

Universitat de les Illes Balears

CATÀLEG DE PROJECTES D'INVESTIGACIÓ DE LA UNIVERSITAT DE LES ILLES BALEARS 2001





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D'INVESTIGACIÓ
DE LA UNIVERSITAT
DE LES ILLES BALEARS**

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**PROJECTES DE RECERCA
EN EL MARC DE LA UNIÓ EUROPEA,
I ALTRES ACCIONS**





DEPARTAMENT DE BIOLOGIA

- Time resolved study of chlorophyll fluorescence changes induced by water-waste

MEDRANO GIL, Hipólito

- Development and evaluation of improved fruit fly attractants in the Balearic Islands.

ALEMANY FERRÀ, Aina; MIRANDA CHUECA, Miguel Ángel



Endarrere



Endavant

Referència: BF 026-98.

Títol: *Time resolved study of chlorophyll fluorescence changes induced by water-waste.*

Centre: Departament de Biologia. Edifici Guillem Colom Casasnovas.

Investigador responsable: MEDRANO GIL, Hipólito.

Categoria: CU (àrea de coneixement: Biologia Vegetal).

Socis:

Coordinador: LURE, CNRS. Université de Paris-Sud

Summary

The interest of chlorophyll fluorescence as a putative signal for detection and accurate analyses of physiological phenomena associated with water stress, the most limiting factor for crops yield over the world, let us to apply for the series of projects developed at LURE since 1996 (see Experimental Report).

The results of previous projects revealed that several signals related with chlorophyll fluorescence (particularly the steady-state signal, Fs), can be excellent tools for early detection of water stress (Cerovic et al., 1996; Flexas et al., 1998a, b, c; Flexas et al., 1999). Also, evidences for a qE-related process involved in the down-regulation of Fs as a response to water stress have been obtained through time-resolved measurements using the Super-ACO equipment and from photochemical reflectance index (see Experimental Report).

Now, apart of the possibility of repeating some of the previous experiments due to technical problems during the previous measurements (see Experimental Report), we are interested into extend our study to fluorescence signals different to that of chlorophyll. It has been recently reviewed the special index of blue-green fluorescence and of red(chlorophyll) to blue fluorescence ratios for plant stress assessment (Lichtenthaler, 1996; Cerovic et al., 1999). Blue-green fluorescent molecules in leaf epidermis are mainly phenolic and other compounds related with plant secondary metabolism, which increase their content as a response to environmental stressed, like water stress (Cerovic et al., 1999). Of particular interest for stress assessment is the shift from a dominant chlorophyll fluorescence and low blue-green fluorescence under control conditions. Grapevines have important amounts of phenolic compounds in leaves and, specially, in fruits, to which they confer most of the characteristics related with fruit quality. It is now that water stress strongly affects to the characteristics of phenolic metabolism, at least in fruits (Escalona et al., 1999 and unpublished). Thus, blue-green fluorescence studies seem to be also a promising tool for water stress detection in grapevines. The multiwavelength capability of synchrotron radiation makes it a good instrument for this kind of analyses (Cerovic et al., 1994).

The aim of the present project is to obtain a first collection of data of combined measurements of chlorophyll fluorescence and blue-green fluorescence throughout a period of continuous water stress development in plants of grapevine. These first results may indicate if the study of blue-green fluorescence is or not a good, new way, for stress monitoring in grapevine crops. The proposed experiment is:

1. Cultivation of grapevine plants at the greenhouse of Orsay University, under conditions of high light and temperature, as already done in previous experiments (Flexas et al., 1998a).
2. During the development of water stress in these plants, continuous monitoring of chlorophyll fluorescence and gas exchange ratios under greenhouse conditions, to get good estimations of Fs variations with water stress (Flexas et al., 1998a).
3. Also, leaf samples will be taken daily along the time of water stress development. These samples will be kept in cold several days until they were analysed using the synchrotron radiation. Excitation spectra of red and blue-green fluorescence will be determined.

