	Dedicació (EDP)
Albertí Serrano, Sebastià	TEU	1
Hernández Allés, Santiago	Tèc.	1
Franco Capó, Marta	B	1
Investigadors d'altres entitats		
Doménech Sánchez, Antonio	Saniconsult Mallorca	

EDP del grup investigador de l'entitat sol·licitant: 3.

Summary

Bacterial resistance to antimicrobial agents represents a worldwide problem that is very frequent in our country and results in an increase of the morbility and mortality of the infectious diseases.

Among the general mechanisms exhibit by the microorganisms to resist the antimicrobial agents: inactivating enzymes, target modifications and reduction of intracellular antimicrobial agent concentration, it is probably the last mechanism the most common among different bacterial species. In addition, the combination of this mechanism with one of the other mechanisms results in a very efficient reduction of the antimicrobial drug effects.

Using as model *K. pneumoniae*, we have described two mechanisms that allows to the pathogen to reduce the intracellular antimicrobial drug concentration: reduction of porin expression and expression of efflux pumps. However, the molecular mechanisms that reduce porin expression and the factors involved in this reduction as well as the efflux pumps systems of this microorganism are poorly studied. The goal of this project is to characterize both mechanisms using molecular biology techniques in order to design better treatments to avoid antimicrobial resistance and to identify novel mechanisms of resistance to develop new antimicrobial drugs. It is likely that results obtained in this project will be useful for other microorganisms since antimicrobial resistance mechanisms are quite similar among different pathogens.

Referència: CGL2006-10893-C02-01/BOS. Ministeri d'Educació i Ciència.

Modalitat: Programa nacional de biodiversitat, ciències de la terra i canvi global.

Títol: *Integrando la evolución, la ecología y la biología de los lacertidos insulares del Mediterráneo.*

Centre: Departament de Biologia. Edifici Guillem Colom Casasnovas.

Investigadora responsable: RAMON JUANPERE, Misericòrdia.

Categoría: TU (àrea de coneixement: Genètica).

Inici: 2006 **Fi:** 2009

Membres de l'equip	Categoría	Dedicació (EDP)
Ramon Juanpere, Misericòrdia	TU	1
Picornell Rigo, Antònia	TEU	1
Castro Ocón, José Aurelio	TU	0.5
Terrasa Pont, Bàrbara	As.	1

EDP del grup investigador de l'entitat sol·licitant: 3.5.

Summary

Several groups of islands and islets with endemic populations of lacertid lizards are present over the Mediterranean basin. They are clear examples of adaptation to local conditions and seem to rise from parallel evolutionary processes in front of similar environmental conditions. Together with the previous knowledge on genetic variability and population dynamics showed by the two endemic lacertid lizards of Balearic Islands, /Podarcis lilfordi/ and /Podarcis pityusensis/, our research project will include the study of genetic variability, population structure and behavioural ecology of /Podarcis filfolensis/, another endemic lacertid lizard inhabiting Malta Islands and its coastal islets. One of the main targets of the project will be the study of patterns of molecular and morphological evolution of /Podarcis filfolensis/ as a replication of the study carried out at Balearic Islands and with the aim to test previous hypotheses of the microevolutionary process at this archipelago. We will enlarge the available genetic information for the three species, including the study of MC1R gene involved in the expression of melanistic coloration, a relevant morphological trait at insular populations of lacertid lizards, being its adaptive significance still under debate. In addition, the project wants to evaluate the health state of population as well as the adaptive responses in terms of behavioural ecology traits and their phylogeographical patterns. We will compare these traits using phylogenetic contrasts within each species. The target is to obtain robust evidences about causal factors to explain present day ecological features of each population. To do that, we will employ general linear models to integrate in common analyses genetical, morphological and ecological traits to explain the particular relation between phenotype and genotype in these species and to construct a predictive model integrating the evolution of populations and their ecological characteristics.

Referència: CGL2006-08810/BOS. Ministeri d'Educació i Ciència.

Modalitat: Programa nacional de biodiversitat, ciències de la terra i canvi global.

Títol: *Filogenia molecular de la subfamília Chrysomelinae con especial énfasis en la fauna australiana (Coleoptera, Chrysomelidae).*

Centre: Departament de Biologia. Edifici Guillem Colom Casasnovas.

Investigador responsable: PETITPIERRE VALL, Eduard.

Categoría: CU (àrea de coneixement: Genètica).

Inici: 2006 **Fi:** 2009

<u>Membres de l'equip</u>	<u>Categoría</u>	<u>Dedicació (EDP)</u>
Petitpierre Vall, Eduard	CU	1
Jurado Rivera, José A.	B	1

EDP del grup investigador de l'entitat sol·licitant: 2.

Summary

In this project we try to set up a robust molecular phylogeny of the subfamily Chrysomelinae based upon the nucleotide sequences of five nuclear and mitochondrial gene fragments: 28S, 18S, 16S, 12S and COI. Thus we shall analyze species of roughly 90 genera from the total of the 136 so far described, with an especial emphasis on some 40 from the Australian region, and secondarily on some Neotropical (~20) and Paleoafriican (~10), to be added to the 23 just checked mostly from the Palearctics. The findings to be obtained will be discussed in relation with hypotheses on the possible trends of chromosomal evolution, and future cladistic analyses focused on morphological characters. Furthermore, the study of several closely related genera will allow to verify whether their genetic divergences are corresponded or not with the paleogeography of the austral subcontinents derived from the ancient Gondwana.

Referència: CGL2006-01365/BOS. Ministeri d'Educació i Ciència.

Modalitat: Programa nacional de biodiversitat, ciències de la terra i canvi global.

Títol: *Factores evolutivos y biogeográficos en la adaptación a la vida subterránea: casos de estudio en invertebrados de los archipiélagos Balear y Canario.*

Acrònim: SUBLIFEVOLUTION.

Centre: Departament de Biologia. Edifici Guillem Colom Casasnovas.

Investigador responsable: JUAN CLAR, Carles.

Categoría: TU (àrea de coneixement: Genètica).

Inici: 2006 **Fi:** 2009

Membres de l'equip	Categoría	Dedicació (EDP)
Juan Clar, Carles	TU	1
Jaume Llabrés, Damià	Científic titular	0.5
Villacorta Martín, José C.	B	1

Investigadors d'altres entitats

Oromí Masoliver, Pedro	Universitat de La Laguna
Fragoso Jerez, María del R.	Universitat de La Laguna
López Hernández, Heriberto D.	Universitat de La Laguna

EDP del grup investigador de l'entitat sol·licitant: 2.5.

Summary

Subterranean ecosystems represent perfect natural laboratories for the study of the effects of spatial and temporal isolation on genetic differentiation. The main goal of this project is studying the evolutionary transition to the underground habitat in populations of cave animals, testing hypotheses on the timing and mode of evolution of subterranean lineages using molecular data. Only two species of talitrid amphipods (terrestrial crustaceans) are known to be adapted to cave life, being exclusively troglodytic, one of them (*Palmorchestia hypogaea*) in lava tubes of the island of La Palma (Canary Islands) while the other occurs in Hawaii. The Canarian species is one of the few known cases where a direct epigean ancestor can be identified and is still alive in the vicinity of a cave-adapted species. On the other hand, another (aquatic) amphipod species (*Metacrangonyx longipes*) lives in underground waters of the islands of Mallorca and Menorca (Balearic Islands), having relatives in the Canarian island of Fuerteventura, North Africa, Elba Island (Italy), the Dead Sea region (Israel) and the Dominican Republic. This extremely disjunct distribution, shared with many other anchialine organisms (occurring in caverns flooded by brackish or marine water), has been explained by vicariance *via* plate tectonics, which would have separated littoral populations of ancestral species once widespread in late Mesozoic epicontinental seas. Using these and other organisms we will derive phylogenetic-phylogeographic patterns and genetic diversity estimates using mitochondrial and nuclear DNA sequences. We want to elucidate if there is genetic flow and/or dispersion across the hypogean environment, between the epigean and hypogean populations, and if the phylogenetic patterns of aquatic cave species are concordant with vicariance caused by plate tectonics. The results will also incide on more general aspects of basic and applied Biodiversity research, i. e. speciation and adaptation processes, neutral and selective evolution, establishment of significant units of biological conservation and intrinsic causes of species threat.

Referència: PI05-1340. Fons d'Investigació Sanitària. Ministeri de Sanitat i Consum.
Títol: <i>Estudio farmacológico y molecular del efecto de ácidos grasos naturales y modificados sobre la obesidad y patologías relacionadas.</i>
Centre: Biologia. Edifici Guillem Colom Casasnovas.
Investigador responsable: VÖGLER, Bernhard Oliver.
Categoría: INVESTIGADOR CONTRACTAT.
Inici: 2005 Fi: 2008

Membres de l'equip	Categoría
Vögler, Bernhard Oliver	Inv.
Alemany Alonso, Regina	Inv.
Tofe Povedano, Santiago	

Summary

The prevalence of obesity has increased to epidemic proportions in many parts of the world, reflecting an imbalance between energy uptake (by food intake) and energy expenditure (by metabolism). Food intake is basically regulated in the hypothalamus, which stimulates or inhibits appetite due to the energetic state of the organism. On the other hand, energy expenditure is regulated by the activation of certain nuclear receptors (PPAR), which are able to augment energy consumption by expression of metabolic enzymes, and by uncoupling proteins (UCP), which increase energy expenditure by thermogenesis. It has been demonstrated that the function of the hypothalamus as well as the activation of PPARs and the expression of UCPs can be modulated by fatty acids. In this context, modification of the chemical structure of fatty acids could become a valuable tool to potentiate their pharmacological efficiency and to develop new potent drugs for the treatment of obesity. Recently, our laboratory has patented a synthetic derivative of oleic acid, 2-hydroxyoleic acid, that reduces very efficiently body weight in animals. Moreover, in order to extend our knowledge about this physiological effect of structural modifications, we have planned to synthesize other modified fatty acids, e.g. 2-methyloleic acid. This project proposes a pharmacological and molecular study of four natural fatty acids (stearic, elaidic, oleic and linoleic acid) and two modified ones (2-hydroxyoleic and 2-methyloleic acid) to evaluate their effects on body weight, food intake, lipid metabolism and thermogenesis in animals. Furthermore, the capacity of these fatty acids in reverting the pathological changes observed in obesity, like the plasma levels of glucose and insulin, triglycerides, cholesterol and the profile of the lipoproteins LDL/HDL, will be investigated in an obese animal model. The results will elucidate the role that the chemical structure of the fatty acid has on its effect and the mechanisms by which certain fatty acids regulate body weight.

Referència: 201/2004/1. Ministeri de Medi Ambient.

Modalitat: Pla nacional de residus i recuperació de sòls contaminats.

Títol: *Proyecto demostrativo para un parque integrado de depuración alternativa de aguas residuales y compostaje de lodos de depuración.*

Centre: Departament de Biologia. Edifici Guillem Colom Casasnovas.

Investigador responsable: MARTÍNEZ TABERNER, Antoni.

Categoría: TU (àrea de coneixement: Ecologia).

Inici: 2004 **Fi:** 2007

Membres de l'equip	Categoría
Martínez Taberner, Antoni	TU
Moyà Niell, Gabriel	TU
Ramon Pérez de Rada, Guillem	TU
Vadell Adrover, Jaume	TEU
Moià Pol, Andreu Antoni	P. Col.
Martínez Moll, Víctor	TEU
Coll Mayor, M. Dèbora	P. Col.
Cladera Bohigas, Antoni	P. Col.

Referència: BFU2007-61071. Ministeri d'Educació i Ciència.

Modalitat: Programa nacional de biologia fonamental.

Títol: *Estructura lipídica en las interacciones proteína G-membrana y rutas de señales asociadas implicadas en la diferenciación de células tumorales.*

Acrònim: GPROTLIPINT.

Centre: Departament de Biologia. Edifici Guillem Colom Casasnovas.

Investigador responsable: ESCRIBÁ RUIZ, Pablo.

Categoría: TU (àrea de coneixement: Biologia Cel·lular).

Inici: 2007 **Fi:** 2010

Membres de l'equip	Categoría	Dedicació (EDP)
Escribá Ruiz, Pablo	TU	1
Busquets Xaubet, Xavier	TEU	1
Barceló Mairata, Francisca	TU	0.5
Terés Jiménez, Silvia		0.5
Álvarez Martínez, Rafael	Inv.	
Egea Merlos, Carolina		
Noguera Salvá, M. Antonia		
Martín, M. Laura	B	
Lladó Cañellas, Victoria		
López Bellán, Alicia		

EDP del grup investigador de l'entitat sol·licitant: 3

Referència: SEJ2007-67090. Ministeri d'Educació i Ciència.

Modalitat: Programa nacional de ciències socials, econòmiques i jurídiques.

Títol: *Proyecto Iberoamericano de Evaluación de Actitudes Relacionadas con la ciencia, la tecnología y la sociedad.*

Acrònim: PIEARCTS.

Centre: Departament de Biologia. Edifici Guillem Colom Casasnovas.

Investigador responsable: BENNASSAR ROIG, Antoni.

Categoría: CEU (àrea de coneixement: Fisiologia Vegetal).

Inici: 2007 **Fi:** 2007

Membres de l'equip	Categoría
Bennassar Roig, Antoni	CEU
Manassero Mas, M. Antònia	CU
Estella Escudero, Juana	TEU
Vázquez Alonso, Ángel	As.

Investigadors d'altres entitats

Aikenhead, Glen S.
Carmona Simoes de Paixao, María de Fátima
Terraçom Figueiredo, Margarida do Rosário
García Ruiz, Mayra
Cardoso Erlam, Néstor
Garritz Ruiz, Andoni
Porro, Silvia
García Carmona, Antonio
Maciel, Maria Delourdes
Chrispino, Álvaro
Moralejo, Raúl Omar
Mariano Gordillo, Mariano
Castillejos Salazar, Adela
Rueda Alvarado, Cristina
Mazzuchi Rendo, Elizabeth
Maxera Abella, Marianella
Callejas Restrepo, Maria Mercedes
Acevedo Romero, Pilar

Summary

The Latin-American Project on the Evaluation of Science, Technology, and Society Related Attitudes (PIEARCTS) is an international cooperative research carried out by some investigation teams that belong to different countries of Latin languages (Spanish and Portuguese). The scope of the study is basically educational, centred on science, technology and society issues (STS), which encompass how the science and the technology work in the modern societies, the nature of science and technology, and the relationships among science, technology and society (STS), and are a central concern of the scientific literacy for all. The core aim is the evaluation of the scientific literacy for all the citizens through the assessment of the students' and teachers' beliefs and attitudes on STS issues.

This general aim unfolds into an objective of knowledge and another objective of improvement, both connected to each other. The knowledge objective aims to diagnose the students' and teachers' beliefs and attitudes on STS topics, paying attention to gender, students' choices and teachers' classroom practices to identify the strengthens, the weaknesses and the necessities that influence the science teaching and learning. The evaluation conclusions should serve to propose a plan to improve science education, teaching and learning of STS issues (improvement aim), which should address the needs posed by their explicit teaching along the educational stages through the planning, the design and the innovation of the science curriculum, and the teacher training.

According to the international framework of this study, it is also expected a sound contribution to promote and to deepen the cooperation relationships between investigators and institutions of the participating countries, to contextualize the findings within the countries' specific curricular organization of the educational system, and perhaps too, to extend this investigation to new partners and countries, as a consequence of the dissemination policy of the project findings.

Participacions a altres projectes

Referència: CGI2004-00223/BOS. Ministeri d'Educació i Ciència.

Títol: *Estudio filogeográfico del endemismo vegetal tirrenico.*

Investigadora responsable: MAYOL MARTÍNEZ, Maria.

Centre: Universitat de Barcelona.

Investigador de la UIB: Mus Amézquita, Maurici.

Categoría: TEU (àrea de coneixement: Botànica).

Inici: 2004 **Fi:** 2007

Referència: BFU2005-00503. Ministeri d'Educació i Ciència.

Títol: *Efecto de los compromisos sobre la eficacia biológica de los virus de RNA.*

Investigador responsable: MOYA SIMARRO, Andrés.

Centre: Universitat de València.

Investigador de la UIB: Castro Ocón, José A.

Categoría: TU (àrea de coneixement: Genètica).

Inici: 2005 **Fi:** 2008

Referència: SAF2005-00551. Ministeri d'Educació i Ciència.

Títol: *Mecanismos moleculares implicados en la muerte celular inducida por fármacos que reconocen específicamente el DNA.*

Investigador responsable: PORTUGAL MINGUELA, José.

Centre: Institut de Biologia Molecular de Barcelona (CSIC).

Investigadora de la UIB: Barceló Mairata, Francesca M.

Categoría: TU (àrea de coneixement: Bioquímica i Biologia Molecular).

Inici: 2005 **Fi:** 2008

Projectes del Govern Balear

Referència: Conselleria d'Economia, Hisenda i Innovació del Govern de les Illes Balears.
Títol: *Identificación y caracterización de nuevos mecanismos de resistencia bacteriana a los antimicrobianos.*
Centre: Departament de Biologia. Edifici Guillem Colom Casasnovas.
Investigador responsable: ALBERTÍ SERRANO, Sebastià.
Categoría: TEU (àrea de coneixement: Microbiologia).
Inici: 2004 **Fi:** 2007

Referència: PROGECIB-10A. Conselleria d'Economia, Hisenda i Innovació del Govern de les Illes Balears.
Modalitat: Projectes de recerca per a grups de recerca emergents i competitius.
Títol: *Beta-Talasemia: Análisis molecular en la población de las Islas Baleares.*
Centre: Departament de Biologia. Edifici Guillem Colom Casasnovas.
Investigadora responsable: PICORNELL RIGO, Antònia.
Categoría: TEU (àrea de coneixement: Genètica).
Inici: 2007 **Fi:** 2009

Referència: PROGECIB-8A. Conselleria d'Economia, Hisenda i Innovació del Govern de les Illes Balears.
Modalitat: Projectes de recerca per a grups de recerca emergents i competitius.
Títol: *Nuevas estrategias para contrarrestar la resistencia a fármacos antitumoriales.*
Centre: Departament de Biologia. Edifici Guillem Colom Casasnovas.
Investigadora responsable: ALEMANY ALONSO, Regina.
Categoría: As (àrea de coneixement: Biologia Cel·lular).
Inici: 2007 **Fi:** 2009

Referència: Conselleria d'Economia, Hisenda i Innovació del Govern de les Illes Balears.
Modalitat: Projectes de recerca per a grups de recerca emergents i competitius.
Títol: *Efectos de citoquinas proinflamatorias sobre motoneuronas espinales: implicaciones sobre la etiopatología de la esclerosis lateral amiotrófica.*
Centre: Departament de Biologia. Edifici Guillem Colom Casasnovas.
Investigadora responsable: LLADÓ VICH, Jerònima.
Categoría: As (àrea de coneixement: Biologia Cel·lular).
Inici: 2007 **Fi:** 2009

Referència: Conselleria d'Economia, Hisenda i Innovació del Govern de les Illes Balears.
Modalitat: Projectes de recerca per a grups de recerca emergents i competitius.
Títol: *Caracterització de la variació del creixement i de la discriminació isotòpica del carboni (13C/12C) a Pistacia lentiscus L. al llarg d'un gradient edafo-climàtic al'illa de Mallorca.*
Centre: Departament de Biologia. Edifici Guillem Colom Casasnovas.
Investigador responsable: GULIAS LEÓN, Javier.
Categoría: P.col. (àrea de coneixement: Producció Vegetal).
Inici: 2007 **Fi:** 2008

Referència: Conselleria d'Economia, Hisenda i Innovació del Govern de les Illes Balears.
Modalitat: Accions especials de recerca, desenvolupament tecnològic i innovació.
Títol: *Aplicacions dels biomarcadors en el musclo Mytilus galloprovinciales com eina per evaluar la contaminació marina al litoral balear.*
Centre: Departament de Biologia. Edifici Guillem Colom Casasnovas.
Investigadora responsable: DEUDERO COMPANY, Salud.
Categoría: Aj. U (àrea de coneixement: Zoologia).
Inici: 2007 **Fi:** 2008

Referència: Conselleria d'Economia, Hisenda i Innovació del Govern de les Illes Balears.
Modalitat: Accions especials de recerca, desenvolupament tecnològic i innovació.
Títol: *Constitución del grupo interdisciplinar del estudio genético, evolutivo y clínico del virus de la hepatitis C (virus RNA).*
Centre: Departament de Biologia. Edifici Guillem Colom Casasnovas.
Investigador responsable: CASTRO OCÓN, José Aurelio.
Categoría: TU (àrea de coneixement: Genètica).
Inici: 2007 **Fi:** 2008

Referència: Conselleria d'Economia, Hisenda i Innovació del Govern de les Illes Balears.
Modalitat: Accions especials de recerca, desenvolupament tecnològic i innovació.
Títol: Ajudes a grups d'investigació competitius de les Illes Balears. Grup de recerca en Biologia de les plantes en condicions mediterrànies.
Centre: Departament de Biologia. Edifici Guillem Colom Casasnovas.
Investigador responsable: MEDRANO GIL; Hipólito.
Categoría: CU (àrea de coneixement: Fisiologia Vegetal).
Inici: 2006 **Fi:** 2009

DEPARTAMENT DE BIOLOGIA FONAMENTAL I CIÈNCIES DE LA SALUT

Referència: AGL2004-07496/ALI. Ministeri d'Educació i Ciència.

Modalitat: Programa nacional de recursos i tecnologies agroalimentàries.

Títol: *Bases científicas de ingredientes alimentarios funcionales de potencial aplicación en la obesidad. Interrelaciones y aspectos mecanísticos de interés en la evaluación del balance beneficio/riesgo.*

Acrònim: ALIOBEN.

Centre: Departament de Biologia Fonamental i Ciències de la Salut. Edifici Guillem Colom Casasnovas.

Investigador responsable: PALOU OLIVER, Andreu.

Categoría: CU (àrea de coneixement: Bioquímica i Biologia Molecular).

Inici: 2004 **Fi:** 2007

Membres de l'equip	Categoría	Dedicació (EDP)
Palou Oliver, Andreu	CU	1
Bonet Piña, M. Lluïsa	CEU	1
Picó Segura, Catalina	CEU	1
Serra Vich Francesca	CEU	1
Ribot Riutort, Joan	TEU int.	1
Oliver Vara, Paula	TEU int.	1
Rodríguez Guerrero, Ana M.	Aj.	1
Miralles Barrachina, Olga	As.	1
Sánchez Roig, Joana	B	1
Rodríguez Parrona, Enrique	B	1
Felipe Legaz, Francisco	B	1
Fuster Roca, M. Antònia	B	1
Mercader Barceló, Josep	B	1
Dietrich Planas, Lucrecia	B	1
Van Hoeck, Els	B	1
Sandbichler, Sandra	Tèc.	1

Investigadors d'altres entitats

Caimari Jaume, Maria	Ib-Salut
Román Piñana, Juana María	Ib-Salut

EDP del grup investigador de l'entitat sol·licitant: 16.

Summary

The project is envisaged to study the scientific basis of the activity of potentially functional ingredients to control body weight and of their balance benefit/risk. Scientific evidences supporting health claims, in particular those based in the knowledge of mechanistic aspects and on safety are critical aspects in the evaluation of new functional foods. This research may orientate the design and development of novel functional foods of interest in obesity, contributing to establish the molecular basis of their beneficial effects, characterizing undesirable side-effects and defining function biomarkers associated to exposure and endpoints biomarkers. The socio-economical interest of the topic is enormous, particularly because of the importance of the obesity problem in our society.

The initial hypothesis, supported by previous contributions made by the research team and others, is that the enrichment of diets with specific nutrients may favour a reduction in adiposity as a consequence of the largely confluent effects of these nutrients on key biochemical processes involved in the regulation of the energy balance. The specific aims of the project are:

- 1.- Characterization of the molecular basis of the slimming effect of dietary calcium and the influence of the dietary source of calcium on this effect.
- 2.- Study of the effects of selected nutrients (vitamin A, conjugated linoleic acid) on lipolysis in white adipose tissue and on the thermogenic capacity and fatty oxidation in target tissues. Benefit/risk of diet enrichment with these nutrients.
- 3.- Analysis of the potential of β -carotene on the protection against obesity. Benefit/risk of supplementation with β -carotene.
- 4.- Study of peptides present in maternal milk, particularly leptin. Determination of its function in the neonatal development and its repercussion in adulthood. Benefit/risk of the use of leptin as a nutritional supplement.
- 5.- Analysis of the effect of combination of the nutrients and doses selected in a dairy vehicle on the development of dietary obesity and on the slimming during caloric restriction.

The project is a continuation of the labor of a consolidated group of researchers in the field of obesity, with participation in national and EU programs since more than 17 years, with previous collaborative experience with industries and integrated in a Research European Network of Excellence in Nutrigenomics.

Referència: DEP2005-00238-C04-02. Ministeri d'Educació i Ciència.

Modalitat: Acció estratègica esport i activitat física.

Títol: *Alimentos funcionales potenciadores de las defensas antioxidantes y su interacción con el entramamiento de deportistas.*

Acrònim: ACED.

Centre: Departament de Biologia Fonamental i Ciències de la Salut. Edifici Guillem Colom Casasnovas.

Investigador responsable: PONS BIESCAS, Antoni.

Categoría: TU (àrea de coneixement: Bioquímica i Biologia Molecular).

Inici: 2005 **Fi:** 2008

Membres de l'equip	Categoría	Dedicació (EDP)
Pons Biescas, Antoni	TU	1
Tur Marí, Josep A.	TU	1
Aguiló Pons, Antoni	P. Col.	1
Tauler Riera, Pere	Aj.	1
Sureda Gomila, Antoni	B	1
Ferrer Reynés, Miquel D.	B	1
Romaguera Bosch, Dora	B	1

Investigadors d'altres entitats

Llompart Alabern, Isabel	Hospital Universitari Son Dureta
Fuentespina Vidal, Emilia	Hospital Universitari Son Dureta
Roche Collado, Enrique J.	Universitat Miguel Hernández
Micol Molina, Vicente	Universitat Miguel Hernández

EDP del grup investigador de l'entitat sol·licitant: 16.

Summary

There is a reasonable doubt on the necessity of using vitamins and nutritional supplements by the competitive athlete. But it is certain that there is an oxidative stress induced by exercise when it is performed intense, long duration, or under different conditions hipercaloric, hiper/hipoproteic intake, or special climatic conditions of heat, humidity or cold. The idea of this coordinated project is develop a work from different points of view on the effect of some different types of functional nutrients, and dietary supplements and how they work on the prevention of oxidative stress of exercise under these different conditions, competition, intense exercise, heat, cold, or reduced caloric intake.

Referència: AGL2006-04887/ALI. Ministeri d'Educació i Ciència.

Modalitat: Programa nacional de recursos i tecnologies agroalimentàries.

Títol: *Nutrigenómica funcional en la obesidad. Efecto de componentes de la leche materna y nutrientes específicos durante el desarrollo postnatal temprano sobre la resistencia a la obesidad y sus complicaciones.*

Acrònim: NUTRIGEN-C-OB.

Centre: Departament de Biologia Fonamental i Ciències de la Salut. Edifici Guillem Colom Casasnovas.

Investigador responsable: PALOU OLIVER, Andreu.

Categoría: CU (àrea de coneixement: Bioquímica i Biologia Molecular).

Inici: 2006 **Fi:** 2009

Membres de l'equip	Categoría	Dedicació (EDP)
Palou Oliver, Andreu	CU	1
Bonet Piña, M. Lluïsa	CEU	1
Picó Segura, Catalina	CEU	1
Serra Vich Francesca	CEU	1
Ribot Riutort, Joan	TEU int.	1
Oliver Vara, Paula	TEU int.	1
Rodríguez Guerrero, Ana M.	TEU	1
Miralles Barrachina, Olga	As.	1
Sánchez Roig, Joana	B	1
Fuster Roca, M. Antònia	B	1
Mercader Barceló, Josep	B	1
Priego Cuadra, Teresa	Inv.	1
Caimari Palou, Antoni	B	1
Parra Moya, Pilar	B	1
Amengual Terrasa, Jaume	B	1
Granados Borbolla, Nuria	B	1
Servera Barco, Maria	B	1
Tobaruela arbona, Aixa	B	1
Palou March, Marionna	B	1

EDP del grup investigador de l'entitat sol·licitant: 19.

Summary

The aim of this project is to identify specific breast milk components and nutrients whose administration during early postnatal life may favor the prevention of obesity and its metabolic complications in the adulthood, delineate, when appropriate, the molecular basis of their effect and evaluate their risk/benefit balance. The hypothesis is that changes in diet composition during early life may program the susceptibility to obesity in the long-term, due to persistent effects (epigenetics and of other types) on biochemical processes involved in the control of body weight and adiposity (control of food intake, control of energy efficiency, adipogenesis and fatty acid metabolism).

We will analyse a set of candidate compounds — initially: retynil palmitate, beta-carotene, docosahexaenoic acid, conjugated linoleic acid, calcium, leptin and other peptides/proteins present in breast milk — which have been selected due to former evidences of their implication in energy balance in adult individuals or because they are breast milk

components which have been demonstrated to present potentially interesting functional features. The project includes interventional studies in animals (which imply the administration of the nutrients/components of interest, individually, and by oral way, at high physiological doses, during early life) and epidemiological studies in lactating mothers and their children and, in the latter, during their ulterior development.

Concrete questions are: Does the administration of these compounds in early life affect energy balance in the short-term?; Does it have long term effects on body weight, adiposity and susceptibility to dietary-induced obesity?; If so, which are the genes and biochemical processes affected? Are epigenetic effects involved?; Are there critical periods of sensitivity to this compounds during early development?; Does the concentration of these compounds in human breast milk correlate with body weight of children up to two years?

The project can contribute to the understanding of the mechanisms of metabolic programming in connection to obesity and to the promotion of optimal nutrition during development, and specifically can provide the basis for the design of novel infant functional foods for the prevention of obesity.

Referència: PI05-1276. Fons d'Investigació Sanitària. Ministeri de Sanitat i Consum.

Títol: *Estudio de la prevalencia de la obesidad infantil y juvenil en las Islas Baleares (estudio OBIB).*

Centre: Biologia Fonamental i Ciències de la Salut. Edifici Guillem Colom Casasnovas.

Investigador responsable: TUR MARÍ, Josep Antoni.

Categoría: TU (àrea de coneixement: Fisiologia).

Inici: 2005 **Fi:** 2008

Membres de l'equip	Categoría
Tur Marí, Josep Antoni	TU
Pons Biescas, Antoni	TU
Aguiló Pons, Antoni	P. Col.
Fuentespina Vidal, Emilia	
Llompart Alabern, Isabel	
Riesco Prieto, Maria del T.	
Tauler Riera, Pere J.	B
Romaguera Bosch, Maria A.	B
Reynés Ferrer, Miquel D.	B

Summary

The main objective of this project is to know the current obesity and overweight prevalence in the child and youth population of the Balearic Islands, its predictive factors (diet quality, physical activity, socio-demographic factors, lifestyle, and the biochemical, hematic and genetic profile) and comorbidity, evolution and trends during the next three years. A longitudinal epidemiological study will be carried out on a populational based sample. The sample population will be all residents aged 2 to 18 years registered in the official population census of the Balearic Islands. The estimated theoretical sample size is 2000 individuals, randomly selected from natural clusters of individuals (conglomerates) in the study population of the Balearic Islands. The estimate theoretical sample size population of the Balearic Islands. The sampling technique includes stratification according to 5 geographical areas (Mallorca, Menorca, Ibiza, Formentera and Palma de Mallorca) x 4 age groups (2-5 years, 6-9 years, 10-13 years and 14-18 years) x 2 sexes: 40 strata of 50 individuals. Each selected individual will be interviewed twice, first at the beginning of the study and secondly during the last year of the study; therefore 4000 interviews will be carried out in two stages of 2000 interviews each stage. These individuals will undergo an anthropometric study, nutritional status assessment through a semiquantitative food frequency questionnaire and a 24 hours recall, description of their socio-demographic status and lifestyle, assessment of their nutritional knowledge, opinions and preferences, measurements of biochemical parameters and genetic factors of obesity, and measurement of the arterial pressure. The description of the profile of obese children in the Balearic Islands will be carried out, as well as the distribution map of overweight and obesity prevalence in children and adolescents of the Balearic Islands. Trends to excess weight in children and adolescents and its projection will be described, as well as the influence of the predictive factors on this tendency.

Referència: PI04-2294. Fons d'Investigació Sanitària. Ministeri de Sanitat i Consum.
Títol: <i>Polifomismos de genes candidatos de riesgo cardiovascular en la respuesta a la dieta mediterránea. Estudio de modelos animales de las bases moleculares que relacionan el estrés oxidativo con el proceso aterogénico.</i>
Centre: Biologia Fonamental i Ciències de la Salut. Edifici Guillem Colom Casasnovas.
Investigadora responsable: PROENZA ARENAS, Ana María.
Categoría: TEU (àrea de coneixement: Bioquímica i Biologia Molecular).
Inici: 2004 Fi: 2007

<u>Membres de l'equip</u>	<u>Categoría</u>
Proenza Arenas, Ana María	TEU
Gianotti Bauzà, Magdalena	CEU
Roca Salom, Maria Pilar	TU
García Palmer, Francisco José	TU
Lladó Sampol, Isabel	TEU
Oliver Oliver, Jordi	TEU
Balaguer Covas, Jaume	As.
Fiol Sala, Miquel	
Thomàs Moyà, Elena	B
Valle Gómez, Adamo	

Summary

The aims of the project are:

1. To assess whether the possible beneficial effects of Mediterranean Diet on cardiovascular risk factors are modulated by polymorphisms of candidate genes. To determine the consequences of the supplementation with specific foods.
2. To determine the atherogenic effect and the oxidative stress induced by a cafeteria diet and the consequences of a dietary supplementation with foods that have a potential antioxidant effect.
3. To investigate the role of PON1 in the response to the oxidative stress induced by dietary factors and the obese status, and its regulation by Mediterranean Diet.
4. To establish a relationship between the diet and obesity-induced oxidative stress and the fibrinolytic process by studying the signal pathways leading to PAI-1 expression.
5. To determine the influence of the diet on the function of NADH/NADPH oxidase p22phox subunit in the respiratory chain (the main source of ROS production in endothelial cells). To make a comprehensive study of the molecular mechanisms implicated in p22phox function.
6. To establish a relationship between diet- and obesity-induced oxidative stress on endothelial function by studying the eNOS.

In order to reach these objectives, it has been devised an experimental design that includes studies both in high cardiovascular risk patients undergoing a diet intervention and studies in animal models of cafeteria diet induced-obesity (an oxidative stress generator) supplemented with specific foods.

Referència: PI04-2377. Fons d'Investigació Sanitària. Ministeri de Sanitat i Consum.
Títol: <i>Implicación del estrés oxidativo inducido por una dieta hiperlipídica en la alteración de la sensibilidad y la secreción de insulina. Diferencias entre géneros.</i>
Centre: Biologia Fonamental i Ciències de la Salut. Edifici Guillem Colom Casasnovas.
Investigadora responsable: LLADÓ SAMPOL, Isabel.
Categoría: TEU (àrea de coneixement: Bioquímica i Biologia Molecular).
Inici: 2004 Fi: 2007

Membres de l'equip	Categoría
Lladó Sampol, Isabel	TEU
Gianotti Bauzà, Magdalena	CEU
Roca Salom, Maria Pilar	TU
García Palmer, Francisco José	TU
Proenza Arenas, Ana María	TEU
Oliver Oliver, Jordi	TEU
Pablo Cánaves, Josep A.	B
Pisano Pérez, Maria Estela	As.
Alcolea Delgado, Maria del Pilar	B
Colom Pomar, Bartomeu	B

Summary

The aim of this project is to analyze the molecular mechanisms inherent to the different incidence between genders of insulin resistance development and the dysfunction of pancreatic beta cells. Both events can be related to the intake of a high fat diet which is inductive of oxidative stress.

The basic goals of the project are the following:

1. To determine the oxidative stress status generated by feeding a high fat diet and the degree of insulin resistance induced in skeletal muscle.
2. To study the effects of high fat diet induced oxidative stress on pancreatic beta cell functionally.
3. To determine the expression and secretion of pro-inflammatory cytokines by adipose tissue in relation to the oxidative stress situation generated by the diet.
4. To analyze the effect of these pro-inflammatory cytokines on pancreatic beta cell functionally and the potential mechanisms of this effect.
5. To determine the effect of sex hormones on pancreatic beta cell functionally and insulin resistance parameters in skeletal muscle.

The achievement of these proposed goals involve the concurrent development of both in vitro and invivo studies. In vivo studies will use adult Wistar rats of both genders, which will be feed with an oxidative stress inducing high fat diet. In vitro studies will allow us to go further into the knowledge of the underlying molecular mechanisms using isolated cells and/or cell lines.

Referència: PI060293. Fons d'Investigació Sanitària. Ministeri de Sanitat i Consum.

Títol: *Influencia del género en la función y biogénesis mitocondrial inducida por estrés oxidativo.*

Centre: Departament de Biologia Fonamental i Ciències de la Salut. Edifici Guillem Colom Casasnovas.

Investigadora responsable: GIANOTTI BAUZÀ, Magdalena.

Categoría: CEU (àrea de coneixement: Bioquímica i Biologia Molecular).

Inici: 2006 **Fi:** 2009

Membres de l'equip	Categoría
Gianotti Bauzà, Magdalena	CEU
García Palmer, Francisco J.	TU
Proenza Arenas, Ana María	TEU
Balaguer Covas, Jaume	As.
Estrany Martorell, Maria Elena	As.
Gómez Pérez, Yolanda	B

Summary

Previous results from our research group have shown that there are mitochondrial morphofunctional differences between genders, which could be related with the different incidence in men and women of several pathologies caused by oxidative stress related mitochondrial dysfunction. Oxygen reactive species (ROS) would constitute the nexus between oxidative stress and mitochondrial biogenesis through several signalling pathways, the PI3K/Akt being one of them.

The hypothesis of this research project sets up that these mitochondrial morphofunctional differences are due, at least in part, to the different regulation of mitochondrial biogenesis by ROS, and that the estrogens could modulate the pathways which control this process, as the PI3K/Akt. In order to corroborate this asseveration, we shall study ROS induced mitochondrial biogenesis in both genders, setting the limits of both estrogens and endothelial nitric oxide synthase roles in this process.

The methodology will be based on *in vivo* experiences, using both genders animals, and *in vitro* cell cultures, using tissues also from both genders animals. The morphology and mitochondrial function and biogenesis, and the signalling pathway which would mediate the ROS induced activation of the process will be studied in an oxidative stress inducing dietetic situation: overfeeding by cafeteria diet.

In order to better establish the gender influence, ovariectomized rats treated with 17-beta estradiol will be used. Cell cultures will constitute a controlled system where it can be elucidated the activation sequence of the induction pathway of the oxidative stress induced mitochondrial biogenesis, testing the direct effect of estrogens.

Referència: SAF2007-66878. Ministeri d'Educació i Ciència.

Modalitat: Programa nacional de biomedicina.

Títol: *Mecanismos moleculares de la hormona de crecimiento y la melatonina en la prevención del envejecimiento cerebral: repercusión en la conducta.*

Centre: Departament de Biologia Fonamental i Ciències de la Salut. Edifici Guillem Colom Casasnovas.

Investigador responsable: RIAL PLANAS, Rubén V.

Categoría: CU (àrea de coneixement: Fisiologia)

Inici: 2007 **Fi:** 2007

Membres de l'equip	Categoría
Rial Planas, Rubén V.	CU
Nicolau Llobera, M. Cristina	TU
Gamundí Gamundí, Antonio	TEU
Esteban Valdés, Susana	TU

Summary

Our group has described that aging is associated with a reduction in the number of hippocampal neurones and with a reduction in neurogenesis. We have also previously observed that GH and melatonin administration are able to increase the number of neurones without affecting neurogenesis (GH) or to increase neurogenesis without affecting number of neurones (melatonin). We expect to get more information about the molecular mechanisms involved in the above mentioned effects and to confirm if these actions have also a functional correlate. There are several parameters that allow the measurement of central nervous system function, among them various measurements of motor activity and sleep. Aging seems to cause important changes in sleep: deep sleep NREM phases are reduced, the circadian rhythm of wake-sleep is advanced, the quality of sleep turns fragile and interrupted. In addition sleep is closely related to GH that is also reduced in aged animals. Similarly, the production of melatonin markedly diminishes with age with the consequent loss of antioxidant capacity and the disorganization of the rest-activity rhythms. The project aims at studying the effects of GH (2mg/Kg/day) and melatonin (1mg/k mixed in the drinking water) on the CNS, analyzing the levels of oxidative stress and apoptosis in the brain (Bcl2, caspases 3 and 9, mitochondrial and cytosolic cytochrome C, sirtuin glutathione peroxidase and S -transferase, c-fos) and the behavioural performance of 24 months old rats. The following analysis will be performed: 1) Evaluation of the motor activity-rest rhythm, 2) evaluation of sleep characteristics, 3) measurement of brain monoamines, 4) changes in the amount of pineal melatonin 5) motor coordination with the rota-rod test and 6) the activity of the nigro estriatal dopaminergic system as measured in the rotating behaviour test. The study will be performed on young (90 days old) and old (24 months) animals with the corresponding non-treated and vehicle treated animals. The working hypothesis of the project supposes that the administration of GH and Melatonin will improve the oxidative stress in the brain and increase the quality of the wake-sleep rhythms and the capacity to interact with the environment of aged animals.

Projectes del Govern Balear

Referència: PROGECIB-10A. Conselleria d'Economia, Hisenda i Innovació del Govern de les Illes Balears.

Modalitat: Projectes de recerca per a grups de recerca emergents i competitius.

Títol: *Estudio de las diferencias entre géneros en el metabolismo energético mediante técnicas de proteómica.*

Centre: Departament de Biologia Fonamental i Ciències de la Salut. Edifici Guillem Colom Casasnovas.

Investigador responsable: OLIVER OLIVER, Jordi.

Categoría: TEU (àrea de coneixement: Bioquímica i Biologia Molecular).

Inici: 2007 **Fi:** 2009

Referència: Conselleria d'Economia, Hisenda i Innovació del Govern de les Illes Balears.

Modalitat: Ajudes per a l'organització de reunions, congressos, seminaris, simposis o jornades de caràcter científic.

Títol: *II Jornades de Proliferació Cel·lular i Càncer.*

Centre: Departament de Biologia Fonamental i Ciències de la Salut. Edifici Guillem Colom Casasnovas.

Investigadora responsable: FERNÁNDEZ DE MATTOS, Silvia.

Categoría: CON

Inici: 2007 **Fi:** 2007

DEPARTAMENT DE CIÈNCIES DE LA TERRA

Referència: CGL2005-07664-C02-02/CLI. Ministeri d'Educació i Ciència.

Títol: *Análisis de la irregularidad pluviométrica a diferentes escalas temporales en la península ibérica y Baleares y sus conexiones regionales.*

Acrònim: IPIBEX.

Centre: Departament de Ciències de la Terra. Edifici Guillem Colom Casasnovas.

Investigador responsable: GRIMALT GELABERT, Miquel.

Categoría: TU (àrea de coneixement: Geografia Física).

Inici: 2005 **Fi:** 2008

Membres de l'equip	Categoría	Dedicació (EDP)
Grimalt Gelabert, Miquel	TU	1
Laita Ruiz de Asúa, Mercedes	CEU	0.5
Florit Alomar, Francesca	CEU	1
Rosselló Geli, Joan	As.	1
González de Alaiza, José Javier	TEU	1
Ramon Molinas, Jerònima	As.	0.5

Grimalt Gelabert, Miquel	TU	1
Laita Ruiz de Asúa, Mercedes	CEU	0.5
Florit Alomar, Francesca	CEU	1
Rosselló Geli, Joan	As.	1
González de Alaiza, José Javier	TEU	1
Ramon Molinas, Jerònima	As.	0.5

Tudela Villalonga, Lluís Fundació Universitat-Empresa (Balears)

EDP del grup investigador de l'entitat sol·licitant: 5.
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Referència: CGL2005-00537/BTE. Ministeri d'Educació i Ciència.

Modalitat: Programa nacional de biodiversitat, ciències de la terra i canvi global.

Títol: *Análisis genético de plataformas carbonatadas mesozoicas y cenozoicas; la arquitectura de facies en función de los cambios de producción de sedimento y de acomodación.*

Acrònim: GEPLAT.

Centre: Departament de Ciències de la Terra. Edifici Guillem Colom Casasnovas.

Investigador responsable: POMAR GOMÀ, Lluís.

Categoría: CU (àrea de coneixement: Estratigrafia).

Inici: 2005 **Fi:** 2008

Membres de l'equip	Categoría	Dedicació (EDP)
Pomar Gomà, Lluís	CU	1
Mateu Vicens, Guillem	B	1
Investigadors d'altres entitats		
Obrador Tudurí, Antoni	Universitat Autònoma de Barcelona	
Bossellini, Francesca	Università di Modena e Reggio Emilia	

EDP del grup investigador de l'entitat sol·licitant: 2.

Summary

In depositional systems, stratal patterns and facies architecture develop in response to the interaction between sediment availability and existing space for sedimentary accommodation and reflect the depositional profile and sediment types distribution and their spatial changes through time. In siliciclastic systems, sediment flux and accommodation space are independent factors. Sediment flux depends on the existing conditions on the highlands whereas accommodation (physical accommodation) depends on the basin physiography and hydraulic energy.

In carbonate systems, however, sediment flux and accommodation are interdependent factors. (1) Sediment production depends on biological systems and, consequently, on intrabasinal conditions (temperature, salinity, nutrients, etc). (2) Sea floor physiography influences the area available for different biotas to thrive and, consequently, the size and efficiency of the carbonate factory. (3) Sediment redistribution within the basin depends on the interaction between sediment types (grain size and shape and relative density) and extant hydraulic energy on the production loci. Additionally, biological (binding, baffling, framebuilding) and even early diagenetic processes (cementation) can modify sediment redistribution. Therefore, (4) the base level for sediment accumulation, which determines accommodation, highly depends on the type and amount of sediment being produced and the loci (within the basin) where the sediment was produced (ecological accommodation). Consequently, the main goal of this project consists in analyzing the seminal effect of different Phanerozoic carbonate producing biotas in platform architecture. These analyses will be focused on selected outcrops (exposure quality and accessibility) of Lower Cretaceous, Eocene, Miocene and Plio-Pleistocene carbonate platforms. Growth fabrics and textures distribution, in addition to sedimentary structures and bedding patterns, will be used to understand the particular conditions affecting carbonate production, redistribution, and their variations through time, that ultimately hold sway over facies architecture.

Prediction capacity of sedimentary models highly depends on the comprehension of the genetic mechanisms in controlling facies distribution and diagenesis within sedimentary bodies that ultimately controls platform architecture and petrophysical properties distribution. Comparative analyses of the studied examples will provide the basis to understand the key factors and to discern common- and specific features of the different Phanerozoic biotas in controlling carbonate platform architecture diversity.

Referència: SEJ2006-07256/GEOG. Ministeri d'Educació i Ciència.

Modalitat: Programa nacional de ciències socials, econòmiques i jurídiques.

Títol: *La funcionalización turística de las Islas Baleares (1955-2000): adaptación territorial y crisis ecológica del archipiélago.*

Centre: Departament de Ciències de la Terra. Edifici Guillem Colom Casasnovas.

Investigador responsable: RULLAN SALAMANCA, Onofre.

Categoría: TU (àrea de coneixement: Anàlisi Geogràfica Regional).

Inici: 2006 **Fi:** 2009

Membres de l'equip	Categoría	Dedicació (EDP)
Rullan Salamanca, Onofre	TU	1
Blázquez Salom, Macià	TU	1
González Pérez, Jesús M.	TEU	1
Artigues Bonet, Antoni A.	TEU	1
Murray Mas, Iván	As.	1
Bauzá Van Slingerlandt, Alícia	As.	1
Pons Esteve, Antoni	As.	1
Ramis Sastre, Margalida M.	B	1

EDP del grup investigador de l'entitat sol·licitant: 8.

Summary

This project attempts to analyse the territorial transformation the Balearic archipelago has experienced during the second half of the twentieth century, within the context of the political and economic relations which emerged after the Second World War and have been developing until nowadays.

At a European scale, the economic process is considered as the most independent variable of the geographical change. Nevertheless, other variables need to be analysed because of being considered essential for the socio-economic process to materialize. These variables are land cover and land use change, intraurban transformation of the main cities, the energy system evolution, and natural resources required by the Balearic economy to achieve present-day situation of economic development and ecological deterioration.

The main goal of this research is to develop a comparative analysis of the experiences on other islands, with the intention of exporting the Balearic experience to other regions with similar features, and which will be able to learn from our successes and mistakes. At the same time, we can import to the Balearic Islands similar experiences from other regions with a more advanced position within the global tourist market. The analysis of those advanced islands might give some piece of advice about future risks in order to achieve sustainability. The comparison will be addressed to insular cases which have a “Mediterranean position”, this means an equidistant position between a developed North and a developing South, in terms of semi-periphery. Some examples are: the Caribbean Islands sited between USA and South America, the South East Asian Islands between the development of Japan and Australia, and the Mediterranean Islands placed between the Europe and the Africa.

Referència: CGL2006-11242-C03-01. Ministeri d'Educació i Ciència.

Modalitat: Programa nacional de ciències socials, econòmiques i jurídiques.

Títol: *El litoral carbonatado mediterráneo: morfogénesis kárstica y litoral y registros sedimentarios respectivos, como respuesta a la variabilidad paleoclimática cuaternaria.*

Acrònim: MECARLI.

Centre: Departament de Ciències de la Terra. Edifici Guillem Colom Casasnovas.

Investigador responsable: FORNÓS ASTÓ, Joan Josep.

Categoría: TU (àrea de coneixement: Estratigrafia).

Inici: 2006 **Fi:** 2009

Membres de l'equip	Categoría	Dedicació (EDP)
Fornós Astó, Joan Josep	TU	1
Ginés Gracia, Ángel	As.	1
Ginés Gracia, Joaquín	As.	1
Pons Buades, Guillem X.	TEU	0.5

Investigadors d'altres entitats

Gracia Lladó, Francisco Tuccimei, Paola	Università di Roma Tre
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EDP del grup investigador de l'entitat sol·licitant: 3.5.

Summary

The study of the endokarst –cave systems existing in the carbonate lithologies– and its associated deposits represents an investigation field that reports many paleoenvironmental data, which can be complementary to those geomorphological and geochronological information based on conventional studies on fluvial and littoral landscapes. Recent absolute dating methods allow for a proper location of the recognized events within a valid Quaternary time scale. Endokarstic milieus usually contain records of geochronological interest, basically in the way of carbonate mineral deposits: the speleothems. The potential of these chemical deposits, under the geochronological and paleoenvironmental point of views, are nowadays internationally recognized thanks to the advances in isotopic geology. In general terms the geomorphological and sedimentary records associated to the endokarst present a good preservation, since they have not been affected by many of the active mechanisms of the littoral dynamics. The recent application of subaqueous exploration techniques to the study of coastal caves, allows the access to the flooded parts of the littoral subterranean systems. This makes possible the collection of morphogenetic and sedimentary evidences controlled by the regressive paleosealevels of the Mediterranean, which corresponds to the Quaternary cold episodes. The information from the study of the coastal caves will be correlated with the Pleistocene and Holocene epigean sedimentary sequences of many coastal areas along the Western Mediterranean. The project we propose has several different fields of investigation. Firstly, in order to establish a detailed speleogenetic evolution and characterise and locate chronologically some deposits, we will carry additional geomorphological investigations of the karstic coastal caves –mainly of Mallorca and Menorca, but also of Sardinia or Malta-. The investigation will also include new aspects as the detritic sedimentation observed in these subterranean phreatic systems or the hydrological behaviour of these high permeability littoral karstic aquifers. Additional radiometric datings of the collected phreatic speleothems must be also performed. We will use these new data to establish the evolutionary sequence of the

coastal endokarst and how this sequence is related with the paleoclimatic events that affected Western Mediterranean basin. A well-differentiated second part of the project consists in the detailed morphogenetic study of the coastal fringe, with special attention focused to the Pleistocene dune systems of the study areas as well as to the influence of tectonic and lithological factors. A dating programme (OSL) of the eolian deposits will be carried out in order to precisely locate in the time scale these deposits, generally associated to regressions of the sea level in the Mediterranean. This dual approximation to the interpretation of the littoral environments (which implies the study of both endokarst and epigean morphogenetic systems) will bring valuable data about marine paleolevels lower than the present one and the complex morphosedimentary evolution of the littoral geodynamic environment.

In other way, with reference to the morphogenetic evolution of coastal limestone landscapes in the Mediterranean, carbonate rocks are responsible for the development of very specific fluvial and littoral processes, fully conditioned by the progress of karstification. In fact, karstic and fluvial processes operate on the limestone materials to form an atypical network of non-functional meandering gorges and valleys, ending in narrow littoral coves (called "calas" in spanish language). The "calas" constitute incised valleys formed during sea level regressive periods, being afterwards flooded and filled up by the holocene postglacial transgression; eolianites are very frequent in these coastal emplacements. This geomorphic model, proposed for the reefal platforms of Menorca and Mallorca, must be tested in other environmental systems like the Caroig platform (province of Valencia) and in Malta, a Miocene reef platform similar to Migjorn area in Menorca island. The methodology to be applied in this third part of the investigation includes: the detailed geomorphological cartography of the studied zones, the morphometric analysis of the drainage fluvial network (by means of DTM techniques), the study of hydrological and sedimentary processes in the gorges that cross the carbonate platforms, as well as the morphometric analysis of the coastal belt in order to deepen in the genetic mechanisms of the "calas". The development of specific software tools (based on GIS and DTM applications) it is envisaged, in order to proceed to the great-scale morphometric characterization of the fluvio-karstic landscapes in carbonate littoral platforms and the processes involved in their shaping.

Projectes del Govern Balear

Referència: Conselleria d'Economia, Hisenda i Innovació del Govern de les Illes Balears.

Modalitat: Ajudes per a l'organització de reunions, congressos, seminaris, simposis o jornades de caràcter científic.

Títol: *IV Jornadas de Geomorfología litoral.*

Centre: Departament de Ciències de la Terra. Edifici Guillem Colom Casasnovas.

Investigador responsable: FORNÓS ASTÓ, Juan J.F.

Categoría: TU (àrea de coneixement: Estratigrafia).

Inici: 2007 **Fi:** 2007

Referència: Conselleria d'Economia, Hisenda i Innovació.

Modalitat: Accions especials de recerca, desenvolupament tecnològic i innovació.

Títol: *Caracterització dels paràmetres ecològics que influeixen en la producció de sistemes carbonatats no tropicals: la Mediterrània occidental (la Plataforma Balear i l'Arxipèlag de les Illes Pontines, Itàlia) vs. la plataforma mauritània (Banch d'Arguin)*

Centre: Departament de Ciències de la Terra. Edifici Guillem Colom Casasnovas.

Investigador responsable: POMAR GOMÀ, Lluís.

Categoría: CU (àrea de coneixement: Estratigrafia).

Inici: 2007 **Fi:** 2008

DEPARTAMENT DE CIÈNCIES HISTÒRIQUES I TEORIA DE LES ARTS

Referència: HUM2004-00750/HIST. Ministeri d'Educació i Ciència.

Modalitat: Programa nacional d'humanitats.

Títol: *Recursos y subsistencia en un medio insular mediterráneo. Las comunidades humanas baleáricas durante la prehistoria.*

Acrònim: ARQUIB.

Centre: Departament de Ciències Històriques i Teoria de les Arts. Edifici Ramon Llull.

Investigador responsable: GUERRERO AYUSO, Víctor Manuel.

Categoría: TU (àrea de coneixement: Prehistòria).

Inici: 2004 **Fi:** 2007

Membres de l'equip	Categoría	Dedicació (EDP)
Guerrero Ayuso, Víctor Manuel	TU	1
Calvo Trias, Manuel	Aj. EU	1
Ensenyat Alcover, Josep Francesc	As.	1
Salvà Simonet, Bartomeu	As.	1
Gornés Hachero, Josep Simó	As.	1
Garcia Rosselló, Jaume	B	1
Fornés Bisquerra, Joan	B	1
Quintana Abraham, Carles		1
Juncosa Vecchierini, Elena		1

Investigadors d'altres entitats

Albert Cristóbal, Rosa Maria Universitat de Barcelona

EDP del grup investigador de l'entitat sol·licitant: 9.

Summary

Island environments are known to be less variable ecologically as well as more fragile than the continental ones. This is more so in the case of a relatively small group of islands like the Balearics. The present project will try to study the management strategies for both biotic and non-biotic resources by the Balearic communities throughout prehistory (c.3000-123 BC). We know that each basic archaeological period, Chalcolithic (c. 2500-1900 BC), Bronze Age (c. 1900/1800-1000 BC) and Iron Age (c.1000/900 BC) had different subsistence models although the empirical basis that sustain the models currently in use are not strong enough. The available studies are still partial and geographically biased. Chalcolithic and Bronze Age do not have enough archaeological record for a deep and detailed scientific discussion while the Iron Age, even though is better documented the archaeological record is restricted to few sites (one in Menorca and two in Mallorca). The research group is currently conducting the archaeological excavation of five major sites: Son Gallard, Son Torrella, Clossos de Ca'n Gaià, and La Morisca, in Mallorca, and Biniparratxet, in Menorca. These sites cover the full chronological sequence between c. 3000 and 200/123 BC, which guarantees the possibility of a wide comparative cultural and diachronic study. The project's basic strategic objectives are: Reconstruction of the vegetal landscape during the chronological stages cited.

Establish clear relationships between each social group and the changes recorded in the island's environment.

Consider in each case how husbandry and agriculture operate. Study the exploitation of non-biotic resources in each phase, particularly imports of metal raw materials. A complete study of the relationship between the islander and the sea in its two fundamental aspects: the exploration of marine resources (fishing and salt) and the sea as communication and extra-insular exchange route among the islands of the archipelago and between the islands and the continent. Definition of the gene pool of the insular prehistoric communities.

Referència: HUM2005-03467/HIST. Ministeri d'Educació i Ciència.

Modalitat: Programa nacional d'humanitats.

Títol: *Oligarquías y grupos de poder en la Mallorca Moderna.*

Centre: Departament de Ciències Històriques i Teoria de les Arts. Edifici Ramon Llull.

Investigador responsable: JUAN VIDAL, Josep.

Categoría: CU (àrea de coneixement: Història Moderna).

Inici: 2005 **Fi:** 2008

Membres de l'equip	Categoría	Dedicació (EDP)
Juan Vidal, Josep	CU	1
Viquer Bennàssar, Onofre	As.	1
Picazo Muntaner, Antoni	As.	1

EDP del grup investigador de l'entitat sol·licitant: 3.

Summary

The study of the power élites existing in Mallorca during the Modern Age proposes to comprise a collection of biographies of people connected with the exercise of power, including not only representatives of the high royal administration within the island kingdom but also members of the reigning administration. on the one part viceroys, captain generals, royal magistrates, commissioners, regents and Royal Court judges, and on the other hand jurors, advisors, officials, lawyers and councillors as well as important people who, in the service of the monarchy, circulated around the various kingdoms of the Crown of Aragon, the Crown of Castile and the Crown of Italy. It is interesting to reveal their family relationships, social interactions and the relation between their kinship, their economic interests and their aspirations to power.

The primary objectives will be, by means of the cross-referencing of documentary sources, to identify those people who occupied positions of great importance in the kingdom, determining their "cursus honorum", their economic relations, their heritage, their patronage and political

customers as well as other mechanisms whereby the enjoyment of power was assured to them for a determined length of time in modern age Mallorca.

Referència: HUM2005-04035/ARTE. Ministeri d'Educació i Ciència.

Modalitat: Programa nacional d'humanitats.

Títol: *Guillem Sagrera y la escultura arquitectónica del siglo XV.*

Acrònim: GSEA.

Centre: Departament de Ciències Històriques i Teoria de les Arts. Edifici Ramon Llull.

Investigadora responsable: SABATER REBASSA, Sebastiana M.

Categoría: TU (àrea de coneixement: Història de l'Art).

Inici: 2005 **Fi:** 2008

Membres de l'equip	Categoría	Dedicació (EDP)
Sabater Rebassa, Sebastiana M.	TU	1
Escandell Proust, Isabel Joana	TEU	1
Capellà Galmés, Miquel À.	TEU	1

EDP del grup investigador de l'entitat sol·licitant: 3.

Summary

The project has two main objectives. First, it pretends to complete the current knowledge about Guillem Sagrera's work and his studio, from the catalogue and study of the historical and artistic sets of architectural sculpture – ornamental tracerries, cantilevers, capitals, codes of vaults, gargoyles, etc.- that are linked with his activities in Majorca; analysis that is extended to other interesting works, made in Perpignan and Naples, where the teacher and other sculptors of his environment appear documented. Since the absence of adequate studies about this topic is extended to the whole of this production in Majorca, the project proposes, as second global objective, to catalogue and study the whole works of architectural sculpture, made in the island throughout the century, along with the review of the written documentation related to them. This will lead to a better understanding of the workshops, to a chronological, iconographic, linguistic systematization of the production and, in relation to the first suggested objective, this will make possible to distinguish the direct and indirect echoes of the *sagreriana* sculpture, with regard to other proposals of the late Gothic style.

Referència: HUM2005-05819/ARTE. Ministeri d'Educació i Ciència.

Modalitat: Programa nacional d'humanitats.

Títol: *Pintura y crítica en las Islas Baleares (1898-1936).*

Acrònim: PINCRIBA.

Centre: Departament de Ciències Històriques i Teoria de les Arts. Edifici Ramon Llull.

Investigadora responsable: CANTARELLAS CAMPS, Catalina.

Categoría: CU (àrea de coneixement: Història de l'Art).

Inici: 2005 **Fi:** 2008

Membres de l'equip	Categoría	Dedicació (EDP)
Cantarella Camps, Catalina	CU	1
Lladó Pol, Francesca	TU	1
Falero Folgoso, Francisco José	TU	1
Brotóns Capó, M. Magdalena	TEU	1

EDP del grup investigador de l'entitat sol·licitant: 4.

Referència: HUM2005-06200/HIST. Ministeri d'Educació i Ciència.

Modalitat: Programa nacional d'humanitats.

Títol: *Organización y práctica de la sanidad marítima en España, 1720-1904. Un estudio regional.*

Centre: Departament de Ciències Històriques i Teoria de les Arts. Edifici Ramon Llull.

Investigadora responsable: MOLL BLANES, Isabel.

Categoría: CU (àrea de coneixement: Història Contemporània).

Inici: 2005 **Fi:** 2008

Membres de l'equip	Categoría	Dedicació (EDP)
Moll Blanes, Isabel	CU	0.5
Salas Vives, Pere	As.	1
Canaleta Safont, Eva	B	1
Pujadas Mora, Joana Maria	B	1

Investigadors d'altres entitats

Montaner Alonso, Pere	Reial Acadèmia de Medicina i Cirurgia
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EDP del grup investigador de l'entitat sol·licitant: 3.5.

Referència: HUM2006-01329. Ministeri d'Educació i Ciència.

Modalitat: Programa nacional d'humanitats.

Títol: *El crédito y el sistema financiero en el Reino de Mallorca (siglos XIV-XV).*

Acrònim: CREFIBAL.

Centre: Departament de Ciències Històriques i Teoria de les Arts. Edifici Ramon Llull.

Investigador responsable: CATEURA BENNÀSSER, Pau.

Categoría: CU (àrea de coneixement: Història Medieval).

Inici: 2006 **Fi:** 2009

Membres de l'equip	Categoría	Dedicació (EDP)
Cateura Bennàsser, Pau	CU	1
Fernández González, M. Carmen	TU	1
Investigadors d'altres entitats		
Urgell Hernández, Ricard	Govern Balear	
Navarro Gómez, Ricardo	Govern Balear	
Mayol Llompart, Antoni	Arxius i Biblioteques	
López Bonet, Josep F.	Consell de Mallorca	
Tudela Villalonga, Lluís	UNED	

EDP del grup investigador de l'entitat sol·licitant: 2.

Summary

The agrarian and commercial expansion of the 13th century is directly related to the term of credit. The development of the commercial activities is incomprehensible without the concepts of credit, as usual methods for the financing of companies. In the area of the real estate property new methods like the buying and selling of received census over properties, the alienation of the eminent lands by the allodial owners and, finally, the National debt have been developed. The project, based on the kingdom of Majorca of the 14-15th centuries, will have the following objectives:

- a) Analysis and chronology of each credit product: from the short-term credit (loans) to the long-term credit (census).
- b) The applicable legal regime for the different credit formulas over the legislation of the period (public control of interests and credits and rules about census)
- c) The introduction of the municipalities to the credit offer. The creation of organizations aimed at deposit-taking (municipal banking) and deposit-taking strategies: bank deposit, compulsory and census credit.

Referència: HUM2006-07725. Ministeri d'Educació i Ciència.

Modalitat: Programa nacional d'humanitats.

Títol: *La recuperación de la decoración mural en la arquitectura religiosa de las Islas Baleares*

Acrònim: RDMARIB.

Centre: Departament de Ciències Històriques i Teoria de les Arts. Edifici Ramon Llull.

Investigadora responsable: GAMBÚS SÁIZ, Mercè.

Categoría: TU (àrea de coneixement: Història de l'Art).

Inici: 2006 **Fi:** 2009

Membres de l'equip	Categoría	Dedicació (EDP)
Gambús Sáiz, Mercè	TU	1
Villalonga Vidal, Andreu J.	TEU	1
Forteza Oliver, Miquela	Aj. Dr.	1
Bauzá de Mirabó Gralla, Maria C.	TEU	1

Investigadors d'altres entitats

Reig Morro, Antònia	Bisbat de Mallorca
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EDP del grup investigador de l'entitat sol·licitant: 2.

Summary

This research project aims to study the different manifestations of mural decoration conserved in the religious architecture of the Balearic Islands as a way of contributing to its documentary and material recovery. Mural paintings, sgraffito, ceramic facings and monumental sculpture are the different languages and techniques that have been applied to architectural decoration and have played a significant role with singular links to religious architecture in the Balearic Islands from the time Jaime I conquered the island until today. Irreparable losses, progressive deterioration and the absence of special studies define the current status of a heritage which is in need of conservation and which has no systematic intervention plan at present. Thus, this project's main objective is to open a line of research in the Balearic Islands that employs artistic and historical studies on mural decoration as a way to conserve documentation, the step which must be taken before any material intervention, conservation plan and dissemination plan.

The project specifies objectives to recover two mural painting areas in the same number of convents (Llucmajor-Mallorca and Ciutadella-Menorca), conduct an inventory, devise a catalogue and prepare a historic-artistic study of the sgraffito and ceramic facings in the Cartuja de Valldemossa, Mallorca, and document and draft a conservation plan for a modern ceramic facing in Palma de Mallorca Cathedral.

Participacions a altres projectes

Referència: HUM2005-04179/ARTE. Ministeri d'Educació i Ciència.

Modalitat: Programa nacional d'humanitats.

Títol: *Thesaurus Architecturae Hispaniae Mediaevalis.*

Investigador responsable: BANGO TORVISO, Isidro G.

Centre: Universitat Autònoma de Madrid.

Investigador de la UIB: Carrero Santamaría, Eduardo.

Categoría: TU (àrea de coneixement: Història de l'Art).

Inici: 2005 **Fi:** 2008

Referència: HUM2005-06316. Ministeri d'Educació i Ciència.

Modalitat: Programa nacional d'humanitats.

Títol: *Política e identidad. La construcción de los discursos identitarios en la Europa contemporánea: el caso de Catalunya.*

Investigador responsable: CASASSAS YMBERT, Jordi.

Centre: Universitat de Barcelona.

Investigador de la UIB: Serra Busquets, Sebastià.

Categoría: CU (àrea de coneixement: Història Contemporània).

Inici: 2005 **Fi:** 2008

Projectes del Govern Balear

Referència: PROGECIB Conselleria d'Economia, Hisenda i Innovació del Govern de les Illes Balears.

Modalitat: Projectes de recerca per a grups de recerca emergents i competitius.

Títol: *L'impacte del turisme. La difusió de las Balears a través de la fotografía internacional.*

Centre: Departament de Ciències Històriques i Teoria de les Arts. Edifici Ramon Llull.

Investigadora responsable: MULET GUTIÉRREZ, Mª Josep.

Categoría: TU (àrea de coneixement: Història de l'Art).

Inici: 2007 **Fi:** 2009

DEPARTAMENT DE CIÈNCIES MATEMÀTIQUES I INFORMÀTICA

Referència: TIN2004-07926. Ministeri d'Educació i Ciència.

Modalitat: Programa nacional de tecnologies informàtiques.

Títol: *Integración de escenarios virtuales con agentes inteligentes 3D.*

Acrònim: INEVAI3D.

Centre: Departament de Ciències Matemàtiques i Informàtica. Edifici Anselm Turmeda.

Investigador responsable: PERALES LÓPEZ, Francisco José.

Categoría: TU (àrea de coneixement: Ciències de la Computació i Intel·ligència Artificial).

Inici: 2004 **Fi:** 2007

Membres de l'equip	Categoría	Dedicació (EDP)
Perales López, Francisco José	TU	1
Jaume Capó, Antoni	Tèc.	1
Fontanet Nadal, Gabriel	TEU	1
Bibiloni Coll, Antoni	TEU	0.5
Mas Sansó, Ramon	TU	1
Mascaró Oliver, Miquel	TEU	1
Amengual Salas, Antoni	Tèc.	1
Varona Gómez, Javier	Tèc.	1
Manresa Yee, Cristina-Suemay	Tèc.	1
Igelmo Ganzo, Ángel	CEU	1
González Hidalgo, Manuel	TU	0.5
Miró Julià, Margarita	TEU int.	0.5
Palmer Rodríguez, Pere A.	TEU	1
Mascaró Portells, Miquel	TEU	1
Fiol Roig, Gabriel	TU	0.5
Buades Rubio, Josep M.	P. Col.	1
Abasolo Guerrero, María José	Vis.	1
Clar Matheu, Albert	Tèc.	1
Sola Venteo, Antonio	Tèc.	0.5
Investigadors d'altres entitats		
Cruz Berg, Alexandre	ULBRA	
Rosecler Bez, Marta	ULBRA	
Noll do Matos, Patricia	ULBRA	
Baldassarri, Sandra	Universitat de Saragossa	
Cerezo Bagdassarian, Eva M.	Universitat de Saragossa	
Pulido Trullén, Juan I.	Universitat de Saragossa	
Remiro Fernández, Virgino	Universitat de Saragossa	
Pina Calafi, Alfredo	Universitat Pública de Navarra	

EDP del grup investigador de l'entitat sol·licitant: 16.5.

Summary

The present project defines a global and unified framework with intelligent tri-dimensional agents for the actual systems and the future virtual environments. Nowadays electronic communication among persons includes from basic chats and GSM services to virtual immersive sceneries with great realism. The differences are obvious, and virtual immersive sceneries provide mechanisms for interacting

virtual elements (avatars, information, passive objects) with the sceneries that participate virtually in a universe.

This is a very wide and ambitious field and it's necessary to define clearly which are the issues to develop in this project. The four important issues to develop can be summarized in: a) Unified Integration of Virtual Scenarios (Web, GSM, UMTS, chat, TV, 3D, etc.); b) Intelligent Humanoid simulation (Agents); c) Human Motion Analysis using force sensors; d) New Multimodal Interfaces and their application in domotic environments with 3D Agents.

Tic's impact on the domestic environment is very important and the diversity of intercommunication systems on the networks also. Multiple and heterogeneous communication systems and providers exist (IEEE 802.11x, GPRS, UMTS, Blue Tooth, Mobile IP, Ipv6). All virtual sceneries systems and electronic presence in general are interested in the interaction among remote actors that base their interaction's quality on the network characteristics. Due to this, it is a very important aim to guarantee an interaction's quality independently of the underlying communication systems and to provide a scalable, consistent and fault tolerant requirements' implementation.

Virtual environments own characteristics that allow the user to select their own point of view and to be represented with an avatar. Although a realistic representation of the virtual environment elements is important we consider avatars behaviour simulation as a very interesting field to develop. Intelligent agents will allow the person to interact in the immersive environment through geometric and behaviour models of the virtual elements of the defined world. Persistence and portability guarantee of these agents among the different virtual worlds must be accomplished. Computer interaction is through physical and logical devices; therefore a person human's motion analysis can modify the agents or the elements' behaviour of the virtual scene. Due to this, it is important to consider the inclusion of an avatar analysis and synthesis section using no-invasive techniques and others that allow force captures (haptics).

Through our experience in other projects (TIC2001-0931, TIC1998-0302-C02), we know that computer vision systems allow to capture the motion and to interpret the user's actions. The aim of this project is to advance one more step forward and to use the previous systems including kinetic models and haptic devices for enhancing the studied techniques. The necessity of a visual and physical immersion has to be a key point in the virtual collaborative environments. In previous projects, advanced issues on avatars had not been treated, but in this project have to be studied. In particular, a domotic application on realistic facial modelling would be a key issue to consider. User's expression captures and advanced facial representation of 3D agents that understand those expressions is a new interaction setting in virtual environments. An issue to be treated is the realistic modelling of the multilevel face (cranium, muscles and skin) for studying in example facial aging and to be able to model avatars with these characteristics.

Finally we should be aware that normally virtual or augmented reality systems are very specific and expensive therefore their spreading and their application fields are limited. We think that domotic is a very important field and with a great growing in a near future. The results' application of the previous sections in domotic environments would be achieved with virtual reality domestic systems and 3D agents. The person-home interaction will allow important synergies in both fields. Simultaneously we want to study new communication systems between men-machine, specially directed to disabled persons where their functional limitation can be supported through advanced domotic systems and specific intelligent interfaces.

As a conclusion, tools and software have to be adapted to the current standards and portability and compatibility properties should be achieved. Previous experiences showed us that using UML methodology for requirements specifying, analysis and process design is necessary in big projects where many physical and logical resources are managed.

Referència: SEG2004-02229. Ministeri d'Educació i Ciència.

Modalitat: Programa nacional de seguretat.

Títol: *Repudio en el intercambio de valores equitativo con servicios TTP.*

Acrònim: RIVEST.

Centre: Departament de Ciències Matemàtiques i Informàtica. Edifici Anselm Turmeda.

Investigador responsable: FERRER GOMILA, Josep Lluís.

Categoría: TU (àrea de coneixement: Enginyeria Telemàtica).

Inici: 2004 **Fi:** 2007

Membres de l'equip	Categoría	Dedicació (EDP)
Ferrer Gomila, Josep Lluís	TU	0.5
Huguet Rotger, Llorenç	CU	0.5
Payeras Capellà, Magdalena	TEU	0.5
Mut Puigserver, Macià	As.	1
Femenias Nadal, Guillem	TU	0.5
Furió Caldentey, Ignasi	TEU	0.5
Carrasco Martorell, Lorenza	TEU	0.5

EDP del grup investigador de l'entitat sol·licitant: 4.

Summary

The fundamental objective of the project is to design protocols for two cases of fair exchange of values: the electronic signature of contracts and the certified electronic mail. Each part has an element to exchange, but he doesn't want to give its element without having the guarantee that he will receive that of the other part (fairness). The participants should not be able to deny later their participation in the exchange: non repudiation services must be used. It is well known that the only valid solutions are those that count with the existence and possible involvement of a Trusted Third Party (TTP). In a second phase the exchange will be extended to multiple parts (multiple signatories of the same contract or multiple recipients of the certified mail). It is also confronted in this project the objective of defining specifications that allow to settle down standards. In the case of the signature of contracts the initial proposal will head to the use of XML, participating in discussion groups in the W3C. For the certified mail, the initial base will be the *de facto* standard S/MIME, being integrated in working groups of the IETF.

On the other hand, the juridical mark that the European Directive and the Spanish law on electronic commerce settle down, as well as the legislation in relation to electronic notifications, forces us to refocus the investigation being carried out in the technical environment. So, we want to stand out the novel character of the project. This way, the solutions that will be presented will have been revised from a technical analysis of juridical documentation. Also, the pertinent feedback in contrary sense will allow to carry out recommendations so that laws, orders and regulations settle down, more appropriate to the possibilities of the technique.

Referència: HUM2004-04992. Ministeri d'Educació i Ciència.

Modalitat: Programa nacional d'humanitats.

Títol: *La recuperación y catalogación del patrimonio científico de las Islas Baleares.*

Centre: Departament de Ciències Matemàtiques i Informàtica. Edifici Anselm Turmeda.

Investigador responsable: BUJOSA HOMAR, Francesc.

Categoría: CU (àrea de coneixement: Història de la Ciència).

Inici: 2004 **Fi:** 2007

Membres de l'equip	Categoría	Dedicació (EDP)
Bujosa Homar, Francesc	CU	1
Moll Blanes, Isabel	CU	0.5
Sureda Garcia, Bernat	CU	0.5
Marín Gelabert, Miquel	Inv.	1

Investigadors d'altres entitats

Vidal Hernández, Josep M. Consell de Menorca

EDP del grup investigador de l'entitat sol·licitant: 3.

Referència: MTM2005-08567. Ministeri d'Educació i Ciència.

Modalitat: Programa nacional de matemàtiques.

Títol: *Modelos matemáticos para el tratamiento y análisis de imágenes y aplicaciones.*

Acrònim: MATIMA.

Centre: Departament de Ciències Matemàtiques i Informàtica. Edifici Anselm Turmeda.

Investigador responsable: COLL VICENS, Bartomeu.

Categoría: TU (àrea de coneixement: Matemàtica Aplicada).

Inici: 2005 **Fi:** 2008

Membres de l'equip	Categoría	Dedicació (EDP)
Coll Vicens, Bartomeu	TU	1
Sbert Juan, Catalina	TU	1
Lisiani Roca, Josep Lluís	TEU	1
Rocha Cárdenas, Jairo	TEU int.	0.5
Buades Capó, Antoni	B	1
Petro Balaguer, Ana B.	B	1

Investigadors d'altres entitats

Morel, Jean Michel	ENS-CACHAN
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EDP del grup investigador de l'entitat sol·licitant: 5.5.

Summary

The proposed project is a project on applied mathematics, with applications to the field of digital images analysis and processing. The main goals of the project are:

- 1) Experimentation, modelization and mathematical analysis of some problems in the field of digital images analysis and processing. Specifically, these problems are: color images filtering with partial derivatives equations (PDE's); restoration of noisy images (denoising) by using variational and statistical models; study of the halftoning problem, which consists of representing an image with a reduced number of colors, after its modelization as a discrete dynamical system; basic study of colors, having as a goal the automatic classification of the colors of an image; efficient registration of satellite images.
- 2) Study and development of the numerical algorithms that correspond to each one of the previously enumerated problems.
- 3) Practical application of the obtained algorithms and results to different fields such as: restoration of photographic images, with emphasis in the low resolution pictures obtained with cameras such as the ones integrated in mobile telephones; automatic indexing of image databases, based on color features; fast, automatic and accurate registration of satellite images; improvement in the quality of digital images prints; etc.

Referència: TEC2005-00997/TCM. Ministeri d'Educació i Ciència.

Modalitat: Programa nacional de tecnologies electrònica i de comunicacions.

Títol: *Diseño intercapas aplicado a sistemas basados en MIMO-MC/OFDM-CDMA adaptativo para redes integradas móviles de banda ancha.*

Acrònim: MARIMBA.

Centre: Departament de Ciències Matemàtiques i Informàtica. Edifici Anselm Turmeda.

Investigador responsable: FEMENIES NADAL, Guillem.

Categoría: TU (àrea de coneixement: Enginyeria Telemàtica).

Inici: 2005 **Fi:** 2008

Membres de l'equip	Categoría	Dedicació (EDP)
Femenies Nadal, Guillem	TU	0.5
Riera Palou, Felip	Inv.	1
Cardona Juanals, Gabriel	TEU int.	0.5
Carrasco Martorell, Lorenza	TEU	0.5
Furió Caldentey, Ignasi	TEU	0.5
Ramis Bibiloni, Jaume	As.	1

EDP del grup investigador de l'entitat sol·licitant: 4.

Summary

Project MARIMBA will be dedicated, on the one hand, to the design and analysis of adaptive and reconfigurable MIMO-OFDM/CDMA (Multiple Input-Multiple Output-Orthogonal Frequency Multiplex/Code Division Multiple Division Access) systems and of the corresponding system level control mechanisms, for their incorporation to multiplatform mobile radio environments and, on the other hand, to the implementation of a software demonstrator that allows to validate the previous designs in realistic scenarios. MIMO technology allows the reconfiguration of the system based on the propagation characteristics, the traffic conditions, the service requirements and the number of antennas available at the base stations and mobile terminals. Therefore, it is hoped to obtain an increase of the spectral efficiency at the link level, a capacity increase at a system level and to provide interoperability in environments made up of different mobile systems (multiplatform environments). Although one assumes that in the mobile communication networks beyond the third generation (3G+) and in those of fourth generation (4G) a great variety of systems and services will coexist, project MARIMBA will be centered in UMTS, IEEE 802.xx and HIPERLAN/2 (High PERformance LAN) since these systems seem to have a high commercial interest and are appropriate candidates for mobile communication networks of 3G+ and 4G systems. The best possible performance together with a reasonable complexity will be obtained by jointly optimizing (cross-layer design) all the stages of an adaptive system. The study will include, among others, the analysis of the main functions of physical and MAC/DLC layers, the evaluation of MIMO-OFDM/CDMA techniques, the analysis of antenna and/or beam selection in MIMO-OFDM/CDMA environments, the development of channel estimation and synchronization algorithms, the combination of space-time processing with adaptive modulation techniques and the combination of space-time codes, turbo-codes, LDPC (Low-Density Parity-Check) codes and hybrid-ARQ strategies for the control of errors in physical and MAC layers. The system will not be optimized /a priori/, instead it will be adapted and reconfigured based on the user needs and on the variable characteristics of the environments. In a sense, this constitutes a step towards what has been called /software radio/ in fourth generation systems and surpasses the present state of the mobile communications systems, including the cellular mobile systems of third generation (p. e., UMTS) and the IEEE 802.xx and HIPERLAN/2 standards.

Referència: DPI2005-09001-C03-02. Ministeri d'Educació i Ciència.

Modalitat: Programa nacional de disseny i producció industrial.

Títol: *Guiado y posicionado de un AUV para inspección de cables y emisarios submarinos.*

Acrònim: AIRSUB.

Centre: Departament de Ciències Matemàtiques i Informàtica. Edifici Anselm Turmeda.

Investigador responsable: OLIVER CODINA, Gabriel.

Categoría: TU (àrea de coneixement: Arquitectura i Tecnología de Computadores).

Inici: 2005 **Fi:** 2008

Membres de l'equip	Categoría	Dedicació (EDP)
Oliver Codina, Gabriel	TU	1
Guerrero Sastre, José	P. col.	0.5
Rodríguez-Navas, Guillermo	P. Col.	0.5
González Cid, Yolanda	TEU	0.5
Proenza Arenas, Julián	TEU	0.5
Antich Tobaruela, Javier	P. Col.	0.5
Burguera Burguera, Antoni	P. Col.	0.5
Ortíz Rodríguez, Alberto	TEU	0.5
Barranco González, Manuel	Aj.	0.5
Rigo Vadell, Joan	As.	0.5
Bonnín Font, Francesc Jesús	As.	1

EDP del grup investigador de l'entitat sol·licitant: 6.5.

Summary

This project is part of a bigger one in which the researchers propose the design and development of the necessary technologies for the adaptation of the prototypes of the low-cost underwater vehicles GARBIROV, GARBIAUV , URIS and RAO II for their use in shallow waters. First, a catalogue of industrial applications will be created. For each and every of these missions, the adequate scenario will be established, as well as a mission preliminary schedule. Next, each subproject, leaded by a different research group, will be focused in one of these industrial applications: dam inspection of hydroelectric plants by UdG; underwater cable and pipe inspection by UIB and inspection of harbours by UPC.

Concerning the UIB, the main objective of the project is the design of an autonomous video-based cable tracker able to work on real environments. As a natural extension, the vehicle could also be tested, with minor changes, to track any other object similar in appearance to a cable such as oil, gas or waste water pipes. Moreover, the plans for the cable tracking system include the automatic detection of the more frequent defects and anomalous situations of those equipments including cable coverage loss and free-span. It is essential for the project to

have a vehicle with a structure robust enough to reach and work at depths of almost 100 meters. To this end, the Systems, Robotics and Vision (SRV) group has acquired a unit of the low-cost commercial ROV SeaLion prepared to work at 250 m depth. In this project the vehicle will be mechanically and electronically modified to transform it into a new AUV prototype which will be called RAO-II. As concerns research in robotics, new algorithms of control architectures, computer vision, navigation strategies, behaviours, and learning, among others, will be studied and developed.

Referència: MTM2006-08322. Ministeri d'Educació i Ciència.

Modalitat: Programa nacional de matemàtiques.

Títol: *Generación aditiva de normas triangulares sobre espacios de funciones. Aplicaciones.*

Acrònim: GANT.

Centre: Departament de Ciències Matemàtiques i Informàtica. Edifici Anselm Turmeda.

Investigador responsable: MAYOR FORTEZA, Gaspar.

Categoría: CU (àrea de coneixement: Ciències de la Computació i Intel·ligència Artificial.

Inici: 2006 **Fi:** 2009

Membres de l'equip	Categoría	Dedicació (EDP)
Mayor Forteza, Gaspar	CU	1
Aguiló Pons, Isabel	TEU	1
Suñer Llabrés, Jaume	TEU	0.5
Martín Pelayo, Javier	P. col.	1
Casasnovas Casasnovas, Jaume	CEU	1

Investigadors d'altres entitats

Calvo Sánchez, Tomasa	Universitat d'Alcalà
Lázaro García, Jesús	Universitat d'Alcalà

EDP del grup investigador de l'entitat sol·licitant: 4.5.

Summary

This project consists of three parts. The first part is devoted to the study of the problem of the additive generation of triangular norms (t-norms) defined on discrete domains. In particular, we deal with the proof of the conjecture ‘Any t-norm defined on a finite chain has an additive generator’. In the second part t-norms are studied in the general setting of bounded partially ordered sets, with emphasis on product lattices. An important question in this part of the project is the direct decomposability of t-norms on product lattices. We claim to obtain, in different cases, a characterization of those t-norms which are direct product of t-norms defined on the lattices we start with. The third part deals with the application of results to some fields. In particular, the acquired knowledge allows us, for the natural numbers ordered by divisibility, the definition of a prime number with respect to a t-norm T, and the possibility of decomposition of any number into T-primes by means of a divisible (smooth) t-conorm. Finally, it seems also interesting to apply some concepts and results to the definition of generalized operations with some classes of multisets.

Referència: MTM2006-05540. Ministeri d'Educació i Ciència.

Modalitat: Programa nacional de matemàtiques.

Títol: *Operadores de agregación y sus funciones de implicación derivadas. Aplicaciones.*

Acrònim: OPAGIMA.

Centre: Departament de Ciències Matemàtiques i Informàtica. Edifici Anselm Turmeda.

Investigador responsable: TORRENS SASTRE, Joan.

Categoría: CEU (àrea de coneixement: Ciències de la Computació i Intel·ligència Artificial.

Inici: 2006 **Fi:** 2009

Membres de l'equip	Categoría	Dedicació (EDP)
Torrens Sastre, Joan	CEU	1
González Hidalgo, Manuel	TU	0.5
Mir Torres, Arnau	TU	0.5
Monserrat Antich, Miquel	TU	1
Mas Grimalt, Margalida	TEU	1
Suñer Llabrés, Jaume	TEU	0.5

EDP del grup investigador de l'entitat sol·licitant: 4.5.

Summary

In this project we deal with the study of aggregation operators and their derived implications from the theoretical point of view and from their applications. The field of aggregation operators and fusion of information is of increasing interest due to the necessity of suitable tools allowing to fuse several inputs or data in just one, in mathematics and also in other fields as physics, engineering, computer science, economics and social sciences. On the other hand, implications are essential in fuzzy logic and approximate reasoning and they have proved to be useful in other fields also, especially in mathematical morphology and image processing. All that leads to set out a research centred on aggregation operators and their implications.

In this project we deal with general aggregation functions but also with specific ones, mainly with uninorms. The main objectives will be: To solve functional equations associated to them; the characterization of new families of implications derived from uninorms and other types of aggregation functions as well as the study of their properties; the study of the discrete case (aggregation operators and implications defined on a finite chain), due to their applicability in the fusion of qualitative data and in the computation with words; the applications of some aggregation functions to mathematical morphology and image processing. In this last case, the implementation of the morphological operators, morphological filters, and distances obtained from uninorms will be of great importance. It is interesting to compare the results with the classical ones and the fuzzy morphology (based until now on the use of t-norms), in the fields of edge detection and non-lineal filtering.

Referència: TIN2006-02265. Ministeri d'Educació i Ciència.

Modalitat: Programa nacional de tecnologies informàtiques.

Títol: *Calidad de servicio en el modelado de sistemas de información mediante ontologías.*

Acrònim: QUASIMODO.

Centre: Departament de Ciències Matemàtiques i Informàtica. Edifici Anselm Turmeda.

Investigador responsable: PUIGJANER TREPAT, Ramon.

Categoría: CU (àrea de coneixement: Arquitectura i Tecnologia de Computadors).

Inici: 2006 **Fi:** 2009

Membres de l'equip	Categoría	Dedicació (EDP)
Puigjaner Trepat, Ramon	CU	1
Juiz García, Carlos	TEU	1
Galmés Obrador, Sebastià	TU	1
Lladó Matas, Catalina	TEU	1
Serra Cifre, Bartomeu	CU	1
Erice Ruiz, María del C.	TEU	1
Guerrero Tomé, Carlos	P. Col.	1
Sancho de la Jordana, Pere P.	Tèc.	1
Tramullas Vich, Joan	As.	1

Investigadors d'altres entitats

Alcaraz Carrasco, Salvador	Universitat Miguel Hernández
Gilly de la Sierra, Katja	Universitat Miguel Hernández

EDP del grup investigador de l'entitat sol·licitant: 9.

Summary

Traditionally, the design of computing and communication systems has been carried out only caring about the qualitative properties of these systems and not taking into account their quantitative properties. The quantitative aspects were introduced in the design of computing systems a couple of decades ago with the so-called Software Performance Engineering.

The aim of this project is to incorporate the performance aspects to the ambient intelligence systems both at the design and the execution phases. The approach that seems reasonable at the moment to provide the systems with the capability of analysing the performance during their execution is based on ontologies. The thinking process would be based on rules to decide how to adapt the system to the changing conditions of the environment. However, previous to applying the conclusions given, those should be validated against results obtained through the execution of a model of the system behaviour.

In order to predict the system performance in the design phase, the behaviour of the basic infrastructure of ambient intelligence systems will have to be analysed in depth. This infrastructure is mainly composed by the wireless sensors and the actor networks. We will study how to obtain reliable statistics in continuous observation processes and the performance analysis of such environment. Obtaining reliable statistics in continuous observation processes is needed due to the type of applications intended to be studied since one of them is the ambient monitoring that needs this type of observation.

Finally, the project will be completed with the application of the proposed methodologies to several environments: the above mentioned of ambient monitoring and a conference management and control.

Referència: TSI2007-62986. Ministeri d'Educació i Ciència.

Modalitat: Programa nacional de tecnologies de serveis per a la societat de la informació.

Títol: *Seguridad en la Contratación Electrónica basada en Servicios WEB*.

Acrònim: SCONES-WEB.

Centre: Departament de Ciències Matemàtiques i Informàtica. Edifici Anselm Turmeda.

Investigador responsable: FERRER GOMILA, Josep L.

Categoría: TU (àrea de coneixement: Enginyeria Telemàtica)

Inici: 2007

Fi: 2010

<u>Membres de l'equip</u>	<u>Categoría</u>
Ferrer Gomila, Josep L.	TU
Huguet Rotger, Llorenç	CU
Payeras Capellá, Magdalena	TEU
Mut Puigserver, Macià	As.

Summary

The fundamental aim of this project is to design and to implement protocols for the electronic signature of contracts based on web services. In the electronic contracting, in a general way, each part has an element to exchange, but one part doesn't want to give his element without having the guarantee that he will receive the element of the other part (fairness). The parts should not be able to deny *a posteriori* their participation in the exchange: non-repudiation services should be integrated. The only viable solutions are those that have the existence and possible implication of a trusted third party (TTP). Then, existent ad-hoc solutions should be adapted for the scenario outlined by the web services, knowing that nowadays they are imposed with strength. This makes necessary to revise the interrelation with the proposals of standard, especially those related to security, of the web services (elaborated by groups like OASIS and W3C): SOAP, WS-family, ebXML, etc. In a second phase it should be carried out an extension of the work when multiple actors should act in the contracting (multiple signatories of the same contract, or when "middlemen" appear like they are the travel agencies in the purchase of an airplane note or a hotel room). On the other hand, and continuing with the line undertaken in previous projects, we will have in mind the juridical mark that the European Directive and the Spanish law on electronic commerce establish. The contributed solutions will be fruit of the technical analysis of the legislation that affects to the approached problem, the electronic contracting based on web services.