Títol: *Development and evaluation of improved fruit fly attractants in the Balearic Islands.*

Centre: Departament de Biologia. Edifici Guillem Colom Casanovas.

Investigadors responsables: ALEMANY FERRÀ, Aina; MIRANDA CHUECA, Miguel Ángel.

Inici: 2000. **Fi:** 2002.

Socis:

Instituto Nacional de Investigaciones Agrarias (Espanya)
Centro Nacional de Pesquisa de Agroindustria Tropical (CNPAT) (Brasil)
Universitat de Costa Rica Rodrigo Facio (Costa Rica)
Universitat de Tolima (Colòmbia)
Research & Development Golan Heights (Israel)
Programa Moscamed (Mèxic)
Agricultural Research Service (USDA) (EUA)
University of Southampton (Regne Unit)
University of Thessaloniki (Grècia)
Subtropical Agricultural Research (USDA) (EUA)
Direcció de Serviços de Investigação Agrícola (Portugal)
Instituto Nacional de Tecnología Agropecuaria (Argentina)
CIRAD-FLOHR. Reunió (França)
Ministry of Agriculture, Food Technology & Natural Resources (Maurici)
Honduran Foundation for Agricultural Research (FHIA) (Hondures)
Univesitat de São Paulo (Brasil)
Coordinador: International Atomic Energy Agency (IAEA)

Summary

Ceratitits capitata is in Spain a key pest due to its destructive effect on so many commercial fruits as citrus, peach and apricots. Other non commercial host as *Ficus carica* and *Opuntia ficus-indica* are also key host because of their importance as medfly reservoirs. At the moment, control measures are based on repetitive insecticides bait sprays which have serious effects on natural enemies and on fruit quality. In this sense, it is important to reduce insecticide treatments using environment-friendly and cost effective techniques as an alternative to conventional insecticides. Environmental protection measures are also increasing the need for alternatives to conventional pest control, and we have to consider that Menorca island and some areas of Ibiza island have been declared Reserves of Biosphere by UNESCO. Standard and effective monitoring systems are needed for IPM strategies, reflecting precise changes in temporal and spatial distributions of the medfly. Detection and monitoring population is critical in the Balearic Islands, because the possibility to control the pest at two moments over the year when the population is very low. At this moment, selective and effective captures will reduce the pest below the economic damage level, thus reducing or even eliminating the use of insecticides. On the other hand, the olive fly *Bactrocera oleae*, is also an important pest in Spain. This monophagous pest requires as in the case of medfly, an area-wide approach. For this reason, it is also important to develop effective attractants for monitoring and for use on a mass trapping strategy basis. Finally, geographical situation of the Balearic Islands is an adequate place to study isolated populations.



DEPARTAMENT DE BIOLOGIA FONAMENTAL I CIÈNCIES DE LA SALUT

- [Helth telematics training network.](#)

PALOU OLIVER, Andreu; ROCA SALOM, Maria Pilar; OLIVER OLIVER, Jordi



Referència: CY/97/2/00988/PI/II.1.1.c/CONT.

Programa: Leonardo da Vinci.

Títol: *Helth telematics training network.*

Acrònim: HEALTHNET.

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

Investigadors responsables: PALOU OLIVER, Andreu; ROCA SALOM, Maria Pilar; OLIVER OLIVER, Jordi.

Socis:

Ministeri de Cultura (Xipre)
Institut Xipriota de Neurologia i Genètica (Xipre)
Associació Mèdica Panxipriota (Xipre)
Govern balear (Espanya)
Institut de Medicina i Fisiologia Especials (França)
Institut de Ciències de la Computació. Fundació per a la Investigació i Tecnologia (Grècia)
Coordinador: Universitat de Xipre (Xipre)

Summary

The specific objectives of the pilot are summarised as follows:

1. The identification of training needs for the promotion of health telematics technological research, development programme and there application.
2. The development of a health telematics network for training and the transfer of new technology.
3. The development of a new multimedia based training methodology for health telematics.
4. The development of a health telematics educational package organised in modules concerning specific skills which are necessary for teleworking in the health sector.
5. The training of trainer and pilot application involved will lead to the better use of new applications and advance the effectiveness of teleworking in the health sector.



DEPARTAMENT DE CIÈNCIES DE L'EDUCACIÓ

- [FARRUTX](#), towards a township model of environmental interpretation in saturated touristic areas.

SUREDA NEGRE, Jaume

- [Safer internet for knowing and living](#).

SUREDA NEGRE, Jaume.



Endarrere



Endavant

Referència: 99/136576.

Títol: *FARRUTX, towards a township model of environmental interpretation in saturated touristic areas.*

Centre: Departament de Ciències de l'Educació. Edifici Guillem Cifre de Colonya.

Investigador responsable: SUREDA NEGRE, Jaume.

Categoria: CU (àrea de coneixement: Didàctica i Organització Escolar).

Inici: 2000. **Fi:** 2002.

Summary

This project is based on four fundamental premises:

(a) The consideration of interpretation as an instrument or strategy of management for making the conservation of the natural heritage compatible with the offer of services for visitors. With the application of interpretation programmes not only can we promote behaviour which is in harmony with the place visited, by raising the awareness of the importance of conserving it, by stimulating and persuading, but we can also promote economic and social development. Interpretation makes up one of the most effective indirect methods for controlling the impact of visitors, for redirecting the influx of tourist and for managing the natural and historic heritage.

(b) The consideration of a township as the most suitable space for the development of programmes which are directed at making economic development through tourism compatible with environmental conservation.

(c) The widely accepted consideration that educational strategies directed at solving environmental problems must intervene from the local dimension of an environmental problem, from the conservation of a territory, of a heritage asset, etc. so as, from here, to begin to introduce a broader, worldwide dimension of the environmental issue.

(d) The observation of the scarce development of interpretation in countries in the south of Europe. This situation is in contrast with the capacity that this strategy possesses as a means for the management of visitors.

This project seeks to design, perform and test an environmental programme that makes possible the definition of a model for carrying out environmental interpretation programmes in tourist resort of Mediterranean Europe. Within this framework, the main goal of the project is to offer a product -the model- based on the theory and the practice -the programme- that can become a motivating and exemplifying element in the use of interpretive and educational strategies for the protection and improvement of the environment in tourist areas.

Referència: 26778.

Programa: Information society: safer internet action plan.

Títol: *Safer internet for knowing and living.*

Acrònim: SIFKAL.

Centre: Departament de Ciències de l'Educació. Edifici Guillem Cifre de Colonya.

Investigador responsable: [SUREDA NEGRE, Jaume.](#)

Categoria: CU (àrea de coneixement: Didàctica i Organització Escolar).

Inici: 2001. **Fi:** 2003.

Socis:

Universität des Saarlandes (Alemanya)

University of East Anglia (Regne Unit)

Extreme Media Solutions (Grècia)

Gesellschaft für Medienpädagogik und Kommunikationskultur (Alemanya)

Universitat Internacional de Andalucía (Espanya)

Coordinador: Universitat de Cádiz (Espanya)

Summary

Using Internet in a safer way does not depend exclusively on the implementation of technical controls in the client or server services neither on restrictive norms in relation to contents. Safer use of the Internet means, specifically, an Internet that gives its users (who may include parents, teachers, adolescents, local authorities and librarians) a potentially powerful tool to know better our world and to live better in it. However, to achieve this, we have to build up a social and educational understanding of the Internet, establishing a culture that protects individual rights while providing freedom of intercommunication. While we have established procedures for managing knowledge in print, the speed and openness of the new media present new challenges. The central objective of the SIFKAL project is to elaborate and disseminate information and recommendations about the educational and socially relevant possibilities of the Internet using a permanent and virtual place in multilingual and in different formats in relation to four targets groups: parents, teachers, librarians and local authorities. The project will focus on actual contributions, in initiatives, and on examples of best practice using the Internet as a media for knowing and living.