Finally, and derived of the lacks that have been detected in previous works, the intervention of the multiple third parties that appear in the scenarios of electronic contracting (certification authorities, validation authorities, directory services, specific TTPs for the signature of contracts, etc.) will be analyzed, with the objective of carrying out recommendations regarding their design and implementation, as well as the interrelation that exists among them. Aspects like the verifiability, computation and communications overhead, etc. will be analyzed.

Referència: TIN2007-67896. Ministeri d'Educació i Ciència.

Modalitat: Programa nacional de tecnologies informàtiques.

Títol: *Prototipos de interacción natural mediante interfaces enactivas basadas en entradas visuales.*

Acrònim: PINes.

Centre: Departament de Ciències Matemàtiques i Informàtica. Edifici Anselm Turmeda.

Investigador responsable: VARONA GÓMEZ, Javier.

Categoría: INVESTIGADOR CONTRACTAT.

Inici: 2007 **Fi:** 2010

Membres de l'equip	Categoría	Dedicació (EDP)
Varona Gómez, Javier	Inv.	1
Manresa Yee, Cristina	Aj.	1
Jaume Capó, Antoni	Aj.	1
Palmer Rodríguez, Pedro	TEU	0.5
Mir Pozo, M. Luisa	TEU	0.5
López-Polin Hernanz, Cristina	Tèc.	0.5

Investigadors d'altres entitats

Muñoz Caballero, Carolina

EDP del grup investigador de l'entitat sol·licitant: 4.5

Summary

Multimodal human-computer interfaces integrate input and output modalities, such as audio, speech, vision, gesture and touch. Enactive interfaces are related to an advance of the multimodal paradigm, a fundamental “natural interaction” concept which is not yet fully exploited in most of the existing human-computer interfaces. Enactive knowledge represents the kind of knowledge “learning by doing”, based on the experience of perceptual responses to action, acquired by demonstration and sharpened by practice. Even if up to now HCI technologies have not fully exploited the potential of enactive knowledge, recent technological advances have created the possibility to significantly enhance naturally the interface perception by means of visual inputs, the so called Vision-Based Interaction (VBI). Computer Vision technology applied to the human-computer interface has notable success to date. However, its usability and technological transference stills more research work. In this project, our goal is the design and development of real-time robust vision algorithms for user body and face motion recognition for building enactive interfaces. Besides, we plan to make a set of natural interaction prototypes (NIPs) for testing the algorithm's usability in real cases. Therefore, we could test the possible applications by the final users that would use them.

Referència: TIN2007-60440. Ministeri d'Educació i Ciència.

Modalitat: Programa nacional de tecnologies informàtiques.

Títol: *Arquitectura semántica orientada a servicios.*

Acrònim: SOSA.

Centre: Departament de Ciències Matemàtiques i Informàtica. Edifici Anselm Turmeda.

Investigador responsable: JUÍZ GARCÍA, Carlos.

Categoría: TEU (àrea de coneixement: Arquitectura i Tecnologia de Computadors)

Inici: 2007 **Fi:** 2010

Membres de l'equip	Categoría	Dedicació (EDP)
Juiz García, Carlos	TEU	1
Lera Castro, Isaac	As.	1
Khouja, Mehdi	B	1
Santamaría Pérez, M. Luisa	TEU	1
Miró Julià, Margaret	TEU	0.5

EDP del grup investigador de l'entitat sol·licitant: 4.5

Summary

In this last decade, a technological and social change, known as Ambiental Intelligence (AmI), has been created due to the integration of computational devices in our daily life to speed up chores. The change was initiated by device's low cost and the increase in mobile user's abilities. It requires ubiquitous attention and demands a greater participation of all resources that surround us. The integration involves issues such as availability, security, context interpretation, etc. None the less, an issue not mentioned but relevant is man-machine interaction. Human's communication language is based on the semantics of its representation, however, machines use a syntactic language. This syntactic representation causes a deficiency in the interaction, interpretation and automation of expected services in intelligent environments.

Consequently, this project proposes the construction of a service oriented semantic architecture (SOSA). The originality of this architecture is the semantic representation of its knowledge. The communication process, the cooperation and the service description will be taken into account in order to increase interaction and all its underlying sub processes. This will allow the investigation of computational paradigms, such as automatic and evolutive learning in the area of artificial intelligence, in order to carry out service interpretations more adapted to the user's profile of the environment at any place and at any time.

SOSA's construction process will consist in the analysis of service requirements in AmI, the integration process of devices (cell phone, portable computer, sensors, PDA,...), man-machine interaction language and finally the improvement of automation and inference processes. Once SOSA is in place, we will proceed to its application to two concrete environments depending on EPO's interests. First of all, SOSA will be integrated to provide guided tours in museums, thus allowing more flexibility to visitors. And secondly, SOSA will be incorporated to residual water's treatment, thus proving that the architecture also works in non-controlled environments that require a high degree of automation.

Referència: TIN2007-67993. Ministeri d'Educació i Ciència.

Modalitat: Programa nacional de tecnologies informàtiques.

Títol: *Interfaces tangibles avanzadas en domótica asistencial (ITADA)*

Acrònim: ITADA.

Centre: Departament de Ciències Matemàtiques i Informàtica. Edifici Anselm Turmeda.

Investigador responsable: PERALES LÓPEZ, Francisco José.

Categoría: TU (àrea de coneixement: Ciències de la Computació i Intel·ligència Artificial).

Inici: 2007 **Fi:** 2010

Membres de l'equip	Categoría	Dedicació (EDP)
Perales López, Francisco José	TU	1
Buades Rubio, Josep M.	P. Col.	0.5
Palmer Rodríguez, Pere A.	TEU	0.5
Miró Julià, Margarita	TEU int.	0.5
Colom Muntaner, Guiem	TEU	1
Fiol Roig, Catalina	As.	1
Fiol Roig, Gabriel	CEU	0.5
Fontanet Nadal, Gabriel	TEU	1
González Hidalgo, Manuel	TU	0.5
Mas Sansó, Ramon	TU	0.5
Mascaró Oliver, Miquel	TEU	0.5
Tous Durán, Pedro	As.	1
Arellano Tavara, Diana	B	1
Rossi, Jessica	Tèc.	1
Cruz Berg, Alexander	Tèc.	1
Rochezcler Bez, Marta	Tèc.	1

Investigadors d'altres entitats

De Miguel Sebastián, Pedro	Clínica Rotger
Payeras Llompart, Bartolomé	Clínica Rotger

EDP del grup investigador de l'entitat sol·licitant: 12.5.

Summary

The project we present hopes to advance another step in the definition of new multimodal interaction paradigms between the computer and the final user. Nowadays, electronic communication among people at different levels and different environments (chat, GMS services, virtual immersive scenes) is a fact. In previous experiences VBI (Visual Based Interface) systems have been developed, since they are the main font of information and interaction with the environment. On the other hand, conventional haptic systems have been explored and implemented. This project pretends to enlarge the interface's multimodal degree of the tangible interface to include the study and application of senses such as hearing, taste, smell and their combination in a new design. Likewise, distributed intelligent agents will allow the proper modeling of the system's behavior and its interaction with the user. The project's final application is the implementation of a domotic home assistance system for the elderly and disabled. Consequently, an important aspect to be considered is

the implementation of reliable verification methods for the identification of the elderly or disabled and their caregivers. To this effect, a multi biometric module is included in the proposed project. Finally, the implementation of the virtual assistance methods in a robot that helps an elderly in certain chores is an interesting challenge that will demonstrate the feasibility of natural interfaces applied to mobile robotics.

As a basic application of the previous theoretical results, we propose the development of a tangible avatar in a domotic environment for the elderly's daily assistance and with tele-assistance functionalities in chronic cases.

Our experience in previous projects (TIN2004-07926, TIC2001-0931, TIC1998-0302-C02) include VBI systems that allow movement capture and the interpretation of the user's actions using intelligent agents. Therefore, this project's petition, is based on acquired experience in VBI and haptics, in order to advance to more portable and ubiquitous systems in the final paradigms of the natural interface. The man-home interaction will allow the creation of very important synergies in a wide range of fields. We will concentrate in the development of TTS-ARS tools, synesthetic systems and their combination in intelligent models that handle this multimodality. The tools and software used must adjust to actual standards and seek the highest level of portability and compatibility. At the same time, systems must be low cost or use standard devices avoiding complex virtual reality systems unless strictly needed by the elderly or disabled. Due to prior experience, the application of a methodology for requirement specification, analysis and design is very necessary in large projects that manage many physical and logical resources.

Participació a altres projectes

Referència: TIN2004-0668C03. Ministeri d'Educació i Ciència

Modalitat: Programa nacional de tecnologies informàtiques.

Títol: *Innovación e integración de métodos para el desarrollo y gestión cuantitativa de proyectos software.*

Acrònim: IN2GESOFT.

Investigador responsable: DOLADO COSÍN, José Javier.

Centre: Universitat del País Basc.

Investigadora de la UIB: MAS PICHACO, Antònia.

Categoría: TEU (àrea de coneixement: Ciències de la Computació i Intel·ligència Artificial).

Inici: 2004 **Fi:** 2007

Projectes del Govern Balear

Referència: PROGECIB-16A. Conselleria d'Economia, Hisenda i Innovació del Govern de les Illes Balears.

Modalitat: Projectes de recerca per a grups de recerca emergents i competitius.

Títol: *Tecnologías de la información para la e-Contratación en el sector turístico (Turis-Tic).*

Centre: Departament de Ciències Matemàtiques i Informàtica. Edifici Anselm Turmeda.

Investigador responsable: FERRER GOMILA, Josep L.

Categoría: TU (àrea de coneixement: Enginyeria Telemàtica).

Inici: 2007 **Fi:** 2009

Referència: PROGECIB-23A. Conselleria d'Economia, Hisenda i Innovació del Govern de les Illes Balears.

Modalitat: Projectes de recerca per a grups de recerca emergents i competitius.

Títol: *XISPES: Xarxa Inalàmbrica d'altres Prestacions per l'entorn Sanitari.*

Centre: Departament de Ciències Matemàtiques i Informàtica. Edifici Anselm Turmeda.

Investigador responsable: RIERA PALOU, Felip.

Categoría: INVESTIGADOR CONTRACTAT.

Inici: 2007 **Fi:** 2009

Referència: Conselleria d'Economia, Hisenda i Innovació del Govern de les Illes Balears.

Modalitat: Accions especials de recerca, desenvolupament tecnològic i innovació.

Títol: *Models no lineals aplicats al processament matemàtic d'imatges als sistemes dinàmics.*

Centre: Departament de Ciències Matemàtiques i Informàtica. Edifici Anselm Turmeda.

Investigador responsable: COLL VICENS, Bartomeu.

Categoría: TU (àrea de coneixement: Matemàtica Aplicada).

Inici: 2007 **Fi:** 2008

Referència: Conselleria d'Economia, Hisenda i Innovació del Govern de les Illes Balears.

Modalitat: Ajudes per a l'organització de reunions, congressos, seminaris, simposis o jornades de caràcter científic.

Títol: *Congrés EUROPKI'07 (European Public Key Infrastructure 2007).*

Centre: Departament de Ciències Matemàtiques i Informàtica. Edifici Anselm Turmeda.

Investigador responsable: FERRER GOMILA, Josep L.

Categoría: TU (àrea de coneixement: Enginyeria Telemàtica).
Inici: 2007 **Fi:** 2007

Referència: Conselleria d'Economia, Hisenda i Innovació del Govern de les Illes Balears.
Modalitat: Ajudes per a l'organització de reunions, congressos, seminaris, simposis o jornades de caràcter científic.
Títol: *Organització de la conferència internacional MENSURA 2007.*
Centre: Departament de Ciències Matemàtiques i Informàtica. Edifici Anselm Turmeda.
Investigador responsable: MAS PICHACO, Antònia.
Categoría: TEU (àrea de coneixement: C. de la Computació i Intel·ligència Artificial).
Inici: 2007 **Fi:** 2007

Referència: Conselleria d'Economia, Hisenda i Innovació del Govern de les Illes Balears.
Modalitat: Ajudes per a l'organització de reunions, congressos, seminaris, simposis o jornades de caràcter científic.
Títol: *XV Jornadas ASEPUA y III encuentro internacional.*
Centre: Departament de Ciències Matemàtiques i Informàtica. Edifici Anselm Turmeda.
Investigador responsable: SERRA CIFRE, Bartomeu.
Categoría: CU (àrea de coneixement: C. de la Computació i Intel·ligència Artificial).
Inici: 2007 **Fi:** 2007

DEPARTAMENT DE DRET PRIVAT

Referència: SEJ2006-04975. Ministeri d'Educació i Ciència.

Modalitat: Programa nacional de ciències socials, econòmiques i jurídiques.

Títol: *Información sanitaria y autonomía del paciente (tratamiento de datos personales y consentimiento informado).*

Acrònim: ISAP.

Centre: Departament de Dret Privat. Edifici Gaspar Melchor de Jovellanos.

Investigador responsable: GRIMALT SERVERA, Pedro.

Categoría: TU (àrea de coneixement: Dret Civil).

Inici: 2006 **Fi:** 2009

Membres de l'equip	Categoría	Dedicació (EDP)
Grimalt Servera, Pedro	TU	1
Paniza Fullana, Antonia	TEU	0.5
Tur Faúndez, María Nélida	TU	0.5
Feliu Álvarez de Sotomayor, Sílvia	Aj. EU	0.5

Investigadors d'altres entitats

Osuna Carrillo de Albornoz, Eduardo	Universitat de Murcia
Fernández Salmerón, Manuel	Universitat de Murcia
Valero Torrijos, Julián	Universitat de Murcia
Sánchez Martínez, Daniel	Universitat de Murcia
Thibault Aranda, Javier	Universitat Autònoma de Barcelona

EDP del grup investigador de l'entitat sol·licitant: 2.5.

Summary

Nowadays, the sanitary activity is characterized by a much more institutionalized relationship, shared between different professionals. The problem is important: Information about patients can go towards multiple directions and data concerning health can be obtained not only from the person who provides them. As well, every day they are more frequent situations of distrust towards the sanitary professionals and the institutions.

There are multiple conflicts and they need a legal answer. In effect, the sanitary information constitutes an element of great value in the medical care field. But it is easy to accumulate, store and cross this information and it can suppose a risk for the privacy of the patient. Health data are characterized by their great sensitivity, so, they need a special protection, but allowing to conjugate the quality of the medical assistance with a suitable protection of the rights of the person.

Legal treatment of this problem in Spain is settled in Act 15/1999 of December 13th, on Data Protection, this Act describes data health like “specially protected”, and in Act 41/2002, of November 14th, the rule which basically regulates the free will of the patient and his rights and duties about information and clinical documentation. Problems that have been described cannot be analyzed separately. They require an integral and interdisciplinary treatment that allows to confront the different interests and to conjugate them to guarantee the protection

of the rights of the patients and the sanitary professionals, involving an increase of the quality levels of the medical assistance.

From this perspective, the objectives are essentially: a).- fixing the legal system applicable to the processing of personal data concerning health, in general, and to case-histories in particular (including subjects like the rights of the patient, the rights and duties of the sanitary professionals, genetic data); b).- specific questions closely related to the previous idea like the sanitary or telemedicine card, the electronic prescription, etc.; c).- the free will of the patient and its incidences in the rights of the personality

Referència: SEJ2006-05872. Ministeri d'Educació i Ciència.

Modalitat: Programa nacional de ciències socials, econòmiques i jurídiques.

Títol: *El alojamiento turístico y sus especies: hacia la construcción de su estatuto jurídico público y privado.*

Acrònim: EAT.

Centre: Departament de Dret Privat. Edifici Gaspar Melchor de Jovellanos.

Investigador responsable: TORRES LANA, José Ángel.

Categoría: CU (àrea de coneixement: Dret Civil).

Inici: 2006 **Fi:** 2009

Membres de l'equip	Categoría	Dedicació (EDP)
Torres Lana, José Ángel	CU	1
Tur Faúndez, María Nélida	TU	0.5
Paniza Fullana, Antonia	TEU	0.5
Ferrer Tapia, Belén	As.	1
Garau Sobrino, Federico	TU	0.5
Feliu Álvarez de Sotomayor, Sílvia	Aj. EU	0.5

Investigadors d'altres entitats

San Julián Puig, Verónica	Universitat de Navarra
Pérez Guerra, Raúl	Universitat d'Almeria
Ceballos Martín, Matilde	Universitat d'Almeria
Rodrigues Masseno, Manuel D.	Instituto Politécnico de Beja
Roca Fernández-Castany, María L.	Universitat Autònoma de Barcelona

EDP del grup investigador de l'entitat sol·licitant: 4.

Referència: SEJ2006-03694. Ministeri d'Educació i Ciència.

Modalitat: Programa nacional de ciències socials, econòmiques i jurídiques.

Títol: *Derecho de sociedades y nuevas tecnologías. En particular, su aplicación a la organización y funcionamiento interno de la sociedad y sus órganos colegiados.*

Centre: Departament de Dret Privat, Edifici Gaspar Melchor de Jovellanos.

Investigadora responsable: MARTÍNEZ NADAL, Apol·lònia.

Categoría: TU (àrea de coneixement: Dret Mercantil).

Inici: 2006 **Fi:** 2009

Membres de l'equip	Categoría	Dedicació (EDP)
Martínez Nadal, Apol·lònia	TU	1
Flaquer Riutort, Joan	TU	1
Buades Feliu, Joan	As.	1
Pons Irazazábal, Fèlix	As.	1
Investigadors d'altres entitats		
De Gispert Pastor, Maria Teresa	Universitat de Barcelona	
Gual Dalmau, Maria Asunción	Universitat de Barcelona	
Font Ribas, Antoni	Universitat de Barcelona	

EDP del grup investigador de l'entitat sol·licitant: 4.

Summary

The use of new technologies in Company Law, and in particular for the organization of the general meeting of shareholders and the board of directors, offers advantages to the company and its shareholders. But nowadays this also produces doubts about its juridical security, due to the lack of legislation and studies on the matter.

So, we consider it's necessary to study the legal admissibility, and the juridical consequences, of the use of new technologies in Company law.

We'll analize questions such electronic vote or virtual meetings. In order to propose solutions which can vary depending of the kind of company and also the kind of body (the general meeting of shareholder or the board of directors).

Referència: SEJ2006-10284. Ministeri d'Educació i Ciència.

Modalitat: Programa nacional de ciències socials, econòmiques i jurídiques.

Títol: *Tratamiento integral de la violencia contra las mujeres y la ejercida en el ámbito intrafamiliar. Aspectos civiles, penales y procesales.*

Centre: Departament de Dret Privat. Edifici Gaspar Melchor de Jovellanos.

Investigadora responsable: FERRER VANRELL, M. Pilar.

Categoría: CU (àrea de coneixement: Dret Civil).

Inici: 2006 **Fi:** 2009

Membres de l'equip	Categoría	Dedicació (EDP)
Ferrer Vanrell, M. Pilar	CU	1
Verdera Izquierdo, Beatriz	TU	0.5
Coca Payeras, Miquel	CU	0.5
Vila Ribas, Carme	TU	0.5
Ramon Ribas, Eduard	TU	0.5
Cardona Guasch, Olga	As.	0.5
Arrom Loscos, Rosa	CEU	0.5
Nadal Gómez, Irene	TU	0.5

EDP del grup investigador de l'entitat sol·licitant: 4.5.

Summary

Domestic violence or produced within the family framework has different ways of becoming apparent: physical violence and psychological violence (limitations to freedom, verbal and emotional abuses) which is performed against women or the couple, against under aged or elder people.

All these ways of becoming apparent has to be tackled with preventive and amendments actions, but also with legislative measures. In recent times, the legislative, mainly through Act LO 1/2004, de 28 de diciembre de Medidas de Protección Integral contra la violencia de Género has given a important step in order to coordinate the Integral Statute which creates this Act through the Protection Order.

Therefore, on the basis of a strict analysis of the current legislation in force, both at state and regional level and the existing jurisprudence in the field of crimes and faults related to domestic violence, we pretend to adopt legal conclusions which will be translated into an action and proposal plan. It will also include measures adopted in order to make effective the Integral Statute that demands the attention to the victims of violence, not only for prevention, but also for his familiar and social rehabilitation at civil, criminal and social level. This project will treat on the legal aspects in civil, criminal and procedural law.

Referència: SEJ2006-03101. Ministeri d'Educació i Ciència.

Modalitat: Programa nacional de ciències socials, econòmiques i jurídiques.

Títol: *Turismo residencial. Aspectos económicos y jurídicos.*

Centre: Departament de Dret Privat. Edifici Gaspar Melchor de Jovellanos.

Investigador responsable: MUNAR BERNAT, Pedro A.

Categoría: TU (àrea de coneixement: Dret Civil).

Inici: 2006 **Fi:** 2009

Membres de l'equip	Categoría	Dedicació (EDP)
Munar Bernat, Pedro A.	TU	1
Coca Payeras, Miquel	CU	0.5
Vila Ribas, Carme	TU	0.5
Llodrà Grimalt, Francesca	TU	1
Verdera Izquierdo, Beatriz	TU	0.5
Garau Vadell, Joan B.	TU	0.5
Martorell Cunill, Onofre	TEU	0.5
Robledo Camacho, Marco A.	TU	0.5

Investigadors d'altres entitats
Martos Calabrus, María A.
Núñez Iglesias, Álvaro
Botana García, Gema A.
Lasarte Álvarez, Carlos

EDP del grup investigador de l'entitat sol·licitant: 5.

Summary

Residential tourism is characterized by a group of people, usually gathered into family unities that, in a determined temporary process, move to specific areas, normally traditional tourist destinies, linking themselves to those places through real-estate relationships, where they stay for a longer period than traditional tourists and eventually establishing their usual residence there.

This new tourist option is increasingly becoming important from an economic standpoint and it has generated a relevant number of studies and analysis concerning the socioeconomic aspects of this new figure.

Currently, and taking into account the importance of this new figure, it is necessary to face the study of the legal aspects of this new phenomenon, questioning which has to be the legal instrument for its regulation. We can not forget that in this process of regulation different rules apply: on one hand, administrative rules concerning the legal regime of those properties where stays take place; and, on the other hand, rules concerning the relationships between those who participate in the real-estate legal transaction.

The legal linkage which exists may be double: a) An important number of tourists buy a property in a vacation area, but the problem which arises has no relation with the purchase of a right to property, mainly after the accession of Spain to the European Union and the non appliance to EU nationals of restrictive national rules on national security concerning the acquisition of properties in strategic areas of the national territory; b) As a general rule, tourists rent a lodging. In this framework, different problems arise and to which it is necessary to define the legal regime applicable, is in relation to private legal relationships derived from

housing rental, either by Spanish citizens who live in those areas or by tourists who have bought a house and that only use it a period of time. Currently, it is under discussion which rule is applicable: it is not clear whether it is a rental contract regulated by the Spanish Civil Code or a temporary rental regulated by the Urban Rental Act. At the same time, at this moment, different state and regional acts have also an impact on the regulation of this figure.

Taking into account all the questions mentioned above, the aims of this research project are as follows:

- To identify the defining characters of this legal figure.
- To distinguish between the way of acquisition of the property and the way of renting a lodging.
- To analyze state and regional rules currently into force which has an impact on the regulation of residential tourism.
- Concerning the acquisition of the property, it is important to think about unifying the acquisition systems of the property in order to give a solution that foreigner face in Spain when they buy a property.
 - To study the possibility of having a specific regulation for this kind of rental.
 - To analyze solutions given by Comparative Law.
 - To study the state and regional competence for enacting rules concerning this figure.
 - To think about the possibility of enacting a directive on vacation lodging as an instrument for promoting the development of tourism and to make the free movement of persons within the EU real and effective.
- At the same time, this legal analysis effort cannot forget residential tourism which is at the basis of the problem. In this sense, it is necessary to carry on an analysis in order to determine the extent and the economic implications of this phenomenon taking into account:
 - A descriptive analysis of residential tourism.
 - An analysis of tourist's behavior and characters.
 - An economic analysis.

Referència: SEJ2006-11612/JURI. Ministeri d'Educació i Ciència.

Modalitat: Programa nacional de ciències socials, econòmiques i jurídiques.

Títol: *El nuevo Derecho Mercantil Internacional: nueva lex mercatoria y derecho uniforme.*

Centre: Departament de Dret Privat. Edifici Gaspar Melchor de Jovellanos.

Investigador responsable: ALCOVER GARAU, Guillem.

Categoría: CU (àrea de coneixement: Dret Mercantil).

Inici: 2006 **Fi:** 2009

Membres de l'equip	Categoría	Dedicació (EDP)
Alcover Garau, Guillem	CU	1
Martínez Cañellas, Anselm M.	TU	1
Mateo Hernández, José Luis	TEU int.	1
Conde Tejón, Antonio	Aj. Dr.	1
Antich Ferrà, Amador	As.	1
Nadal Gómez, Irene	TU	0.5
Arbona Femenia, Miquel À.	As.	1
Arrom Loscos, Rosa	CEU	0.5

EDP del grup investigador de l'entitat sol·licitant: 7.

Summary

The economic globalisation has created new needs of regulation in the international commercial community. In response to these needs, a new International Commercial Law is developed. The aim is to achieve a common law for every merchant notwithstanding his country of origin.

We intend to analyse this new International Commercial Law with this project, to study its sources, its content and its application. We will propose corrections and the increase of its content in two different ways: increase of specific issues and draft of a structure of this Law as a complete body of law.

These general purposes will be developed through these more specific ones:

Study of the content of Uniform Law:

- Actually in force (international contracts, transnational insolvency, e-commerce, international payments, international transport and international company law)
- Actually in process in international institutions. Analysis of advantages and disadvantages of the Uniform Law Drafts instruments and proposals of improvement.
- Proposal of improvement and creation of Uniform Law with regard to areas not dealt with at the present.

Study of the content of the new lex mercatoria:

- International commercial usages, their compilation and systematization in law principles.
- Proposals of adaptation or improvement the soft law compilations.

Study of the sources of International Commercial Law:

- International public organisations (U.N or E.U.)
- Non government Organisations (soft law) (I.C.C)
- Proposal of the participation in the creation of the new law using the results of this Project.
- Convenience of applying a mixed system of legal sources in Spanish Domestic Law.

Verification of the application and efficiency of International Commercial Law.

- Advantages and disadvantages for Spanish merchants.

- Test of international and uniform application by national and foreign judges and tribunals. The same black letter rule is not enough, it must be applied internationally. If not, the reason must be analysed.

- Analysis of the application of International Commercial Law by national and international arbitrators.

- International ADR rules and procedural civil law in force.
 - Proposal of improvement of our judicial system in the application of International Commercial Law.
- Drafting of Principles of International Bankruptcy, Principles of International Company Law, Principles of International Contract Law and / or other more specific ones.

DEPARTAMENT DE DRET PÚBLIC

Referència: SEJ2004-07831/JURI. Ministeri d'Educació i Ciència.

Modalitat: Programa nacional de ciències socials, econòmiques i jurídiques.

Títol: *El impacto de la ampliación de la Unión Europea sobre la política común de extranjería.*

Centre: Departament de Dret Públic. Edifici Gaspar Melchor de Jovellanos.

Investigador responsable: GARAU JUANEDA, Lluís.

Categoría: CU (àrea de coneixement: Dret Internacional Privat).

Inici: 2004 **Fi:** 2007

Membres de l'equip	Categoría	Dedicació (EDP)
Garau Juaneda, Lluís	CU	1
Garau Sobrino, Federico F.	TU	0.5
Tarabini-Castellani Aznar, Margarita	TU	0.5
Álvarez Rodríguez, Aurelia	TU int.	1
Trinidad García, María Luisa	TU int.	1
Vargas Gómez-Urrutia, Marina	As.	0.5
Alcover Casasnovas, Antoni L.	TEU int.	0.5
González González, María J.	TU int.	0.5

EDP del grup investigador de l'entitat sol·licitant: 5.5.

Referència: SEJ2006-03867. Ministeri d'Educació i Ciència.

Modalitat: Programa nacional de ciències socials, econòmiques i jurídiques.

Títol: *Cooperación y confrontación en el diseño de un nuevo sistema de seguridad colectiva: detección y análisis de las nuevas pautas de regulación y de institucionalización.*

Acrònim: CCDNSSC.

Centre: Departament de Dret Públic. Edifici Gaspar Melchor de Jovellanos.

Investigadora responsable: HUESA VINAIXA, M. Rosario.

Categoría: CU (àrea de coneixement: Dret Internacional Públic i R. Internacionals).

Inici: 2006 **Fi:** 2009

Membres de l'equip	Categoría	Dedicació (EDP)
Huesa Vinaixa, M. Rosario	CU	1
Janer Torrens, Joan David	TU	1
Capellà Roig, Margalida	Aj. dr.	1
Rupérez Cornell, Pilar	TEU int.	1

Investigadors d'altres entitats
Fernández Tomás, Antonio
Sánchez Legido, Ángel
Forcada Bayona, Ignacio
Ortega Terol, Juan Miguel
Martínez Carmena, María
Soroeta Liceras, Juan
Alonso Moreda, Nicolás
Abalde Cantero, Óscar
Bollo Arocena, María Dolores
Quel López, Javier

EDP del grup investigador de l'entitat sol·licitant: 4.

Summary

The research conducted up to now by the research team with the title “Human rights, international responsibility and collective security: intersection of systems” (BJU 2002-00559) has showed that it is not possible to face the restructuration of that system without taking into account the great human and socioeconomic challenges. However, in order to fulfil that objective the dialectic between cooperation and confrontation plays an important role. The starting hypothesis is that that confrontation in the approximation of the new challenges determines the appearance of new trends in the construction of the legal and institutional system of collective security which, necessarily, will have an impact on the features of the international legal order. It is time to analyse the trends of renovation – or new creation – of the legal and institutional structures directed to safeguard the collective security under the influence of the relationship between cooperation and confrontation. Again, the relations between different systems will conduct the methodology of the research project which, based on the collective security system, will focus on the new dimensions of human rights, development cooperation, terrorism and armamentism. The study of the relationships between all those questions should allow the research team to reach reliable

conclusions concerning the evolution of the new trends of regulation and institutionalization of the new international legal order of the XXI century.

The objective of the research project is, therefore, to give continuity to a relevant research line, conducted by a solid research team, which concerns a subject of scientific importance and daily relevance: the adaptation of the legal and institutional system of collective security to the new political, economic, ideologic, military and social challenges.

Referència: SEJ2006-15174-C03-02. Ministeri d'Educació i Ciència.

Modalitat: Programa nacional de ciències socials, econòmiques i jurídiques.

Títol: *El derecho fundamental de la no discriminación por razón de edad: derecho interno y comunitario.*

Acrònim: DISCRIMEDAD.

Centre: Departament de Dret Públic. Edifici Gaspar Melchor de Jovellanos.

Investigadora responsable: BALLESTER PASTOR, María Amparo.

Categoría: TU (àrea de coneixement: Dret del Treball i de la Seguretat Social).

Inici: 2006 **Fi:** 2009

Membres de l'equip	Categoría	Dedicació (EDP)
Ballester Pastor, María Amparo	TU	1
Jurado Segovia, Ángel	Aj.	0.5
Llompart Bennàssar, Magdalena	TEU	0.5
Monreal Bringsbaerd, Erik	TEU	0.5
Riera Vayreda, Carlos	TEU	0.5
Tarabini-Castellani Aznar, Margarita	TU	0.5
Pérez Marín, Inés	B	1

EDP del grup investigador de l'entitat sol·licitant: 4.5.

Summary

The starting point of the research project is the great relevance that the subject of age discrimination has from the perspective of fundamental rights. It is noticeable because of the large volume of European Community rules (article 13 ETC and Directive 2000/78) and internal Spanish rules (law 62/2003) passed in recent years. The project intends to analyse the contents of these rules and of the jurisprudence decisions directly or indirectly related with this fundamental right (for example, by referring to other fundamental rights with a similar scope) in order to give alternatives. Up until now the doctrine work has analysed the situation from an exclusively EU or an exclusively constitutional perspective. We will attempt to connect these studies to the Spanish Law System in order to detect possible E.U. illegalities or reasons for eventual unconstitutionality. Our principal objective is the configuration of a stable interuniversity research group with experience in the topic of the project. The research will be undertaken with a methodology of a multidisciplinary nature but strictly juridical. For this we will connect Labour Law with Constitutional Law and European Community Law. We are aiming for a perspective that, by gravitating towards universal juridical concepts such as non-discrimination, allows for a movement towards Comparative Law that makes the proposals of "*lege ferenda*" possible. It is hoped that the results of the investigation will serve to improve the labour conditions and employability of workers with labour integration problems due to their age which at the same time is an objective of the European Union programme for employment. It is intended that the results of the investigation will be useful as a tool for labour and social integration.

Referència: SEJ2007-67071. Ministeri d'Educació i Ciència.

Modalitat: Programa nacional de ciències socials, econòmiques i jurídiques.

Títol: *Transposición de Decisiones Marco europeas y armonización del Derecho penal español.*

Centre: Departament de Dret Públic. Edifici Gaspar Melchor de Jovellanos.

Investigador responsable: GILI PASCUAL, Antoni.

Categoría: TU (àrea de coneixement: Dret Penal).

Inici: 2007 **Fi:** 2010

<u>Membres de l'equip</u>	<u>Categoría</u>	<u>Dedicació (EDP)</u>
Gili Pascual, Antoni	TU	1
Investigadors d'altres entitats		
Carbonell Mateu, Juan Carlos	Universitat de València	
Guardiola García, Javier	Universitat de València	
Viana Ballester, Clara	Universitat d'Alacant	

EDP del grup investigador de l'entitat sol·licitant: 1

Summary

The project intends to study the implementing problems of Framework decisions, with special regard to Spanish Penal Code, concretely studying three materia relating pluripersonal criminality:

- Organised crime,
- Fight against corruption, and
- Criminal responsibility of corporations.

The objectives of this critical revision are not only to check the *status quaestionis*, but to find criteria for a better interpretation of the existing Law and /de lege ferenda /proposals in order to improve the regulation.

DEPARTAMENT D'ECONOMIA APLICADA

Referència: SEJ2004-06649/ECON. Ministeri d'Educació i Ciència.

Modalitat: Programa nacional de ciències socials, econòmiques i jurídiques.

Títol: *Historia económica del turismo de masas en España, 1940-2000: Las Islas Baleares y los contrastes mediterráneos.*

Centre: Departament d'Economia Aplicada. Edifici Gaspar Melchor de Jovellanos.

Investigador responsable: MANERA ERBINA, Carles.

Categoría: CU (àrea de coneixement: Història i Institucions Econòmiques).

Inici: 2004 **Fi:** 2007

Membres de l'equip	Categoría	Dedicació (EDP)
Manera Erbina, Carles	CU	1
Escartín Bisbal, Joana M.	TU	1
Morey Tous, Antònia	TEU	0.5
Serra Cantallops, Antoni	TU	1
Garau Taberner, Jaume	Aj.	1

Investigadors d'altres entitats

Pellejero Martínez, Carmelo	Universitat de Málaga
Martín Rojo, Inmaculada	Universitat de Málaga

EDP del grup investigador de l'entitat sol·licitant: 3.5.

Summary

The project has as its principal objective to analyze the evolution of mass tourism in southern Europe and in some concrete chronological coordinates (1940-2000), with special emphasis on a region that occupies in present day a preminent position in the global tourism economy: the Balearic Islands. Its contrasts with other regional economies –as in Andalucia, also determinant in tourism economy– and in other insular mediterranean economies –in particular, that of Sicily, Sardinia, and Malta– will permit to buy those that are the transits occurring in those economic spaces, that coincide completely with one of the european development axis –Western Europe, from the Tuscan-Ligurian coast to the southern Iberian peninsula, plus the islands that form part of the partnership of the IMEDOC (Islas del Mediterráneo Occidental)–, outline the stimulated touristic typology –cultural, sun and beach, mixed components– and evaluate the threats they currently present to follow its individual development process, in that the environmental externals have a gradual crucial weight. We have to indicate that, from an evolutionary perspective, until present day this kind of analysis realised in Spain does not exist in the scope of Economic History. That's why the project raises an added value more: the beginning of a new line of investigation in our country, that centers itself in an essential way in the intervention of the regional economic processes, without eluding comparative analysis of international character.

Referència: SEJ2005-08783-C04-03/ECON. Ministeri d'Educació i Ciència.

Modalitat: Programa nacional de ciències socials, econòmiques i jurídiques.

Títol: *Imposición Óptima Aplicada: una aplicación de la microsimulación.*

Acrònim: IOTAMO.

Centre: Departament d'Economia Aplicada. Edifici Gaspar Melchor de Jovellanos.

Investigador responsable: SPADARO, Amedeo.

Categoría: TU (àrea de coneixement: Economia Aplicada).

Inici: 2005 **Fi:** 2008

Membres de l'equip	Categoría	Dedicació (EDP)
Spadaro, Amedeo	TU	1
Oliver Rullan, Francesc	TEU	1
Rosselló Villalonga, Joan Carles	TU	1
Investigadors d'altres entitats		
Badenes Plà, Nuria	Universitat Complutense de Madrid	
Racionero Llorente, María del M.	Australina National University Canberra	
Del Rey Canteli, Elena	Universitat de Girona	
Arrondel, Luc	CNRS França	
Verdier, Thierry	Ecole des Hautes Etudes en Ciencias Sociales	

EDP del grup investigador de l'entitat sol·licitant: 3.

Summary

Several attempts were recently made at analyzing existing redistribution systems in several countries within the framework of optimal taxation theory. The basic question asked in that literature is whether it is possible to justify the most salient features of existing systems by some optimal tax argument. A key element when analyzing these issues, omitted in previous works, is the dynamical one. The economic problem behind this issue is that the agents' productivity (or any other characteristic that can influence the final outcome) evolves in time due to education decisions, learning by doing mechanisms, etc. It seems reasonable to think that this evolution is endogenous to the redistribution at each period. To our knowledge, although a lot of work has been reported on dynamical aspects of capital taxation [in line with Chamley (1986) or Judd (1985) for example], nothing seems to have been done in the direction of dynamical optimal taxation with endogenous productivities. Our research project follows this direction. The main objectives are two. First, to extend the knowledge about the effects of taxation and redistribution both from the efficiency and the equity point of view in a dynamic framework when abilities of agents are endogenous to redistribution. Second, to refine the empirical use of optimal tax theory for the analysis of real redistribution schemes.

The main interest of realizing the work described in our research project consist in having a theoretical and empirical instrument allowing for a better rationalization of the debate efficiency vs. equity. This debate has important implications from economic, social and political perspectives. This project will contribute to quantify and describe the microeconomic impact of alternative redistribution schemes.

Referència: SEJ2005-07781/ECON. Ministeri d'Educació i Ciència.

Modalitat: Programa nacional de ciències socials, econòmiques i jurídiques.

Títol: *Modelización de procesos periódicos autorregresivos.*

Centre: Departament d'Economia Aplicada. Edifici Gaspar Melchor de Jovellanos.

Investigador responsable: SANSÓ ROSELLÓ, Andreu.

Categoría: TU (àrea de coneixement: Economia Aplicada).

Inici: 2005 **Fi:** 2008

Membres de l'equip	Categoría	Dedicació (EDP)
Sansó Rosselló, Andreu	TU	1
Investigadors d'altres entitats		
Del Barrio Castro, Tomás	Universitat de Barcelona	
Pons Rotger, Gabriel	University of Copenhagen	

EDP del grup investigador de l'entitat sol·licitant: 1.

Summary

The main purpose of this research project is to develop new methodological tools for the periodic autoregressive model. It has been shown in the literature how such stochastic process properly captures the dynamics of a wide range of seasonal economic time series. The representation of periodic processes through a multivariate model for the different seasons turns out to be very useful to discuss relevant issues like stationarity or forecasting. In addition, this multivariate treatment of the periodic autoregressive process allows extending well known methods for macroeconomic time series to periodic variables, i.e. cointegration analysis, or serial correlation common feature analysis.

The specific goals of the research project are organized in five blocks. The first part is devoted to the discussion of Johansen cointegration analysis when some observations are affected by outliers. Then, in the second part we attempt to provide statistical tests capable to detect outliers at periodically correlated time series. The third goal is to analyse the properties of the test for periodic integration of Boswijk and Franses (1996) when: 1) time series are contaminated by atypical observations and 2) when the structural breaks are present at deterministic component of the process. The fourth goal focuses in the study of cointegration relationship and common trends between periodic integrated processes. Finally, the last objective is to propose methods to restrict the periodic autoregressive model, mainly by means of reduced rank type restrictions like common deterministic component or serial correlation common features.

Referència: SEJ2007-65255. Ministeri d'Educació i Ciència.

Modalitat: Programa nacional de ciències socials, econòmiques i jurídiques.

Títol: *La fidelidad del turista como factor clave de competitividad en el modelo turístico de masas.*

Acrònim: FTFCCMTM.

Centre: Departament d'Economia Aplicada. Edifici Gaspar Melchor de Jovellanos.

Investigador responsable: ALEGRE MARTÍN, Joaquín.

Categoría: TU (àrea de coneixement: Economia Aplicada).

Inici: 2007 **Fi:** 2010

Membres de l'equip	Categoría	Dedicació (EDP)
Alegre Martín, Joaquín	TU	1
Pou Garcías, Llorenç	TEU	1
Sard Bauzá, Maria	TEU	1
Cladera Munar, Magdalena	TEU	1

EDP del grup investigador de l'entitat sol·licitant: 4

Summary

The main objective of this project is to study the concept of loyalty and place attachment to a tourist destination and their implications for the characteristics of the demand for tourism, specifically on tourist expenditure, and on the competitiveness of sun and sand mass tourist destinations. This project is aimed at developing theoretical issues of tourist analysis concerning loyalty, as well as some of the models of economic theory about the market structure. The empirical research focuses on the main competitive sun and sand mass European tourist destinations, focussing especially on Spanish coastal destinations. For that purpose the project is intended to conduct two databases. From the demand side, the analysis of the consumer behaviour requires to study: (1) the concept and measurement of loyalty and place attachment to a tourist destination, (2) the motivations of repeat tourists, (3) the determinants of loyalty and place attachment, and (4) the economic implications of loyalty. Concerning the concept of competitiveness, the project tries: (1) to obtain an index of competitiveness for the main sun and sand destinations based on satisfaction and tourists' motivations; (2) to determine the basic, excitement and performance factors, which may allow improving destinations competitiveness. From the supply side, the project is aimed at analysing the package tours characteristics of the main tour-operators in order to study the distribution of the package tour prices. Finally, demand and supply are linked through the comparison of the package tours prices distribution and the expenditure distribution afforded by tourists. The latter shall allow to analyse the efficiency of tourists choices, specially those of repeat tourists.

Projectes del Govern Balear

Referència: PROGECIB. Conselleria d'Economia, Hisenda i Innovació del Govern de les Illes Balears.

Modalitat: Projectes de recerca per a grups de recerca emergents i competitius.

Títol: *Nuevos enfoques en el análisis de la competitividad y sostenibilidad.*

Centre: Departament d'Economia Aplicada. Edifici Gaspar Melchor de Jovellanos.

Investigador responsable: REY-MAQUIEIRA PALMER, Javier.

Categoría: TU (àrea de coneixement: Economia Aplicada).

Inici: 2007 **Fi:** 2009

Referència: PROGECIB. Conselleria d'Economia, Hisenda i Innovació del Govern de les Illes Balears.

Modalitat: Projectes de recerca per a grups de recerca emergents i competitius.

Títol: *Un enfoque estratégico de gestión de los beneficios económicos en los destinos turísticos de masas cuyo atractivo reside en sus recursos naturales.*

Centre: Departament d'Economia Aplicada. Edifici Gaspar Melchor de Jovellanos.

Investigadora responsable: JUANEDA SAMPOL, Catalina.

Categoría: CU (àrea de coneixement: Economia Aplicada).

Inici: 2007 **Fi:** 2009

Referència: PROGECIB-31A. Conselleria d'Economia, Hisenda i Innovació del Govern de les Illes Balears.

Modalitat: Projectes de recerca per a grups de recerca emergents i competitius.

Títol: *Externalidades del Transporte Rodado en Economías Turísticas.*

Centre: Departament d'Economia Aplicada. Edifici Gaspar Melchor de Jovellanos.

Investigador responsable: ROSELLÓ NADAL, Jaume.

Categoría: TEU (àrea de coneixement: Economia Aplicada).

Inici: 2007 **Fi:** 2009

Referència: Conselleria d'Economia, Hisenda i Innovació del Govern de les Illes Balears.

Modalitat: Accions especials de recerca, desenvolupament tecnològic i innovació.

Títol: *Anàlisi dels determinants dels nivells d'escolarització en l'ensenyament post-obligatori.*

Centre: Departament d'Economia Aplicada. Edifici Gaspar Melchor de Jovellanos.

Investigador responsable: ROSELLÓ VILLALONGA, Joan.

Categoría: TU (àrea de coneixement: Economia Aplicada).

Inici: 2007 **Fi:** 2008

Referència: Conselleria d'Economia, Hisenda i Innovació del Govern de les Illes Balears.

Modalitat: Ajudes per a l'organització de reunions, congressos, seminaris, simposis o jornades de caràcter científic.

Títol: *First conference of the international association for tourism economics.*

Centre: Departament d'Economia Aplicada. Edifici Gaspar Melchor de Jovellanos.

Investigador responsable: AGUILÓ PÉREZ, Eugeni.

Categoría: CU (àrea de coneixement: Economia Aplicada).

Inici: 2007 **Fi:** 2007

Referència: Conselleria d'Economia, Hisenda i Innovació del Govern de les Illes Balears.
Modalitat: Ajudes per a l'organització de reunions, congressos, seminaris, simposis o jornades de caràcter científic.
Títol: *III Congreso de la Asociación hispano-portuguesa de economía de los recursos naturales y ambientales.*
Centre: Departament d'Economia Aplicada. Edifici Gaspar Melchor de Jovellanos.
Investigador responsable: RIERA FONT, Antonio.
Categoría: TU (àrea de coneixement: Economia Aplicada).
Inici: 2007 **Fi:** 2007

Referència: PRIB2004-10142. Conselleria d'Economia, Hisenda i Innovació.
Modalitat: Projectes de recerca, desenvolupament tecnològic i innovació.
Títol: *Competitividad de regiones turísticas, restricciones medioambientales y desarrollo sostenible. El caso de Baleares.*
Centre: Departament d'Economia Aplicada. Edifici Gaspar Melchor de Jovellanos.
Investigador responsable: REY-MAQUIEIRA PALMER, Javier.
Categoría: TU (àrea de coneixement: Economia Aplicada).
Inici: 2004 **Fi:** 2007

DEPARTAMENT D'ECONOMIA DE L'EMPRESA

Referència: SEJ2004-07530/ECON. Ministeri d'Educació i Ciència.