DEPARTAMENT DE CIÈNCIES DE LA TERRA

- [European shore platform erosion dynamics.](#)
FORNÓS ASTÓ, Joan Josep.
- [Articulations du tourisme international et du tourisme national dans les pays des rives sud et est de la Méditerranée.](#)
SEGUÍ LLINÀS, Miquel.



Referència: MAS3-CT98-0173.

Programa: Marine and science technologies.

Títol: *European shore platform erosion dynamics.*

Acrònim: ESPED.

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

Investigador responsable: FORNÓS ASTÓ, Joan Josep.

Categoria: TU (àrea de coneixement: Estratigrafia).

Inici: 1998. **Fi:** 2001.

Socis:

Institut de Géographie. Université de Nantes (França)

Centro de Geologia. Fundação da Faculdade de Ciências da Universidade de Lisboa
(Portugal)

Department of Nature and Environment-Earth Sciences. University of Karlstad (Suècia)

Coordinador: School of Chemistry, Physics and Environmental Science. University of
Sussex
(Regne Unit)

Summary

The project aims to improve scientific knowledge and understanding of the development and downwearing of shore platforms and of the relationships between shore platform change and the rates of retreat of sea cliffs on the landward side of the platforms. Shore platforms are a major component of European rocky shore environments, but in the past there has been a dearth of hard data concerning the weathering and erosion of the platforms on which to base long-term planning strategies. The project brings together a multidisciplinary team of scientists from universities in five EU member states to employ a newly developed laser scanner and a standardised methodology. It will further understanding of the development and dynamic of shore platforms in contrasting rock types at sites representative of the full range of wave and tidal environments experienced around the shores of Europe, from the Mediterranean northwards along the Atlantic coast and into the Baltic.

Projecte: Mediterranean Programme (Robert Schumann Centre for Advanced Studies).

Títol: *Articulations du tourisme international et du tourisme national dans les pays des rives sud et est de la Méditerranée.*

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

Investigador responsable: [SEGUÍ LLINÀS, Miquel](#).

Categoria: TEU (àrea de coneixement: Anàlisi Geogràfica Regional).

Inici: 2000. **Fi:** 2002.

Socis:

Institut Universitarie Européen de Florence (Itàlia)

Coordinador: Faculté des Lettres et des Sciences Humaines de Rabat. Université

Mohamed V-Agdal

(Marroc)

Summary

The research program of the Mediterranean Programme is structured in the following way. It is characterised by one key research perspective and structured into research topics. The research perspective is that flows of persons, goods, and ideas between the Northern (Europe) and Southern Mediterranean, as well as among the Southern Mediterranean countries are fundamental in understanding the crucial dynamics in the area. The Mediterranean Programme has indicated a few research topics. In the realm of socio-political studies (alphabetical order): Business and politics, euro-mediterranean partnership, images and discourses, Islam and politics & economics, migration, political regime analysis. In the realms of political economy studies (alphabetical order): competition policy and implementation, development of financial markets-banks, the stock exchange and order financial intermediaries, private sector and corporate structures, privatization policy and practice.



DEPARTAMENT DE CIÈNCIES HISTÒRIQUES I TEORIA DE LES ARTS

- [Minority newspapers to new media.](#)
SERRA BUSQUETS, Sebastià.



Endarrere



Endavant

Referència: ECD-3316-26966.

Programa: User-friendly information society.

Títol: *Minority newspapers to new media.*

Acrònim: MNM.

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

Investigador responsable: [SERRA BUSQUETS, Sebastià](#).

Categoria: TU (àrea de coneixement: Història Contemporània).

Inici: 2001. **Fi:** 2002.