Modalitat: Programa nacional de ciències socials, econòmiques i jurídiques.

Título: Gobierno de la empresa: estructura de incentivos y eficiencia de mercados.

Acrònim: GEEIEM.

Centre: Departament d'Economia de l'Empresa. Edifici Gaspar Melchor de Jovellanos.

Investigador responsable: CRESPI CLADERA, Rafel.

Categoría: CU (àrea de coneixement: Economia Financera i Comptabilitat).

Inici: 2004 Fi: 2007

<u>Membres de l'equip</u>	<u>Categoría</u>	<u>Dedicació (EDP)</u>
Crespí Cladera, Rafel	CU	1
Bru Martínez, Lluís	TU int.	0.5
Calveras Maristany, Aleix	TU	1
Deyà Tortella, Bartomeu	TU	1
Lozano Arnica, Gonzalo	TU	1
Massot Perelló, M. Magdalena	TU	1
Munar Muntaner, Esperança	CEU	1
Orfila Sintes, Francesca M.	Aj. EU	1
Pascual Fuster, Bartomeu	TU	1
Pascual Gascó, Robert	TU int.	1
Solà Belda, Carles	TU	1
Barrera Barceló, Fernando	Tèc.	0.5

Investigadors d'altres entitats

Renneboog, Luc

University of Tilburg

EDP del grup investigador de l'entitat sol·licitant: 11.

Summary

This research programme gathers an important number of researchers interested in the study and development of the competitiveness of Spanish enterprises, combining empirical analysis with a microeconomic perspective, and the application of theoretical models verified in the economic analysis. A considerable number of the researchers in the group has already an extensive experience in the research of different factors that determine the efficiency and competitiveness of the firm. Special emphasis has been given to the organisational solution the firm adopts for its internal structure (ownership structure, the role of boards, management of human resources, organisational and technological changes, R&D activities...) and also to the legal framework relevant to financial and labour issues (on one hand the relations with banks and on the other the influence of bankruptcy and company law). In the past, because of the complexity of the analysis the group has developed different complementary research lines, which this project plans to continue and extend, incorporating other related topics. In particular, we propose to deep further on the consequences that different financial and governance structures have on the efficiency of the firm, on the management of human resources and its relations to technological change and on protection given to creditors. This project also pretends to extend the research to new

areas like the analysis of growth and development facing family businesses, the role of non-profit organisations competing with listed companies, and the effects that multiple goals have on good governance. However, the main effort will be on studying in depth, both from a theoretical and an empirical point of view, the principal interactions between the different factors already mentioned and their impact on the capacity of the firm to adapt to important technological changes and on the efficiency and competitiveness. In order to achieve this goal a new data set will be created with information from one thousand Spanish firms, that will be collected through personal interviews in the company.

Referència: SEJ2007-67895-C04-03. Ministeri d'Educació i Ciència.

Modalitat: Programa nacional de ciències socials, econòmiques i jurídiques.

Títol: *Organización de la empresa, prácticas de gobierno y control familiar.*

Acrònim: FOGPFC.

Centre: Departament d'Economia de l'Empresa. Edifici Gaspar Melchor de Jovellanos.

Investigador responsable: CRESPI CLADERA, Rafel.

Categoría: CU (àrea de coneixement: Economia Financera i Comptabilitat).

Inici: 2007 **Fi:** 2010

<u>Membres de l'equip</u>	<u>Categoría</u>	<u>Dedicació (EDP)</u>
Crespi Cladera, Rafel	CU	1
Pascual Gascó, Robert	TU int.	1
Calveras Maristany, Aleix	TU	1
Bru Martínez, Lluís	TU int.	1
Orfila Sintes, Francesca M.	Aj. EU	1
Pascual Fuster, Bartomeu	TU	1
Solà Belda, Carles	TU	1
Carretero Gómez, José M.	Aj. EU	1
Deyà Tortella, Bartomeu	TU	1
Massot Perelló, M. Magdalena	TU	1
Munar Muntaner, Esperança	CEU	1

Investigadors d'altres entitats

Veredas Rojo, David Universitat Lliure de Brussel·les

EDP del grup investigador de l'entitat sol·licitant: 11

Summary

The present research program encompasses the efforts of a relevant group of researchers interested in the study and development of the competitiveness of Spanish firms. This is a complex question to analyze if we take into account the heterogeneous set of factors that may influence firm competitiveness and the strong interactions between them. For this reasons it is very useful to coordinate a set of experienced researcher who, having a common knowledge base, provide a complementary perspective of the problem under analysis. In this sense this project integrates researchers that are experts in the analysis of different areas of the firm, who employ a wide array of analytical tools (e.g. game theory, micro econometrics, experiments) and who have developed complete databases, to produce rigorous theoretical and empirical research.

The joint research work done in the past has produced significant contributions to the knowledge base about the factors that determine firm competitiveness. The present coordinated research project seeks to continue with this research effort in order to consolidate a research group that will be competitive in international forums. Given the complexity of the analysis involved in the past we have created several complementary tracks that this project attempts to develop further and extend with the incorporation of other related aspects. In particular we will explore five tracks around the factors that define firm competitiveness: the influence of technology and organizational innovation; the importance of human resources management; the role of the ownership structure, specially of stable owners; the relevance of stakeholders and the legal environment; entrepreneurship and family business.

The final goal is to advance in the knowledge of the interdependencies between technological change, human resource management, ownership structure and corporate governance practices, the firm's financial and legal environment, and the relationship with different stakeholders, and to assess their importance for firm success. Further, we seek to analyze how such interdependencies are modified and why, at the creation of the businesses, in different economic sectors, in different legal environments, with the presence of stable owners or in the case of family businesses. In doing so we also expect to add new empirical evidence about the real situation of the Spanish firms and to formulate helpful recommendations for their managers.

Referència: SEJ2007-67910. Ministeri d'Educació i Ciència.

Modalitat: Programa nacional de ciències socials, econòmiques i jurídiques.

Títol: *Externalidades del transporte rodado en economías turísticas (ETRET). Evaluación de políticas correctoras para su internalización.*

Acrònim: ETRET

Centre: Departament d'Economia de l'Empresa. Edifici Gaspar Melchor de Jovellanos.

Investigador responsable: RIERA FONT, Antoni.

Categoría: TU (àrea de coneixement: Economia Aplicada).

Inici: 2007 **Fi:** 2010

Membres de l'equip	Categoría	Dedicació (EDP)
Riera Font, Antoni	TU	1
Aguiló Pérez, Eugeni	CU	1
Palmer Tous, Teresa	TEU	1
Rosselló Nadal, Jaume	TEU	1
Capó Parrilla, Javier	TEU	1
Costa Costa, Antoni	Aj. EU	1
Bujosa Bestard, Àngel	B	1
Torres Figueroles, Catalina	B	1

EDP del grup investigador de l'entitat sol·licitant: 8

Summary

The positive effect on the economic growth of tourist specialization has motivated the expansion of the sector in many regions. However, the overcrowding in destinations and the increase of the economic activity causes a significant increase in the mobility in the tourist enclaves because of the increase in road transport with the consequent increase in the associated externalities (congestion, traffic accidents, air pollution and noise).

These external costs leads at no-optimal activity levels and to the need of introducing mechanisms that incentive a most efficient use of the rolled transport. Nevertheless, to design and to evaluate corrective policies requires to identify and to quantify, previously, the main external costs linked to rolled transport and the determination of the relationship between these costs and the demand functions (for both residents and tourists).

Then, the main objective of the project is to evaluate the effects of a set of policies designed to the object of amending externalities linked to rolled transport in the region of the Balearic Islands, that because of the geographical characteristics (islands) and because of the high level of tourist development constitutes a very suitable laboratory to carry out the project.

Projectes del Govern Balear

Referència: Conselleria d'Economia, Hisenda i Innovació del Govern de les Illes Balears.

Modalitat: Accions especials de recerca, desenvolupament tecnològic i innovació.

Títol: *Innovación en el sector hotelero balear.*

Centre: Departament d'Economia de l'Empresa. Edifici Gaspar Melchor de Jovellanos.

Investigadora responsable: ORFILA SINTES, Francina.

Categoría: Aj. dr. (àrea de coneixement: Organització d'Empreses).

Inici: 2007 **Fi:** 2008

Referència: Conselleria d'Economia, Hisenda i Innovació del Govern de les Illes Balears.

Modalitat: Ajudes per a l'organització de reunions, congressos, seminaris, simposis o jornades de caràcter científic.

Títol: *XV Foro de finanzas.*

Centre: Departament d'Economia de l'Empresa. Edifici Gaspar Melchor de Jovellanos.

Investigador responsable: PASCUAL GASCÓ, Roberto.

Categoría: TU int. (àrea de coneixement: Economia Financera i Comptabilitat).

Inici: 2007 **Fi:** 2007

DEPARTAMENT DE FILOLOGIA CATALANA I LINGÜÍSTICA GENERAL

Referència: HUM2006-06108/FILO. Ministeri d'Educació i Ciència.

Modalitat: Programa nacional d'humanitats.

Títol: *Teoría y práctica de la narrativa experimental catalana (1970-1985): análisis y estudio contextual.*

Centre: Departament de Filologia Catalana i Lingüística General. Edifici Ramon Llull.

Investigadora responsable: PONS JAUME, Margalida.

Categoría: TU (àrea de coneixement: Filologia Catalana).

Inici: 2006 **Fi:** 2009

Membres de l'equip	Categoría	Dedicació (EDP)
Pons Jaume, Margalida	TU	1
Picornell Belenguer, Caterina Mercè Aj. dr.		0.5
Rosselló Bover, Pere	CU	0.5
Muntaner González, Maria	B	1
Mas Vives, Joan	CU	0.5

Investigadors d'altres entitats

Martínez Gili, Raül-David Université Paris III Sorbonne Nouvelle

EDP del grup investigador de l'entitat sol·licitant: 4.5.

Summary

It is our aim in this project to investigate textual and contextual issues that led to the production of experimental narrative in Catalan between 1970 and 1985. Research will be based on *a) analysis of a corpus of thirty novels, b) study and recovery of dispersed and/or unpublished narrative texts; c) testimony through interviews with experimental authors.* With regard to production, this project intends to analyze works produced in a period which is unique because of the confluence of theory and practice: some novelists explicitly recognize the impact of critical discourses in their works (e.g. Biel Mesquida / Roland Barthes and Julia Kristeva) or approach criticism via translation (e. g. Quim Monzó / John Barth). The project will also study the historical and cultural frame that shapes and encourages narrative production: translation into Catalan of theoretical articles cultural projects in the margins of commercial publishing companies, and emergence of groups that generate their own critical production. The project intends to promote knowledge of this frame through *a) a web page, b) a colloquium on experimentalism, and c) paper publishing (studies, text edition, testimonial documents).*

Referència: HUM2007-66531. Ministeri d'Educació i Ciència.

Modalitat: Programa nacional d'humanitats.

Títol: *Análisis traductológico y comparativo de la difusión contemporánea de Os Lusíadas, de Luiz de Camões, en catalán y castellano.*

Centre: Departament de Filologia Catalana i Lingüística General. Edifici Ramon Llull.

Investigador responsable: DOLS SALAS, Nicolau.

Categoría: TEU (àrea de coneixement: Filologia Catalana).

Inici: 2007 **Fi:** 2010

<u>Membres de l'equip</u>	<u>Categoria</u>	<u>Dedicació (EDP)</u>
Dols Salas, Nicolau	TEU	1
Alegret Llorens, Juan	CU	1
Cuadrado Fernández, Perfecto	CU	1

EDP del grup investigador de l'entitat sol·licitant: 3.

Participacions a altres projectes

Referència: CAMV-2007/03

Modalitat: Convocatòria d'ajuts a projectes de recerca.

Títol: *Terminologia artística en català a la Mallorca dels segles XVI al XVIII.*

Centre: Departament de Filologia Catalana i Lingüística General. Edifici Ramon Llull.

Investigador responsable: MESQUIDA CANTALLOPS, Joan Antoni.

Categoría: TEU (àrea de coneixement: Filologia Catalana).

Inici: 2007 **Fi:** 2010

<u>Membres de l'equip</u>	<u>Categoria</u>	<u>Dedicació (EDP)</u>
Mesquida Cantallops, Joan Antoni	TEU	0.5
Gambús Sáiz, Mercè	TU	0.5
Villalonga Vidal, Andreu J.	TEU	0.5
Forteza Oliver, Miquela	Aj.	0.5

EDP del grup investigador de l'entitat sol·licitant: 2.

Referència: CAMV-2007/04

Modalitat: Convocatòria d'ajuts a projectes de recerca.

Títol: *Localització, transcripció i edició de textos d'escriptors mallorquins d'entre els segles XIX i XX.*

Centre: Departament de Filologia Catalana i Lingüística General. Edifici Ramon Llull.

Investigador responsable: ROSELLÓ BOVER, Pere.

Categoría: CU (àrea de coneixement: Filologia Catalana).

Inici: 2007 **Fi:** 2010

<u>Membres de l'equip</u>	<u>Categoria</u>	<u>Dedicació (EDP)</u>
Rosselló Bover, Pere	CU	1
Pons Pons, Damià	CU	1
<u>Investigadors d'altres entitats</u>		
Arnau Segarra, Pilar Perelló Femenia, Maria Antònia		

EDP del grup investigador de l'entitat sol·licitant: 2.

DEPARTAMENT DE FILOLOGIA ESPANYOLA, MODERNA I LLATINA

Referència: HUM2004-05036/FILO. Ministeri d'Educació i Ciència.

Modalitat: Programa nacional d'humanitats.

Títol: *Corpus digitalizado de textos bíblicos en español antiguo.*

Acrònim: CORBA.

Centre: Departament de Fiolologia Espanyola, Moderna i Llatina. Edifici Ramon Lull.

Investigador responsable: ENRIQUE ARIAS, Andrés.

Categoría: TU int. (àrea de coneixement: Llengua Espanyola).

Inici: 2004 **Fi:** 2007

<u>Membres de l'equip</u>	<u>Categoria</u>	<u>Dedicació (EDP)</u>
Enrique Arias, Andrés	TU int.	1
Bernat Vistarini, Antonio	TU	1
Investigadors d'altres entitats		
Matute Martínez, Cristina	Sant Louis University	
Davies, Mark	Brigham Young University	

EDP del grup investigador de l'entitat sol·licitant: 2.

Summary

The objective of this project is recovering, preserving and disseminating a unique aspect of Spain's cultural heritage-its rich tradition of biblical translation-for interdisciplinary use by creating a corpus of biblical texts transcribed in a scientific and rigorous fashion so it can be also usable as a tool for linguistic and philological research. With these objectives in mind we will a) establish with accuracy the totality of the Old Spanish biblical texts transcribing with sound philological methodology unpublished texts and revising the existing transcriptions b) make available for scholars on Spanish historical linguistics a corpus of texts transcribed with reliable philological criteria and presented in a consistent form c) create an easily accessible computer application in the internet to make these digital texts available to scholars and the general public alike along with their Hebrew and Latin sources.

Referència: HUM2005-03913/FILO. Ministeri d'Educació i Ciència.

Modalitat: Programa nacional d'humanitats.

Títol: *Los textos como fuente de información pragmática: estudio de la gestualidad en la antigüedad romana (II).*

Centre: Departament de Filologia Espanyola, Moderna i Llatina. Edifici Ramon Llull.

Investigadora responsable: FORNÉS PALLICER, M. Antònia.

Categoría: TU (àrea de coneixement: Filologia Llatina).

Inici: 2005 **Fi:** 2008

Membres de l'equip	Categoría	Dedicació (EDP)
Fornés Pallicer, M. Antònia	TU	1
Bosch Juan, M. Carme	CU	1
Investigadors d'altres entitats		
Quetglas Nicolau, Pere J.	Universitat de Barcelona	
Puig Rodríguez-Escalona, Mercè	Universitat de Barcelona	
Cabré Lunas, Laura	Universitat de Barcelona	
González Páez, Carmen	Universitat de Barcelona	
Gorga López, Gemma	Universitat de Barcelona	

EDP del grup investigador de l'entitat sol·licitant: 2.

Summary

This project is embedded within the pragmatical situations and, more precisely, in the field of gesture. The goal of the present application is to continue the research initiated in 2001 under the project "Texts as a source of pragmatical information: study of gesture in the Roman Antiquity" (BFF2001-0916), which aimed at undertaking a thorough analysis of gesture in the Roman Antiquity. The amount of information gathered in this project beat our expectations and we are therefore forced to apply for its continuation. The aim of the project we are applying for is, on the one hand, to finish the study of facial gesture (up to now only gesture of the lower part of the face has been analysed) and, on the other hand, to study hand gesture in order to draw up a repertoire which covers most gesture in the Roman Antiquity. A study on gesture survival up to now will also be carried out and this will allow us to determine the origin and meaning of gesture language so characteristic of the present western culture.

Referència: HUM2006-11654/FILO. Ministeri d'Educació i Ciència.

Modalitat: Programa nacional d'humanitats.

Títol: *Edición de poéticas y de materiales para el estudio de la recepción de la poesía española entre 1939 y 2000 (continuación).*

Acrònim: EPYMERPE-C.

Centre: Departament de Filologia Espanyola, Moderna i Llatina. Edifici Ramon Llull.

Investigador responsable: DÍAZ DE CASTRO, Francisco J.

Categoría: CU (àrea de coneixement: Literatura Espanyola).

Inici: 2006 **Fi:** 2009

Membres de l'equip	Categoría	Dedicació (EDP)
Díaz de Castro, Francisco J.	CU	0.5
Del Olmo Iturriarte, Almudena	TU	0.5
Payeras Grau, Maria	TU	0.5
Investigadors d'altres entitats		
Jiménez Millán, Antonio	Universitat de Málaga	
Rovira Planas, Pere	Universitat de Lleida	
Celma Valero, Pilar	Universitat de Valladolid	
Lanz Rivera, Juan José	Universitat del País Basc	
Iravedra Valea, Araceli	Universitat de Granada	

EDP del grup investigador de l'entitat sol·licitant: 1.5.

Summary

Culmination of the edition of poetics and materials for the study of the reception of Spanish poetry between 1939 and 2000.

Referència: HUM2006-11438/FILO. Ministeri d'Educació i Ciència.

Modalitat: Programa nacional d'humanitats.

Títol: *Edición de materiales para la autorrepresentación de la mujer en la poesía española (1960-1980).*

Centre: Departament de Filologia Espanyola, Moderna i Llatina. Edifici Ramon Llull.

Investigadora responsable: PAYERAS GRAU, Maria.

Categoría: TU (àrea de coneixement: Literatura Espanyola).

Inici: 2006 **Fi:** 2009

<u>Membres de l'equip</u>	<u>Categoría</u>	<u>Dedicació (EDP)</u>
Payeras Grau, Maria	TU	0.5
Díaz de Castro, Francisco J.	CU	0.5
Del Olmo Iturriarte, Almudena	TU	0.5

EDP del grup investigador de l'entitat sol·licitant: 1.5.

Summary

This project aims to continue in time the one that was accepted in December 2003. For this reason the generic title is respected, and only modifies the dates that mark the chronological period of study, it's to say 20 years ahead: 1960-1980. Briefly, our project is to select, digitalise and edit poems concerning the woman's image projected by the authors that start their literary work in the period between 1960 and 1980, with the goal of making a database of textual "corpus".

Referència: HUM2007-62259. Ministeri d'Educació i Ciència.

Modalitat: Programa nacional d'humanitats.

Títol: *Edición y estudio de textos bíblicos medievales en castellano.*

Acrònim: BIMECA.

Centre: Departament de Filologia Espanyola, Moderna i Llatina. Edifici Ramon Lull.

Investigador responsable: ENRIQUE ARIAS, Andrés.

Categoría: TU int. (àrea de coneixement: Llengua Espanyola).

Inici: 2007 **Fi:** 2010

Membres de l'equip	Categoría	Dedicació (EDP)
Enrique Arias, Andrés	TU int.	1
Bernat Vistarini, Antonio	TU	1
García Moreno, Aitor	TU int.	1
Investigadors d'altres entitats		
Matute Martínez, Cristina	Sant Louis University	
Davies, Mark	Brigham Young University	
Pato Maldonado, Enrique	Universitat de Montreal	

EDP del grup investigador de l'entitat sol·licitant: 3.

Summary

The medieval Spanish bibles are a unique aspect of the Hispanic cultural heritage that has repercussions through a wide array of disciplines. One of the most interesting aspects of these texts is the rich linguistic data contained therein, as they constitute a fairly big textual corpus that encompasses a wide chronological range. The medieval Spanish bibles are also interesting because they are the only medieval texts for which we have several versions of the same content composed in different historical periods, a circumstance that facilitates the observation of linguistic variation and change across time. In spite of it all, to this date the language of the Spanish medieval translations of the Bible has not been the subject of systematic studies.

With the objective of facilitating the study of these texts the group coordinated by Andrés Enrique Arias at the Universitat de les Illes Balears has been developing since 2003 the Old Spanish Biblical Corpus. Once it is concluded by late 2007, this corpus will provide paleographic transcriptions of all the known biblical translations with the possibility of viewing digital images of the original manuscripts. The data from this corpus, thus, constitutes the ideal setting to study the language of Spanish biblical translations and in turn contribute new data to the study of Spanish historical linguistics.

The aim of this project is making a significant contribution to the study of the language used in Spanish biblical translations through the systematic analysis of a number of variable morphosyntactic phenomena in the Old Spanish Biblical Corpus. This investigation focuses on four main aspects: a) defining the syntactic properties that characterize Old Spanish biblical texts, b) establishing the date and provenance of the manuscripts, c) establishing the precise relationship between the different existing biblical versions in Old Spanish, and d) contributing to the study of morphosyntactic variation in medieval Spanish.

Referència: HUM2007-66053. Ministeri d'Educació i Ciència.

Modalitat: Programa nacional d'humanitats.

Títol: *Contexto, contacto y nivel de competencia en la adquisición del inglés como lengua extranjera. Gradación en el desarrollo de habilidades orales y escritas a niveles medios.*

Acrònim: COLE.

Centre: Departament de Fiolologia Espanyola, Moderna i Llatina. Edifici Ramon Lull.

Investigador responsable: JUAN GARAU, Maria.

Categoría: TU (àrea de coneixement: Filologia Anglesa).

Inici: 2007 **Fi:** 2010

Membres de l'equip	Categoría	Dedicació (EDP)
Juan Garau, Maria	TU	1
Prieto Arranzm José Igor	TU	1
Salazar Noguera, Joana Adelaida	TU	1
Rallo Fabra, Lucrecia	TU	1
Calafat Ripoll, Catalina	As.	0.5
Catrail González, Magdalena	TEU	0.5
Borrull Cubo, Maria Nuria	TEU	0.5
Arnandiz Puig, Amalio	As.	0.5

Investigadors d'altres entitats

Jarvis, Scott H.	Ohio University (EEUU)
Marcos Llinás, Mònica	University of Missouri (EEUU)

EDP del grup investigador de l'entitat sol·licitant: 6.

Summary

Within the framework of European strategies to promote multilingualism, two contexts of language acquisition stand out as having undeniable appeal, due to their linguistic, social and even political impact. These contexts include the Stay Abroad in the target-language country (SA), and bilingual education –or the educational strategy of adopting foreign languages to present curricular material (the Integrated Content and Language approach– ICL), both of which are currently in the national spotlight. The project at hand seeks to measure the benefits obtained in the SA and ICL contexts respectively in comparison with the FI (formal instruction) context, with respect to the acquisition of English. We aim to analyze groups of university students with advanced levels of English, and secondary students with intermediate levels, who also receive FI. The study builds upon a previous project in which a comparative analysis of the SA and FI contexts at the university level were used to measure the benefits of SA, identify variables of success, and measure middle-term effects. The present study is based on a hypothesis of *gradation*, which establishes a continuous typological line moving from the conventional, eminently formal, classroom context (FI), through the bilingual classroom which more closely approximates natural contexts of acquisition (ICL), to the Stay Abroad (SA) or natural immersion contexts. With the goal of testing this hypothesis, this project aims to expand its design with a new context, different educational and linguistic levels, and different degrees of contact. To this end, first of all, it is proposed that data be collected first from a new type of university subject sample

in the ICL context, a sample group never before studied in our country. Secondly, this project aims to analyze the factor of contact, or the degree of access to input, for a group of university subjects who complete a Stay Abroad of longer duration. Thirdly, it proposes to identify the influence of the subjects' level of English at the beginning of their Stay Abroad on the benefits they obtain, for which reason it will use a sample of secondary students with intermediate levels, to be compared to the university students with advanced levels. Finally, the same types of comparisons of the three acquisition contexts will be made for students at the secondary level. This mosaic of comparisons constitutes a new panorama of acquisition and will allow for generalizations to be drawn about the factors and circumstances that promote and impede the acquisition of languages.

Referència: HUM2007-61753. Ministeri d'Educació i Ciència.

Modalitat: Programa nacional d'humanitats.

Títol: *Dramaturgias televisivas contemporáneas*.

Centre: Departament de Filologia Espanyola, Moderna i Llatina. Edifici Ramon Lull.

Investigador responsable: TRAPERO LLOBERA, Ana Patricia.

Categoría: TU (àrea de coneixement: Literatura Espanyola).

Inici: 2007 **Fi:** 2010

Membres de l'equip	Categoría	Dedicació (EDP)
Trapero Llobera, Ana Patricia	TU	1
Fernández Morales, Marta	TU	0.5
Menéndez Menéndez, Isabel		1
Roca Telleria, Matilde	TEU	1
Martorell Fiol, Martí	As.	1

EDP del grup investigador de l'entitat sol·licitant: 4.5.

Summary

The project entitled *Contemporary dramaturgies in television* intends to analyze the mechanisms of construction of TV and film fiction, linking them to the existing dramatic paradigm. The theoretical bases of the project will be built upon the contribution of the fields of Narratology, Theater Studies and Cultural Studies as applied to mass media and their relationship with contextual and co-textual aspects. Special attention will be paid to the narrative strategies of videogames, particularly a set of this kind of products derived from pre-existing film and tv materials and launched in Northamerica with a wide global impact. Lately we have witnessed not only the development of new patterns of script in film and television, but also the appearance of innumerable “poetics” -as the model of textual construction or the instructions to create that model are called in mainstream criticism- which elaborate on a series of hypothetical patterns that have gained the audience’s approval. Although nowadays TV series -particularly the ones produced in the U.S.A.- have contributed to the consolidation of a group of long-running production companies and the appearance of some new ones, somehow dismantling the traditional hegemony of the studios, the film still industry continues to reflect upon its own condition in its scripts. This fact highlights the existence of a common thread that unites the two types of textual production (TV and film), which is nothing but the aforementioned dramaturgical model theory of theater.

Projectes del Govern Balear

Referència: Conselleria d'Economia, Hisenda i Innovació del Govern de les Illes Balears.

Modalitat: Ajudes per a l'organització de reunions, congressos, seminaris, simposis o jornades de caràcter científic.

Títol: *Col·loqui internacional de corpusdiacrònic en llengües iberoromàniques.*

Centre: Departament de Filologia Espanyola, Moderna i Llatina. Edifici Ramon Lull.

Investigador responsable: ENRIQUE ARIAS, Andrés.

Categoría: TU int. (àrea de coneixement: Llengua Espanyola).

Inici: 2007 **Fi:** 2007

DEPARTAMENT DE FILOSOFIA I TREBALL SOCIAL

Referència: HUM2004-02295/FISO. Ministeri d'Educació i Ciència.

Modalitat: Programa nacional d'humanitats.

Títol: *Ruptura de la tradición. Nihilismo y transformación del tiempo y de la memoria en la formación de la conciencia actual.*

Acrònim: RDLT.

Centre: Departament de Filosofia i Treball Social. Edifici Ramon Llull.

Investigador responsable: AMENGUAL COLL, Gabriel.

Categoría: CU (àrea de coneixement: Filosofia).

Inici: 2004 **Fi:** 2007

Membres de l'equip	Categoría	Dedicació (EDP)
Amengual Coll, Gabriel	CU	0.5
Vermal Beretta, Juan Luis	TU	0.5
Cabot Ramis, Mateu	TEU	1
Pascual Sastre, Sebastià M.	TEU	1

EDP del grup investigador de l'entitat sol·licitant: 3.

Summary

The project's objective is to shed light on the profound change in the formation of the conscience of our time resulting from the radical modification of its relation with tradition. The rupture of tradition occurs throughout the second modernity and becomes a foundational element of the conscience of our time that is apparent in its characterizations with adjectives preceded by post- or with expressions beginning with "end of" or "death of." "Rupture of Tradition" is thus meant to convey that tradition is not in effect, does not direct or orient, and is not transmitted.

This phenomenon is best expressed in nihilism and in W. Benjamin. In F. Nietzsche (1844-1900), nihilism takes the form of a breach of history which starts with Plato and the search for a new beginning with a return to the pre-Socratic origins of philosophy. M. Heidegger (1899-1976) revisits Nietzsche's nihilism in search of its essence with the objective of overcoming it. The work of W. Benjamin (1892-1940) clearly exposes a crisis of historic conscience, both by referring to the breach and the search for a new access to it, and by its new understanding of aesthetics and culture.

We intend, in studying these authors, to compare their analyses and to identify contact points in their approaches and their proposals: for instance, their focus on decisive issues of our conscience, such as the creation of identity and the foundation of values, the relation with the past, their criticism of historicism, hermeneutics and narrative, their concept of the future, etc.

Referència: SEJ2004-04197/CPOL. Ministeri d'Educació i Ciència.

Modalitat: Programa nacional de ciències socials, econòmiques i jurídiques.

Títol: *Globalización, legitimidad democrática y sostenibilidad: crisis del estado del bienestar, cambios en la sociedad del trabajo y consecuencias de la modernidad.*

Acrònim: GLDS.

Centre: Departament de Filosofia i Treball Social. Edifici Ramon Llull.

Investigador responsable: RIUTORT SERRA, Bernat.

Categoría: TU (àrea de coneixement: Filosofia moral).

Inici: 2004 **Fi:** 2007

Membres de l'equip	Categoría	Dedicació (EDP)
Riutort Serra, Bernat	TU	1
Miquel Novajra, Alexandre	TU	0.5
Carbonero Gamundí, M. Antònia	TU	0.5
Valdivielso Navarro, Joaquim	Aj. EU	0.5

EDP del grup investigador de l'entitat sol·licitant: 2.5.

Summary

The GLDS proposal seeks to develop and address the categories since which precedent projects have driven the research: justice, social change, constraints of Welfare State and sustainability in advanced societies. In this new stage of the research we consider the problems generated by changes in *politics* and *policy* to democratic legitimization in the age of globalisation: global environmental change, the consequences of last modernity, mutation in labour society and welfare regimes, limitations of social citizenship, and deficits in economic and social scope of State faced to social and environmental sustainability challenges. The GLDS proposal keeps on the characteristic approach of the research team. On one hand, it combines the philosophical, epistemological and counter-factual dimensions with some conceptual contribution from social sciences -mainly sociology, anthropology, political science and economy. On the other, such theoretical analysis are applied to the specific reality of Balearic and Spanish societies as well similar issues posed by European integration and by current social and political restructuration in Ibero-American countries.

Referència: HUM2006-12284/FISO. Ministeri d'Educació i Ciència.

Modalitat: Programa nacional d'humanitats.

Títol: *El principio de precaución en la evaluación de riesgos.*

Acrònim: PPER.

Centre: Departament de Filosofia i Treball Social. Edifici Ramon Llull.

Investigador responsable: LUJÁN LÓPEZ, José Luis.

Categoría: TU (àrea de coneixement: Lògica i Filosofia de la Ciència).

Inici: 2006 **Fi:** 2009

Membres de l'equip	Categoría	Dedicació (EDP)
Luján López, José Luis	TU	1
López Puertas, Ginés	As.	0.5
Todt, Oliver	Aj. Dr.	1
Investigadors d'altres entitats		
Rodríguez Alcázar, Francisco J.	Universitat de Granada	

EDP del grup investigador de l'entitat sol·licitant: 2.5.

Summary

The main purpose of this research project is to analyze and value the implications of the precautionary principle for risk assessment. These implications will be analyzed according to the type of methodological shifts involved in risk assessment. This shifts on standards of evidence; on modifications on rules of inference; on proposals to incorporate new evidence sources; on proposals of new lines of scientific research about risks; and on heuristic proposals

Referència: HUM2006-11482/FISO. Ministeri d'Educació i Ciència.

Modalitat: Programa nacional d'humanitats.

Títol: *La comunidad judía de Amsterdam y Spinoza. Examen y edición de textos filosóficos escritos en castellano en la comunidad de Amsterdam del XVII contra Spinoza.*

Acrònim: JCA.

Centre: Departament de Filosofia i Treball Social. Edifici Ramon Llull.

Investigador responsable: BELTRAN MUNAR, Miquel Antoni.

Categoría: TEU (àrea de coneixement: Filosofia Moral).

Inici: 2006 **Fi:** 2009

Membres de l'equip	Categoría	Dedicació (EDP)
Beltran Munar, Miquel Antoni	TEU	1
Llinàs Begon, Joan Lluís	As.	0.5
Fullana Pastor, Guillermina	B	1

EDP del grup investigador de l'entitat sol·licitant: 2.5.

Summary

The aim is to study the philosophical treatises written in Spanish by some political and religious leaders of the Jewish community of Amsterdam during the XVIIth century. Some of these treatises were directly written against Spinoza through attacks to some of his followers (and also the excommunications which happened before Spinoza's own (it's the case of Uriel da Costa), we will try to understand the mechanisms of excommunication in the community of those who tried to recover the true traditions). Our intention is to prove that the leaders of the community tried to preserve political stability by renouncing to the principles of true orthodoxy, introducing religious dogmas not belonging to original Judaism. We'll do it through the research about the content of those treatises (works written by Menasseh ben Israel, Saul Leví Morteira, Abraham Gomes Sylveira, Orobio de Castro, Abraham Pereyra or Miguel de Barrios on philosophical matters). Such a research, followed by the edition of some of the manuscripts, as the "Certamen Philosophico contra Bredenburg", by Orobio de Castro, or some first editions, like "De la Fragilidad Humana", by Menasseh ben Israel, or the "Esfuerço Harmonico", by Miguel de Barrios will allow us to prove that the ban against Spinoza was the result of the philosopher's fight against the voluntary misunderstanding that the leaders of the community instigated of the principles of Judaic law and religious orthodoxy, supplanted as their main interest by the desire of political stability.

DEPARTAMENT DE FÍSICA

Referència: FPA2004-03666. Ministeri d'Educació i Ciència.

Modalitat: Programa nacional de física.

Títol: *Fuentes de ondas gravitacionales.*

Acrònim: FOG.

Centre: Departament de Física. Edifici Mateu Orfila i Rotger.

Investigador responsable: BONA GARCIA, Carles.

Categoría: CU (àrea de coneixement: Física Teòrica).

Inici: 2004 **Fi:** 2007

Membres de l'equip	Categoría	Dedicació (EDP)
Bona Garcia, Carles	CU	0.5
Carot Giner, Jaume Jesús	TU	0.5
Mas Franch, Lluís	CU	0.5
Sintes Olives, Alícia Magdalena	TEU	0.5
Stela Fiol, Joan	TU	0.5
Palenzuela Luque, Carlos	B	0.5

Investigadors d'altres entitats

Husa, Sasha	Max-Plank-Institut für Gravitationsphysik
Luan Bennásar, Manuel	Observatori de Mallorca

EDP del grup investigador de l'entitat sol·licitant: 3.

Summary

We propose to develop a cross-disciplinary project, 'Sources of Gravitational Waves', aimed at developing an understanding of some of the most exotic phenomena believed to exist in the Universe: Black Holes, Neutron stars and Gravitational Waves.

Anticipated for over 30 years, a number of European (GEO600, VIRGO) American (LIGO) and Japanese (TAMA) Gravitational Waves Observatories are now for the first time taking data. This implies an extreme urgency for the scientific community to both study realistic sources of Gravitational Waves and predict the signals they will produce on the detectors. The project will address this priority issues

By incorporating the most recent theoretical developments (constraint control, closeup boundary conditions, etc) in order to allow realistic simulations within the resolution and computer power limitations of present day computers.

By integrating in the team data analysis experts who are working to design algorithms based on such simulations.

By providing our group expertise and proven ability in training young researches in this emergent field.

Referència: CGL2005-05681/CLI. Ministeri de Ciència i Tecnologia.

Modalitat: Recursos naturals.

Títol: *Aplicación de técnicas de predicción por conjuntos a episodios meteorológicos de gran impacto en el mediterráneo occidental.*

Acrònim: ENSEMBLE.

Centre: Departament de Física. Edifici Mateu Orfila i Rotger.

Investigador responsable: HOMAR SANTANER, Víctor.

Categoría: INVESTIGADOR CONTRACTAT.

Inici: 2005 **Fi:** 2008

Membres de l'equip	Categoría	Dedicació (EDP)
Homar Santaner, Víctor	P. Con	1
Ramis Noguera, Climent	TU	0.5
Martín García, Alberto	B	1
Investigadors d'altres entitats		
Genovés Terol, Ana	Institut Nacional de Meteorología	
Camps Pons, Joan	Institut Nacional de Meteorología	
García-Moya Zapata, José A.	Institut Nacional de Meteorología	
Santos Burguete, Carlos	Institut Nacional de Meteorología	

EDP del grup investigador de l'entitat sol·licitant: 2.5.

Summary

Each year, high impact weather episodes affect the Western Mediterranean basin and still numerical models do not provide reliable forecast to forecasters, even for short lead-times (0 to 48 hours). The problem of predicting these episodes is even more difficult when low frequency extreme phenomena such as torrential floods, large hail, strong winds or tornadoes are analyzed. The lack of good severe weather forecasts and the necessity to devote weather research resources to improve them is urged by international projects MEDEX and THORPEX of the World Research program, endorsed by the World Meteorological Organization. Despite the ever-improving quality of the models initial conditions datasets (derived from better observations and analysis techniques) uncertainties in the forecast system exist. How and why errors evolve in the short-term numerical forecast of high impact weather episodes are important questions that require the use of new methods to improve the estimation of potentially hazardous weather cases in the forecast. The ENSEMBLE project suggests using ensemble prediction systems (EPS) to tackle this problem in the Western Mediterranean. The EPS have been used at the major weather prediction facilities in the world to account for the uncertainties in the medium-range numerical prediction (3 to 15 days). However, the generation, interpretation and application of short-range mesoscale EPS is still currently explored. ENSEMBLE suggests exploring a set of EPS generation techniques focusing on extreme events in the Western Mediterranean, with special emphasis on techniques that use sensibility fields from lineal adjoint models. On the other hand, several postprocessing techniques that allow one to customize the use of EPS to the statistical forecast of extreme low-frequency events, responsible of the greatest human activity perturbators, will be explored.

Furthermore, as an additional benefit from the proposed project, a climatology of sensitivity fields will be built, that will complement the existing MEDEX and MEDEXIB (from this same *Plan Nacional*) climatology of severe weather cases. Real-time scientific support for the special observations periods within MEDEX is also included in the ENSEMBLE work plan.

ENSEMBLE is aimed at improving the forecast of high-impact weather events by using ensemble prediction systems. The specific objectives of the project are: 1) Study the predictability and the sources of error in mesoscale numerical models in the Western Mediterranean, 2) Determine the optimal EPS generation method for the region, 3) Develop postprocessing techniques focused on severe weather in the region and 4) Implementation of the results in the INM operational framework, as well as in the UIB for academic and research purposes.

The ultimate beneficiaries of the results achieved in the project are the people threatened by severe weather episodes in the western Mediterranean basin. The new developments and conclusions obtained from the project will be directly transferred to the *Instituto Nacional de Meteorología* not only as a clear interested in the project but also as an active part in the research tasks. The use of probabilistic forecasts will be of considerable value to various economic sectors such as the energy, hydrologic, agriculture or aviation.

Referència: CGL2005-03918/CLI. Ministeri d'Educació i Ciència.

Modalitat: Programa nacional de biodiversitat, ciències de la terra i canvi global.

Títol: *Diseño de técnicas dinámico-estadísticas para la predicción de precipitación y ciclones mediterráneos.*

Acrònim: PRECIOSO.

Centre: Departament de Física. Edifici Mateu Orfila i Rotger.

Investigador responsable: ROMERO MARCH, Romualdo.

Categoría: TU (àrea de coneixement: Física de la Terra, Astronomia i Astrofísica).

Inici: 2005 **Fi:** 2008

Membres de l'equip	Categoría	Dedicació (EDP)
Romero March, Romualdo	TU	0.5
Alonso Oroza, Sergio	CU	0.5
Ramis Noguera, Climent	TU	0.5
De Luque Sölheim, Ángel Luis	Aj.	0.5
Fita Borrell, Lluís	B	1
Amengual Pou, Arnau	B	1

Investigadors d'altres entitats

Jansà Clar, Agustí	Institut Nacional de Metereología
Camps Pons, Joan	Institut Nacional de Metereología
Picornell Alou, M. Àngels	Institut Nacional de Metereología
Pons Reynés, M. Rosa	Institut Nacional de Metereología

EDP del grup investigador de l'entitat sol·licitant: 4.

Summary

The western Mediterranean is a very cyclogenetic area and many of the cyclones developed or modified over that region are associated with high impact weather phenomena that affect the society of the coastal countries, very especially heavy precipitations. Both the international WWRP-WMO MEDEX project and the national MEDEXIB project, leaded by the Meteorological Centre of INM at the Balearic Islands (CMTIBAL) and the Meteorology Group of UIB, respectively, have formulated as their main objective the study of the structure and predictability of Mediterranean cyclones that produce hazardous weather and high social impact, by means of the construction of a dynamical climatology of cyclones and the assessment of the physical and dynamical factors that influence their genesis and evolution. Their final aim is to improve the short and mid-range numerical forecasts of cyclones based on the optimization of the observational resources and thus the construction of better initial states for numerical weather prediction models.

This new proposal (PRECIOSO) is complementary to the previous projects since it is also built from a better understanding of the physical and dynamical mechanisms that define the mediterranean precipitation and cyclones. But at the same time it is a natural continuation of the former projects, in that it puts the emphasis on probabilistic predictions rather than on deterministic ones, aware of the intrinsic uncertainty of any forecast system. It is also recognised the specific complexity of the precipitation variable, which spatial, temporal and quantitative details are so crucial for successful hydrologic simulations, a key tool in flood watching tasks. The specific objectives of the project are:
a) Design of dynamical techniques for weather forecasting based on the generation of mesoscale ensembles using the non

hydrostatic MM5 model under varying physical parameterizations and initial conditions, b) Design of statistical techniques for the postprocess of meteorological numerical outputs in order to obtain improved precipitation fields (superensemble method, analogue procedure and neural network), c) Coupling of the HEC-HMS hydrological model to the different precipitation outputs, and d) Operational (daily) implementation of the above techniques in the computer systems of the group and dissemination of the results on the web at <http://mm5forecasts.uib.es>.

Despite the objectives of the project are constructed and tested taking as reference the cyclone and precipitation situations in the Mediterranean owing to its strong social impact, forecasting applications in contiguous regions and for other atmospheric circulation features are in fact considered in the proposed methodology. The real-time results that are pursued within the full prediction system and the expected benefits on the quality of the hydro-meteorological forecasts would remain entirely available to the Instituto Nacional de Meteorología in light of the agreement of scientific collaboration between the Ministerio de Medio Ambiente (which the INM belongs to) and the UIB, signed in July 2001, as well as to the agents involved in Civil Protection and similar tasks.

Referència: TEC2005-05712/MIC. Ministeri d'Educació i Ciència.

Modalitat: Programa nacional de tecnologies electrònica i de comunicacions.

Títol: *Anàlisis estadístic de paràmetres en circuits digitals CMOS nanomètrics: aplicació a mètodes de disseny i test.*

Acrònim: ANESPA.

Centre: Departament de Física. Edifici Mateu Orfila i Rotger.

Investigador responsable: SEGURA FUSTER, Jaume Agapit.

Categoría: CU (àrea de coneixement: Tecnologia Electrònica).

Inici: 2005 **Fi:** 2008

Membres de l'equip	Categoría	Dedicació (EDP)
Segura Fuster, Jaume Agapit	CU	1
Roca Adrover, Miquel Jesús	TU	1
Isern Riutort, Eugeni Miquel	TU	0.5
Bota Ferragut, Sebastià A.	TU	0.5
Rosselló Sanz, Josep Lluís	TEU	0.5
de Benito Crosseti, Carola	TEU	1
Alorda Ladària, Bartomeu	P. col.	1
Rosales Palou, Marcos	B	1
Canals Guinand, Vicenç	B	1

Investigadors d'altres entitats

Hawkins, Charles	University of New Mexico
Renovell, Michel	LIRM-CNRS
Comte, Mariane	LIRM-CNRS

EDP del grup investigador de l'entitat sol·licitant: 7.5.

Summary

Technology scaling has surpassed the 100nm barrier and is now rapidly evolving to the 65nm technological node. One of the challenges of today's technology scaling is related to controlling geometric critical dimensions, not only from die-to-die. The impact of poor critical dimensions control results in parameter variations of devices and interconnect. Moreover, recent results point that the relative impact of within-die variations is of the same order than die-to-die variations. Within die variations have a significant impact on present design and test methods, since many of the physical-to-electrical relationships at the circuit level are not deterministic anymore. This poses important challenges in specific design steps (lime critcal path determination) and impacts the development of efficient test methods based on non-logical parameters. This is motivated by two main reasons: the lack of appropriated models to describe variation, and the difficulty in settling pass-fail limit regions in a noisy environment. The lack of appropriated statistical models has an impact on the development of appropriated design and test methods that must rely on worst-case desing techniques. The objective of this project is the development of efficient statistical models for the key circuit parameters (design, power, and temperature) where the pas/fail region limit is settled according to such statistical models. Another objective of the project is to include the impact of noise mechanisms and environmental fluctuations (temparature and supply voltage) in the models to describe their effect on variation. Once the models are obtained they will be applied to the development of the parametric-based test methods.

Referència: MAT2005-00093. Ministeri d'Educació i Ciència.

Modalitat: Programa nacional de materials.

Títol: *Nuevas aleaciones ferromagnéticas con memoria de forma: interacciones magnetoelásticas, efectos microestructurales, estabilidad y características funcionales.*

Acrònim: NAFMEF.