Socis:

Hora Nova, SA (Espanya)

Diari Segre, SL (Espanya)

Promozione Attivita Editoriale, SRL (Itàlia)

Vasabladet AB (Finlàndia)

Hufvudstadsbladet AB (Finlàndia)

Coordinador: Universitat de les Illes Balears (Espanya)

Summary

The project will produce a series of product and service ideas that will facilitate the development of digital content in minority languages throughout the EU, by enabling minority language media to increase their market penetration, reaching dispersed readership markets and enabling them to produce multi-language products which will increase their competitiveness across cultural and linguistic barriers and within their traditional markets. The product and service ideas will be exportable to the over forty minority language media in the EU and to other media companies. The project's objectives are:

- Research the applications of automatic syntactical translation software, for treatment of news and advertising in minority language print media.
- Assess the viability of developing WAP and 3Gweb services in the regional or minority press market to increase their market penetration and competitiveness.
- Evaluate the impact of database generated newspaper derived products in increasing the viability of minority language print media.
- Explore the technical viability of developing remote printing applications for minority media in areas of dispersed readership.
- Develop a web-based showcase to demonstrate the feasibility of the applications addressed within the project.
- Ascertain the viability of implementation and identify potential partners for follow-up actions.

The project aims bring together a series of minority language newspapers across Europe, who are generally isolated by language and market, and will analyse the possibilities of joint applications of the results of this preparatory action. It will bring these media firms into contact with commercial firms, such as software developers, ISPs and communication firms which they do not traditionally work with, and will generate longer lasting and commercially interesting relationships that would be expandable to other media outlets across Europe. The follow-up actions include wide dissemination of the results. At later stages the present Consortium members hope to expand the group and implement the results of this Preparatory action.



DEPARTAMENT DE CIÈNCIES MATEMÀTIQUES I INFORMÀTICA

- [Viscosity solutions and their applications.](#)
COLL VICENS, Bartomeu.

- [Multi-site cooperative 3D design system for architecture.](#)
LUO, Yuhua.



Referència: FMRX-CT98-0234.

Programa: Training and mobility of researchers.

Títol: *Viscosity solutions and their applications.*

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

Investigador responsable: COLL VICENS, Bartomeu.

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

Inici: 1998. **Fi:** 2003.

Socis:

Université de Tours (França)
Rheinische Friedrich-Wilhelms-Universität (Alemanya)
Foundation for Research and Technology-Hellas (Grècia)
Universita degli Studi di Milano (Itàlia)
Universita degli Studi di Padova (Itàlia)
Universita degli Studi di Roma-La Sapienza (Itàlia)
Universitat de Las Palmas de Gran Canaria (Espanya)
Kungl Tekniska Högskolan (Suècia)
Coordinador: Université de Paris IX-Dauphine (França)

Summary

This is a proposal for research on problems related to the theory of viscosity solutions and its applications. The theory of viscosity solutions is one of the most central and fastest growing areas in the field of nonlinear partial differential equations. Its scope extends from rather deep and challenging mathematical problems to the modelling and analysis of a large number of applied problems in science, engineering, atmospheric/ocean studies and economics, which include, among others, phase transitions, moving fronts, statistical mechanics, combustion, turbulent reaction-diffusions, optimal and stochastic control, mathematical finance, image processing, etc...The understanding of such applications obviously requires, in addition to theoretical results, extensive computations and efficient numerical methods, which can be derived and analysed using the theory of viscosity solutions.

The long list of applied areas and problems which can be studied using methods related to viscosity solutions, the rather difficult and challenging mathematical problems that encompasses as well as the astonishing progress already achieved, in such a relatively short (for mathematics) period, using viscosity solutions has generated an ever growing interest in Europe, US, Japan and China. An indication of the growing importance of this theory for mathematics is that, since 1981 when M. G. Crandall and P.-L. Lions introduced the concept of the viscosity solution, more than one thousand papers related to the subject have been published in mathematical journals of high quality, a rather amazing fact for mathematics. A proof of the importance and relevance of viscosity solutions for applied mathematics is the fact that they have already been used successfully to analyse a large number of questions related to the applications mentioned above. Europe is in a unique position to be at the forefront of this theory. Some of the leading groups in the world in the theory of viscosity solutions and its applications are located in Europe and all of them are participating in this project. Bringing them together increases the talent, the ability and the expertise needed to address the new problems. The resulting interaction among groups working in some aspects of the applications will definitely increase the understanding and