Centre: Departament de Física. Edifici Mateu Orfila i Rotger.

Investigador responsable: PONS MORRO, Jaume.

Categoría: TU (àrea de coneixement: Física Aplicada).

Inici: 2005 **Fi:** 2008

Membres de l'equip	Categoría	Dedicació (EDP)
Pons Morro, Jaume	TU	1
Cesari Aliberch, Eduard	CU	1
Seguí Palmer, M. Concepció	TU	1
Picornell Alou, Catalina	CEU	1
Santamarta Martínez, Rubén	Aj.	1
Kustov, Sergey	Inv.	1
Masdeu Mayans, Francesc	B	1

Investigadors d'altres entitats

Muntasell Pla, Joaquim	Universitat Politècnica de Catalunya
Font Ferrer, Joan	Universitat Politècnica de Catalunya
Chernenko, Volodymyr	Institute of Magnetism (Ucraïna)
Ochin, Patrick	Centre d'Etudes de Chimie Métallurgique (França)

EDP del grup investigador de l'entitat sol·licitant: 7.

Summary

The proposed project involves the investigation of fundamental and functional properties of new ferromagnetic shape memory materials (FSMA). The fundamental part of research is concentrated on studying coupling between magnetic and elastic domain systems, using a new experimental approach based on simultaneous studies of non-linear mechanical and magnetic response of the FSMA to applied cyclic stress, and on the effects of a large variety of microstructural characteristics on the mobility of martensite boundaries. In parallel, the present project includes the development of new FSMA (mainly Ni-Fe-Ga and Co-Ni-Al) by an exhaustive study of microstructural modifications (generation of γ -phase precipitates, grain size and atomic ordering changes) introduced in these alloys after a variety of thermal treatments. The effect of these microstructures on the magnetic and martensitic transformations, and on the mechanical and functional properties (conventional and magnetic shape memory effects, superelasticity) will be also studied.

The fundamental part of the project will bring about a better understanding of the magnetic shape memory effect shown by these materials (which is directly related to the mobility of martensite variants). On its turn, thermal treatments suitable to generate microstructural features with positive effects on the magnetic or martensitic transitions and functional properties are expected to be found during the development of the new FSMA. Altogether brings about good expectations about transfer, at medium term, of the results of the project to the improvement of the commercial applications of these materials.

Referència: FIS2005-02796. Ministeri d'Educació i Ciència.

Modalitat: Programa nacional de física.

Títol: *Información cuántica y dinámica electrónica en nanoestructuras.*

Acrònim: INDINA.

Centre: Departament de Física. Edifici Mateu Orfila i Rotger.

Investigadora responsable: CASAS AMETLLER, Montserrat.

Categoría: CU (àrea de coneixement: Física Atòmica, Molecular i Nuclear).

Inici: 2005 **Fi:** 2008

Membres de l'equip	Categoría	Dedicació (EDP)
Casas Ametller, Montserrat	CU	1
Garcias Gomila, Francesca	TU	1
Serra Crespi, Llorenç	TU	1
Puente Ferrà, Antoni	TU	1
Nazmitdinov, Rachid	Inv.	1
López Gonzalo, M. Rosa	Inv.	1
Sánchez Martín, David	Inv.	1
Batle Vallespir, Josep	B	1

Investigadors d'altres entitats

Plastino, Ángel Luis Universitat Nacional de La Plata (Argentina)

EDP del grup investigador de l'entitat sol·licitant: 8.

Summary

The main purpose of the present project is to perform a systematic analysis of the time evolution of entangled states in bipartite and multipartite systems with and without interaction by a systematic survey of pure and mixed states in the Hilbert space of two-qudits (dimension $D \times D$) and N-qubits using several quantitative entanglement measures. The influence of the effect of different metrics on the Hilbert space in the state simulation will be analyzed, paying special attention to the case of indistinguishable particles (fermions and bosons). The effect of interaction with the environment will be analyzed a) for multipartite systems as a function of the qubit number, and b) in several quantum algorithms as they evolve with the number of iterations. The purity of entanglement will be used in spin particle systems as a measure of entanglement and we will consider as well their application to quantum phase transitions.

We shall investigate the use of coupled quantum dots acting as quantum gates by means of numerical simulations in coordinate space and real time. We shall study the coherence time of the entangled states obtained in these systems as well as the influence upon them of different items, namely a) the spin-orbit interaction, b) the magnetic field, and c) time dependent electric fields. In double quantum dots we shall analyze the collective modes and the corresponding symmetry restoring using the RPA theory and their extension to finite temperature. We will extend our study to the case where the Kondo correlations become important in the electronic transport. In double quantum dots we analyze the competition between the Kondo effect and the Ruderman-Kittel-Kasuya-Yosida (RKKY) interaction in the presence of a magnetic field. We will compare our theoretical results with those experimentally obtained in, e.g., carbon nanotube quantum dots. We will also study the two-impurity Kondo problem when the contacts are superconductors and then a source of entangled states. We will propose a new setup composed by quantum dots to observe the

multi-channel Kondo effect. The spintronic transport will be addressed by attaching real ferromagnets to a quantum dot in the Kondo regime when the spin-orbit interaction is present. Our interest is not only focused on the linear and nonlinear conductance but also on the shot noise in hybrid (normal, ferromagnetic or superconducting contacts) multiterminal quantum dots in other Coulomb blockade and Kondo regimes. We will end up with the study of the influence of either vacuum fluctuations of collective bosonic excitations (magnons) in the Kondo effect (Fermi-Bose-Kondo model) and in two-level systems (qubits).

We hope that our results will shed some light on the applications of electronic nanostructures as quantum gates, which constitute a subject of great interest in the field of quantum computation and as elements of spintronic and low dimensional circuits.

Referència: TEC2006-04103/MIC. Ministeri d'Educació i Ciència.
Modalitat: Programa nacional de tecnologies electrònica i de comunicacions.
Títol: *Técnicas de test predictivas para circuitos integrados CMOS análogos.*
Acrònim: PREDICT.
Centre: Departament de Física. Edifici Anselm Turmeda.
Investigador responsable: GARCIA MORENO, Eugeni.
Categoría: CU (àrea de coneixement: Tecnologia Electrònica).
Inici: 2006 **Fi:** 2009

<u>Membres de l'equip</u>	<u>Categoría</u>	<u>Dedicació (EDP)</u>
Garcia Moreno, Eugeni	CU	1
Bota Ferragut, Sebastià	TU	0.5
Isern Riutort, Eugeni	TU	0.5
Rosselló Sanz, Josep Lluís	TEU	0.5
Font Rosselló, Joan	TEU	1
Picos Gayà, Rodrigo	P. col.	1
Suinaga Portugués, Kay	B	1

EDP del grup investigador de l'entitat sol·licitant: 5.5.

Summary

Among the difficult challenges for the next years cited in the International Technology Roadmap for Semiconductors (ITRS) of 2004, within the test chapter it is explicitly said that “Analog DFT (design for test) and BIST (built in self test) techniques must mature to simplify test interface requirements and slow ever increasing instrument capability trends”. Our project is addressed to this and other related issues, by exploring the so-called predictive test technique. In the predictive test technique, deciding if a circuit is good or not is done on the basis of its functional characteristics, though they are not directly measured. They are predicted from measurements on test mode through a set of correlation functions obtained by simulation and statistical analysis. Therefore the tolerance bands can be established in a more realistic way than in the structural test, and it is also possible to classify the circuit according to the degree of accomplishment of its ideal functionality. This technique has the advantage over the functional test of being less demanding on test effort and test equipment capabilities, if the test mode and the test measurements are appropriately selected. The goal of this project is to evaluate the potentiality of this technique to be used in analog circuits, checking it against both structural and functional test techniques. We wish to propose application solutions combined with current supply monitoring. To evaluate it, we will use standard CMOS circuits (because this is the choice technology for integrated circuits), at first for RF applications (mixers and low noise amplifiers) but we aim to explore other possibilities (amplifiers and filters of low power and low supply voltage).

Referència: TRA2006-13318. Ministeri d'Educació i Ciència.

Modalitat: Programa nacional de medis de transport.

Títol: *Inspección autónoma de oleoductos, gasoductos, emisarios y cables submarinos.*

Acrònim: IOGECS.

Centre: Departament de Física. Edifici Anselm Turmeda.

Investigador responsable: CALVO IBÁÑEZ, Óscar Alberto.

Categoría: TEU (àrea de coneixement: Tecnologia Electrònica).

Inici: 2006 **Fi:** 2009

Membres de l'equip	Categoría	Dedicació (EDP)
Calvo Ibáñez, Óscar Alberto	TEU	1
Acosta Lazo, Gerardo	B	1
Curti, Hugo	B	1
Investigadors d'altres entitats		
Lane, Dave	Heriot-Watt University (Regne Unit)	
Evans, Jonathan	Heriot-Watt University (Regne Unit)	

EDP del grup investigador de l'entitat sol·licitant: 3.

Summary

The purpose of this project is to develop reliable tracking and inspection systems for submarine pipelines and cables, employing autonomous underwater vehicles (AUVs). Also, the vehicle is expected to perform debris field identification and mapping of fishing nets, anchors, mines, and others debris that can affect the installation security. Once these objects are recognized from the seabed, the AUV will have to modify trajectory, go around it, video tape the object and register the position and then return to the normal survey (re-planning). The interest on submarine pipeline and cable tracking in a complete autonomous and reliable way, without the need of a support vessel, is driven by the increasing need of the offshore oil and telecommunication companies to have their wells, pipes and cables laid in ultra deep waters, where the current remote operated vehicles, ROV are hard to use. The autonomous navigation, practically without human intervention, is a complex task due to unforeseen situations and the minimum communication capabilities when diving. Then, considering the multiple possible scenarios in an underwater world, artificial intelligence (AI) techniques will be used to cope with these unknown situations, where the only information of the seabed object is obtained from sonar. The project includes the integration and enhancement of planning and re-planning strategies developed within the context of a previous European Union Funded Project (Autotracker) with new ones to be designed under this proposed work plan. To test the different scenarios both a simulator along with, a low-cost platform to be built will be used as a local test-bed. The technology as well as the platform to be built will be very useful in future projects addressing contamination prevention and security in the seabed.

Referència: AYA2006-07637. Ministeri d'Educació i Ciència.

Modalitat: Programa nacional d'astronomia i astrofísica.

Títol: *Sismologia local y global de la atmósfera solar: un enfoque numérico.*

Acrònim: SISAS.

Centre: Departament de Física. Edifici Mateu Orfila i Rotger.

Investigador responsable: BALLESTER MORTES, Josep Lluís.

Categoría: CU (àrea de coneixement: Astronomia i Astrofísica).

Inici: 2006 **Fi:** 2011

Membres de l'equip	Categoría	Dedicació (EDP)
Ballester Mortes, Josep Lluís	CU	1
Oliver Herrero, Ramon	TU	1
Carbonell Huguet, Marc	TU	1
Terradas Calafell, Jaume	Inv.	1
Arregui Uribe-Etxeberria, Íñigo	Inv.	1
Forteza Ferrer, Josep	B	1
Luna Bennàssar, Manuel	B	1
Soler Juan, Roberto	B	1
Díaz Media, Antoni J.	Inv.	1

EDP del grup investigador de l'entitat sol·licitant: 8.

Summary

The main goal of the research proposal is to perform numerical simulations in order to study the time evolution of the oscillations of realistic magnetic structures of the solar atmosphere. We propose to develop two specific numerical codes, one devoted to local seismology and the second one to global seismology. These codes will be applied to different problems related with the oscillations of solar prominences and coronal loops, and from the obtained results we expect to extract useful information about the coronal heating and the values of different parameters of the solar corona such as magnetic field, magnetic Reynolds number, etc.

Referència: CGL2006-12474-C03-01. Ministeri d'Educació i Ciència.

Modalitat: Programa nacional de biodiversitat, ciències de la terra i canvi global.

Títol: *Estudio de procesos en la capa límite atmosférica mediante simulación numérica explícita, de mesoscala y su verificación.*

Acrònim: TRANSCLA-SIM.

Centre: Departament de Física. Edifici Mateu Orfila i Rotger.

Investigador responsable: CUXART RODAMILANS, Joan.

Categoría: INVESTIGADOR CONTRACTAT.

Inici: 2006 **Fi:** 2009

Membres de l'equip	Categoría	Dedicació (EDP)
Cuxart Rodamilans, Joan	Inv.	1
Mira Navarro, Antonio J.	B	1
Jiménez Cortés, María A.	Aj.	1
Alonso Oroza, Sergio	CU	0.5
Luque Solheim, Ángel	Aj.	0.5
Martínez Villagrasa, Daniel	B	1

Investigadors d'altres entitats	
Conanglia Trivino, Laura	Universitat Politècnica de Catalunya
Pino González, David	Universitat Politècnica de Catalunya
Mahrt, Larry	Oregon State University
Jonker, Harmen	Technical University of Delft
Castellví Sentis, Francesc	Universitat de Lleida

EDP del grup investigador de l'entitat sol·licitant: 5.

Summary

The majority of the key atmospheric compounds for climate change have their sources in the surface of the Earth. This is the case of water, the aerosols and the gases generated through biological and human activities, such as CO₂, ozone, methane or others. The arrival of these species to the free atmosphere, where they act as global active elements of the climatic change, is modulated by the action, more spatially restricted, of the atmospheric boundary-layer (ABL). In this sense, the ABL can act enhancing the exchange –when the turbulence is strong and sustained- or inhibiting it –when the turbulence is weak or sporadic, and the vertical transport is small. The researchers joined for this action have been studying for long the different regimes of the ABL through direct observation, data analyses and numerical simulation. While continuing these studies, it is intended now to apply the available methodologies to the evaluation of the transport of greenhouse-effect gases, photochemical oxidants and aerosols. The main inhibitors to the vertical transport are the stably stratified layers, especially the thermal inversions, at the top of the diurnal convective ABL or of the large stratocumulus decks, or near the surface, as it happens in the nocturnal stable ABL. Concentrations of the components of interest will be measured, together with the usual atmospheric variables -with special emphasis on the pressure fluctuations, not well known to date- and their transport to the free atmosphere will be estimated through advanced data analysis methods. To establish hypotheses of the possible circulations high-resolution meteorological models will be used at the mesobeta scale, where emission and photochemical models will be included. To study the specific microscale physical phenomena. Large-Eddy

Simulations will be performed, focussing particularly on the thermal inversions. To proceed, good initial data are necessary, both for the correct interpretation of the observed conditions through the convenient data analyses as well as for the initialisation and verification of the models used.

Referència: FIT-330100-2006-92. Ministeri d'Indústria.
Modalitat: Projecte PROFIT.
Títol: *Contribución española al proyecto PARACHUTE.*
Centre: Departament de Física. Edifici Mateu Orfila i Rotger.
Investigador responsable: SEGURA FUSTER, Jaume A.
Categoría: CU (àrea de coneixement: Tecnologia Electrònica).
Inici: 2006 **Fi:** 2007

<u>Membres de l'equip</u>	<u>Categoría</u>
Segura Fuster, Jaume A.	CU
Bota Ferragut, Sebastià	TU
Rosselló Sanz, Josep L.	TEU
Alorda Ladària, Bartomeu	P. Con.
Verd Martorell, Jaume	Tèc.

Referència: Ministeri de Treball i Assumptes Socials.
Títol: *Sistema autoguiado de alta fiabilidad basado en hardware específico para personas con limitación automotriz.*
Acrònim: SAFHE.
Centre: Departament de Física. Edifici Mateu Orfila i Rotger.
Investigador responsable: SEGURA FUSTER, Jaume A.
Categoría: CU (àrea de coneixement: Tecnologia Electrònica).
Inici: 2006. **Fi:** 2007.

<u>Membres de l'equip</u>	<u>Categoría</u>
Segura Fuster, Jaume A.	CU
Oliver Codina, Gabriel	TU
Bota Ferragut, Sebastià	TU
Rosselló Sanz, Josep L.	TEU
De Benito Crosetti, Carola	TEU
Ortíz Rodríguez, Alberto	TEU
González Cid, Yolanda	TEU
Burguera Burguera, Antoni	Aj.
Guerrero Sastre, José	P. Col.
Alorda Ladària, Bartomeu	P. Con.
De Paul Bernat, Iván	Tèc.
Canals Guinand, Vicenç J.	B

Referència: PRIB2004-9765. Conselleria d'Economia, Hisenda i Innovació.

Modalitat: Projectes de recerca, desenvolupament tecnològic i innovació.

Títol: *Transportes y estados entrelazados en nanoestructuras.*

Centre: Departament de Física. Edifici Mateu Orfila i Rotger.

Investigador responsable: SERRA CRESPI, Llorenç.

Categoría: TU (àrea de coneixement: Física Atòmica, Molecular i Nuclear).

Inici: 2004 **Fi:** 2007

Summary

In this project we model transport through nanometric nanostructures and the entangled states of these systems. We develop new methods and numerical codes to obtain the current-voltage characteristics, focussing on the role of: a) the spin-orbit interaction in the semiconductor, b) the geometry of the nanostructure, c) the non linearity of the current-voltage relation, d) the collective modes of the quantum dot.

We also determine entanglement measures, their dynamical evolution and the coherence times using a) approximate analytical and numerical models, b) exact numerical solutions of the Schroedinger equation for two interacting particles.

Hopefully, these results will reinforce the scientific basis of specific applications in nanotechnology involving transport, such as new devices and quantum computers.

Referència: BIA2007-60197. Ministeri d'Educació i Ciència.

Modalitat: Programa nacional de construcció.

Títol: *Comportamiento en servicio y capacidad resistente de piezas compuestas por varios hormigones construidas evolutivamente. Aplicación a forjados y vigas de edificación.*

Centre: Departament de Física. Edifici Mateu Orfila i Rotger.

Investigador responsable: CLADERA BOHIGAS, Antonio.

Categoría: P. col. (àrea de coneixement: Mecànica de Medis Continus i T. de les Estruc.).

Inici: 2007 **Fi:** 2010

Membres de l'equip	Categoría	Dedicació (EDP)
Cladera Bohigas, Antonio	P. col.	1
De Juan Oliver, Catalina	As.	1
Juan Mas, Salvador	As.	1
Purroy Narvaiza, Fernando	As.	1
Ribas González, Carlos	B	1

EDP del grup investigador de l'entitat sol·licitant: 5.

Summary

The use of precast elements in the construction industry suppose a significant improvement in many aspects, for example, a reduction on execution periods, a decrease on work-related accidents and an increase on the final quality. However, these structures comprise very often elements made with reinforced and/or prestressed precast elements connected with a concrete cast in-situ, like in small tie-beams for composite floors, hollow-core slabs and inverted tee-beams. The behaviour of these elements is complex, because they are built with two different concretes and because of their evolutionary construction process. Moreover, the design models and procedures do not take into account these effects adequately, like for example for their shear design.

The global objective of the present research project is to develop a practical engineering tool for concrete elements with the cross section built in different phases, improving the comprehension of their serviceability behaviour and their collapse mechanisms. Thus, it will be necessary to consider the stress redistribution caused by the differential creep and shrinkage at transversal section level. It is proposed to study the response of these elements to shear loads and to analyse the shear at the interface between concretes cast at different times.

The main activities to develop in the proposed research project are: a) To develop a sectional analysis non-linear model which takes into account the shrinkage and creep effects in the different parts of the cross section. This model has to be able to reproduce the behaviour of the concrete join; b) To carry out two experimental campaigns: the first one on composite floor tie-beams and the second campaign on composite beams made with a precast element and in-situ concrete; c) To verify the model for service loads; d) To study the shear strength of the tested beams and to compare it with different models and shear procedures, to adapt the models if needed; e) To apply the non-linear model for simulate the building process of these elements.

Referència: FPA2007-60220. Ministeri d'Educació i Ciència.

Modalitat: Programa nacional de física de partícules.

Títol: *Detección de ondas gravitacionales: algoritmos de análisis de datos, agujeros negros binarios y materia oscura en Galaxias.*

Centre: Departament de Física. Edifici Mateu Orfila i Rotger.

Investigador responsable: BONA GARCIA, Carles.

Categoría: CU (àrea de coneixement: Física Teòrica).

Inici: 2007 **Fi:** 2010

Membres de l'equip	Categoría	Dedicació (EDP)
Bona Garcia, Carles	CU	1
Sintes Olives, Alicia	TEU	1
Carot Giner, Jaume Jesús	TU	1
Apostolopoulos, Pantelis	Inv.	1
Masso Bennasar, Juan	TU	1
Stela Fiol, Joan	TU	1
Alic, Daniela	B	1
Trias Cornellana, Miquel	B	1

EDP del grup investigador de l'entitat sol·licitant: 8.

Summary

We propose the study of the detectability of some compact sources of gravitational waves, both for Earth-based detectors (e.g. LIGO) and for LISA, analyzing the impact of the available theoretical and numerical models, and of the different data filtering techniques. Along this line, we will develop and implement new data analysis techniques, in particular for continuous sources (e.g. neutron stars or pulsars in the case of Earth-based detectors or binary systems in the case of LISA).

Allowing for the fact that the merger of black hole binary systems is the most likely source of gravitational waves to be detected by LIGO, we propose also to widen the range of the current binary-black-hole numerical simulations, by removing long term instabilities and by developing gauge conditions that allow to obtain more reliable results.

Another aspect of the project is the development of general relativistic models for axially symmetric galaxies, in order to determine more realistically the proportion of dark matter in the galactic halo, by fitting the observed profiles of rotation speeds.

Projectes del Govern Balear

Referència: PROGECIB-43A. Conselleria d'Economia, Hisenda i Innovació del Govern de les Illes Balears.

Modalitat: Projectes de recerca per a grups de recerca emergents i competitius.

Títol: *Millora de la sostenibilitat ambiental dels edificis hotelers mitjançant l'anàlisi del seu cicle de vida.*

Centre: Departament de Física. Edifici Mateu Orfila i Rotger.

Investigador responsable: MARTÍNEZ MOLL, Víctor.

Categoría: TEU (àrea de coneixement: Enginyeria Mecànica).

Inici: 2007 **Fi:** 2009

Referència: PROGECIB-32A. Conselleria d'Economia, Hisenda i Innovació del Govern de les Illes Balears.

Modalitat: Projectes de recerca per a grups de recerca emergents i competitius.

Títol: *Desenvolupament d'una metodologia estandarditzada per al disseny de xarxes de senso-actuadors: especificació a la gestió eficient de recursos a l'entorn de l'hoteleria.*

Centre: Departament de Física. Edifici Mateu Orfila i Rotger.

Investigador responsable: ROSELLÓ SANZ, Josep L.

Categoría: TEU (àrea de coneixement: Tecnologia Electrònica).

Inici: 2007 **Fi:** 2009

Referència: PROGECIB-2A. Conselleria d'Economia, Hisenda i Innovació del Govern de les Illes Balears.

Modalitat: Projectes de recerca per a grups de recerca emergents i competitius.

Títol: *Detección de ondas gravitacionales y materia oscura.*

Centre: Departament de Física. Edifici Mateu Orfila i Rotger.

Investigadora responsable: SINTES OLIVES, Alicia M.

Categoría: TEU (àrea de coneixement: Física Teòrica).

Inici: 2007 **Fi:** 2009

Referència: Conselleria d'Economia, Hisenda i Innovació del Govern de les Illes Balears.

Modalitat: Accions especials de recerca, desenvolupament tecnològic i innovació.

Títol: *Sistema autoguiat d'alta fiabilitat basat en hardware específic per a persones amb limitació motriu.*

Centre: Departament de Física. Edifici Mateu Orfila i Rotger.

Investigador responsable: SEGURA FUSTER, Jaume.

Categoría: CU (àrea de coneixement: Tecnologia Electrònica).

Inici: 2007 **Fi:** 2008

DEPARTAMENT D'INFERMERIA I FISIOTERÀPIA

Referència: PI05-1503. Fons d'Investigació Sanitària. Ministeri de Sanitat i Consum.
Títol: *Trabajadoras latinoamericanas inmigrantes como cuidadoras: globalización, promoción y acceso a la salud.*
Centre: Departament d'Infermeria i Fisioteràpia. Edifici Guillem Cifre de Colonia.
Investigador responsable: BOVER BOVER, Andreu.
Categoría: TEU (àrea de coneixement: Infermeria).
Inici: 2005 **Fi:** 2008

<u>Membres de l'equip</u>	<u>Categoría</u>
Bover Bover, Andreu	TEU
Gastaldo, Denise	
Sáenz de Ormijana Hernández, Amaia	
Juando Prats, Clara	
Robledo Martín, Juana	
Luengo González, Raquel	
Izquierdo Mora, Dolores	
Llabata Pérez, Paloma	

Summary

In recent years the noticeable increase in immigration in Spain has been transforming our social reality, creating new challenges for the welfare and health care systems. It has also created new opportunities for the health promotion and protection of the population. Among the biggest groups and the less studied are how social determinants of health, prevention and health care of dependent individuals. In this study we will explore how social determinants of health, prevention and health care received influence the health status and well-being of Latin American immigrant women working like care givers in Spanish homes. This is a multi-site study, designed for 4 socio-linguistic zones in Spain: Balearic Islands and Catalonia, Basque Country, Madrid and Canary Islands. The methodology is both qualitative (96 semi-structured interviews) and quantitative (720 questionnaires SF-36) differentiating the following factors/variables: immigration status (resident or undocumented), visible minority or not, and presence or absence of family network. Participation in the study is voluntary and a consent form will be used with all participants. The appropriate ethics committee will review the project. For the analysis of qualitative data, discourse analysis will be used with the support of the software Atlas.ti 5.0. For the quantitative analysis, a descriptive analysis will be employed based on items of the SF-36 survey. The results will be shared with immigrant community groups, health care professionals, and academics.

Referència: PI06/90141. Avaluació de Tecnologies Sanitàries i Investigació de Serveis de Salut. Ministeri de Sanitat i Consum.

Títol: *Tabaquismo en enfermería comunitaria.*

Centre: Departament d’Infermeria i Fisioteràpia. Edifici Guillem Cifre de Colonia.

Investigador responsable: PERICÀS BELTRAN, Jordi.

Categoría: CEU (àrea de coneixement: Infermeria).

Inici: 2006 **Fi:** 2008

Membres de l’equip	Categoría
Pericàs Beltran, Jordi	CEU
Bennàsar Veny, Miquel	As.
González Torrente, Susana	Infermera Ib-Salut
Investigadors d’altres entitats	
González Torrente, Susana	Ib-Salut

Summary

Primary health nurses are suitable to promote health among smokers. Nurses are not different from women in their age interval: 40-50% of nurses are active smokers. Smoking habit determinants seem to be: increased advertising specifically addressed to women, body weigh control trough tobacco and growing stress level in women and nurses. Despite the programs implemented in Spain and Balearic Islands, prevalence in smoking habit is growing among women, nurses and teenage girls. In Spain there are not qualitative research that could address non-smoking policies for nurses.

We propose a qualitative research aimed to identify determinants influencing the smoker condition in primary health nurses, trying to study in depth health determinants (individual and social), perhaps related to nurses as professionals and women, not reached by quantitative studies.

The aim is to identify this mentioned determinants such as self-stem, gender or labour conditions influencing the smoking acquisition, maintenance and cessation among primary health nurses working for Ib-Salut (Balearic Islands, Spain). We think that this knowledge will address more effective campaigns for smoking cessation among this population.

The design is qualitative exploratory critically oriented. Participants are women nurses developing their professional activity in primary health. Data collection will be through digital recording during the focus groups. Sample will be stratified in age percentages. We will conduct focus groups until data saturation. Data will be transcribed and coded. Rigour will be reached by saturation and triangulation (sources and researchers).

Referència: PI06/90156. Avaluació de Tecnologies Sanitàries i Investigació de Serveis de Salut. Ministeri de Sanitat i Consum.

Títol: *Promoción de los cuidados dirigidos a los familiares del paciente crítico a través de una investigación-acción participativa en una unidad de cuidados intensivos (UCI)*

Centre: Departament d’Infermeria i Fisioteràpia. Edifici Guillem Cifre de Colonia.

Investigador responsable: ZAFORTEZA LALLEMAND, Concepción.

Categoría: P. Col. (àrea de coneixement: Infermeria).

Inici: 2007 **Fi:** 2008

<u>Membres de l'equip</u>	<u>Categoría</u>
Zaforteza Lallemand, Concepción	P. Col.
<u>Investigadors d'altres entitats</u>	
Abadía Ortiz, Ester.	IBSALUT
Alonso Carreño, Marta.	IBSALUT
Amorós Cerdá, Sylvia	IBSALUT
Crespí Capó, Magdalena	IBSALUT
García Mozo, Ana	IBSALUT
Garcías Fullana, Jerónima M ^a	IBSALUT
Gastaldo, Denise	IBSALUT
Lastra Cubel, Pedro	IBSALUT
Moreno Mulet, Cristina.	IBSALUT
Nieto González, Antonio	IBSALUT
Prieto González, Sylvia.	IBSALUT
Sánchez Calvín, Celia.	IBSALUT

Summary

General Objective: To generate change to enhance care giving offered by nurses to family members of critically-ill patients in an ICU of a tertiary hospital of Balearic Islands and to transfer this initiative to another ICU of hospital in this same Autonomous Community.

Specific Objectives: (1) To understand how a reflexive process can promote the assessment of clinical practice and the creation of strategies to enhance nursing care. (2) To implement and evaluate a new care model for patients and their relatives through reflection-action group work. (3) To develop a theoretical model for changes in ICU clinical practice as means of transferring research results to other contexts. (4) To educate clinical nurses of two institutions in participatory-action research methodology as means to promote changes in clinical practice.

Methodology: participatory-action research methodology in 5 phases: (1) identification of current situation; (2) creation of an action plan; (3) implementation of change plan; (4) evaluation of the proposed plan and development of a model to other ICUs; (5) translation, adaptation and application of the model by another ICU. The project will be undertaken in a tertiary hospital of Balearic Islands’ ICU and it will be translated to the context of another ICU. The participants are nurses and other ICU professionals who wish to integrate the project. Data will be collected through focus groups (17 in total), fieldnotes, self-observation and evaluative observation in this unit. Change indicators are related to group culture: language, activities and professionals-relatives’ relationships. Another indicator will be the

incorporation of evidence-based practice into clinical activities regarding patients' relatives care. The analysis will be continuous and circular with deductive (based on empirical data) and inductive (based on the theoretical framework and literature review) processes. Rigour will be ensured through triangulation of methods and sources and through the meticulous report of the researchers' reflexivity process which guided methodological decisions.

Participacions a altres projectes

Referència: PI040612. Xarxes Temàtiques d'Investigació Cooperativa. Ministeri de Sanitat i Consum.

Títol: *Identificación y valoración de los registros de enfermería para población igual o mayor de 65 años en Atención Primaria y Sociosanitaria, en relación con las caídas, incontinencia urinaria y lesiones por presión.*

Investigadora responsable: FUENTELSAZ GALLEGOS, Carmen.

Centre: Hospital Vall d'Hebron.

Investigadors de la UIB:

Gallego Caminero, Gloria.

Categoría: TEU (àrea de coneixement: Infemeria).

Miró Bonet, Margalida.

Categoría: TEU (àrea de coneixement: Infemeria).

Inici: 2004 **Fi:** 2007

Referència: PI042160. Xarxes Temàtiques d'Investigació Cooperativa. Ministeri de Sanitat i Consum.

Títol: *Identificación y valoración de los registros de enfermería para población igual o mayor de 65 años en atención primaria y sociosanitaria, en relación con los cuidados informales.*

Investigadora responsable: FUENTELSAZ GALLEGOS, Carmen.

Centre: Hospital Vall d'Hebrón.

Investigadors de la UIB:

Bover Bover, Andreu.

Categoría: TEU (àrea de coneixement: Infermeria).

Inici: 2005 **Fi:** 2007

Referència: PI/060353. Ministeri de Sanitat i Consum.

Títol: *Género e incontinencia urinaria. Prevalencia del problema y evaluación de la efectividad de una intervención formativa de rehabilitación muscular del suelo pélvico.*

Investigadora responsable: MORENO CASBAS, Teresa.

Centre: INVESTEN. Institut Carles III.

Investigadores de la UIB:

Miró Bonet, Margalida.

Categoría: TEU (àrea de coneixement: Infermeria)

Gallego Caminero, Gloria.

Categoría: TEU (àrea de coneixement: Infermeria)

Inici: 2007 **Fi:** 2009

Projectes del Govern Balear

Referència: Conselleria d'Economia, Hisenda i Innovació del Govern de les Illes Balears.

Modalitat: Ajudes per a l'organització de reunions, congressos, seminaris, simposis o jornades de caràcter científic.

Títol: *II Jornades de col·laboració internacional de doctorats en Infermeria.*

Centre: Departament d'Infermeria i Fisioteràpia. Edifici Guillem Cifre de Colonia.

Investigador responsable: BOVER BOVER, Andreu.

Categoría: TEU (àrea de coneixement: Infermeria).

Inici: 2007 **Fi:** 2007

DEPARTAMENT DE PEDAGOGIA APLICADA I PSICOLOGIA DE L'EDUCACIÓ

Referència: SEJ2005-06467/EDUC. Ministeri d'Educació i Ciència.

Modalitat: Programa nacional de ciències socials, econòmiques i jurídiques.

Títol: *Estandares e indicadores para analizar la calidad de vida del alumnado con necesidades educativas especiales asociadas a discapacidad en su proceso educativo.*

Acrònim: ACVANEE.

Centre: Departament de Pedagogia Aplicada i Psicologia de l'Educació. Edifici Guillem Cifre de Colonia.

Investigador responsable: MUNTANER GUASP, Joan Jordi.

Categoría: CU (àrea de coneixement: Didàctica i Organització Escolar).

Inici: 2005 **Fi:** 2008

Membres de l'equip	Categoria	Dedicació (EDP)
Muntaner Guasp, Joan Jordi	CU	1
Forteza Forteza, M. Dolors	TU	1
Rosselló Ramon, M. Rosa	TU	1
Verger Gelabert, Sebastià	TEU	1
de la Iglesia Mayol, Begoña	P. Col.	0.5
Ferrer Cerdà, Elena	As.	1

Nombre total d'investigadors de la UIB: 5.5.

Summary

To apply the concept of quality of life introduces a new perspective to analyze and to deepen in an integral education throughout the regulated educative process of the students with special educational needs associated to disabilities, as well as improvement of the educative supply for all the students in the context of the inclusive school.

By creating an instrument to evaluate the educative attention to the students with special educational needs associated with disabilities, from different positions that take into account all those implied in this process - teaching staff, administration, families, students, and also in the different stages of this process - Primary education, Secondary and Post-Secondary- it will allow us to know, in depth, the characteristics of the proposed training and it also gives us the opportunity to raise proposals of action which they lead towards the improvement of the educative performance for all, without exclusions.

Referència: SEJ2006-10413. Ministeri d'Educació i Ciència.

Modalitat: Programa nacional de ciències socials, econòmiques i jurídiques.

Títol: *El ciberplagio entre los estudiantes universitarios.*

Acrònim: CPEU.

Centre: Departament de Pedagogia Aplicada i Psicologia de l'Educació. Edifici Guillem Cifre de Colonia.

Investigador responsable: SUREDA NEGRE, Jaume.

Categoría: CU (àrea de coneixement: Didàctica i Organització Escolar).

Inici: 2006 **Fi:** 2009

Membres de l'equip	Categoría	Dedicació (EDP)
Sureda Negre, Jaume	CU	1
Comas Forgas, Rubén L.	Tèc.	1
Oliver Trobat, Miquel	TEU	0.5
Urbina Ramírez, Santos	TEU	0.5
Cavanillas Múgica, Santiago	CU	0.5
Casero Martínez, Antonio	As.	0.5
Pastor Tous, Miquel	Tèc.	1
Serra Cifre, Bartomeu	CU	0.5

EDP del grup investigador de l'entitat sol·licitant: 5.5

Summary

Irruption of Information and Communication Technologies (ICT's) has provoked and eased important and substantial changes in the area of education and formative processes; some of these changes can not be considered as positive. It is the case of the Academic Cyber-plagiarism.

Adopt and present as own ideas, theories, hypothesis, texts, etc. from others it is not a new phenomenon; but the technologies associated to the society of information and communication –specially the internet- eases to an extent this morally questionable and academically incorrect practice. Research on this area –focused on the academic plagiarism amongst university students- it is the main aim of the present proposal, following some of the work developed so far in this field like:

Ercegovac, McCabe, Bowman, Roig, Anderson, Lathrop y otros (Ercegovac, 2005; McCabe, 2005, 2002, 2001; Bowman, 2004; Roig, 2001; Anderson, 1999; Lathrop, 2000, 2005). The projects aims to 2 main objectives: (1) analyze the characteristics, causes, extension and consequences of cyber-plagiarism amongst university students, (2) evaluate, design and test tools aimed to detect, prevent and correct this phenomenon. The second finality will be approached trough, on the one hand, a formative/educative perspective – based on the design and implementation of formative and awareness activities addressed to the university students and teachers staff-. On the other hand, we approach it trough the evaluation, development and test of anti-plagiarism software (prototype) that detects cases of plagiarism in academic works.

Referència: SEJ2006-12616/PSIC. Ministeri d'Educació i Ciència.

Modalitat: Programa nacional de ciències socials, econòmiques i jurídiques.

Títol: *Desarrollo y cambio en las dificultades en la adquisición del lenguaje y su influencia en el aprendizaje de la lecto-escritura.*

Acrònim: DAL.

Centre: Departament de Pedagogia Aplicada i Psicologia de l'Educació. Edifici Guillem Cifre de Colonia.

Investigadora responsable: AGUILAR MEDIAVILLA, Eva.

Categoría: AJ. DR. (àrea de coneixement: Psicologia Evolutiva i de l'Educació).

Inici: 2006 **Fi:** 2009

Membres de l'equip	Categoría	Dedicació (EDP)
Aguilar Mediavilla, Eva	Aj. dr.	1
Rigo Carratalà, Eduard	CU	0.5
Pérez Castelló, Josep Antoni	TU	0.5
Sastre Vidal, Miquela	As.	0.5
Investigadors d'altres entitats		
Aguilar Alonso, Ángel	Universitat de Barcelona	

EDP del grup investigador de l'entitat sol·licitant: 2.5.

Summary

The aim of this project is the longitudinal studying of Specific Language Difficulties in bilingual Spanish-Catalan children. This wide aim is concreted in objectives. By one hand, we are interested in describe the linguistic (oral and writer) characteristics in these children, in addition to describe their development. By other hand we are also interested in found the possible causes of this difficulties taking into account a developmental and cognitive model. This way we hope find a deficit in cognitive variables, although we can not concrete if this difficulties will be specific of language abilities, as phonological memory or temporal processing, or general. Finally, we are interested in found predictors and signs that allow an early diagnosis, a specific intervention plan and a good prediction of the course of development.

The study will use mixed design with an ex-post-facto transversal dimension and a temporal one with three observational points. Data collected included a sample of language and the application of various test that measure cognitive and linguistic (oral and writer) abilities.

Projectes del Govern Balear

Referència: Conselleria d'Economia, Hisenda i Innovació del Govern de les Illes Balears.

Modalitat: Ajudes per a l'organització de reunions, congressos, seminaris, simposis o jornades de caràcter científic.

Títol: *Simposio Internacional de Documentación Educativa (SIDOC-2007)*.

Centre: Departament de Pedagogia Aplicada i Psicologia de l'Educació. Edifici Guillem Cifre de Colonia.

Investigador responsable: OLIVER TROBAT, Miquel F.

Categoría: TEU (àrea de coneixement: Didàctica i Organització Escolar).

Inici: 2007 **Fi:** 2007

DEPARTAMENT DE PEDAGOGIA I DIDÀCTIQUES ESPECÍFIQUES

Referència: HUM2007-61420. Ministeri d'Educació i Ciència.

Modalitat: Programa nacional d'humanitats.

Títol: *Cambios y continuidades en educación a través de la imagen: una mirada distinta sobre el proceso de renovación educativa. El caso de Baleares (1900-1939).*

Acrònim: IMAGEDUCA.

Centre: Departament de Pedagogia i Didàctiques Específiques. Edifici Guillem Cifre de Colonia.

Investigador responsable: COMAS RUBÍ, Francesca.

Categoría: TEU (àrea de coneixement: Teoria i Història de l'Educació).

Inici: 2007 **Fi:** 2010

Membres de l'equip	Categoría	Dedicació (EDP)
Comas Rubí, Francesca	TEU	1
Sureda García, Bernat	CU	0.5
Janer Manila, Gabriel	CU	1
Motilla Salas, Xavier	Aj.	1
Mulet Gutiérrez, M. José	TU	1

EDP del grup investigador de l'entitat sol·licitant: 4.5.

Summary

With this project we sought to locate, to study and to help to the conservation of the existent photographic documentation on education from beginnings of the XX century until the end of the Civil War, centering us, initially, in the context of the Balearic Islands. For other, using the image like documental source for the history of the education, we will try to contribute a vision different and/or complementary of what was the process of educational renovation (New Education) in Spain, as well as to develop new models for the exploitation of the image like historical- educational source, and not simply as illustrative resource.

Referència: SEJ2007-67306. Ministeri d'Educació i Ciència.

Modalitat: Programa nacional de ciències socials, econòmiques i jurídiques.

Títol: *Prevención de conductas problema en la familia: programa de competencia parental para familias en situación de dificultad social.*

Acrònim: PROCOMFAM.

Centre: Departament de Pedagogia i Didàctiques Específiques. Edifici Guillem Cifre de Colonia.

Investigador responsable: ORTE SOCÍAS, M. del Carmen.

Categoría: CU (àrea de coneixement: Teoria i Història de l'Educació).

Inici: 2007 **Fi:** 2010

Membres de l'equip	Categoría	Dedicació (EDP)
Orte Socías, M. del Carmen	CU	0.5
March Cerdà, Martí Xavier	CU	0.5
Ballester Brague, Luis	TU	0.5
Touza Garma, M. del Carmen	TEU	0.5
Oliver Torelló, José Luis	TEU	0.5
Pascual Barrio, María Belen	Aj. Dr.	0.5
Mestre Moya, M. Luisa	Tèc.	0.5
Fernández Coll, M. Cristina	As.	0.5

EDP del grup investigador de l'entitat sol·licitant: 4.

Summary

This project aims to validate the efficacy of a program that may be used by professionals in preventive work within family life with high-risk populations, specifically to strengthen parental competence while preventing the development of inadaptive behaviours in children.

Referència: SCO/1883/2005 Ministeri de Sanitat i Consum.

Modalitat: Pla nacional de drogues.

Títol: *Prevención del consumo de drogas en la familia: programa de competencia parental para drogodependientes en tratamiento.*

Centre: Departament de Pedagogia i Didàctiques Específiques. Edifici Guillem Cifre de Colonia.

Investigador responsable: ORTE SOCÍAS, M. del Carmen.

Categoría: CU (àrea de coneixement: Teoria i Història de l'Educació).

Inici: 2005 **Fi:** 2008

Participacions a altres projectes

Referència: DEP2005-00231-C03-02/ACTI. Ministeri d'Educació i Ciència.

Títol: *Factores determinantes para la práctica Fis.-Dep. y asociaciones probabilísticas entre variables Fis.-Dep. y de salud. Tipologías de estilos de vida de la población adulta y detección de poblaciones.*

Investigador responsable: RUÍZ JUAN, Francisco.

Centre: Universitat d'Almeria.

Investigador de la UIB: PALOU SAMPOL, Pere.

Categoría: TEU (àrea de coneixement: Educació Física i Esportiva).

Inici: 2006 **Fi:** 2008

Projectes del Govern Balear

Referència: PROGECIB. Conselleria d'Economia, Hisenda i Innovació.

Modalitat: Projectes de recerca per a grups de recerca emergents i competitius.

Títol: *Prevención de conductas problema en la familia: Programa de competencia parental para familias en situación de dificultad social.*

Centre: Departament de Pedagogia i Didàctiques Específiques. Edifici Guillem Cifre de Colonia.

Investigador responsable: ORTE SOCÍAS, Carmen.

Categoría: CU (àrea de coneixement: Teoria i Història de l'Educació).

Inici: 2007 **Fi:** 2009

Referència: Conselleria d'Economia, Hisenda i Innovació del Govern de les Illes Balears.

Modalitat: Ajudes per a l'organització de reunions, congressos, seminaris, simposis o jornades de caràcter científic.

Títol: *II Congreso internacional y XXIV nacional de Educación Física.*

Centre: Departament de Pedagogia i Didàctiques Específiques. Edifici Guillem Cifre de Colonia.

Investigador responsable: PALOU SAMPOL, Pere.

Categoría: TEU (àrea de coneixement: Educació Física i Esportiva).

Inici: 2007 **Fi:** 2007

DEPARTAMENT DE PSICOLOGIA

Referència: SEJ2004-01332/PSIC. Ministeri d'Educació i Ciència.

Modalitat: Programa nacional de ciències socials, econòmiques i jurídiques.

Títol: *Evaluación del procesamiento de la información en el dolor crónico con resonancia magnética funcional.*

Acrònim: PAINBRAIN.

Centre: Departament de Psicologia. Edifici Beatriu de Pinós.

Investigador responsable: MONTOYA JIMÉNEZ, Pedro.

Categoría: TU (àrea de coneixement: Psicobiologia).

Inici: 2004 **Fi:** 2007

Membres de l'equip	Categoría	Dedicació (EDP)
Montoya Jiménez, Pedro	TU	1
Sitges Quirós, Carol	B	1

Investigadors d'altres entitats

García Herrera, Manuel	Ministeri de Treball i Afers Socials
Izquierdo Rodríguez, Raúl	Ministeri de Treball i Afers Socials
Colado Torres, Dolores	Ministeri de Treball i Afers Socials
Campos Bueno, José J.	Universitat Complutense de Madrid
Chialvo, Dante	Northwestern University Medical School

EDP del grup investigador de l'entitat sol·licitant: 2.

Summary

This research proposal is a continuation of our line of work initiated with the project BSO2001-0693. The major aim of this research is to analyze the brain activity in chronic pain patients using functional magnetic resonance imaging (fMRI). The underlying hypothesis is that chronic pain is characterized by plastic changes in the nervous system. Our experimental design pursues to demonstrate the existence of abnormal pattern in the brain processing of somatic information in chronic pain patients. In addition, we are interested on the influence of cognitive and affective factors on brain plastic changes. Three patients groups with similar sociodemographic, but different clinical characteristics will be examined: fibromyalgia, complex regional pain syndrome and rheumatoid arthritis. Brain activity will be recorded during nociceptive and non-nociceptive stimulation using fMRI. In addition, psychological characteristics of pain, neuropsychological functioning and pain thresholds will be examined.