provide the necessary input and ability to address the even more challenging problems lying ahead of us. Besides its mathematical importance, further progress in the theory of viscosity solutions and its applications will lead to better, and, in some occasions, important, understanding in sciences like physics, chemistry, in atmospheric-ocean studies and medicine through progress in, for example, material sciences, image processing, front propagation, microphysics of clouds, in engineering and technology in general, through progress in combustion, material sciences (crystal growth, phase transitions) and image processing, and in socio-economic issues, like mathematical finance, environmental economics, the study of the environment, etc. Finally carrying out research in the theory of viscosity solutions and the activities surrounding this research will result in educating a whole new generation of young researchers, the so-called New Applied Mathematicians, who will be able to do modelling, theoretical work at the highest possible level of Mathematics and numerical computations, and will be involved in real problems.

Referència: Esprit Project 26287.

Programa: Information technologies programme.

Títol: *Multi-site cooperative 3D design system for architecture.*

Acrònim: M3D.

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

Investigadora responsable: LUO, Yuhua.

Categoria: AS. ESTR. (àrea de coneixement: Ciències de la Computació i Intel·ligència Artificial).

Inici: 1998. **Fi:** 2001.

Socis:

Associação para o Desenvolvimento das Telecomunicações e Técnicas de Informatica
(Portugal)

Grupo ARMAQ I+D (Espanya)

European Design Centre BV (Holanda)

IDOM Ingenieria y Sistemas, S.A. (Espanya)

Oficina de Arquitectura, Urbanismo, Construção e Imagens, LDA (Portugal)

Superscape LTD (Regne Unit)

Coordinador: Universitat de les Illes Balears (Espanya)

Keywords: high performance computing and networking, networked architecture design, 3D CAD, cooperative work, virtual studio, multimedia interactive communication service.

Summary

The objective of the project is to integrate the CAD technology with the VR and high performance network technology to be a prototype multi-site cooperative 3D system for architecture design. The foreseen prototype system will extend the major functions of the single user CAD architecture design tools to a networked cooperative system at multiple locations. Real time interactive cooperative design with audio/video conferencing will be realized in the systems with other off-line functions. The current target geographic area to cover is at the European scale. It can be extended in the future. For cooperative architecture design, real time cooperative design working sessions linking long distance users will be available. The project will develop all the necessary multi-site cooperative editing tool, real time distributed visualisation tool and network communication tool for this purpose. As an important element, a shared databasa containing all the architecture designs information, not only geometry, but other related information will be developed for the system. The multi-site users will be able to imput their own 3D designed components together into the system to form a global desgin, visualize them, modify the attributes of the component and the whole environment. Modifications of the design will be sent back to the related users. High volume, high speed network connection will be established for data transmission including image data, digitized audio/video signal, text, graphic primitives, control signal, etc. Euro-ISDN network will be considered first for the system, due to the wide availability and flexibility of changing the bandwidth according to the workload. It will be linked to the local ETHERNET or ATM networks. An interactive approach will be taken for the development of the project. The rich experience of the user partners in the construction industry will be most valuable for the project since the system will be most valuable for the project since the system will be developed for their use. The

user partners in the project will be actively involved in the project definition phase, project development phase and the integration phase. In general, M3D system development will be user-oriented instead of technology-push. The user partners will play a major role in the definition of the project. The users will also make simple trial in the prototype system. They will test critical elements during the development phase such as the multi-site editor, distributed visualiser, the network connection, etc. The iterative approach will be even emphasized in the third project year. The test results of the user to all the elements will be taken into account for the integration of the alpha, and beta version of the system (user feedback integration). They will have a full trial test using real like architecture project during the third project year. The foreseen prototype system will supply the necessary turnkey technology for a significant change of the traditional architecture design process in Europe. The project will demonstrate how the cooperative networked integrated system of architecture can provide much higher accuracy, efficiency, and flexibility in the architecture design process. It will also show the potential of the new market in Europe for architects in each country to work in international consortiums within architectural projects. The result of the project will facilitate the application of the HCPN in this high potential, cata extensive industry sector. It will contribute to strengthen the competitiveness of the european architecture design sector. The consortium will pay special effort for the exploitation of the project result. To make the industry aware of the new system and collect the feedback from the industry during the project time, dissemination activities such as workshops and demonstrations will be organized. The organization work for exploitation of the project result will be implemented at two different levels: within the consortium and outside the consortium. A product will be defined from the project and commercialization of the product will be strongly welcome.



DEPARTAMENT DE DRET PRIVAT

- [Electronic commerce legal issues platform.](#)
CAVANILLAS MÚGICA, Santiago.
- [Information network for business & employment creation.](#)
CAVANILLAS MÚGICA, Santiago.
- [Study and implementation of an extra-judicial body for the settlement of consumer disputes in the field of electronic commerce.](#)
CAVANILLAS MÚGICA, Santiago.
- [Study on the implementation of Recommendation 97/489/EC concerning transactions carried out by electronic payment instruments and in particular the relationship between issuer and holder.](#)
MARTÍNEZ NADAL, Apol·lònia.



Endarrere



Endavant

Referència: IST-1999-12278.

Programa: User-friendly information society.

Títol: *Electronic commerce legal issues platform.*

Acrònim: E-CLIP II.

Centre: Departament de Dret Privat. Edifici Anselm Turmeda.

Investigador responsable: CAVANILLAS MÚGICA, Santiago.

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

Inici: 2000. **Fi:** 2001.

Socis:

Bureau Van Dijk Ingénieurs Conseils en Gestion (BvD) (Bèlgica)

Facultés Universitaires Notre-Dame de la Paix (CRID) (Bèlgica)

Queen Mary and Westfield College (QMW) (Regne Unit)

University of Oslo (NRCCL) (Noruega)

Coordinador: Westfaelische Wilhems-Universitaet (ITM) (Alemanya)

Summary

Policy questions are considered as some of the most important barriers vis-à-vis the development of electronic commerce for different reasons. At the same time, regulatory and self-regulatory solutions are a key element to enhance trust in e-commerce both in business-to-business transactions and in business-to-consumer ones. Nevertheless, the recent European Commission Proposal for a Directive on certain legal aspects of electronic commerce in the internal market has clearly underlined the significance of legal costs for operators wishing to develop on-line activities. According to the survey undertaken by DGXV, 36 % of respondents did not consider the legal situation of their product or services. A third thereof could not afford to undertake an evaluation of the regulatory framework, such an analysis being considered as too expensive. The estimated costs given by those operators having carried out such an evaluation, are very high. Therefore, a great number of SMEs, not capable of affording such costs, could be discouraged from exploiting new possibilities offered by the information society, or could run into illegal practices, etc.

ECLIP II Project seeks to fill this gap by analysing the delicate above-mentioned new questions, and by assisting all the interested actors on that basis. Therefore, the main objectives of ECLIP II are :

1. increase awareness of the regulatory framework in which e-commerce is developing and of the legal, extra-legal (such as self-regulation, alternative dispute resolution, labelling of web sites, ...), and technological (such as Privacy-Enhancing Technologies, PICS, Electronic Copyright Management Systems, watermarking, electronic signature, etc...) solutions to policy issues.

2. provide education and information on the regulatory framework of electronic commerce.

3. set up an distance teaching program on the legal issues of e-commerce.

4. help RTD projects, funded by the 5th Framework Program, to address and integrate early on ethical and legal concerns in the design and development of their e-commerce project.

5. build practical tools and guidelines to help consideration of legal constraints.