Referència: SEJ2004-01363/PSIC. Ministeri d'Educació i Ciència.

Modalitat: Programa nacional de ciències socials, econòmiques i jurídiques.

Títol: *Evaluación de la atención sostenida y el control atencional en el trastorno por déficit de atención con hiperactividad (TDAH): una aproximación conductual, neuropsicológica y electrofisiológica.*

Acrònim: EATDAH.

Centre: Departament de Psicologia. Edifici Guillem Cifre de Colonia.

Investigador responsable: SERVERA BARCELÓ, Mateu.

Categoría: TU (àrea de coneixement: Personalitat, avaluació i tractament psicològics).

Inici: 2004 **Fi:** 2007

Membres de l'equip	Categoría	Dedicació (EDP)
Servera Barceló, Mateu	TU	1
Barceló Galindo, Francesc	TU	0.5
Investigadors d'altres entitats		
Cardo Jalón, María Esther	Fundació Hospital Son Llàtzer	

EDP del grup investigador de l'entitat sol·licitant: 1.5.

Summary

Our main objective is to determine the relationship between various tasks and measures of sustained and executive attention with various behavioral and clinical markers of the attention deficit hyperactivity disorder (ADHD), in order to better understand the type of attentional dysfunctions associated with this developmental disorder. A battery of attentional tasks will be administered to children diagnosed with different subtypes of ADHD in order to determine specific attentional deficits in relation to normal controls, as well as distinctive features across ADHD subtypes and in relation with other attentional disorders. Three Continuous Performance Tests (CPTs) and a modified version of the Wisconsin Card Sorting Test (WCST) will be used as measures of sustained attention and executive attention, respectively. The task battery will consist of a no-X CPT as a measure of inhibitory function; a AX-CPT as an index of vigilance; and two modified AX-CPT and WCST tasks to assess selective attention and executive control in a task switching paradigm. For each of these tasks we will obtain different types of indicators: behavioural (hits, omission/commission errors, and reaction times), neuropsychological (indicators of sensibility and response bias based on signal detection theory). The integration of evidence from this three-way interaction of factors (task x measure x deficit) is expected to provide solid grounds for theorising about the nature of the attentional dysfunctions observed in ADHD.

Referència: SEJ2005-00899/PSIC. Ministeri d'Educació i Ciència.

Modalitat: Programa nacional de ciències socials, econòmiques i jurídiques.

Títol: *Dinámica no lineal de la ansiedad: nueva perspectiva en la evaluación y el tratamiento de los trastornos fóbicos.*

Acrònim: DiNLA.

Centre: Departament de Psicologia. Edifici Guillem Cifre de Colonia.

Investigador responsable: LLABRÉS BORDOY, Jordi.

Categoría: TEU (àrea de coneixement: Personalitat, Avaluació i Tractament Psicològics).

Inici: 2005 **Fi:** 2008

Membres de l'equip	Categoría	Dedicació (EDP)
Llabrés Bordoy, Jordi	TEU	1
Bornas Agustí, F. Xavier	TU	1
Tortella Feliu, Miquel Rafael	CEU	0.5
Investigadors d'altres entitats		
López Jiménez, Ana	Universitat de Sevilla	
Noguera Batlle, Miquel	Universitat Politècnica de Catalunya	
Fullana Rivas, Miquel À.	Universitat Autònoma de Barcelona	

EDP del grup investigador de l'entitat sol·licitant: 2.5.

Summary

Following our previous research on this area, the aim of this project is to expand the knowledge on the treatment of phobic disorders, specifically flying phobia. The focus will be on what we consider its least known aspect: the course or evolution of patients along the treatment. For this purpose, and with the dynamic systems theory as a background, we will use an innovative and rigorous methodology in Psychology, which specifically addresses the study of the process of change, i.e., the analysis of the evolution of systems in time and its dynamic features. The knowledge attained this way should be useful to develop an assessment protocol focused on therapeutic change and to improve the efficacy of the treatment.

Furthermore, among our more applied goals, we include the development of a self-applied CAFFT- the exposure-assisted computer program, developed by our group, which improves the treatment in terms of cost- benefit without decreasing its efficacy.

Referència: SEJ2005-05331/PSIC. Ministeri d'Educació i Ciència.

Modalitat: Programa nacional de ciències socials, econòmiques i jurídiques.

Títol: *Cortisol en saliva: comparaciones entre una condición estresante y una condición no estresante.*

Acrònim: CORSO.

Centre: Departament de Psicologia. Edifici Guillem Cifre de Colonia.

Investigadora responsable: GARCÍA DE LA BANDA GARCÍA, Gloria.

Categoría: TEU (àrea de coneixement: Personalitat, Avaluació i Tractament Psicològics).

Inici: 2005 **Fi:** 2007

Membres de l'equip	Categoría	Dedicació (EDP)
García de la Banda, Gloria	TEU	1
Fornès Vives, Joana	CEU	1
Investigadors d'altres entitats		
Riesco Prieto, María	IB-SALUT	
Pérez Esteban, Gerardo	IB-SALUT	
Pastor García, María	IB-SALUT	

EDP del grup investigador de l'entitat sol·licitant: 2.

Summary

Glucocorticoide and Catecholamine secretion are part of the organism's response to environmental challenges. Cortisol, a glucocorticoide, is regularly secreted by the adrenal cortex with a marked circadian rhythm. On top of this basal activity it has been described as an increase in cortisol production in response to unpredictable and threatening events. More recent results, however, have challenged this view. It has been observed that not all individuals respond to a stressor by increasing cortisol levels; in some cases the level of circulating cortisol decreased instead. Our hypothesis is that the reduction in cortisol response to the stressor is linked to high basal cortisol secretion. Furthermore, we propose that this paradoxical reaction - high basal cortisol levels followed by cortisol reduction upon exposure to the stressor - is an indication of hypothalamic-pituitary-adrenal (HPA) malfunction, and a predictor of future physical and psychological failures. Finally, we also believe that personality plays a major role both in basal and reactive HPA activity. To test these hypotheses we propose the following specific aims:

- 1) To study the influence of basal cortisol levels over cortisol response under stress.
- 2) To determine the influence of personality on cortisol secretion
- 3) To explore the connection between cortisol levels and physical and psychological wellbeing. To assess the physiological response we will collect 12 different saliva samples from 60 university students in two different conditions: 6 stressful (public speaking) and 6 non-stressful (regular class). To evaluate the personality traits, we will use the NEO-FFI, EPQ-R and ECQ questionnaires. Anxiety will be measured by the ISRA test, Liebowitz's Social Phobia Scale and Paul's Fear of Public Speaking. In order to take into account other stressful events that may influence cortisol secretion, students will be asked about stressful life events, minor stressful events and general perceived stress. We will also take into account each student's expectations about his or her results before the oral presentation. Finally, physical symptoms will be measured by the MSCL, and psychological distress by the SCL90-R test.

Referència: SEJ2006-13291. Ministeri d'Educació i Ciència.

Modalitat: Programa nacional de ciències socials, econòmiques i jurídiques.

Títol: *Construcción y validación de un programa estandarizado para el tratamiento del tabaquismo. Influencia de las emociones negativas, las expectativas y la historia personal de la adicción tabáquica..*

Centre: Departament de Psicologia. Edifici Guillem Cifre de Colonia.

Investigador responsable: PÉREZ PAREJA, F. Javier.

Categoría: TU (àrea de coneixement: Personalitat, Avaluació i Tractament Psicològics).

Inici: 2006 **Fi:** 2009

Membres de l'equip	Categoría	Dedicació (EDP)
Pérez Pareja, F. Javier	TU	1
Palmer Pol, Alfonso Luis	TU	1
Cajal Blasco, Berta	TU	1
Sesé Abad, Albert	TEU	1
Montaño Moreno, Juan José	P. Col.	1
Jiménez López, Rafael	P. Col.	1
Terrassa Blázquez, Beatriu	As.	1
Gervilla García, Elena	As.	

Investigadors d'altres entitats

Romo Taranchel, Ana Filomena
Tomás Barberán, Manuel Hospital Universitari Son Dureta
Castro Iglesias, María del C. Hospital Universitari Son Dureta

EDP del grup investigador de l'entitat sol·licitant: 7.

Summary

In the last years as much the scientific publications as the tobacco addiction researches have pointed out the effectiveness of the programs with psychological intervention based on the principles of the behavioral and cognitive therapy model. Equally, these findings highlight the predictive paper of some variable psicosociales for both the attainment of the ceasing or maintenance of the addictive behavior.

Based on this findings, the project that we present outlines the following objectives:

To build and validate a standardized for reduction of tobacco consumption based on behavioral and cognitive therapeutical techniques.

To determine the importance and the paper of the negative emotions (anxiety, depression/sadness and anger), the expectations and the personal history of the addictive behavior about the adherence to the treatment, the effectiveness of the treatment, their temporary generalization and the relapses.

To determine the differential profiles of the patients that more and better can benefit of the program and to elaborate alternatives for the patients that less benefit with it.

To use rigorous methodologies, innovators and appropriate to confront the analysis of behaviors so complex as the addictive behaviors and their relationship with other related human behaviors.

Referència: 57/05. Institut de la Dona. Ministeri de Treball i Assumptes Socials.
Modalitat: Acció estratègica sobre foment d'igualtat d'oportunitats entre dones i homes.
Títol: *Del mito del amor romántico a la violencia contra las mujeres en la pareja.*
Centre: Departament de Psicologia. Edifici Guillem Cifre de Colonia.
Investigadora responsable: BOSCH FIOL, Esperança.
Categoría: TU (àrea de coneixement: Psicologia Bàsica).
Inici: 2006 **Fi:** 2007

Membres de l'equip	Categoría
Bosch Fiol, Esperança	TU
Ferrer Pérez, Victòria A.	TU
García Buades, Esther	TEU
Ramis Palmer, M. Carme	Col·laboradora
Mas Tous, Carme	Ajudant
Navarro Guzmán, Capilla	B
Torrens Espinosa, Gema	As.

Summary

Research on attitudes towards domestic violence has determined the predominance of negative attitudes towards this violence in general population and also in specific groups. But it was less that we know about general population attitudes towards behaviours considered "technically" abusive (or "hidden" or "covert" maltreatment), about social acceptance of these behaviours in partner relations or about love model and the love myths prevailing in general population.

In our previous financed research project (Instituto de la Mujer, 2005) we have had occasion to analyse quantitatively these aspects.

In order to explore in depth these results and to have information more complete that allows us to make actions to improve the social awareness towards domestic violence in their more covert forms and to know the role of romantic love in this process, we propose this qualitative research.

Specifically, we propose a dual objective that includes, on the one hand, an analysis of attitudes towards covert forms of domestic violence and the social acceptance of such violence and of myths and romantic love model and, secondly, to explore the relationship between social perception of these elements and domestic violence. It will conduct focus groups to deepen the more qualitative aspects of these issues.

The intention is to help establish patterns that allow redefine certain aspects of the couple relationship and love, including improvements to the sentimental education from adolescence to get sentimental more egalitarian relationships and satisfactory.

Referència: SEJ2007-61728. Ministeri d'Educació i Ciència.

Modalitat: Programa nacional de ciències socials, econòmiques i jurídiques.

Títol: *Flexibilidad cognitiva en el envejecimiento normal: modelo computacional sobre la función del cortex prefrontal.*

Acrònim: MENTFLEX-III.

Centre: Departament de Psicologia. Edifici Guillem Cifre de Colonia.

Investigador responsable: BARCELÓ GALINDO, Francisco.

Categoría: TU (àrea de coneixement: Psicobiologia).

Inici: 2007 **Fi:** 2010

Membres de l'equip	Categoría	Dedicació (EDP)
Barceló Galindo, Francisco	TU	1
Periáñez Morales, José Antonio	Aj. dr.	1
Sánchez Cubillo, Ignacio	As.	0.5
Andrés Benito, Pilar	Vis.	0.5
Adrover Roig, Daniel	B	1

Investigadors d'altres entitats

Koechlin, Etienne	Université Pierre et Marie
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EDP del grup investigador de l'entitat sol·licitant: 4.

Summary

This research project will extend the results of a previous project (BSO2003-03885; running from 11/2003 to 11/2006) that was aimed to standardize a task-switching paradigm, the Madrid Card Sorting Test (*MCST*), for the neuropsychological assessment of cognitive flexibility in healthy young adults and elderly persons. The present project will combine fast functional (magnetoencephalography and high-density event-related potentials) and structural (magnetic resonance) brain imaging techniques in order to formulate and tryout a neuro-computational model of cognitive control in humans.

Our group has pioneered the study of the electrophysiological correlates of attentional set-shifting using the *MCST* as a task model for exploring the interaction between exogenous (*bottom-up*) and endogenous (*top-down*) attentional control in humans (Barceló, 1999, 2001, 2003; Barceló et al., 1997, 1998, 2000, 2002a, 2002b, 2003, 2004, 2006). Now we intend to functionally segregate the fronto-posterior neural network involved in the control of attentional set shifting by linking its various subprocesses to activity in different parts of this anatomical network based on new and past evidence (Barceló et al., in press; Deco & Rolls, 2005; Koechlin et al, 2003). The results will help us modelling the spatio-temporal neural dynamics of attentional control, will aid the neuropsychological assessment of age-related cognitive deficits and, more specifically, of those secondary to dysfunction in prefrontal cortex (Andrés, 2003). This general goal can be further decomposed into three specific aims: (1) formalization of a computational model of cognitive control in humans based on new and past neurofunctional evidence from the *MCST* and related task paradigms; (2) functional segregation of a fronto-posterior anatomical network for cognitive control in young adults and elderly healthy people through a combination of fast functional (magnetoencephalography and high-density event-related potentials) and

structural (magnetic resonance) brain imaging techniques; (3) evaluation of the explanatory and predictive (diagnostic) value of the model by comparing brain imaging results from young adults and elderly healthy people with those from patients who have suffered lesions in their prefrontal cortex.

Referència: SEJ2007-62312. Ministeri d'Educació i Ciència.

Modalitat: Programa nacional de ciències socials, econòmiques i jurídiques.

Títol: *Dinámica de la actividad cerebral y la percepción del dolor en pacientes con dolor crónico.*

Acrònim: DYNAPAIN.

Centre: Departament de Psicologia. Edifici Beatriu de Pinós.

Investigador responsable: MONTOYA JIMÉNEZ, Pedro.

Categoría: TU (àrea de coneixement: Psicobiologia).

Inici: 2007 **Fi:** 2010

Membres de l'equip	Categoría	Dedicació (EDP)
Montoya Jiménez, Pedro	TU	1
Miranda García, Rubén	Aj.	1
Sitges Quirós, Carol	B	1
Alorda Quetglas, Catalina	Tèc.	1

Investigadors d'altres entitats

Campos Bueno, José J.	Universitat Complutense de Madrid
Chialvo, Dante	Northwestern University Medical School
Izquierdo Rodríguez, Raúl	Ministeri de Treball i Afers Socials
García Herrera, Manuel	Ministeri de Treball i Afers Socials

EDP del grup investigador de l'entitat sol·licitant: 4.

Summary

This research project examines the dynamical features of the brain activity related to pain perception in chronic pain patients. We propose to analyze new parameters of brain activity using data from functional resonance magnetic imaging (fMRI) and EEG. These parameters should provide new information about the information processing deficits that are characteristic for chronic pain patients, particularly, when they are asked to rate their pain or to process some cognitive and affective aspects of pain perception. For this purpose, several experimental tasks are designed to evaluate cognitive functioning, affective processing and spontaneous pain perception. These tasks will provide new insights about the functioning of the brain as a complex system. Furthermore, the effects of a pain-reduction therapy on these behavioral and brain parameters will be also assessed.

Referència: SEJ2007-64374. Ministeri d'Educació i Ciència.

Modalitat: Programa nacional de ciències socials, econòmiques i jurídiques.

Títol: *La influencia del género y la educación artística en el juicio estético: respuestas comportamentales y cerebrales.*

Centre: Departament de Psicologia. Edifici Beatriu de Pinós.

Investigador responsable: MARTY BROQUET, Gisèle.

Categoría: CU (àrea de coneixement: Psicologia Bàsica).

Inici: 2007 **Fi:** 2010

Membres de l'equip	Categoría	Dedicació (EDP)
Marty Broquet, Gisèle	CU	0.5
Munar Roca, Enric	TU	0.5
Cela Conde, Camilo J.	CU	0.5
Rosselló Mir, Jaume	TEU	0.5
Escudero López, Juan Tomás	TEU	0.5
Pérez Castelló, Josep Antoni	TU	0.5
Burges Cruz, Lucrecia	Prof. Aj.	0.5
Nadal Roberts, Marcos	As.	0.5
Capó Navarro, Miguel Ángel	As.	0.5
Revert Vidal, Xavier	As.	0.5

Investigadors d'altres entitats

Fernández González, Santiago	Universidad Complutense de Madrid
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EDP del grup investigador de l'entitat sol·licitant: 5.

Summary

Our project focuses the study of the cognitive processes involved in aesthetic judgement and their neural correlates. Following an already successfully tested methodology, behavioural and brain responses to different visual stimuli will be studied. Specific objectives include: 1) To carry out magnetoencefalography (MEG) experiments able to identify neural correlates of aesthetic judgement of visual stimuli. 2) to contrast, by means of MEG, the existing differences in brain activity between groups of participants with different sex and different artistic education. 3) To analyse further cognitive processes involved in aesthetic judgements by means of recognition tests with groups of participants of different sex and different artistic education.. 4) To contribute to the development of a general explanatory model of the cognitive processes involved in aesthetic judgment, by means of the discussion of results obtained in objectives 2 and 3.

Referència: SEJ2007-63837. Ministeri d'Educació i Ciència.

Modalitat: Programa nacional de ciències socials, econòmiques i jurídiques.

Títol: *The effects on progressive muscular relaxation in the basal cortisol response of high and low neuroticism students.*

Acrònim: RECOME.

Centre: Departament de Psicologia. Edifici Guillem Cifre de Colonia.

Investigadora responsable: GARCÍA DE LA BANDA GARCÍA, Gloria.

Categoría: TEU (àrea de coneixement: Personalitat, Avaluació i Tractament Psicològics).

Inici: 2007 **Fi:** 2010

Membres de l'equip	Categoría	Dedicació (EDP)
García de la Banda, Gloria	TEU	1
Fornès Vives, Joana	CEU	1
Investigadors d'altres entitats		
Riesco Prieto, María	IB-SALUT	
Pérez Esteban, Gerardo	IB-SALUT	
Manuel Doctor, Ronald	California State University	
Belmonte Campayo, Mar	IB-SALUT	

EDP del grup investigador de l'entitat sol·licitant: 2.

Summary

Traditionally, aberrant cortisol dynamics and personality traits have each been closely linked to mood and anxiety disorders. However, the nature and the underlying mechanisms of the relation between cortisol secretion and personality traits remain uncertain. In the present proposal we will expand and refine previous findings by means of examining the relation between neuroticism and diurnal salivary cortisol in young adults using separate convenience samples of high and low participants.

AIMS: The present project is designed to:

- obtain a basal cortisol secretion profile reliable and valid from each participant.
- study the role of neuroticism on two indices of diurnal cortisol of high and low neuroticism participants.
- explore the effect of progressive muscular relaxation on diurnal cortisol secretion of high and low neuroticism participants.

HYPOTHESIS:

- High neuroticism may be related to a dysregulation of the cortisol secretion.
- Progressive muscular relaxation may be an inexpensive intervention to regulate the HPA axis cortisol function.

To assess basal cortisol secretion profile, we will collect 6 samples per day in three consecutive days, twice during the same academic year from 80 university students recruited during first and second years of the research project. To evaluate neuroticism, we will use the EPQ-R and NEO-FFI questionnaires. In order to take into account other stressful events that may influence cortisol secretion, students will be asked about stressful life events and minor stressful events. Finally, we will administer Beck Anxiety Inventory and Beck Depression Inventory.

The second and third years, abbreviated progressive relaxation training (APRT) will be implemented. The APRT consists in a 45 minutes session of progressive muscular relaxation that involves tensing and relaxing 16 different muscle groups. The APRT will be practiced in groups during three consecutive days two times during the same academic year to the 80 university students recruited during first and second year of the research project.

Projectes del Govern Balear

Referència: Conselleria d'Economia, Hisenda i Innovació.

Modalitat: Accions especials de recerca, desenvolupament tecnològic i innovació.

Títol: *Estudio mediante resonancia magnética funcional de la activación cerebral visual en sujetos esquizofrénicos ante estímulos estéticos.*

Investigador responsable: ROCA BENNÀSSAR, Miquel.

Centre: Departament de Psicologia.

Categoría: TU (àrea de coneixement: Psiquiatria).

Inici: 2005 **Fi:** 2007

Referència: Conselleria d'Economia, Hisenda i Innovació.

Modalitat: Accions especials de recerca, desenvolupament tecnològic i innovació.

Títol: *Grupo interdisciplinar para el estudio del estrés y la salud.*

Investigadora responsable: GARCÍA DE LA BANDA, Gloria.

Centre: Departament de Psicologia.

Categoría: TEU (àrea de coneixement: Personalitat, Avaluació i Tractament Psicològics).

Inici: 2007 **Fi:** 2007

Referència: Conselleria d'Economia, Hisenda i Innovació.

Modalitat: Accions especials de recerca, desenvolupament tecnològic i innovació.

Títol: *Consolidación de un grupo interdisciplinario en investigación neurobiológica del dolor.*

Investigador responsable: MONTOYA JIMÉNEZ, Pedro.

Centre: Departament de Psicologia.

Categoría: TU (àrea de coneixement: Psicobiología).

Inici: 2007 **Fi:** 2008

Referència: Conselleria d'Economia, Hisenda i Innovació.

Modalitat: Accions especials de recerca, desenvolupament tecnològic i innovació.

Títol: *Consolidación de un grupo de investigación.*

Investigadora responsable: GARCÍA DE LA BANDA, Gloria.

Centre: Departament de Psicologia.

Categoría: TEU (àrea de coneixement: Personalitat, Avaluació i Tractament Psicològics).

Inici: 2007 **Fi:** 2007

DEPARTAMENT DE QUÍMICA

Referència: CTQ2004-01201/BQU. Ministeri d'Educació i Ciència.

Modalitat: Programa nacional de ciències i tecnologies químiques.

Títol: *Desarrollo de métodos automáticos en flujo para la monitorización y control de biorreactores y depuradoras de aguas residuales.*

Acrònim: ANABIO.

Centre: Departament de Química. Edifici Mateu Orfila i Rotger.

Investigador responsable: CERDÀ MARTÍN, Víctor.

Categoría: CU (àrea de coneixement: Química Analítica).

Inici: 2004 **Fi:** 2007

Membres de l'equip	Categoría	Dedicació (EDP)
Cerdà Martín, Víctor	CU	1
Forteza Coll, Rafael A.	TU	1
Leal Quezada, Luz Olivia	B	1
Horskotte, Burkhard	B	1
Pons Bonafé, Carme	B	1

Investigadors d'altres entitats

Bauzá de Mirabó Darder, Francesca	TIRME
Elsholz, Olaf	Universitat de Ciències Aplicades
d'Hamburg	

EDP del grup investigador de l'entitat sol·licitant: 5.

Summary

The goal of the project is to develop flow automatic system of analysis in order to monitor and control two different kind of bioreactors: one use in the production of pharmaceutical products, and the other a biological wastewater plant. The flow techniques which will be mainly applied sequential injection analysis (SIA), and the multisyringe flow injection analysis (MSFIA). Both have the advantages of being very robust without the need of a frequent calibration, and they need only very small amounts of sample and reagent, sometimes very expensive in this kind of applications (enzymes).

SIA is a true multiparametric flow technique very well adapted to the purpose of the project, and MSFIA has the advantage of a higher sample throughput. With both techniques we will develop expert (intelligent) systems which will be able to allow the monitoring of the main parameters necessary to control the right operation of both bioreactors through the measuring of both physical and chemical parameters (organic and inorganic).

Referència: CTQ2004-02375/BQU. Ministeri d'Educació i Ciència.

Modalitat: Programa nacional de ciències i tecnologies químiques.

Títol: *Lantánidos en catálisis enantioselectivas.*

Acrònim: LA CATENA.

Centre: Departament de Química. Edifici Mateu Orfila i Rotger.

Investigador responsable: SAÁ RODRÍGUEZ, José Manuel.

Categoría: CU (àrea de coneixement: Química Orgànica).

Inici: 2004 **Fi:** 2007

Membres de l'equip	Categoría	Dedicació (EDP)
Saá Rodríguez, José Manuel	CU	1
Tur Espinosa, Fernando	B	1

EDP del grup investigador de l'entitat sol·licitant: 2.

Summary

The LA CATENA project (lanthanide complexes for enantioselective catalysis) aims at designing and synthesizing chiral catalysts for enantioselective catalysis both in conventional and non-conventional solvents (water, in particular). The socio-economical interest pursued by this project stands as reaching the gradual replacement of the old synthetic processes employed by the pharmaceutical and fine-chemicals industry for others which comply with the most stringent environmental rules of the XXI century chemical industry. The fundamentals of the plan lie on the principles of self-assembly and self-organisation as we try to reach the thermodynamically stable octahedral complexes of lanthanide (III) salts of the type $M(L^*L)_3 X_3$ (since L^*L is a chiral bidentate ligand, the central metal atom will also be chiral) which, by virtue of their kinetical lability can interchange its ligands with external ones of appropriate donicity (the Nu of ad hoc-selected reactions). Thus, as a consequence of the intrinsic kinetic lability of lanthanide complexes, their hard central atom should act as a chiral Lewis acid capable of coordinating both Nu and E and promote enantioselective catalysis upon aldol condensation, nitroaldol condensation (and closely related), as well as Michael, Mannich and related reactions (we expect that turnover will be fast for these reactions). In addition we will study the capacity of Sm or Eu II complexes $M(L^*L)_3 X_2$ to promote the enantioselective reductive coupling of C=O and C=NR moieties. Given their lability, their capacity to work in water requires reaching a compromise between kinetic lability and their hidrolizability. For this reason it will be necessary either search for lanthanide complexes $M(L^*L)_3 X_3$ which employ higher denticity ligands, or move over to complexes of different metals such as In(III), Pb(II), etc, in trying to reach the goals of enantioselective catalysis in water.

Referència: TRA2004-02460/TMAR. Ministeri d'Educació i Ciència.

Modalitat: Programa nacional de medis de transport.

Títol: *Caracterización de zonas de refugio para buques siniestrados que transportan hidrocarburos: aplicación a las Islas Baleares.*

Acrònim: PUERTOS.

Centre: Departament de Química. Edifici Mateu Orfila i Rotger.

Investigador responsable: BERGUEIRO LÓPEZ, José Ramón.

Categoría: TU (àrea de coneixement: Enginyeria Química).

Inici: 2004 **Fi:** 2007

Membres de l'equip	Categoría	Dedicació (EDP)
Bergueiro López, José Ramón	TU	0.5
Serra Socias, Francesca	B	1
Domínguez Laseca, Félix		1
Romero March, Romualdo	TU	0.5

EDP del grup investigador de l'entitat sol·licitant: 3.

Summary

The aim of this project is to describe the characteristics of a shelter zone where a ship that transports hydrocarbons could be moved before an emergency. To know if a certain zone meets those characteristics there will be born in mind the type and the quantity of hydrocarbons transported and split to analyze the risks of fire and explosion and its influence on the surrounding environment. It will indicated the way of determining the possibility that the mixture of hydrocarbons burns if it is in the sinister tank or is spilt in the shelter zone, as well as the possibility that the hydrocarbons could spread, disperse or to be emulsified in the water. It will be indicated the procedures to follow for the confinement of the hydrocarbons spilt in the shelter zone, as well the possibility of recovery by means of skimmers shpis or by menas of adsorptive manterials. It will be equally indicated the characteristics that the shelter zonce must have in order to transfer the hydrocarbons to another ship or to deposits in land, as it was realized with the tanker Aegean Sea. It will be indicated the way od determining, by means of simulation models, the path that the spilt of hydrocarbons would follow and the possible coastal zones that it would affect, taking into account the meteorological situation at the moment of the spillage and in the posterior hours. The characteristics of vulnerability, resilience and induced recovery that the shelter zone should fulfill will be also indicated. Finally and provided that the antipollution actions will never be effective in its entirety, there will be shown the systems and the logistics that must be applied for the recovery of the shelter zonce that has been contaminated by the hydrocarbons. The system will be applied in the environment of the points of exhaust of hydrocarbons of the Balearic Islands, under different meteorological situations.

Referència: CTQ2004-03256/BQU. Ministeri d'Educació i Ciència.

Modalitat: Programa nacional de ciències i tecnologies químiques.

Títol: *Desarrollo de sistemas automáticos inteligentes para la determinación de analitos de interés medioambiental.*

Acrònim: INTAN.

Centre: Departament de Química. Edifici Mateu Orfila i Rotger.

Investigador responsable: ESTELA RIPOLL, Josep Manuel.

Categoría: TU (àrea de coneixement: Química Analítica).

Inici: 2004 **Fi:** 2007

Membres de l'equip	Categoría	Dedicació (EDP)
Estela Ripoll, Josep Manuel	TU	1
Caro Fernández, Arturo	TEU	1
Mas Torres, Francesca	Aj. U	1
Miró Lladó, Manuel	TU	1
Ferrer, Laura	B	1
Fajardo González, Yamila	B	1

Investigadors d'altres entitats

Gómez Benito de Valle, Enrique Govern Balear
Rangel, Antonio Universitat Catòlica Portuguesa

EDP del grup investigador de l'entitat sol·licitant: 6.

Summary

The development of new advanced automatic systems of flow analysis is proposed in this project, exploiting principally the novel technique multisyringe flow injection analysis (MSFIA) with the following aims:

- a). Radioactive isotopes analysis in soil, air and waters
- b). Determination of environmental indicators and chemistry elements (including speciation) in different kind of waters (wastewaters, drinking waters, sea water, etc.)

On one hand the elimination or minimization of the manual operations required in the methodologies used nowadays are proposed and in other one, to improve the applicability of the analytical methods, as well as to implement new methods directed to resolving specific problematics.

The projected solutions are based on the simplification of the different stages of chemical analysis using fundamentally system with optrodes. In all cases the established systems will be provided with algorithms that allow taking decisions according to the sample characteristics. Thus, several aspects such as concentration levels, need of speciation, clean-up, changes of detection systems or combination with other flow analysis techniques will be taking into account. At the same time, we propose to improve the robustness of the established methodologies considering chemical and software aspects as well as the instrumental devices.

Referència: CTQ2005-00250/BQU. Ministeri d'Educació i Ciència.
Modalitat: Programa nacional de ciències i tecnologies químiques.
Títol: *Inhibició selectiva de enzimas que presentan el PLP com cofactor.*
Acrònim: ISE-PLP.
Centre: Departament de Química. Edifici Mateu Orfila i Rotger.
Investigador responsable: MUÑOZ IZQUIERDO, Francisco.
Categoría: CU (àrea de coneixement: Química Física).
Inici: 2005 **Fi:** 2008

<u>Membres de l'equip</u>	<u>Categoría</u>	<u>Dedicació (EDP)</u>
Muñoz Izquierdo, Francisco	CU	1
Donoso Pardo, Josefa	CU	1
Frau Munar, Joan	TU	1
Vilanova Canet, Bartomeu	TU	1
Coll Parets, Miquel	As.	1
Garcias Llabrés, Rafael	Aj.	1
Salvà Salvà, Antoni	As.	1
Fenollar Ferrer, Cristina		1
Adrover Estelrich, Miquel	Aj.	1

EDP del grup investigador de l'entitat sol·licitant: 9.

Summary

In the present research project it is tried to study three PLP-dependent enzymes, aspartate aminotransferase (AAT), alanine racemase (ALR) and ornithine decarboxylase (ODC), in order to determine selective inhibitors of ALR and ODC. The specific inhibition of the ALR would allow the destruction of the bacteria without indirect effect, since the ALR is essential for the formation of the cellular wall of the bacteria and has not been detected in mammals. The inhibition of the ODC has demonstrated effective in the treatment of certain cancers and some parasite diseases. Some inhibitors of these enzymes have been described already, nevertheless all of them are general inhibitors, is to say cause the inhibition of most of the PLP-dependent enzymes, with the consequent not wished indirect effect. By means of MM and MD calculations it is tried to make the molecular modelling of the enzymatic active site and by means of calculations of quantum chemistry the theoretical mechanisms of inhibition will be studied, which will allow determining the structural characteristics of inhibitors. Finally the mechanisms of inhibition of the proposed molecules will be determined experimentally by stopped flow measurements.

Referència: MAT2005-05350. Ministeri d'Educació i Ciència.

Modalitat: Programa nacional de materials.

Títol: *Materiales porosos para la detección, adsorción y depósito de gases.*

Acrònim: MINAMAT.

Centre: Departament de Química. Edifici Mateu Orfila i Rotger.

Investigador responsable: OTERO AREAN, Carlos.

Categoría: CU (àrea de coneixement: Química Inorgànica).

Inici: 2005 **Fi:** 2008

<u>Membres de l'equip</u>	<u>Categoría</u>	<u>Dedicació (EDP)</u>
Otero Arean, Carlos	CU	1
Turnes Palomino, Gemma	TU	1
Rumori, Paolo	As.	1

EDP del grup investigador de l'entitat sol·licitant: 3.

Summary

The study and development of materials having outstanding gas adsorption properties is a forefront issue of present-day research; triggered by strategic industrial and environmental applications, such as gas sensing, separation and storage. This research project aims at a detailed analysis of the adsorption of gas molecules (CO, CO₂, NO_x, H₂ and amines) on microporous (zeolites and active carbons) and nanostructured periodic porous materials (MCMs, SBAs and carbon replicas). Both, gas-solid interaction mechanism and thermodynamics of the adsorption of harmful gases, as well as for reversible hydrogen storage; a subject of current interest for the development of a sustainable (and clean) energy future.

Referència: CTQ2005-08989-C02-01/BQU. Ministeri d'Educació i Ciència.

Modalitat: Programa nacional de ciències i tecnologies químiques.

Títol: *Diseño, síntesis y evaluación de estructuras supramoleculares funcionales: sensores, receptores y dispositivos moleculares.*

Acrònim: supramol2005.

Centre: Departament de Química. Edifici Mateu Orfila i Rotger.

Investigador responsable: DEYÀ SERRA, Pere M.

Categoría: CU (àrea de coneixement: Química Orgànica).

Inici: 2005 **Fi:** 2008

Membres de l'equip	Categoría	Dedicació (EDP)
Deyà Serra, Pere M.	CU	1
Costa Torres, Antoni	CU	1
Morey Salvà, Jeroni	TU	1
Frontera Beccaría, Antoni	Inv.	1
Rotger Pons, M. del Carme	Inv.	1
Quiñonero Santiago, David	Inv.	1
Vega Reynés, Manuel	Tèc.	1
Capó Cañellas, Magdalena	As.	1
Garau Rosselló, Carolina	B	1
Castilla Manjón, Ana María	B	1

EDP del grup investigador de l'entitat sol·licitant: 10.

Summary

The evolution of supramolecular chemistry allows, nowadays, the access to well-defined complex structures from simple molecules, taking advantage of the intelligent mixing of covalent and noncovalent bonds. The present project is the result of the natural evolution of the preceding ones, insists in this line of research and pays special attention to the application of the new materials to diverse chemical processes. Three main objectives will be endeavoured in a multidisciplinary way. The first objective focuses on the development of squaramide-based molecular sensors with application to molecular recognition and determination of oxoanions in aqueous media. The main challenges are both to achieve the solubility in water and the selectivity. The latter will allow the efficient incorporation of transductor elements which can convert a chemical phenomenon into a spectroscopic signal.

The second is the design and synthesis of self-assembled nanometric systems capable to perform technological application functions like molecular devices. The efficient use of metal-ligand interactions will allow the access to supramolecules with diverse topology with application as functional devices in different processes. The coordination of amines to metalloporphyrins and their application in charge-transfer processes, photo-induced energy and catalysis will be used to achieve this objective.

Finally, the knowledge learned by means of ab initio calculations regarding interaction between ions and π -systems should allow us to successfully study the additivity of the anion- π interaction using theoretical methods with the purpose of designing a new family of anion receptors. The theoretical results will be verified experimentally by synthesizing and testing the receptors in solution. In addition, the study of the interaction between cations and interesting structural materials (carbon, nanotubes, cyclophanes, etc) is another challenge in our way to the technologic application of such supramolecular structures (i.e. rechargeable batteries).

Referència: AGL2006-14146-C02-02/ALI. Ministeri d'Educació i Ciència.

Modalitat: Programa nacional de recursos i tecnologies agroalimentàries.

Títol: *Secado intermitente de productos alimentarios: influencia de las variables de proceso en la calidad del producto final.*

Acrònim: SECINT.

Centre: Departament de Química. Edifici Mateu Orfila i Rotger.

Investigadora responsable: ROSELLÓ MATAS, Carme.

Categoría: CU (àrea de coneixement: Enginyeria Química).

Inici: 2006 **Fi:** 2009

Membres de l'equip	Categoría	Dedicació (EDP)
Rosselló Matas, Carme	CU	1
Simal Florindo, Susana	TU	1
Femenia Marroig, Antoni	TU	1
Investigadors d'altres entitats		
Frau Caldentey, Miquel	Govern Balear	
Cañellas Mut, Jaume	AFAIB	

EDP del grup investigador de l'entitat sol·licitant: 3.

Summary

Intermittent drying technology represents a new way to obtain high quality products. Thermal processing might ensure safety and extend the shelf life of food products, however, in the case of foods such as fruits and vegetables, it often leads to detrimental changes in their chemical composition, textural properties and organoleptic characteristics.

The main objective of this proposal is the design and application of optimisation tools (product quality) to the drying procedure of agri-food products (grapes, carrot and apple) by using intermittent drying technology.

The effects of applying intermittent drying on the food products will be compared with those obtained by means of conventional heat air-drying. This will be performed at the laboratory scale and, also, at the pilot plant level. The effects of using heat cycles on the final quality of the products will be assessed, both on the dehydrated and rehydrated materials. Techniques such as Nuclear Magnetic Resonance (NMR) will be used to determine the evolution of moisture profiles within the food product during drying and, from all these data, the diffusion coefficients will be calculated.

With the obtained data the mass transfer process will be modelled and the operational conditions will be optimised as a function of different quality parameters related to the physico-chemical properties of the different products; for instance: water sorption capacity, textural properties of the dried and rehydrated products and observation of effects at microscopic level and the solid moisture profile during dehydration/rehydration.

Referència: CTQ2006-09339/BQU. Ministeri d'Educació i Ciència.

Modalitat: Programa nacional de ciències i tecnologies químiques.

Títol: *Diseño de nuevas moléculas derivadas de purinas y pirimidinas N-Sustituidas y estudio de su química de coordinación con iones metálicos: búsqueda de nuevas estructuras bioactivas.*

Acrònim: DNMDPPNEQCIMBNEB.

Centre: Departament de Química. Edifici Mateu Orfila i Rotger.

Investigador responsable: TERRON HOMAR, Àngel.

Categoría: TU (àrea de coneixement: Química Inorgànica).

Inici: 2006 **Fi:** 2009

Membres de l'equip	Categoría	Dedicació (EDP)
Terron Homar, Àngel	TU	1
García Raso, Àngel	TU	1
Fiol Arbós, Joan Jesús	TU	1
Cabot Bibiloni, Catalina	TU	0.5
Barceló Oliver, Miquel	B	1
Albertí Aguiló, Francesca M.	B	1

EDP del grup investigador de l'entitat sol·licitant: 5.5.

Summary

Puric and pyrimidinic bases are present in a great amount of biological processes fundamental for cellular metabolism that content from energetic questions to the cellular duplication. By these reasons, the main aim of this research is the obtention of i) purine-(CH₂)_x-purine, pyrimidine- (CH₂)_x-pyrimidine and mixed systems because are non polar analogous of dinucleotides, ii) N⁶-alquiladenines, that are analogous of cytoquinines, iii) 5'-halouracils N-substituted, detected, a couple of them, as natural products present in sponges and other marine organisms and the study of their coordination derivatives with 3d metal ions (such as Cu(II), Zn (II),...) and 4d, 5d (Ru(III), Ir(III), Pt(II), Ag(I), among others) to explore the possibility to create new bioactive molecules.

Referència: CTQ2006-01851/BQU. Ministeri d'Educació i Ciència.

Modalitat: Programa nacional de ciències i tecnologies químiques.

Títol: *Diseño y validación de nuevos sistemas de tratamiento de muestra directamente acoplados a espectrómetros de masas.*

Centre: Departament de Química. Edifici Mateu Orfila i Rotger.

Investigador responsable: MARCH ISERN, Joan Gabriel.

Categoría: TU (àrea de coneixement: Química Analítica).

Inici: 2006 **Fi:** 2009

Membres de l'equip	Categoría	Dedicació (EDP)
March Isern, Joan Gabriel	TU	1
Genestar Julià, Catalina	TU	1
Palou Franco, Josefina	TU	1
Simonet Suau, Bartomeu Miquel	Aj. dr.	0.5

Investigadors d'altres entitats
Mas Torres, Francesca

Govern Balear

EDP del grup investigador de l'entitat sol·licitant: 3.5.

Summary

This project involves the development of a new research topic which will allow important contributions in tools for sample treatment and in strategies for expanding the analytical potential and use of gas-mass spectrometer detectors.

Concretely, it is proposed the design of a modular chamber which integrates several units that can be directly coupled to mass spectrometer detectors. The chamber will allow the sample treatment, including dissolution, and analyte purification to be carried out in the same device. This will permit an important improving of the analytical procedure as most of required steps for analysis, both automatic or batch, will be simplified. The reagent consumption and residues generation will be also reduced. As a main novelty, the chamber will permit all the treatment process to be assisted by a difference of voltage which will allow an additional simplification.

The designed chambers can be coupled to a wide variety of detection systems. However, in order to obtained results of high quality, it is proposed the use of mass spectrometer detectors. The coupling of the chamber to liquid-mass spectrometer detector is expected to be simple as the solution coming from the chamber and containing the purified analytes can be directly introduced in the detector by using commercial interfaces (ESI and/or APCI). However, the chamber-gas-mass spectrometer coupling need a new and special interface, aspect which it is considerate an important contribution of this project. The proposed interface will allow the direct introduction of liquid solutions to gas-MS detectors. This will increase the analytical potential and use of gas-MS detectors which are widely used and implemented in routine laboratories.

Finally, after the validation of chambers and interface, several analytical applications involving samples and analytes of interest will be developed with the view to demonstrate the analytical potential and usefulness of these new tools. The proposed methodologies will have important advantages as they will be faster, simples to implement, will involve the use

of low amounts of reagents and they will be robust. In this way, answers to the present demands of Analytical Chemistry will be satisfied.

Referència: CTQ2006-05640/BQU. Ministeri d'Educació i Ciència.

Modalitat: Programa nacional de ciències i tecnologies químiques.

Títol: *Estudio de los mecanismos de calcificación de los tejidos blandos. Cálculos renales papilares. Calcificaciones cardiovasculares.*

Acrònim: EMCCTB.

Centre: Departament de Química. Edifici Mateu Orfila i Rotger.

Investigador responsable: GRASES FREIXEDAS, Felicià.

Categoría: CU (àrea de coneixement: Química Analítica).

Inici: 2006 **Fi:** 2009

Membres de l'equip	Categoría	Dedicació (EDP)
Grases Freixedas, Felicià	CU	1
Costa Bauzà, Antònia	TEU	1
Prieto Almirall, Rafel M.	TEU	1
Hierro Riu, Ferran	Tèc.	1
Isern Amengual, Bernat	B	1
Sanchis Cortés, Maria del P.	B	1

Investigadors d'altres entitats
García González, Ramón
Ramis Barceló, Margalida
Pieras Ayala, Enrique C.

EDP del grup investigador de l'entitat sol·licitant: 6.

Summary

Calcium oxalate monohydrate papillary renal calculi, in spite of their important incidence (12,9% of all renal calculi), are a calculi type still with an unknown ethiology, and consequently, their treatment is not clear. The formation of this renal calculi type is initiated by calcification processes of the papillary urothelium, beginning in occasions through hydroxyapatite deposits. In this project we plan to study in depth all the factors and mechanisms that induce the formation of papillary renal calculi, as well as the role that the inhibitors of the crystallization exert in each situation.

Cardiovascular calcifications constitute an alteration with serious consequences, affect to a very wide population's sector and they are also associated to aging processes. Their development implies hydroxyapatite formation through a mechanism that in some aspects resembles the beginnings of the formation of papillary renal calculi. In this project it is planned to study the formation and development mechanisms of cardiovascular calcifications, especially referring to the role of inhibitors.

Referència: CTQ2007-62952. Ministeri d'Educació i Ciència.

Modalitat: Programa nacional de ciències i tecnologies químiques.

Títol: Sales ate de amonio de complejos tantánidos en catálisis enantioselectiva.

Acrònim: SAA@LACATENA.

Centre: Departament de Química. Edifici Mateu Orfila i Rotger.

Investigador responsable: SAA RODRÍGUEZ, José Manuel.

Categoría: CU (àrea de coneixement: Química Orgànica).

Inici: 2007 **Fi:** 2010

Membres de l'equip	Categoría	Dedicació (EDP)
Saa Rodríguez, José Manuel	CU	1
Mansilla Casatejada, Javier	B	1
Tur Espinosa, Fernando	Tèc.	1

EDP del grup investigador de l'entitat sol·licitant: 3

Summary

The project entitled #Ammonium lanthanide ate complexes for enantioselective catalysis# (SAA@LA CATENA) is an step beyond the outskirt limits of project LA CATENA launched in 2005 (CTQ 2004-02375/BQU) whose main objective was to employ lanthanide salt complexes as catalysts for enantioselective synthesis both in conventional and non-conventional solvents such as water. This is, no doubt about it, a long-term project due to the actual reluctance of the fine-chemicals and pharmaceutical industries to make large moves in their production processes, unless the extra cost required is not well balanced with other economic advantages such as those resulting from new patents, from a reduction of production costs, form a reduction of environmental taxes, etc. The need for launching new research in this area is therefore mandated by clear-cut socio-economical reasons.

In scientific terms, the actual plan aims at demonstrating the usefulness of ammonium lanthanide (III) ate complexes as 1) enantioselective catalysts capable of working as phase transfer catalysts (PTC) and as 2) enantioselective catalysts able to work as ionic liquid catalysts (ILC). Under stric economics it is quite evident that PTC or ILC brings about advantages in dealing with such costly issues as separation, catalyst recycling and the use of water as solvent or cosolvent. In particular we propose to access ammonium ate lanthanide (III) complexes by means of direct complexation of chiral binaftoxide ammonium salts (internal salts abbreviated as R3N+espaciador-binaftoldióxido-espaciador+NR3 where plus and minus signs refer to charges on a unique neutral molecule) with lanthanide salts LnX3. Appropriate selection of the R3N+ moiety will bring about PTC or ILC properties to the catalysts. Complexation with LNX3 will lead to octahedral complexes having relevant properties for efficiency as enantioselective catalysis, namely: a) chiral at the central lanthanide metal; b) by appropriate selection of the ammonium moieties we expect to reach the status of ionic liquid catalysts; c) being ate complexes these compounds should be resistant to hydrolysis, a #sine qua non# requirement for enabling them as PTC or ILC; d) as for the case of Shibasaki's heterobimetallic catalysts our closely related ate complexes should behave as Lewis acid-Lewis Base (LALB) species capable of coordinating simultaneously to Nu and E thus a priori ideal candidates to promote bifunctional enantioselective catalysis; e) we would also like to explore the use of the above-mentioned chiral ammonium binaftoxides as enantioselective PTC and ILC.

Referència: CTQ2007-64331. Ministeri d'Educació i Ciència.

Modalitat: Programa nacional de ciències i tecnologies químiques.

Títol: *Desarrollo de métodos automáticos de análisis. Aplicación a planes de vigilancia ambiental.*

Centre: Departament de Química. Edifici Mateu Orfila i Rotger.

Investigador responsable: CERDÀ MARTÍN, Víctor.

Categoría: CU (àrea de coneixement: Química Analítica).

Inici: 2007 **Fi:** 2010

Membres de l'equip	Categoría	Dedicació (EDP)
Cerdà Martín, Víctor	CU	1
Forteza Coll, Rafael	TU	1
Estela Ripoll, José Manuel	TU	1
Miró Lladó, Manuel	TU	1
Horstkotte, Burkhard	B	1
Ferrer, Laura	Tèc.	1
Serra Hernández, Antonio	B	1
Frias Téllez, Antònia	Tèc.	1
Coll Crespi, Miguel	B	1
Rosende Mustillo, María	B	1
Maya Alejandro, Fernando		1

EDP del grup investigador de l'entitat sol·licitant: 11

Summary

The goal of the project is to support two research lines which traditionally has been developed by our research group of Analytical Chemistry, Automation en Environment:

1. A basic research directed towards the development of new automatic flow methods of analysis, which will decrease the sample and reagents consumption, and will allow increasing the sample throughput. According with the current tendencies, we would like to implement mainly the multiconnected flow techniques (SIA, LOV, MSFIA, MCFIA y MPFS) in order to achieve new analytical methods more sensible and selective. We would like specially to work with hyphenating multiconnected flow techniques with some chromatographic ones (LOV-HPLC, MSFIA-HPLC, SIA-HPLC, LOV-CG-MS, MSFIA-CE), since the firsts allow an easy sample treatment, including pre and post column reaction, whereas the chromatographic techniques provide the necessary selectivity to the analytical procedures. Validation of the new proposed methods will be carried out applying them usually to the determination of parameters of environmental interest (air, water, solid wastes and radioactive isotopes)
2. A more applied research line, directed to provide some support to solve the analytical problems of a number of firms related with the environmental management (TIRME, MAC Insular, REC). We would specially consider the analytical problems posed by the urban solid wastes management, those coming from buildings demolition, and those related with electric and electronic retraining.

Projectes del Govern Balear

Referència: Conselleria d'Economia, Hisenda i Innovació del Govern de les Illes Balears.

Modalitat: Projectes de recerca per a grups de recerca emergents i competitius.

Títol: *Estudio de los mecanismos de inhibición de la formación de los AGEs asociados a los estados de hiper glucemia.*

Centre: Departament de Química. Edifici Mateu Orfila i Rotger.

Investigador responsable: FRAU MUNAR, Juan.

Categoría: TU (àrea de coneixement: Química Física).

Inici: 2007 **Fi:** 2008

Referència: PROGECIB-1A. Conselleria d'Economia, Hisenda i Innovació del Govern de les Illes Balears.

Modalitat: Projectes de recerca per a grups de recerca emergents i competitius.

Títol: *Desenvolupament de nova metodologia analítica per a la determinació de contaminants prioritaris als residus sòlids resultants del procés d'incineració.*

Centre: Departament de Química. Edifici Mateu Orfila i Rotger.

Investigador responsable: MIRÓ LLADÓ, Manuel.

Categoría: TU (àrea de coneixement: Química Analítica).

Inici: 2007 **Fi:** 2008

Referència: PROGECIB-5A. Conselleria d'Economia, Hisenda i Innovació del Govern de les Illes Balears.

Modalitat: Projectes de recerca per a grups de recerca emergents i competitius.

Títol: *Diseño y aplicación de sistemas de análisis para la cuantificación de elementos traza en el océano.*

Centre: Departament de Química. Edifici Mateu Orfila i Rotger.

Investigador responsable: CERDÁ MARTÍN, Víctor.

Categoría: CU (àrea de coneixement: Química Analítica).

Inici: 2007 **Fi:** 2009

Referència: Conselleria d'Economia, Hisenda i Innovació del Govern de les Illes Balears.

Modalitat: Projectes de recerca per a grups de recerca emergents i competitius.

Títol: *Estudio Experimental y teórico de unidades básicas viables para la construcción de receptores de aniones tóxicos frecuentemente presentes en el medio ambiente.*

Centre: Departament de Química. Edifici Mateu Orfila i Rotger.

Investigador responsable: QUIÑONERO SANTIAGO, David.

Categoría: INVESTIGADOR CONTRACTAT.

Inici: 2007 **Fi:** 2008

Referència: PROGEACIB-15A. Conselleria d'Economia, Hisenda i Innovació del Govern de les Illes Balears.

Modalitat: Projectes de recerca per a grups de recerca emergents i competitius.

Títol: *Preparación e identificación de nuevos agentes terapéuticos de base escuaramida en modelos de membrana celular mediante un ensayo colorimétrico.*

Centre: Departament de Química. Edifici Mateu Orfila i Rotger.

Investigadora responsable: ROTGER PONS, M^a del Carmen.

Categoría: INVESTIGADORA CONTRACTADA.

Inici: 2007 **Fi:** 2009

Referència: PROGEACIB-22A. Conselleria d'Economia, Hisenda i Innovació del Govern de les Illes Balears.

Modalitat: Projectes de recerca per a grups de recerca emergents i competitius.

Títol: *Estudio de materiales porosos para facilitar el uso del hidrógeno como combustible.*

Centre: Departament de Química. Edifici Mateu Orfila i Rotger.

Investigadora responsable: TURNES PALOMINO, Gemma I.

Categoría: TU (àrea de coneixement: Química Inorgànica).

Inici: 2007 **Fi:** 2009

Referència: Conselleria d'Economia, Hisenda i Innovació del Govern de les Illes Balears.

Modalitat: Accions especials de recerca, desenvolupament tecnològic i innovació.

Títol: *Finançament d'investigadors convidats a la IB per a la consolidació de xarxes de recerca.*

Investigador responsable: MIRÓ LLADÓ, Manuel.

Centre: Departament de Química. Edifici Mateu Orfila i Rotger.

Categoría: TU (àrea de coneixement: Química Analítica).

Inici: 2007 **Fi:** 2008

Referència: Conselleria d'Economia, Hisenda i Innovació del Govern de les Illes Balears.

Modalitat: Accions especials de recerca, desenvolupament tecnològic i innovació.

Títol: *Xarxa temàtica de processos alimentaris.*

Investigador responsable: ROSELLÓ MATAS, Carmen.

Centre: Departament de Química. Edifici Mateu Orfila i Rotger.

Categoría: TU (àrea de coneixement: Enginyeria Química).

Inici: 2007 **Fi:** 2008

Referència: Conselleria d'Economia, Hisenda i Innovació del Govern de les Illes Balears.

Modalitat: Accions especials de recerca, desenvolupament tecnològic i innovació.

Títol: *2^as Jornadas de la Red temática de Catálisis Asimétrica (Red CASI).*

Investigador responsable: SAA RODRÍGUEZ, José Manuel.

Centre: Departament de Química. Edifici Mateu Orfila i Rotger.

Categoría: CU (àrea de coneixement: Química Orgànica).

Inici: 2008 **Fi:** 2008

Referència: Conselleria d'Economia, Hisenda i Innovació del Govern de les Illes Balears.

Modalitat: Ajudes per a l'organització de reunions, congressos, seminaris, simposis o jornades de caràcter científic.

Títol: *VI Escola de Química Teòrica.*

Centre: Departament de Química. Edifici Mateu Orfila i Rotger.

Investigador responsable: MUÑOZ IZQUIERDO, Francisco.

Categoría: CU (àrea de coneixement: Química Física).

Inici: 2007 **Fi:** 2007

Referència: Conselleria d'Economia, Hisenda i Innovació del Govern de les Illes Balears.
Modalitat: Ajudes per a l'organització de reunions, congressos, seminaris, simposis o jornades de caràcter científic.
Títol: *IX International Symposium on analytical Methodology in the Environmental Field.*
Centre: Departament de Química. Edifici Mateu Orfila i Rotger.
Investigador responsable: CERDÁ MARTÍN, Víctor.
Categoría: CU (àrea de coneixement: Química Analítica).
Inici: 2007 **Fi:** 2007

Referència: Conselleria d'Economia, Hisenda i Innovació del Govern de les Illes Balears.
Modalitat: Ajudes per a l'organització de reunions, congressos, seminaris, simposis o jornades de caràcter científic.
Títol: *IV Reunión Nacional de la Sociedad Española de Química Analítica.*
Centre: Departament de Química. Edifici Mateu Orfila i Rotger.
Investigador responsable: ESTELA RIPOLL, José Manuel.
Categoría: TU (àrea de coneixement: Química Analítica).
Inici: 2007 **Fi:** 2007

Referència: Conselleria d'Agricultura i Pesca del Govern de les Illes Balears.
Modalitat: Ajudes per a la investigació en matèria d'agricultura i pesca en l'àmbit de les Illes Balears.
Títol: *Vida útil de l'ensaïmada de Mallorca: ús de tècniques d'envasat en atmosfera modificada.*
Centre: Departament de Química. Edifici Mateu Orfila i Rotger.
Investigador responsable: ROSELLÓ MATAS, Carme.
Categoría: CU (àrea de coneixement: Enginyeria Química).
Inici: 2006 **Fi:** 2007

Referència: Conselleria d'Agricultura i Pesca del Govern de les Illes Balears.
Modalitat: Ajudes per a la investigació en matèria d'agricultura i pesca en l'àmbit de les Illes Balears.
Títol: *L'anàlisi sensorial com a eina de control de qualitat i millora de processos: Aplicació al Flaó d'Eivissa.*
Centre: Departament de Química. Edifici Mateu Orfila i Rotger.
Investigador responsable: SIMAL FLORINDO, Susana.
Categoría: TU (àrea de coneixement: Enginyeria Química).
Inici: 2006 **Fi:** 2007

Referència: Conselleria d'Agricultura i Pesca del Govern de les Illes Balears.
Modalitat: Ajudes per a la investigació en matèria d'agricultura i pesca en l'àmbit de les Illes Balears.
Títol: *Aprofitament de subproductes agroalimentaris de les Illes Balears.*
Centre: Departament de Química. Edifici Mateu Orfila i Rotger.
Investigador responsable: FEMENIA MARROIG, Antoni.
Categoría: TU (àrea de coneixement: Enginyeria Química).
Inici: 2006 **Fi:** 2007

Referència: Conselleria d'Agricultura i Pesca del Govern de les Illes Balears.

Modalitat: Ajudes per a la investigació en matèria d'agricultura i pesca en l'àmbit de les Illes Balears.

Títol: *Estudio de las variables involucradas en el análisis sensorial de la ensaimada de Mallorca en vistas a mejorar la exactitud y precisión del análisis.*

Centre: Departament de Química. Edifici Mateu Orfila i Rotger.

Investigador responsable: ROSSELLÓ MATAS, Carme.

Categoría: CU (àrea de coneixement: Enginyeria Química).

Inici: 2007 **Fi:** 2008

Referència: Conselleria d'Agricultura i Pesca del Govern de les Illes Balears.

Modalitat: Ajudes per a la investigació en matèria d'agricultura i pesca en l'àmbit de les Illes Balears.

Títol: *Viabilitat d'utilitzar excedents i subproductes agroalimentaris de les Illes Balears per a l'obtenció de bioetanol.*

Centre: Departament de Química. Edifici Mateu Orfila i Rotger.

Investigador responsable: FEMENIA MARROIG, Antoni.

Categoría: TU (àrea de coneixement: Enginyeria Química).

Inici: 2007 **Fi:** 2008

INSTITUT MEDITERRANI D'ESTUDIS AVANÇATS (IMEDEA)

Referència: CTM2005-05694-C03-01/MAR. Ministeri d'Educació i Ciència.

Modalitat: Programa nacional de ciències i tecnologies mediambientals.

Títol: *Vanimedat (I): caracterización de la variabilidad del nivel del mar.*

Acrònim: VANIMEDAT-I.

Centre: Institut Mediterrani d'Estudis Avançats (IMEDEA).

Investigador responsable: GOMIS BOSCH, Damià.

Categoría: TU (àrea de coneixement: Física de la Terra).

Inici: 2005 **Fi:** 2008

Membres de l'equip	Categoría	Dedicació (EDP)
Gomis Bosch, Damià	TU	1
Monserrat Tomàs, Sebastià	TU	0.5
Marcos Moreno, Marta	Aj.	0.5
Pascual Ascaso, Ananda	Tèc.	0.5
Mir Calafat, Francesc	B	1

Investigadors d'altres entitats

Ruiz Valero, Simón	Collecte Localisation Satellites
Larnicol, Gilles	Collecte Localisation Satellites

EDP del grup investigador de l'entitat sol·licitant: 3.5.

Summary

Sea-level variability has a significant environmental and socio-economic impact on coastal regions. Presently, most important risks come from two phenomena: the slow but continuous sea level rise derived from global warming, and eventual modifications in the nature and distribution of extreme events, derived from the expect increased storminess of climate. Further knowledge on both phenomena is required in order to predict their impacts and, if necessary, to set up mitigation strategies.

It is widely accepted that sea level has been rising during the past century at an average global rate of around 1-2 mm/yr, and climate models forecast that this ratio will accelerate during this century. It is also expected that sea level rise will not be uniform over the globe, but will depend on changes in the regional atmospheric forcing and the oceanic circulation. One of the priorities of present research is the quantification of the different processes underlying sea level rise: the ocean mass increase derived from the melting of ice sheets (a global scale phenomena), the volume increment derived from the warming of the oceans, referred to as the steric component, and the meteorological contribution (the two latter processes have a significant regional component). It is also important to determine the extent to which open ocean estimates (given by satellite altimetry or models) are representative of coastal sea level (measured by tide gauges). While this is still uncertain, it has clear practical implications on the extrapolations of open sea results towards the shores. Another topic under debate is whether the trends observed in the occurrence of extreme events is an indirect consequence of sea level rise or, instead, there are other climate processes yielding larger amplitudes extreme events with an increased frequency.

The general objective of this project is to study the decadal and interdecadal sea-level variability, with particular attention to sea level trends and extreme events. All it in the geographical context of

the ocean and seas surrounding the Iberian peninsula. The project will make use of long tide gauge records, improved altimetric data sets and 44 years (1958-2001)

of data derived from the HIPOCAS project (a downscaled re-analysis of meteorological and oceanographic fields). Of particular interest are the results of a barotropic sea-level model (HAMSOM) driven by wind and atmospheric pressure. The contribution of temperature and salinity changes in the water column will be assessed from the air-sea heat fluxes provided by the limited-area atmospheric model (REMO) used in HIPOCAS. Finally, the evaporation-precipitation budget of REMO will be useful to close the water budget in the Mediterranean.

The project has several specific objectives. The first one is to determine the spatial and temporal sea-level variability, devoting special attention to the consistency between coastal and open sea observations. To do this, we will take advantage of the complementariness of the data sets: while the altimetry reports the open sea variability with a convenient spatial resolution, tide gauge records mainly correspond to coastal sites and provide the time length requested to study the variability at decadal and interdecadal scales.

The second objective is to quantify the contribution, at a regional level, of the different mechanisms that drive sea-level variability. This will be achieved basing mainly on the results of numerical modelling. Namely, we aim at: i) quantifying the effect of atmospheric pressure and wind forcing on sea level from the analysis of sea-level residuals produced by the model HAMSOM. ii) Quantifying the contribution of the steric component (and the associated circulation patterns) from the results produced by a 3D baroclinic model (POLCOMS) forced by HIPOCAS heat fluxes; the numerical simulations will be compared with previous studies based on the analysis of historical hydrographic data and satellite sea surface temperature.

The third objective will be to estimate the ocean mass increase as the difference between total sea level and the two contributions previously determined. For the Mediterranean Sea, results will be compared with the precipitation-evaporation budget of HIPOCAS, with observations of mass fluxes across the Strait of Gibraltar and with data from the recent gravimetric mission GRACE, with the aim of determining the mass balance in the region.

Finally, the fourth objective will focus on the study of extreme events. Tide-gauge observations and models allow to examine sea-level extremes from a double standpoint: first, by comparing observations and numerical hindcasts, in order to assess the prediction capabilities of the numerical model; second, by investigating trends in the frequency and amplitude of extremes occurrence (which can take place simultaneously to the other trends referred above, in order to assess future coastal risks.

Referència: POL2006-11139-C02-01/CGL. Ministeri d'Educació i Ciència.

Modalitat: Programa nacional de biodiversitat, ciències de la terra i canvi global.

Títol: *Contribución española al proyecto internacional 'synoptic antarctic shelf slope interactions study'. Caracterización espacial.*

Acrònim: ESASSI.

Centre: Institut Mediterrani d'Estudis Avançats (IMEDEA).

Investigador responsable: GOMIS BOSCH, Damià.

Categoría: TU (àrea de coneixement: Física de la Terra).

Inici: 2006 **Fi:** 2009

Membres de l'equip	Categoría	Dedicació (EDP)
Gomis Bosch, Damià	TU	1
Flexas Sbert, Maria del Mar	Inv.	0.5
Pascual Ascaso, Ananda	Tèc.	0.5
Montserrat Tomàs, Sebastià	TU	0.5
Arrieta López de Uralde, Jesús M.	Tèc.	0.5
Tovar Sánchez, Antonio	Inv.	0.5
Jordà Sánchez, Gabriel	Tèc.	0.5
Ruiz Valero, Simón	Tèc.	0.5
Orfila Foster, Alejandro	Inv.	0.5
Agawin, Nona Sheila	Inv.	0.5

Investigadors d'altres entitats

Marcos Moreno, Marta Université de La Rochelle
Orsi, Alejandro H. Texas A&M University

EDP del grup investigador de l'entitat sol·licitant: 5.5.

Summary

This project is the Spanish contribution to the international initiative SASSI (*Synoptic Antarctic Shelf Slope Interactions study*), one of the core projects endorsed by the International Polar Year (IPY). This initiative was previously endorsed by the Spanish committee of the IPY, and therefore it fulfils the requirements and specific regulations of the call for proposals to be carried out in the framework of the International Polar Year.

SASSI proposes a joint strategy for the study of the shelf-slope interactions in the Southern Ocean. A major milestone is to obtain the first simultaneous sampling of the most relevant regions of the Antarctic continental shelf. The project has a dominant physical component, since it focuses on the spatial and temporal variability of coastal dynamics. However, it has also an interdisciplinary component which is actually bidirectional: on one hand, there are some biochemical parameters which provide a key indications on very relevant physical processes (e.g., CFSs on the ocean ventilation); on the other hand, there are physical processes that affect in a crucial way the coastal Antarctic ecosystems. Therefore, the interaction between physical and biochemical processes will underlay most of the objectives of the project.

The project can be summarized in a general objective: the characterization of the southern boundary of the Antarctic Circumpolar Current (ACCb) and the latitudinal variability of the Antarctic Slope Front (ASF). In particular, the project will focus on the exchange of heat,

fresh water and nutrients taking place between the oceanic regime of the ACC and the continental shelves of the South Scotia Ridge (SSR). This objective will be achieved through four specific objectives: 1) to study the ACCb and the associated nutrient and heat fluxes from the open ocean to the north shelf of the SSR; 2) to establish the limits and the variability of the ASF in the SSR region and to study its relationship with the ACCb; 3) to determine the transport of deep and intermediate waters across the SSR, evaluating the associated nutrient and heat fluxes across the Ridge; and 4) to quantify the abundance of bacteria and chlorophyll concentrations, as well as the CO₂ sequestration related to the regional hydrodynamics.

The methodology will base on an oceanographic survey to be carried out during the austral summer 2007-2008 on the Weddell-Scotia confluence zone. The sampling strategy will consist of the deployment of five moorings through the continental shelf of the SSR (to be recovered one year later) and of several transects of CTD/ADCP aimed to obtain hydrographic measurements and biological samples. The mooring component (the most difficult and costly part of the sampling) intends to investigate the temporal variability of the main processes, a crucial aspect that cannot be inferred from the extended in space but single in time view inferred from an oceanographic survey.

The project is presented as a coordinated project between two institutions: IMEDEA contributes with its long experience in the interpretation of physical and biochemical data retrieved from oceanographic surveys; the University of Málaga (which includes staff from ICM-Barcelona), contributes with its experience in the deployment of moorings and the interpretation of the derived data sets. The two groups will jointly participate in the study of most processes, producing the complementary view (spatial or temporal) derived from the respective applied methodologies.

Referència: CGL2006-04325/BOS. Ministeri d'Educació i Ciència.

Modalitat: Programa nacional de biodiversitat, ciències de la terra i canvi global.

Títol: *Hacia una integración de parámetros demográficos y genéticos en el análisis de viabilidad de poblaciones (PVA) en ecología y conservación.*

Acrònim: DIAGNOS.

Centre: Institut Mediterrani d'Estudis Avançats (IMEDEA).

Investigador responsable: ORO DE RIVAS, Daniel.

Categoría: Investigador.

Inici: 2006 **Fi:** 2009

Membres de l'equip	Categoría	Dedicació (EDP)
Oro de Rivas, Daniel	Inv.	1
Tavecchia, Giacomo	Inv.	1
Igual Gómez, José M.	Tèc.	1
Martínez Abraín, Alejandro	Inv.	1
Louzao Arsuaga, Maite	B	1
Sanz Aguilar, Ana	B	1

Investigadors d'altres entitats
Genovart Millet, Meritxell
Laneri, Karina
Mínguez Díaz, Eduardo

EDP del grup investigador de l'entitat sol·licitant: 6.

Summary

The challenges raised by the current loss of biodiversity due to human activities (including the effects of the global change) have lead ecologists to develop and test new appropriate tools to study population dynamics in space and time and predict future population trajectories. These predictions must provide estimates of population extinction probability, usually through model projections. The reliability of these estimates depends on the accuracy of the model parameters (demographic and genetics) for a specific population. From here, the importance of precise demographic estimates and supplementary information on genetic quality for a given population. These outputs will provide wildlife managers a population diagnosis and a solid base for conservation plans.

Matrix models including environmental and demographic stochasticity will be used to obtain a mathematical description of the population and as base for population viability analyses (PVA). Parameters will be obtained by capture-recapture analyses of individual-based data as well through molecular techniques. Bayesian methods for statistical inference and Monte Carlo simulation will also be examined for complex models to achieve a greater precision in estimates. We will consider species of vertebrates (birds and reptiles) that have been already followed by the research group with different conservation problems: critically endangered species, recently reintroduced populations, 'pest'-species, for which control programs have started, and species under threat because of hunting activity. The species considered are also at the top of the food chain of different ecosystems (terrestrial, marine and

costal) and, as consequence, can be regarded as bio-indicator of habitat quality at larger scale.

Referència: CGL2006-09719/BOS. Ministeri d'Educació i Ciència.

Modalitat: Programa nacional de biodiversitat, ciències de la terra i canvi global.

Títol: *Pseudomonas stutzeri como organismo modelo en especiación bacteriana*.

Acrònim: PSTUTZERI.

Centre: Institut Mediterrani d'Estudis Avançats (IMEDEA).

Investigador responsable: LALUCAT JO, Jordi.

Categoría: CU (àrea de coneixement: Microbiologia).

Inici: 2006 **Fi:** 2009

Membres de l'equip	Categoría	Dedicació (EDP)
Lalucat Jo, Jordi	CU	0.5
Bennàssar Figueras, Antoni	Contr. dr.	0.5
Gomila Ribas, Margalida	B	1
Amat Masanet, Margalida	As.	1

EDP del grup investigador de l'entitat sol·licitant: 3.

Summary

Pseudomonas stutzeri is a relevant bacterial species in Microbial Ecology, due to their relevant physiological and biochemical properties. Strains of the species participate actively in the C cycle (as biodegrader), in the N cycle (as denitrifier and dinitrogen fixer), others are able to obtain energy in the S metabolism, and others might be able to use unusual P sources. The species is phylogenetically well defined, but at the same time, it is the species with the highest genetic diversity described so far.

Main objective of the study is the characterization of the possible mechanisms in leading *P. stutzeri* to its diversification in genomic groups (called genomovars), to their colonization potential of new ecological niches, and to the speciation process in this phylogenetic coherent branch, due to the selection of these new ecotypes.

Referència: CTM2005-01434. Ministeri d'Educació i Ciència.

Modalitat: Programa nacional de ciències i tecnologies mediambientals.

Títol: Macroalgas marinas invasoras en las islas Baleares: evaluación de riesgos y efectos en comunidades bentónicas.

Centre: Institut Mediterrani d'Estudis Avançats (IMEDEA).

Investigador responsable: TERRADOS MUÑOZ, Jorge.

Categoría: Científic titular del CSIC.

Inici: 2005 **Fi:** 2008

Membres de l'equip	Categoría	Dedicació
Terrados Muñoz, Jorge	Científic titular	1
Marbà Bordalba, Núria	Científic titular	0.5
Ballesteros Segarra, Enric	Inv.	0.5
Deudero Company, Salud	Aj. U	0.5

EDP del grup investigador de l'entitat sol·licitant: 2.5.

Summary

The introduction of alien species is a main process driving biodiversity loss in the Mediterranean. The presence of six of the eight marine macroalgae known to behave as invasive species in mediterranean benthic communities has been recorded in the Balearic Islands during the last fifteen years. The project aims (1) to evaluate the progress of the invasion of exotic marine macroalgae in the coasts of the Balearic islands, (2) to estimate the relative contribution of sexual reproduction and vegetative fragmentation to the maintenance of *Caulerpa* spp populations, and elucidate the relationship between genetic diversity and clonal structure of *Caulerpa* spp, to evaluate the effects of the colonization by invasive macroalgae (3) on the species composition, richness, and diversity of the invaded macroalgae and seagrass communities, (4) on the growth and demographic balance of seagrasses, and on the physico-chemical properties of the sediment of the invaded seagrass beds, (5) to estimate the transfer of matter from *Caulerpa* spp. to benthic invertebrates using caulerpenine as tracer, and (6) to test if lack of herbivores, physical stability of the substratum, and the presence of turf-forming filamentous macroalgae facilitate the invasion by exotic macroalgae.

Referència: CTM2005-00283. Ministeri d'Educació i Ciència.

Modalitat: Programa nacional de ciències i tecnologies mediambientals.

Títol: Efectos indirectos emergentes en los sistemas depredador/presa: El caso de la dinàmica de población de peces litorales explotados por la pesca recreativa.

Centre: Institut Mediterrani d'Estudis Avançats (IMEDEA).

Investigador responsable: PALMER VIDAL, Miguel.

Categoría: Contractat Ramon y Cajal

Inici: 2005 **Fi:** 2008

Membres de l'equip	Categoría	Dedicació (EDP)
Palmer Vidal	Con.	1
Morales Nin, Beatriz	Inv.	0.5
Saborido Rey, Juan Francisco	Tec.	0.5
Moranta Mesquida, Joan	Tec.	0.5
Ruiz Pérez, Mauricio	Tec.	0.5
Garabana Barro, Dolores	Tec.	0.5

Investigadors d'altres entitats
Grau Jofre, Antoni Maria
Tomas Olague, Javier
Grau Jofre, Amalia
Pastor Gracia, Elena
Riera Munuera, Francisco

EDP del grup investigador de l'entitat sol·licitant: 3.5.

Summary

Fisheries have traditionally been considered as an inexhaustible resource that can be exploited in a sustainable way until an equilibrium between the produced net biomass and the removed biomass is reached. But littoral fisheries and recreational fishing are a conventional predator/prey system with emerging properties and indirect effects, whose magnitude should not be underestimated.

The impact of recreational fishing on the Mediterranean littoral equals that produced by professional fishing. It affects directly the mortality not only of target species, but also that of species captured accidentally. Besides, recreational fishing switches on a cascade of indirect effects affecting all trophic levels of the ecosystem. This is due to changes in trophic level of the exploited species affect other secondary consumers and the primary producers. The nature and magnitude of these indirect effects are unknown but presumably very relevant.

Our proposal focuses specifically on those indirect effects that affect the prey's population dynamics. On the one hand, we consider the indirect effects related to changes in the entire littoral fish community. On the other hand, we evaluate those produced by changes occurred in life history at the level of the individual. All these indirect effects produce emerging responses, in the sense of being unpredictable if only the populational level is considered (i.e., if it is intended only to model the dynamics of an isolated species that, besides, does not manifest any response in front of predation pressure)

The general goal of this proposal is to evaluate the importance of these indirect effects and to produce a model of the population dynamics of littoral fishes exploited by recreational fishing with the following characteristics: 1) it must be multi-scale (that is, it must consider explicitly the indirect effects related to different scales of organization of the ecosystem); 2) it must be age-explicit (that is, it must consider explicitly the individual age and the demographic structure); and 3) it must be spatially-explicit (must consider the environmental heterogeneity).

Referència: CTM2004-06842-CO3-02. Ministeri de Ciència i Tecnologia.

Títol: *Remolinos oceánicos y deposición atmosférica: efectos biológicos y biogeoquímicos en aguas superficiales del océano Atlántico Este.*

Investigadora responsable: AGUSTÍ REQUENA, Susana.

Categoría: Científica titular del CSIC.

Inici: 2004 **Fi:** 2007

Referència: CGL2004-04612/BTE. Ministeri de Ciència i Tecnologia.

Títol: *Cronología y causas de las extinciones de vertebrados autóctonos en Canarias y Baleares: un análisis comparativo.*

Investigador responsable: ALCOVER TOMÀS, Josep A.

Categoría: Investigador científico del CSIC.

Inici: 2004 **Fi:** 2007

Referència: CGL2004-04884-C02-01. Ministeri de Ciència i Tecnologia.

Modalitat: Pla nacional de I+D.

Títol: *Determinantes de la invasibilidad de los ecosistemas. Papel de los mutualismos planta-animal.*

Investigadora responsable: TRAVESET VILAGINÉS, Anna.

Categoría: Investigadora científica del CSIC.

Inici: 2004 **Fi:** 2007

Participacions a altres projectes

Referència: TEC2006-13887-C05-03/TCM. Ministeri d'Educació i Ciència.

Modalitat: Programa nacional de tecnologías electrónica i de comunicaciones.

Títol: *Desarrollo de técnicas de Banda-Ultra-Ancha mediante pulsos generados por diodos láser: aplicación a las comunicaciones ópticas inalámbricas.*

Investigador responsable: LÓPEZ HERNÁNDEZ, Francisco José.

Centre: Universitat Politècnica de Madrid.

Investigador de la UIB: BALLE MONJO, Salvador.

Categoría: CU (àrea de coneixement: Física de la Matèria Condensada).

Inici: 2006 **Fi:** 2009

Projectes del Govern Balear

Referència: Conselleria d'Economia, Hisenda i Innovació.

Modalitat: Accions especials de recerca, desenvolupament tecnològic i innovació.

Títol: *Divulgació a les aules: la recerca polar.*

Investigador responsable: GOMIS BOSCH, Damià.

Centre: Institut Mediterrani d'Estudis Avançats (IMEDEA).

Categoría: TU (àrea de coneixement: Física de la Terra).

Inici: 2007 **Fi:** 2008

INSTITUT UNIVERSITARI D'INVESTIGACIONS EN CIÈNCIES DE LA SALUT (IUNICS)

Referència: PI04-0196. Fons d'Investigació Sanitària. Ministeri de Sanitat i Consum.

Títol: *Neuroquímica, farmacología y genética de la depresión. Regulación molecular y farmacológica de los alfa2A-adrenoceptores y repectores 5-HT2A en plaquetas de pacientes con depresión mayor.*

Centre: Institut Universitari d'Investigacions en Ciències de la Salut (IUNICS).

Investigador responsable: GARCÍA SEVILLA, Jesús Andrés.

Categoría: CU (àrea de coneixement: Farmacologia).

Inici: 2004 **Fi:** 2007

Membres de l'equip	Categoría
García Sevilla, Jesús A.	CU
Miralles Socias, Antoni	TU
Esteban Valdés, Susana	TU

Summary

Major depression is associated with up-regulation of alpha2A-adrenoceptors and 5-HT receptors (coupled receptors to trimetic Galpha, beta, gamma proteins) in brain and blood platelets. Activation of these receptors induces receptor phosphorylation by specific G protein-coupled receptor kinases and other proteins (GRKs/beta-arrestins), which results in receptor desensitization and down-regulation. A defect in GRK could be an important mechanism in the regulation and expression of receptors (e.g. decreased receptor phosphorylation by a specific GRK in depression could induce functional receptor up-regulation). Therefore, abnormalities in GRKs could represent a specific defect contributing to the pathophysiology of major depression. In this project, it is hypothesized that major depression is associated with down-regulation of specific platelet GRKs. The aims are to assess the statusof platelet GRKs (mainly GRK2/3 regulated by Gbeta, gamma-subunits and GRK5/6 insensitive to Gbeta, gamma), associated regulatory proteins (b-arrestins 2/3, phosphatase PP-2A) and target receptors (a2A-adrenoceptors and 5-HT2A receptors) in patients with major depression. Also, to unravel whether the abnormalities in GRKs are related to the severity of major depression, to the densities of alpha2A-adrenoceptors and/or 5-HT2A receptors, and to investigate the effects of antidepressant drugs on GRKs, associated proteins and receptors in platelets. The methods to be used involve quantitative immunoblot analyses of the target proteins with specific antibodies. An important aim is to ascertain whether a defect of a specific platelet GRK is a marker of major depression.

Referència: PI04-1507. Fons d'Investigació Sanitària. Ministeri de Sanitat i Consum.

Títol: *Efectos de citoquinas proinflamatorias sobre células musculares y motoneuronas: implicaciones en la etiopatología de la pérdida de masa muscular en pacientes con EPOC.*

Centre: Institut Universitari d'Investigacions en Ciències de la Salut (IUNICS).

Investigador responsable: OLMOS BONAFÈ, Gabriel.

Categoría: TU (àrea de coneixement: Biologia Cel·lular).

Inici: 2004 **Fi:** 2007

Membres de l'equip	Categoría
Olmos Bonafè, Gabriel	TU
Lladó Vich, Jerònima	Inv.
Miralles Morell, Francesc Xavier	
Mir Mas, Margalida	B

Summary

Muscle wasting (cachexia) is a disease associated with several chronic disorders such as chronic obstructive pulmonary disease (COPD). Cachexia is clinically relevant as it negatively influences prognosis and quality of life of patients and increases the utilization of health care resources. Most of the molecular basis of cachexia are currently unknown, thus precluding the development of new therapeutic approaches. Cachexia is associated with increased plasma levels of tumor necrosis factor alpha (TNF- α , cachexine). This cytokine affects myoblasts and myotubes to induce loss of striated muscle tissue homeostasis, characterized by the atrophy/hypoplasia of myotubes. However, the effects of TNF- α on motoneurons are poorly studied. On the other hand, it has been reported that some cytokines have anti-cachexic effects reverting the effects of TNF- α , this suggests that the cytokine anti-cytokine approach might be a new therapeutic tool.

This project involves both basic and clinical research. Basic research is focused on the *in vitro* study of the molecular mechanisms of TNF- α on the viability of miotubes and spinal motoneurons, especially those related to apoptosis induction. The cytokine anti-cytokine approach will be explored using interferon gamma (IFN- γ), a cytokine with clinical applications, to revert the effects of TNF- α . Clinical research will explore in COPD patients the possible impairment of spinal neurons. Electromyography techniques will be performed on these COPD patients to assess the number of motor units as an estimation of the functional spinal motoneurons; results will be related to the body mass index and plasma levels of TNF- α .

Referència: PI04-1829. Fons d'Investigació Sanitària. Ministeri de Sanitat i Consum.
Títol: Papel de las proteínas surfactantes en las infecciones respiratorias agudas y crónicas por *Pseudomonas aeruginosa*.
Centre: Institut Universitari d'Investigacions en Ciències de la Salut (IUNICS).
Investigador responsable: ALBERTÍ SERRANO, Sebastià.
Categoría: TEU (àrea de coneixement: Microbiologia).
Inici: 2004 **Fi:** 2007

Membres de l'equip	Categoría
Albertí Serrano, Sebastià	TEU
Oliver Palomo, Antonio	
Bosch Zaragoza, Rafael	TEU
Oliver Bernat, Maria Antònia	

Summary

Surfactant proteins play a critical role in the defence and inflammatory response of the lung. However, the molecular mechanisms that allow to these proteins to achieve these functions are complex and remain partially unknown. To better understand these mechanisms, we propose a systematic and detailed study of the interactions between surfactant proteins, *P. Aeruginosa* clinical isolates and human alveolar type II epithelial cells. We will use *P. Aeruginosa* as model due to its prevalence as respiratory pathogen in immunocompromised patients, causing either acute and chronic infections. We will combine immunology, biochemistry, microbiology and cell biology techniques in order to study i) the interactions between this microorganisms (clinical isolates and laboratory type strains) and the surfactant proteins (purified proteins and from clinical samples), and ii) their biological effects in the opsonization and immunomodulation carried out by human alveolar type II epithelial cells. We believe that an extensive knowledge of the molecular and cell biology bases of these interactions, together with the functional analysis of their relevance as defence mechanisms, immunomodulators, and its plausible role in pathogenesis of acute and chronic respiratory infections caused by *P. Aeruginosa* should allow scientific community to develop more efficient treatments for the infections caused by this and other related pathogens.

Referència: PI05-1886. Fons d'Investigació Sanitària. Ministeri de Sanitat i Consum.

Títol: *Tratamiento cognitivo conductual de pacientes con transtorno de somatización abreviado (SSI, 4,6) en atención primaria.*

Centre: Institut Universitari d'Investigacions en Ciències de la Salut (IUNICS).

Investigadora responsable: GILI PLANAS, Margalida.

Categoría: TU (àrea de coneixement: Psicologia Social).

Inici: 2005 **Fi:** 2008

Membres de l'equip	Categoría
Gili Planas, Margalida	TU
Roca Bennàsar, Miquel Àngel	TU
Robles González, Rosa M.	Inv.
Giner Jiménez, Daniel	Inv.
Vicens Caldentey, Catalina	
Bestard Reus, Francesca	
Quintana Torres, Lourdes J.	
Arenas Abad, Arturo J.	
Llull Serrandel, Maria M.	
Mateu Sabater, Catalina	

Summary

To evaluate the effectiveness and feasibility of a treatment programme for patients who are diagnosed of abridged somatization disorder in primary care and their consequences in different levels: clinical aspects (decrease of symptomatology, improve of quality of life) and economic aspects (decrease of number of visits to specialist doctors and medication consume, decrease of costs). To analyse the efficacy of an intervention programme applied in two ways: individual and group therapy. To compare this study with a study carried out previously in New Jersey, USA by prof. Escobar and his staff.

Referència: MTM2006-07773. Ministeri d'Educació i Ciència.

Modalitat: Programa nacional de matemàtiques.

Títol: *Comparación de grafos en biología molecular y celular.*

Centre: Institut Universitari d'Investigacions en Ciències de la Salut (IUNICS).

Investigador responsable: ROSELLÓ LLOMPART, Francesc A.

Categoría: CEU (àrea de coneixement: Ciències de la Computació i Intel·ligència Artificial).

Inici: 2006 **Fi:** 2009

Membres de l'equip	Categoría	Dedicació (EDP)
Rosselló Llompart, Francesc A.	CEU	1
Alberich Martí, Ricardo	TEU	1
Llabrés Segura, Mercè	TEU	1
Mir Torres, Arnau	TU	0.5
Miró Julià, Josep J. A.	CEU	1
Rocha Cárdenas, Jairo	Contr. dr.	0.5

Investigadors d'altres entitats

Valiente Feruglio, Gabriel Universitat Politècnica de Catalunya

EDP del grup investigador de l'entitat sol·licitant: 5.

Summary

This is a project in the field of computational biology and bioinformatics. Its main goals are: To develop methods to compare graph models of three-dimensional structures of RNA molecules and proteins; metabolic pathways; and phylogenetic trees and networks.

To assess and analyze these methods both mathematically and by their biological significance.

To implement these methods as computer tools that will be available to the scientific community through the Web.

Referència: PI060371. Fons d'Investigació Sanitària. Ministeri de Sanitat i Consum.
Títol: <i>Papel de FoxO3a en el desarrollo de linfomas no-Hodkin y su potencial como diana de nuevos fármacos antitumorales.</i>
Centre: Institut Universitari d'Investigacions en Ciències de la Salut (IUNICS).
Investigadora responsable: FERNÁNDEZ DE MATTOS, Sílvia.
Categoría: INVESTIGADORA CONTRACTADA.
Inici: 2006 Fi: 2009

Membres de l'equip	Categoría
Fernández de Mattos, Sílvia	Inv.
Rodríguez Díaz-Pavón, José	
Villalonga Smith, Priam	Inv.
Mut Sanchis, Pilar	

Summary

FoxO transcription factors participate in the control of cell cycle progression and apoptosis, and are negatively regulated by the PI3K/AKT pathway. Their role in the IKK/NFkB pathway has also been recently described. When active, FoxOs induce cell cycle arrest and apoptosis, acting as potent tumour suppressors.

The PI3K/AKT pathway is essential for proliferation of hematopoietic cells and for immune homeostasis, and is involved in the development of hematological neoplasia. Indirect evidence points to a central role of FoxO3a in lymphomagenesis, although this has not been fully investigated yet. Signals emanating from oncproteins altered in non-Hodgkin lymphomas (NHL) converge on FoxO3a, and at the same time FoxO3a targets are frequently involved in the pathogenesis of these tumours. We thus aim to investigate the potential role of FoxO3a as a relevant target in NHL using a double strategy:

- Investigating the role of FoxO3a inactivation in transformation and survival of NHL cells. We will analyse the activation state of FoxO3a and its regulators and targets, correlating the results with cell proliferation and survival.
- Analysing the effects of active drugs in different subtypes of NHL on FoxO3a activity, in order to validate the hypothesis that restoring FoxO3a activity could be essential for the antitumour effects of these drugs. We will also use novel active drugs targeted to key molecular lesions of several types of lymphomas, such as HDIs, proteasome inhibitors and Hsp90 inhibitors, as recent data strongly suggest that these drugs may modulate FoxO3a activity.

Referència: PI060680. Fons d'Investigació Sanitària. Ministeri de Sanitat i Consum.
Títol: <i>Interrelaciones entre excitotoxicidad y neuroinflamación en la esclerosis lateral amiotrófica.</i>
Centre: Institut Universitari d'Investigacions en Ciències de la Salut (IUNICS).
Investigadora responsable: LLADÓ VICH, Jerònima.
Categoría: INVESTIGADORA CONTRACTADA.
Inici: 2006 Fi: 2009

Membres de l'equip	Categoría
Lladó Vich, Jerònima	Inv.
Olmos Bonafé, Gabriel	TU
Tur Campos, Silvia	
Tolosa Pardo, Eulalia	

Summary

Amyotrophic lateral sclerosis (ALS) is a neurodegenerative disease characterized by the selective death of motoneurons. Many of the pathogenetic mechanisms are still unknown and this is a limiting factor in the development of new therapies that could ameliorate the course of the disease.

Besides glutamate excitotoxicity, the neuroinflammatory response is emerging as a relevant contributor to the motoneuron loss in ALS. High levels of circulating proinflammatory cytokines such as tumor necrosis factor- α TNF α have been described both in human patients and in animal models of ALS.

We hypothesize that TNF- α , acting on different CNS cells, would have a facilitatory role on glutamate-mediated excitotoxicity, directly potentiating glutamate transmission and promoting motoneuron death. This would be very relevant in ALS pathophysiology. We aim to study the relationship between excitotoxicity and the neuroinflammatory response because the latter would be responsible for the activation of additional pathways for motoneuron degeneration.

We will use rat spinal cord *in vitro* cultures, which maintain the interactions between neurons and glia in order to address the following main objectives: 1) The direct effects of proinflammatory cytokines on motoneurons, and 2) The possible exacerbation of glutamate-excitotoxicity associated to alterations in the function of glutamate receptors and/ or transporters induced by high levels of proinflammatory cytokines.

Referència: PI060266. Fons d'Investigació Sanitària. Ministeri de Sanitat i Consum.

Títol: *Papel del estrés oxidativo en la respuesta de la célula cancerosa al tratamiento antitumoral y su modulación por hormonas sexuales y elementos pro-/antioxidantes.*

Centre: Institut Universitari d'Investigacions en Ciències de la Salut (IUNICS).

Investigadora responsable: ROCA SALOM, Maria Pilar.

Categoría: TU (àrea de coneixement: Bioquímica i Biologia Molecular).

Inici: 2006 **Fi:** 2009

Membres de l'equip	Categoría
Roca Salom, Maria Pilar	TU
Oliver Oliver, Jordi	TEU
Lladó Sampol, Isabel	TEU
Fernández de Mattos, Sílvia	Inv.
Villalonga Smith, Priam	Inv.
Guevara de Bonis, Rocío	B

Summary

The present research proposal aims to better understand the mechanisms regulating the role of oxidative stress in cell proliferation and apoptosis induction in different cancer cell types. Furthermore, we also want to determine the impact of sexual hormones (17β -estradiol and testosterone) and pro-oxidant and antioxidant agents (usually present in the diet) on the response to anticancer chemotherapeutic agents. The specific objectives of this proposal are the following:

1. Characterize the redox state of different hormone-sensitive cancer cell lines covering both early and late stages of the disease progression.
2. Determine the effect of different chemotherapeutic agents on cell viability, mitochondrial function and oxidative stress-sensitive signaling pathways in different hormone-sensitive cancer cell lines covering both early and late stages of the disease progression.
3. Analyze the impact of sexual hormones and pro-/antioxidants on ROS production and activation of ROSsensitive signaling pathways, and its consequences on the responsiveness to chemotherapeutic agents in cancer cells.

In order to develop this research proposal both normal and transformed cell lines will be used. These cell lines are derived from sexual hormone-sensitive tumors (breast and prostate cancer), and from a diet-sensitive cancer, the colorectal carcinoma. For breast and prostate cancer, cell lines with and without estrogen or androgen receptors will be compared. For the colorectal carcinoma, cell lines in different stages of cancer process development will be compared.

Referència: AGL2007-62806-ALI. Ministeri d'Educació i Ciència.

Modalitat: Programa nacional de recursos i tecnologies agroalimentàries.

Títol: *Bases científicas de la actividad biológica y antioxidante de una bebida funcional de almendra (intervención nutricional en afectados de porfiria y controles).*

Centre: Institut Universitari d'Investigacions en Ciències de la Salut (IUNICS).

Investigador responsable: PONS BIESCAS, Antoni.

Categoría: TU (àrea de coneixement: Bioquímica i Biologia Molecular).

Inici: 2007 **Fi:** 2010

Membres de l'equip	Categoría	Dedicació (EDP)
Pons Biescas, Antoni	TU	1
Tur Marí, Josep A.	TU	0.5
Tauler Riera, Pedro	Aj.	1
Llompart Alabern, Isabel	As.	1
Fuentespina Vidal, Emilia	Tèc.	1
Riesco Prieto, M. del Tránsito	Tèc.	1
Ferrer Reynés, Miguel David	B	1
Sureda Gomila, Antonio	B	1
Romaguera Bosch, M. Adoración	B	1
Prieto Almirall, Rafael Maria	TEU	0.5

Investigadors d'altres entitats	
Murcia Tomás, María Antonia	Universitat de Murcia
Martínez Tomé, Magdalena	Universitat de Murcia
Jiménez Monreal, Antonia María	Universitat de Murcia
Roche Collado, Enrique	Universitat Miguel Hernández
Micol Molina, Vicente	Universitat Miguel Hernández
Palacín Pahí, Clara	Fundació Hospital Son Llatzer

EDP del grup investigador de l'entitat sol·licitant: 9.

Summary

The content of phytosterols, phospholipids, inositol phosphates, protein and vitamin E in almonds has favoured the design of an isotonic and energetic beverage rich in vitamins E and C, whose production procedure allows to maintain the natural antioxidant activity of almonds and oranges. We expect to scientifically demonstrate the functionality and beneficial effects of the continuous consumption of this functional beverage on the situation of chronic oxidative stress and its clinical manifestations in porphyria patients and in health controls. In previous projects we have established the conditions in which the biological activity of antioxidants in almonds and oranges are maintained during the beverage processing; now we expect to assess the impact of the beverage production procedure on the activity of almond phytosterols and inositol phosphates as well as to optimise their content of the functional beverage. Also, we will to know: the bioassimilation and distribution of the beverage phytosterols, inositol phosphates and antioxidants in plasma, lymphocytes, neutrophils and erythrocytes of healthy individuals and of patients affected by variegate porphyria; to establish the positive and negative effects of the continuous consumption of

the functional beverage on the capacity of immune system cells to generate free radicals, on the endogenous mechanisms of free radicals elimination, on the cellular and plasmatic oxidative damage and on the lymphocytes apoptosis linked to oxidative stress in healthy individuals and in patients affected by variegate porphyria; to determine “in vivo” the existence of direct or indirect effects of nutritional antioxidants on the expression, level, activity, secretion, and transformation of antioxidant and pro-oxidant enzymes as well as porphyrin metabolism enzymes in healthy individuals and in patients affected by variegate porphyria. All these will allow us to assess the benefit/risk balance of the consumption of this functional beverage. These objectives will be achieved through the performance of a nutritional intervention with the participation of healthy individuals as controls and patients affected by variegate porphyria. This will be a double-blinded trial with either the almond-based beverage enriched with antioxidants or the functional beverage poor in antioxidants. This beverage and its production procedure have been patented in Spain, the European Union, and the United States of America.

Referència: 2007/032. Pla nacional de drogues. Ministeri de Sanitat i Consum.

Títol: *Regulación de las vías apoptóticas extrínseca en la corteza prefrontal de adictos crónicos fallecidos por sobredosis de cocaína o heroína.*

Centre: Institut Universitari d'Investigacions en Ciències de la Salut (IUNICS).

Investigador responsable: GARCÍA SEVILLA, Jesús Andrés.

Categoría: CU (àrea de coneixement: Farmacologia).

Inici: 2007 **Fi:** 2010

<u>Membres de l'equip</u>	<u>Categoría</u>
García Sevilla, Jesús A.	CU

Summary

This project will investigate the regulation of the extrinsic (Fas receptor, FADD, caspase-8, FLIP) and intrinsic (Bcl-2, Bax, cytochrome c, AIF) apoptotic pathways (immunodetection of proteins by Western blot analysis) in the prefrontal cortex (Brodmann's area 9) of three groups of chronic addicts (presumably with neuroplasticity already developed): (1) “Pure” opiate addicts (death by heroin or methadone overdose; detection of opiates and metabolites in blood and hair; non-detection of cocaine in blood and hair; documented medical history of opiate addiction), (2) “Pure” cocaine addicts (death by cocaine overdose; detection of cocaine and metabolites in blood and hair; non-detection of opiates in blood and hair; documented medical history of cocaine addiction), and (3) “Mixed” cocaine/opiate addicts (death by mainly cocaine overdose; detection of cocaine and opiates in blood and hair; documented medical history of mixed addiction). Similar brain samples from healthy subjects (death mainly by violent causes) will be used as control groups. The results of this study will provide new information on the controversial role of drugs of abuse in inducing neuronal death in the human brain.

Projectes del Govern Balear

Referència: PRIB 2004-10152. Conselleria d'Economia, Hisenda i Innovació.

Modalitat: Projectes de recerca, desenvolupament tecnològic i innovació.

Títol: *Identificación y caracterización de nuevos mecanismos de resistencia bacteriana a los antimicrobianos.*

Centre: Institut Universitari d'Investigacions en Ciències de la Salut (IUNICS).

Investigador responsable: ALBERTÍ SERRANO, Sebastià.

Categoría: TEU (àrea de coneixement: Microbiologia).

Inici: 2004 **Fi:** 2007

Referència: PRIB2004-10147. Conselleria d'Economia, Hisenda i Innovació.

Modalitat: Projectes de recerca, desenvolupament tecnològic i innovació.

Títol: *Proteínas apoptóticas y mecanismo de acción de los fármacos opiáceos. Relevancia en la adicción a la heroína.*

Centre: Institut Universitari d'Investigacions en Ciències de la Salut (IUNICS).

Investigador responsable: MIRALLES SOCIAS, Antoni.

Categoría: TU (àrea de coneixement: Biologia Cel·lular).

Inici: 2004 **Fi:** 2007

Referència: PROGECIB-3C. Conselleria d'Economia, Hisenda i Innovació.

Modalitat: Projectes de recerca per a grups de recerca emergents i competitius.

Títol: *Bases moleculares y desarrollo de terapias moleculares y celulares.*

Centre: Institut Universitari d'Investigacions en Ciències de la Salut (IUNICS).

Investigador responsable: ESCRIBÁ RUIZ, Pablo

Categoría: TU (àrea de coneixement: Biologia Cel·lular).

Inici: 2007 **Fi:** 2009

Referència: PROGECIB-12A. Conselleria d'Economia, Hisenda i Innovació del Govern de les Illes Balears.

Modalitat: Projectes de recerca per a grups de recerca emergents i competitius.

Títol: *Linfomes no-Hodgkin: Identificació de dianes implicades en la progressió tumoral i en la resposta a nous fàrmacs antitumorals.*

Centre: Institut Universitari d'Investigacions en Ciències de la Salut (IUNICS).

Investigadora responsable: FERNÁNDEZ DE MATTOS, Silvia.

Categoría: INVESTIGADOR CONTRACTAT

Inici: 2007 **Fi:** 2009

Referència: PROGECIB-1C. Conselleria d'Economia, Hisenda i Innovació.

Modalitat: Projectes de recerca per a grups de recerca emergents i competitius.

Títol: *Enveliment saludable: Factors implicats en la millora de la qualitat de vida.*

Centre: Institut Universitari d'Investigacions en Ciències de la Salut (IUNICS).

Investigador responsable: GRASES FREIXEDAS, Fèlix.

Categoría: CU (àrea de coneixement: Química Analítica).

Inici: 2007 **Fi:** 2009

Referència: PROGECIB-4C. Conselleria d'Economia, Hisenda i Innovació.
Modalitat: Projectes de recerca per a grups de recerca emergents i competitius.
Títol: *Estudio de la aparición, prevalencia, diseminación y virulencia de Pseudomonas con metalo-B-lactamasas.*
Centre: Institut Universitari d'Investigacions en Ciències de la Salut (IUNICS).
Investigador responsable: ALBERTÍ SERRANO, Sebastián.
Categoría: TEU (àrea de coneixement: Microbiologia).
Inici: 2007 **Fi:** 2009

Referència: Conselleria d'Economia, Hisenda i Innovació.
Modalitat: Accions especials de recerca, desenvolupament tecnològic i innovació.
Títol: *Estudi epidemiològic a la difusió de resultats.*
Investigador responsable: GRASES FREIXEDAS, Fèlix.
Centre: Institut Universitari d'Investigacions en Ciències de la Salut (IUNICS).
Categoría: CU (àrea de coneixement: Química Analítica).
Inici: 2007 **Fi:** 2008

Referència: Conselleria d'Economia, Hisenda i Innovació.
Modalitat: Accions especials de recerca, desenvolupament tecnològic i innovació.
Títol: *Desenvolupament d'assajos preclínics amb el suport de Pfizer: Estudi del potencial del nou antitumoral SU11248 en Glioblastomes.*
Investigador responsable: VILLALONGA SMITH, Priam.
Centre: Institut Universitari d'Investigacions en Ciències de la Salut (IUNICS).
Categoría: INVESTIGADOR CONTRACTAT.
Inici: 2007 **Fi:** 2008

Referència: Conselleria d'Economia, Hisenda i Innovació.
Modalitat: Accions especials de recerca, desenvolupament tecnològic i innovació.
Títol: *Desenvolupament d'assajos preclínics amb el suport Dr. Roche: Estudi del potencial del nou antitumoral Erlotinib en Glioblastomes.*
Investigador responsable: VILLALONGA SMITH, Priam.
Centre: Institut Universitari d'Investigacions en Ciències de la Salut (IUNICS).
Categoría: INVESTIGADOR CONTRACTAT.
Inici: 2008 **Fi:** 2008

Institut de Física Interdisciplinària de Sistemes Complexos (IFISC)

Referència: FIS2007-60327. Ministeri d'Educació i Ciència.

Modalitat: Programa nacional de fisica.

Títol: *Física interdisciplinaria de sistemas complejos.*

Acrònim: FISICOS.

Centre: Institut de Fisica Interdisciplinària de Sistemes Complexos (IFISC).

Investigador responsable: SAN MIGUEL RUIBAL, Maximino.

Categoría: CU (àrea de coneixement: Física de la Matèria Condensada).

Inici: 2007 **Fi:** 2012

Membres de l'equip	Categoría	Dedicació (EDP)
San Miguel Ruibal, Maximino	CU	1
Toral Garcés, Raúl	CU	1
Hernández García, Emilio	Prof. Inv.	1
Matias Muriel, Manuel	Cient. Tit.	1
Colet Rafecas, Pere	Cient. Tit.	0.5
Mirasso Santos, Claudio	TU	0.5
Sintes Olives, Tomàs Miquel	TEU	1
Martínez Eguílez, Víctor	Inv.	1
López Sánchez, Cristóbal	Inv.	1
Zambrini, Roberta	Inv.	1
Scirè, Alessandro	B	0.5
Gomila Villalonga, Damià	Aj.	0.5
Pigolotti, Simone	Contr. dr.	1
Vázquez, Federico	Inv.	1
Castelló Llobet, Xavier	B	1
Herrada Mederer, Evaristo Alejandro	B	1
Gomes da Silva, Iacyel	B	1
González Avella, Juan Carlos	B	1
Komin, Niko	B	1
Chembo Kouomou, Yanne	B	1
Tessone, Claudio Juan	B	1
Bacelar, Flora	B	1

Investigadors d'altres entitats

Cerdá Pino, Juan José	Frankfurt Institute for Advanced Studies
Manjarrez López, Elías	Inst. Fisiología Univ. Aut. Puebla, Mexi
Pipa, Gordon	Frankfurt Institute for Advanced Studies
Sorel, Marc	University of Glasgow, UK
Centola, Damon	I. Quantitative Social Sci., Harvard U.

EDP del grup investigador de l'entitat sol·licitant: 20.

Summary

Building upon previously funded projects (PB94-1167 for 5 years, BFM2000-1108: CONOCE and FIS2004-00953: CONOCE2) we aim to develop interdisciplinary and strategic research from a common background of studies in Nonlinear Physics and Complex Systems, with methodologies taken from Statistical Physics, Dynamical Systems Theory and Computational Methods. The research is organized in a unifying transverse line of exploration and fundamental nature Transversal line : Complex systems: Statistical and Nonlinear Physics and 4 targeted research lines which focus on more specific fields:

Line 1: Nonlinear Optics, Quantum Optics and Dynamics of Optoelectronic Devices:

Line 2: Fluid dynamics, Biofluids and Geophysical Fluid

Line 3: Biophysics and Nonlinear Phenomena in Ecology and Physiology

Line 4: Dynamics and collective phenomena in social systems Our general scientific objectives are two-fold:

a) Exploring: contribute to the development of concepts and methods for the understanding of generic non-linear phenomena in complex systems

b) Transferring: interdisciplinary transfer of this body of knowledge to the strategic targeted research

sub-lines 1-4.

Referència: FIS2004-00953. Ministeri d'Educació i Ciència.

Modalitat: Programa nacional de física.

Títol: *Cooperación y fenómenos no lineales en sistemas complejos extendidos 2.*

Acrònim: CONOCE-2.

Centre: Institut de Física Interdisciplinària de Sistemes Complexos (IFISC).

Investigador responsable: SAN MIGUEL RUIBAL, Maximino.

Categoría: CU (àrea de coneixement: Física de la Matèria Condensada).

Inici: 2004 **Fi:** 2007

Membres de l'equip	Categoría	Dedicació (EDP)
San Miguel Ruibal, Maximino	CU	0.5
Toral Garcés, Raúl	CU	0.5
Hernández García, Emilio	Prof. Inv.	1
Piro Perusín, Oreste	TU	0.5
Mirasso Santos, Claudio	TU	0.5
Colet Rafecas, Pere	Cient. Tit.	1
Matias Muriel, Manuel	Cient. Tit.	0.5
Sintes Olives, Tomàs Miquel	TEU	0.5
Martínez Eguíluz, Víctor	Inv.	0.5
López Sánchez, Cristóbal	Inv.	1
Mulet Pol, Josep	Aj.	0.5
Amengual Marí, Pau	B	1
Chembo Kouomou, Yanne	B	1
Ciszak, Marzena	B	1
Gomes da Silva, Iacyel	B	1
Susecki, Krzysztof	B	1
Tufal Guefen, Idan	B	1
Vicente Zafra, Raúl	B	1
Scirè, Alessandro	B	1
Matas Riera, Sebastià	Tèc.	1

Investigadors d'altres entitats

Hoyelos, Miguel	Universitat de Mar del Plata
Klemm, Konstantin	Universitat de Leipzig
Kurths, Juergen	Universitat de Postdam
Oppo, Gian Luca	Universitat d'Strathclyde
Vulpiani, Angelo	Universitat de Roma La Sapienza
Zimmerman, Martín	Universitat de Buenos Aires

EDP del grup investigador de l'entitat sol·licitant: 16.

Summary

CONOCE-2 is the continuation of a long standing cooperative research effort in the general interdisciplinary context of the new directions of Statistical and Nonlinear Physics, with special reference to the behavior of spatially extended systems and a new emphasis on the effects of interaction through complex networks. On the one hand the project includes

fundamental studies (exploration) with contributions to the development of methods, concepts and description of generic behavior in 6 aspects: Dynamics of complex networks, Synchronization phenomena, Dynamical systems of moderate dimensionality, Fluctuations and stochastic phenomena, Computational methods in Statistical Physics: Study of biomolecules, and Semianalytical methods in the study of extended systems. On the other hand, it addresses the use (exploitation) of these methods and concepts in specific aspects of 5 lines of strategic research: Transport and mixing in fluids: Active flows and Microfluidics, Patterns and image processing in nonlinear optical cavities, Nonlinear dynamics of semiconductor lasers: Mode locking and synchronization, Nonlinear Phenomena in Ecology and Physiology, and Dynamics of social systems: Agent based models. Some general phenomena considered in the different research lines of the project incluye: Interaction network formation, Chaotic phenomena, Synchronization, Domain formation, and Stochastic phenomena.

Referència: FIS2006-09966. Ministeri d'Educació i Ciència.

Modalitat: Programa nacional de física.

Títol: *Sistemas complejos entre la Física y la Biología.*

Acrònim: SICOFIB.

Centre: Institut de Física Interdisciplinària de Sistemes Complexos (IFISC).

Investigador responsable: MATIAS MURIEL, Manuel A.

Categoría: Científic titular.

Inici: 2006 **Fi:** 2007

Membres de l'equip	Categoría	Dedicació (EDP)
Matias Muriel, Manuel A.	Cient. Tit.	0.5
Toral Garcés, Raúl	CU	0.5
Sintes Olives, Tomàs Miquel	TEU	0.5
Martínez Eguílez, Víctor	Inv.	0.5
Zambrini, Roberta	Inv.	1
Cerdà Pino, Joan J.	Aj.	1
Duarte Quesada, Carlos M.	Prof. Inv.	0.5
Rozenfeld, Alejandro F.	B	1
Tessone, Claudio J.	B	1
Komin, Niko	B	1
Herrada Mederer, Evaristo A.	B	1

EDP del grup investigador de l'entitat sol·licitant: 8.5.

Summary

The characterization and study of the dynamics of Complex Systems, that exhibit appearance of order and emerging behaviours at different scales, represents a fascinating problem that is in the borders of present knowledge. We have divided the problems that we will be tackling in this project in three research lines:

-Synchronization: appearance of coherence in many component systems with excitable behaviour. Anticipated synchronization in spatially extended systems.

Resonance and coherence induced by diversity. Creation of high-dimensional structures in desynchronizing transitions.

-Genetic networks: the filogenetic networks, based upon relation amongst genotypes constitute a very interesting class of networks that we aim to study within the context of the present project using the modern techniques of complex networks. On the other hand, we would like to generalize the concept of “tree of life”, eliminating restrictions, to obtain a “network of life”, including interactions more complicated from the topological point of view, such as loops.

-Spatial genetic structure: being able to infer by means of simulation techniques genetic spatial patterns is a fascinating possibility not yet explored. The combination of simulation and data should yield important advances in our understanding of the problem.

Referència: TEC2006-10009/MIC. Ministeri d'Educació i Ciència.
Modalitat: Programa nacional de tecnologies electròniques i de comunicacions.
Títol: *Dispositivos fotónicos para comunicaciones basadas en caos.*
Acrònim: PhoDeCC.
Centre: Institut de Física Interdisciplinària de Sistemes Complexos (IFISC).
Investigador responsable: COLET RAFECAS, Pere.
Categoría: Científic titular.
Inici: 2006 **Fi:** 2009

<u>Membres de l'equip</u>	<u>Categoría</u>	<u>Dedicació (EDP)</u>
Colet Rafecas, Pere	Cient. Tit.	0.5
Mirasso Santos, Claudio	TU	0.5
Gomila Villalonga, Damià	Aj. dr.	1
Sciré, Alessandro	Inv.	1
Jacobo, Adrián	B	1
Pérez López, Antonio	B	1

Investigadors d'altres entitats
Fisher, Ingo
Dankaert, Jan
Larger, Laurent

Vrije Universiteit Brussel
Vrije Universiteit Brussel
University of Franche-Comté

EDP del grup investigador de l'entitat sol·licitant: 6.

Summary

The encryption of information using chaotic carriers is a novel technique that can complement and offer an additional level of security to the technique of software encryption. Chaos based communications requires the use of opto-electronic devices operating in a chaotic regime. The definitive applicability of this technique in real optical communication systems will depend on the degree of security that can offer as well as on its robustness and on the compactness of the emitter and receiver systems. The objective of this project is to study the dynamics of new devices with useful properties for the optical communications based on chaos. Is to say that we look for devices that offer a higher degree of security than that obtained at the moment with simpler devices, that are robust and compact and that allow the use of encoding techniques that go beyond the traditional ones which have been used up to now.

Projectes del Govern Balear

Referència: Conselleria d'Economia, Hisenda i Innovació del Govern de les Illes Balears.

Modalitat: Accions especials de recerca, desenvolupament tecnològic i innovació.

Títol: *Solicitud de subvención puntual inicial de posada en marcha de l'IFISC.*

Centre: Institut de Física Interdisciplinària de Sistemes Complexos (IFISC).

Investigador responsable: SAN MIGUEL RUIBAL, Maximino.

Categoría: CU (àrea de coneixement: Física de la Matèria Condensada).

Inici: 2007 **Fi:** 2008

Referència: Conselleria d'Economia, Hisenda i Innovació del Govern de les Illes Balears.

Modalitat: Ajudes per a l'organització de reunions, congressos, seminaris, simposis o jornades de caràcter científic.

Títol: *International Conference on Crystal Growth and Chemistry of ice thin films under extreme conditions.*

Centre: Departament de Física. Edifici Mateu Orfila i Rotger.

Investigador responsable: SINTES OLIVES, Tomàs.

Categoría: TEU (àrea de coneixement: Física de la Matèria Condensada).

Inici: 2007 **Fi:** 2007

Referència: PCTIB-2005GC4-05. Conselleria d'Economia, Hisenda i Innovació del Govern de les Illes Balears.

Modalitat: Ajudes per a grups de recerca emergents i competitius.

Títol: Física Interdisciplinar

Centre: Institut de Física Interdisciplinària de Sistemes Complexos (IFISC).

Investigador responsable: SAN MIGUEL RUIBAL, Maximino.

Categoría: CU (àrea de coneixement: Física de la Matèria Condensada).

Inici: 2006 **Fi:** 2009

Referència: QULMI. Conselleria d'Economia, Hisenda i Innovació del Govern de les Illes Balears.

Modalitat: Ajudes per a grups de recerca emergents i competitius.

Títol: Luz cuántica en microdispositivos (quantum light in microdevices).

Centre: Institut de Física Interdisciplinària de Sistemes Complexos (IFISC).

Investigador responsable: ZAMBRINI, Roberta.

Categoría: INV. (àrea de coneixement: Física de la Matèria Condensada).

Inici: 2007 **Fi:** 2008

Centre de Recerca Econòmica

Projectes del Govern Balear

Referència: PROGECIB-31A. Conselleria d'Economia, Hisenda i Innovació.

Modalitat: Projectes de recerca per a grups de recerca emergents i competitius.

Títol: Externalitats del transport rodat en economies turístiques.

Centre: Centre de Recerca Econòmica (UIB-Sa Nostra).

Investigador responsable: ROSSELLÓ NADAL, Jaume.

Categoría: TU (àrea de coneixement: Economia Aplicada).

Inici: 2007 **Fi:** 2008

Laboratori de Sistemàtica Humana

Referència: HUM2007-64086. Ministeri d'Educació i Ciència.

Modalitat: Programa nacional d'humanitats.

Títol: *Las raíces de la naturaleza humana. Hacia un replanteo sistemático del género Homo.*

Acrònim: HNR.

Centre: Laboratori de Sistemàtica Humana. Edifici Ramon Llull.

Investigador responsable: CELA CONDE, Camilo J.

Categoría: CU (àrea de coneixement: Filosofia Moral).

Inici: 2007 **Fi:** 2010

Membres de l'equip	Categoría	Dedicació (EDP)
Cela Conde, Camilo J.	CU	0.5
Marty Broquet, Gisèle	CU	0.5
Nadal Roberts, Marcos	As.	0.5
Capó Navarro, Miguel Ángel	As.	0.5
Burges Cruz, Lucrecia	Aj. Dr.	0.5
Miquel Novajra, Alejandro	TU	0.5
Gomila Benejam, Antoni	TU	0.5
Munar Roca, Enric	TU	0.5

Investigadors d'altres entitats

Gayon, Jean	Université de la Sorbonne
Call Balaguer, Josep	Max Planck Institute for Evolutionary An
Wuketits, Franz	University of Vienna
Ruiz Altaba, Cristian	Govern Baler
Ayala, Francisco J.	Universitat de Califòrnia (Irvine)
Collard, Mark	University of British Columbia

EDP del grup investigador de l'entitat sol·licitant: 4.

Summary

There is currently no agreement on the number of species that should be included within the genus *Homo*, nor about the phylogenetic relations among them. The proposals range from suggesting the existence of a highly variable single species to the inclusion of more than seven different species. Given that these perspectives are grounded on different paradigmatic perspectives of the concept of species and human evolution, it seems improbable that a clarification of the genus *Homo* will be brought about by physical evidence. Hence, here we suggest an approach to this problem based on: (i) the analysis of the epistemological scope of the categories of species and genus and their use in the study of the evolutionary lineages of humans and other organisms, (ii) the clarification and analysis of the implicit assumptions underlying the procedures used in taxonomy and systematics, (iii) the introduction of a series of parsimony criteria that should be respected by any proposal in human systematics, (iv) the utilisation of the methodology so obtained for a general reinterpretation of the phylogeny of the genus *Homo* and (v) the study of the role played in this evolution by some of the functional apomorphies of *Homo sapiens*: language, morals, and aesthetics.

UNIVERSITAT DE LES ILLES BALEARS

Referència: Conselleria d'Economia, Hisenda i Innovació.

Modalitat: Accions especials de recerca, desenvolupament tecnològic i innovació.

Títol: *Difusió de reportatges sobre projectes de recerca dels grups, departaments i instituts de la UIB.*

Centre: Vicerectorat d'Investigació. Edifici Son Lledó.

Investigador responsable: SERVERA BARCELÓ, Mateu.

Categoría: TU (àrea de coneixement: Personalitat, Avaluació i Tractament Psicològics).

Inici: 2007 **Fi:** 2008

ACCIONS INTEGRAGES

Referència: HF2006 0164

Títol: *Anàlisis y restauración de imágenes digitales.*

Centre: Departament de Ciències Matemàtiques i Informàtica. Edifici Anselm Turmeda.

Investigador responsable: COLL VICENS, Bartomeu.

Categoría: CU (àrea de coneixement: Matemàtica Aplicada).

Inici: 2007 **Fi:** 2008

Referència: HU2006 0021

Títol: *Destination rejuvenation strategies: Policies and Mesures.*

Centre: Departament d'Economia Aplicada. Edifici Gaspar Melchor de Jovellanos.

Investigador responsable: JUANEDA SAMPOL, Catalina.

Categoría: CU (àrea de coneixement: Economia Aplicada).

Inici: 2007 **Fi:** 2008

Referència: HA2006 0078

Títol: *Discourse traditions analysis of old spanish biblical texts with the tradisc program.*

Centre: Departament de Filologia Espanyola, Moderna i Llatina. Edifici Ramon Llull.

Investigador responsable: ENRIQUE ARIAS, Andrés.

Categoría: TU (àrea de coneixement: Llengua Espanyola).

Inici: 2007 **Fi:** 2008

Referència: HU2004 0010

Títol: *Plasma dynamics and wave phenomena in solar prominences.*

Centre: Departament de Física. Edifici Mateu Orfila i Rotger.

Investigador responsable: OLIVER HERRERO, Ramon.

Categoría: TU (àrea de coneixement: Física Solar).

Inici: 2005 **Fi:** 2007

Referència: HA2005 0051

Títol: *Chaos Synchronization and On/Off Phase Shift Keying Encryption.*

Centre: Institut de Física Interdisciplinària de Sistemes Complexos (IFISC).

Investigador responsable: MIRASSO SANTOS, Claudio.

Categoría: TU (àrea de coneixement: Física Interdisciplinar).

Inici: 2006 **Fi:** 2007

Referència: HP2006 0074

Títol: *Relativistic Elasticity.*

Centre: Departament de Física. Edifici Mateu Orfila i Rotger.

Investigador responsable: CAROT GINER, Jaume.

Categoría: TU (àrea de coneixement: Relativitat i Cosmologia).

Inici: 2007 **Fi:** 2008

Referència: HF2006 0163

Títol: Arselio: Desarrollo de sondas fluorescentes para la determinación de arsénico y selenio.

Centre: Departament de Química. Edifici Mateu Orfila i Rotger.

Investigador responsable: CERDÀ MARTÍN, Víctor.

Categoría: CU (àrea de coneixement: Química Analítica).

Inici: 2007 **Fi:** 2008

Referència: HH2006 0031

Títol: Transported in Chaotic environmental Flows.

Centre: Institut de Física Interdisciplinària de Sistemes Complexos (IFISC).

Investigador responsable: LÓPEZ SÁNCHEZ, Cristobal.

Categoría: Contr. dr. (àrea de coneixement: Física de la Matèria Condensada).

Inici: 2007 **Fi:** 2008

ACCIONS ESPECIALS I COMPLEMENTÀRIES

Referència: DEP2006-26307-E.

Títol: *II Simposium Internacional de Actividad Física: Motivación y Dinàmica de Equipos.*

Centre: Departament de Pedagogia i Didàctiques Específiques. Edifici Guillem Cifre de Colonia.

Investigador responsable: PALOU SAMPOL, Pere.

Categoría: TEU (àrea de coneixement: Educació Física i Esportiva).

Inici: 2006 **Fi:** 2007

Referència: FIS2005-25317-E.

Títol: *Red temática de relatividad y gravitación.*

Centre: Departament de Física. Edifici Mateu Orfila i Rotger.

Investigador responsable: SINTES OLIVES, Alícia M.

Categoría: TEU (àrea de coneixement: Física Teòrica Relativitat).

Inici: 2006 **Fi:** 2007

Referència: CTQ2006-26298-E/BQU.

Títol: *Red Casi.*

Centre: Departament de Química. Edifici Mateu Orfila i Rotger.

Investigador responsable: SAÁ RODRÍGUEZ, José M.

Categoría: CU (àrea de coneixement: Química Orgànica).

Inici: 2006 **Fi:** 2007

Referència: AGL2004-22480-E.

Títol: *Native perennial forage plants for sustainability of farming systems in the western mediterranean.*

Centre: Departament de Biologia. Edifici Guillem Colom Casasnovas.

Investigador responsable: CIFRE LLOMPART, Josep.

Categoría: P. col. (àrea de coneixement: Producció Vegetal).

Inici: 2005 **Fi:** 2008

Referència: TEC2006-28105-E

Títol: *PICASSO. Photonic integrated components applied to secure chaos encoded optical*

Centre: Institut de Física Interdisciplinària de Sistemes Complexos (IFISC).

Investigador responsable: MIRASSO SANTOS, Claudio Rubén.

Categoría: TU (àrea de coneixement: Física de la Matèria Condensada).

Inici: 2006 **Fi:** 2009

Referència: HUM2006-27383-E

Títol: *II Jornada de terminología y servicios lingüísticos: nuevos retos para los profesionales en la comunicación especializada.*

Centre: Departament de Filologia Catalana i Lingüística General. Edifici Ramon Llull.

Investigadora responsable: CALAFAT VILA, Rosa.

Categoría: TU (àrea de coneixement: Filologia Catalana).

Inici: 2007. **Fi:** 2008.

Referència: FIS2006-28405-E

Títol: *Renovación red temática de relatividad y gravitación, ACO0602536.*

Centre: Departament de Física. Edifici Mateu Orfila i Rotger.

Investigadora responsable: SINTES OLIVES, Alícia Magdalena.

Categoría: TEU (àrea de coneixement: Física Teòrica).

Inici: 2007. **Fi:** 2008.

Referència: SEJ2006-28072-E

Títol: *XV Foro de finanzas.*

Centre: Departament d'Economia de l'Empresa. Edifici Gaspar Melchor de Jovellanos.

Investigador responsable: PASCUAL GASCÓ, Roberto.

Categoría: TU int. (àrea de coneixement: Economia Financera i Comptabilitat).

Inici: 2007. **Fi:** 2008.

Referència: DPI2006-28345-E

Títol: *AUTOMAR: Investigación en automática y robótica para la industria marítima (Renovación).*

Centre: Departament de Ciències Matemàtiques i Informàtica. Edifici Anselm Turmeda.

Investigador responsable: OLIVER CODINA, Gabriel.

Categoría: TU (àrea de coneixement: Arquitectura i Tecnologia de Computadors).

Inici: 2007. **Fi:** 2008.

Referència: HUM2006-27972-E

Títol: *XIV Interuniversity Workshop on Philosophy and Cognitive Science.*

Centre: Departament de Psicologia. Edifici Guillem Cifre de Colonia.

Investigador responsable: GOMILA BENEJAM, Antoni.

Categoría: TU (àrea de coneixement: Psicologia Bàsica).

Inici: 2007. **Fi:** 2008.

Referència: SEJ2006-28095E

Títol: *VIII Simposio de Psicolinguística.*

Centre: Departament de Psicologia. Edifici Guillem Cifre de Colonia.

Investigador responsable: GOMILA BENEJAM, Antoni.

Categoría: TU (àrea de coneixement: Psicologia Bàsica).

Inici: 2007. **Fi:** 2008.

Referència: CGL2006-27870-E

Títol: *IV Jornadas de Geomorfología Litoral. Mallorca 2007.*

Centre: Departament de Ciències de la Terra. Edifici Guillem Colom Casasnovas.

Investigador responsable: FORNÓS ASTÓ, Joan J.

Categoría: TU (àrea de coneixement: Estratigrafia).

Inici: 2007 **Fi:** 2008

Referència: MAT2006-28193-E

Títol: *Development and characterisation of new ferromagnetic shape memory alloys.*

Centre: Departament de Física. Edifici Mateu Orfila i Rotger.

Investigador responsable: CESARI ALIBERCH, Eduard.

Categoría: CU (àrea de coneixement: Física Aplicada).

Inici: 2007 **Fi:** 2008

Referència: DEP2006-28536-E

Títol: *II Congreso internacional y XXIV nacional de educación física.*

Centre: Departament de Pedagogia i Didàctiques Específiques. Edifici Guillem Cifre de Colonia.

Investigador responsable: PALOU SAMPOL, Pere.

Categoría: TEU (àrea de coneixement: Educació Física i Esportiva).

Inici: 2007 **Fi:** 2008

Referència: TIN2006-27672-E

Títol: *AALIVE Ambient Assitive for Living Virtual Environments.*

Centre: Departament de Ciències Matemàtiques i Informàtica. Edifici Anselm Turmeda.

Investigador responsable: PERALES LÓPEZ, Francisco.

Categoría: TU (àrea de coneixement: C. de la Computació i Intel·ligència Artificial).

Inici: 2007 **Fi:** 2008

Referència: FIS2007-29095-E

Títol: *CoBeNN. Coherent behavior in neuronal networks.*

Centre: Institut Mediterrani d'Estudis Avançats (IMEDEA).

Investigador responsable: MATIAS MURIEL, Manuel.

Categoría: Científic Titular.

Inici: 2007 **Fi:** 2007

Referència: TIN2007-29683-E

Títol: *Internet basada en servicios y aplicaciones distribuidos (INTERESAD).*

Centre: Departament de Ciències Matemàtiques i Informàtica. Edifici Anselm Turmeda.

Investigador responsable: JUIZ GARCÍA, Carlos.

Categoría: TEU (àrea de coneixement: Arquitectura i Tecnologia de Computadors).

Inici: 2007 **Fi:** 2008

Referència: CGL2007-28783-E

Títol: *ESASSI Fondeos en la Antàrtida.*

Centre: Institut Mediterrani d'Estudis Avançats (IMEDEA).

Investigador responsable: ROMERO MARCH, Romualdo.

Categoría: Juan de la Cierva (àrea de coneixement: Física de la Terra).

Inici: 2007 **Fi:** 2009

Referència: CGL2005-25033-E

Títol: *Red Ibérica para la Investigación y Desarrollo de Aplicaciones en base al Modelo Atmosférico MM5.*

Centre: Departament de Física. Edifici Mateu Orfila i Rotger.

Investigador responsable: FLEXAS SBERT, Maria del Mar.

Categoría: TU (àrea de coneixement: Física de la Terra, Astronomia i Astrofísica).

Inici: 2006 **Fi:** 2007

Referència: PCI2005-A7-356

Títol: *Inspección Autónoma Submarina.*

Centre: Departament de Física. Edifici Mateu Orfila i Rotger.

Investigador responsable: CALVO IBÁÑEZ, Oscar.

Categoría: TEU (àrea de coneixement: Tecnologia Electrònica).

Inici: 2006 **Fi:** 2009

Referència: SEJ2007-30292-E/ECON

Títol: *III Congreso de la Asociación hispano-portuguesa de economía de los recursos naturales y ambientales.*

Centre: Centre de Recerca Econòmica.

Investigador responsable: RIERA FONT, Antoni.

Categoría: TU (àrea de coneixement: Economia Aplicada).

Inici: 2007 **Fi:** 2008

Referència: AGL2006-27837-E/ALI

Títol: *Identificación y prevención de efectos sobre la salud inducidos por la dieta y el estilo de vida en niños.*

Centre: Laboratori de Biologia Molecular, Nutrició i Biotecnologia.

Investigador responsable: PICÓ SEGURA, Catalina.

Categoría: CEU (àrea de coneixement: Bioquímica i Biologia Molecular).

Inici: 2007 **Fi:** 2011

Referència: FIS2007-29087-E

Títol: EDEN-AC Ecological diversity and evolutionary networks.

Centre: Institut de Física Interdisciplinària de Sistemes Complexos (IFISC).

Investigador responsable: HERNÁNDEZ GARCÍA, Emilio.

Categoría: TU (àrea de coneixement: Física de la Matèria Condensada).

Inici: 2007 **Fi:** 2010

Referència: FIS2007-29083-E
Títol: Pattern Resilience. PATRES-AC
Centre: Institut de Física Interdisciplinària de Sistemes Complexos (IFISC).
Investigador responsable: SAN MIGUEL RUIBAL, Maximino.
Categoría: CU (àrea de coneixement: Física de la Matèria Condensada).
Inici: 2007 **Fi:** 2010

ALTRES ACCIONS

Projecte: Acció COST 267.
Títol: *Semiconductor devices for signal processing.*
Centre: Departament de Física. Edifici Mateu Orfila i Rotger.
Investigador responsable: BALLE MONJO, Salvador.
Categoría: CU (àrea de coneixement: Física de la Matèria Condensada).

Projecte: Acció COST 858.
Títol: *Biotic and abiotic stress: grapevine defense mechanism and grape development.*
Centre: Departament de Biologia. Edifici Guillem Colom Casasnovas.
Investigador responsable: MEDRANO GIL, Hipólito.
Categoría: CU (àrea de coneixement: Fisiologia Vegetal).
Inici: 2003 **Fi:** 2009

Referència: Acció COST P10.
Títol: *COST-RISK. Physics of risk.*
Centre: Institut Mediterrani d'Estudis Avançats (IMEDEA).
Investigador responsable: SAN MIGUEL RUIBAL, Maximino.
Categoría: CU (àrea de coneixement: Física de la Matèria Condensada).
Inici: 2003 **Fi:** 2007

Referència: RI3-CT-2003-506222.
Modalitat: Structuring the European Research Area Specific Programme.
Títol: *Integrated large infrastructures for astroparticle science (ILIAS).*
Centre: Departament de Física. Edifici Mateu Orfila i Rotger.
Investigadora responsable: SINTES OLIVES, Àlia Magdalena.
Categoría: TEU (àrea de coneixement: Física Teòrica).
Inici: 2004 **Fi:** 2009

Títol: *STOCHDYN: Stochastic Dynamics. Fundamentals and Applications.*
Centre: Institut Mediterrani d'Estudis Avançats (IMEDEA).
Investigador responsable: SAN MIGUEL RUIBAL, Maximino.
Categoría: CU (àrea de coneixement: Física de la Matèria Condensada).
Organisme: European Science Foundation.
Inici: 2002 **Fi:** 2007

Referència: Projecte AECl.

Títol: *Desarrollo de métodos automáticos para la especiación de compuestos nitrogenados y fosforados. Aplicación al análisis de aguas residuales.*

Centre: Departament de Química. Edifici Mateu Orfila i Rotger.

Investigador responsable: CERDÀ MARTÍN, Víctor.

Categoría: CU (àrea de coneixement: Química Analítica).

Centre d'aplicació: Laboratorio de Espectroscopia Molecular. Departament de Química.

Facultad de Ciencias. Universidad de Los Andes. Núcleo de la Hechicera. Mérida. Venezuela.

Referència: SSP/STREP/01/0181.

Títol: *Risk analysis for Phytophthora ramorum, a recently recognised pathogen threat to Europe and the cause of Sudden Oak Death in the USA.*

Acrònim: RAPRA.

Investigador responsable: DESCALS CALLISEN, Enrique.

Centre: IMEDEA.

Inici: 2004 **Fi:** 2007

Títol: *Eivissa-CREA.*

Investigadora responsable: FERRER PÉREZ, Victòria.

Centre: Departament de Psicologia. Edifici Guillem Cifre de Colonia.

Categoría: TU (àrea de coneixement: Psicología Social).

Inici: 2005 **Fi:** 2007

Títol: *Equilibrio.*

Investigador responsable: SALINAS IBÁÑEZ, Jesús M.

Centre: Departament de Pedagogia Aplicada i Psicologia de l'Educació. Edifici Guillem Cifre de Colonia.

Categoría: TU (àrea de coneixement: Didàctica i Organització Escolar).

Inici: 2005 **Fi:** 2007

Referència: II-05-051 EC.

Títol: *X-ray diffraction study of membrane structure-modifying lipids: interest in the modulation of blood pressure by lipid therapy.*

Centre: Departament de Biologia Fonamental i Ciències de la Salut. Edifici Guillem Colom Casasnovas.

Investigadora responsable: BARCELÓ MAIRATA, Francesca M.

Categoría: TU (àrea de coneixement: Bioquímica i Biología Molecular).

Organisme: Deutches Electronen-Synchrotron.

Inici: 2005 **Fi:** 2008

Referència: Projecte AEI.

Títol: *Diseño de un sistema de reconstrucción 3D mediante cámaras estereoscópicas y luz estructurada. SKN3D*

Centre: Departament de Ciències Matemàtiques i Informàtica. Edifici Anselm Turmeda.

Investigador responsable: ABASOLO GUERRERO, María José.

Categoría: P. Col. (àrea de coneixement: Ciències de la Computació i Inteligència Artificial).

Centre d'aplicació: Universitat Nacional de “La Plata” (UNLP), Argentina.

Inici: 2007 **Fi:** 2008

Referència: PIE200775010

Títol: *Física Estadística y Nolineal: Dinámica y Redes Complejas en Sistemas Biológicos y Sociales.*

Centre: Institut de Física Interdisciplinària de Sistemes Complexos (IFISC).

Investigador responsable: MARTÍNEZ EGUILUZ, Víctor.

Categoría: Cient. Tit. (àrea de coneixement: Física de la Matèria Condensada).

Inici: 2007 **Fi:** 2008

Referència: 200530F0052

Títol: HIELOCRIS. *Crecimiento cristalino y química de películas de hielo en condiciones extremas.*

Centre: Institut de Física Interdisciplinària de Sistemes Complexos (IFISC).

Investigador responsable: PIRO PERUSÍN, Oreste.

Categoría: TU (àrea de coneixement: Física de la Matèria Condensada).

Inici: 2005 **Fi:** 2007

Referència: PIF06-059

Títol: OCEANTECH. Herramientas avanzadas para el estudio de la dinàmica oceànica y la gestión medio-ambiental.

Centre: Institut de Física Interdisciplinària de Sistemes Complexos (IFISC).

Investigador responsable: LÓPEZ SÁNCHEZ, Cristobal.

Categoría: CON (àrea de coneixement: Física de la Matèria Condensada).

Inici: 2007 **Fi:** 2008

ÍNDEX D'ABREVIACIONS

Aj.: Ajudant/a

Aj. EU: Ajudant/a d'Escola Universitària

Aj. U: Ajudant/a d'Universitat

AGR: Programa nacional d'investigació i desenvolupament agrari

ALI: Programa nacional de tecnologia d'aliments

AMB: Programa nacional d'I+D en medi ambient

ANT: Programa nacional d'investigació a l'Antàrtida.

As.: Associat/associada

B: Becari/becària

B (reinc.): Becari/becària postdoctoral de reincorporació

BIO: Programa nacional de biotecnologia

C: Col·laborador/a

CEU: Catedràtic/a d'Escola Universitària

Cient. Tit.: Científic Titular

CLI: Programa nacional d'I+D sobre el clima

Contr. dr.: Contractat doctor

CSIC: Consell Superior d'Investigacions Científiques

CU: Catedràtic/a d'Universitat

EDP: Equivalent de dedicació plena

EDP=1: dedicació única

EDP=0.5: compartida a dos projectes

EDP=0.33: compartida a tres projectes

EJC: Equivalent de jornada completa

FD: Fons FEDER

FIS: Fons d'Investigació Sanitària

HID: Programa nacional de recursos hídrics

IMPIVA: Institut per a la Modernització dels Processos Industrials de València

INV.: Investigador / Investigadora.

MAR: Programa nacional de ciència i tecnologia marines

MAST: Marine Sciences and Technologies

MAT: Programa nacional de materials

MEC: Ministeri d'Educació i Ciència

PB: Programa bàsic (Programa sectorial de promoció general del coneixement)

PETRI: Projecte d'Estímul a la Transferència de Resultats d'Investigació

P. Col.: Professor/a col·laborador/a

PM: Programa de medicina

Prof. Inv.: Professor d'Investigació

PS: Programa sectorial

P1: Projectes d'investigació bàsica no orientada

P2: Projectes d'investigació bàsica orientada

P3: Projectes d'investigació aplicada

P4: Projectes d'I+D en cooperació

RACE: Research and Technology Development in Advanced Communications Technologies

SC: Programa sectorial d'I+D agrari i alimentari del MAPA

SM: Projecte simplificat d'investigació en biomedicina

Tèc.: Tècnic

TEL: Programa nacional d'aplicacions i serveis telemàtics

TEU: Titular d'Escola Universitària

TIC: Programa nacional de tecnologies de la informació i de les comunicacions

TU: Titular d'Universitat

UE: Unió Europea

UNESCO: United Nations Educational Scientific and Cultural Organization

Visitant: Professor/a visitant

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