6. initiate, carry out and stimulate new study on the policy issues of e-commerce, namely by integrating in the reflection extra-legal approach, such as self-regulatory mechanisms or best practice, and technological resources and solutions.

7. support and stimulate EC policy in the field of e-commerce, namely by highlighting the need for legislation or discrepancies and inconsistencies in the existing Member States or European regulatory framework.

Referència: PUB1222-INFOBUSINESS 26443.

Programa: Info2000.

Títol: *Information network for business & employment creation.*

Acrònim: INFOBusiness.

Centre: Departament de Dret Privat. Edifici Anselm Turmeda.

Investigador responsable: CAVANILLAS MÚGICA, Santiago.

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

Inici: 2000. **Fi:** 2001.

Socis:

BITEL, Balears Innovació Telemàtica, SA (Espanya)

Organismo Autónomo Informática y Comunicaciones de la Comunidad de Madrid (ICM)
(Espanya)

STE Consulting, SA, Grupo Altran (STE) (Espanya)

The National Microelectronics Applications Centre Limited (MAC) (Irlanda)

Wirtschaftsförderungsgesellschaft für Das Land Sachsen-Anhalt MBH (Wisa) (Alemanya)

Teleport Sachsen Anahalt GMBH (TSA) (Alemanya)

Shannon Free Airport Development Company Limited (SHANNON) (Irlanda)

Fábrica Nacional de Moneda y Timbre (FNMT) (Espanya)

Coordinador: Govern de les Illes Balears-Fundació IBIT (Espanya)

Summary

Public Administration organization and proceedings have to be transparent for the citizens. Public administrations should being seen as a set of separate entities, without any sort of relationship among them, geographically scattered and with different opening hours to the public. On the contrary, the concert, the concept of "one stop shopping" will imply a better accessibility and a quick answer by Public Administrations. With the introduction of the new technologies, the service quality will be significantly improved and thus enhancing the image that society has of the public sector in general. Public Administration on line will allow citizens to break with the geographic and demographic barriers and the lack of proper information thereby boosting the interaction with citizens. Obviously, one of the issues that European Public Administrations need to improve is their efficiency and effectiveness in order to increase the standard of living of the present residents, to improve business conditions and to facilitate companies creation. Public Administrations cannot follow traditional lines; they have to firmly commit themselves for the integration of new technologies as an instrument for promoting development. Within economic and social policy of the European Union and its Member States, employment creation is on the top of the agenda of all governments. One of the most succesful ways to support employment creation are to promote competitive companies, in particular SMEs, and the setting up of new ones. Even if national and regional governments make great efforts to attract new businesses the reality demonstrates that there are a great number of barriers and impediments to create new business.

One of these barriers is the infinity of bureaucratic procedures that have to be fulfilled in different Public Administration (national, regional and local) until arriving to constitute formally a company. To request a presentation, a subsidy or a license to constitute a company is often a long process. Citizens who wish to set up their own company are victims of the lack of information, a heavy administrative burden, etc. These problems are

even more important and difficult to overcome if a European citizen wants to establish his company outside of the region or country of origin. Different legislative documents in different languages, the lack of knowledge regarding procedures to follow or which administration to attend, poses a real obstacle in time and money for SMEs.

It is evident that the European Public Administrations need to improve their efficiency to increase the standard of living of the residents, to improve economic conditions, and to facilitate the business creation. European Public Administrations can not continue to follow traditional approaches and procedures, they need to encourage and foster the transfer of know-how and the integration of the new technologies as instrument to promote regional development. The INFOBusiness project (Information Network for Business and Employment Creation) aims at reducing administrative barriers and support citizens in the process of creation a new business. This will be achieved by a greater transparency on the steps required to set up a new business and the electronic procurement of the documentation. The consortium set up a Site and a database, containing the necessary documents from different parts of the administration and provide easy to understand guidance to entrepreneurs on how to overcome the administrative barriers.

INFOBusiness objectives are:

- To facilitate administrative procedures in the business creation
- To help to overcome administrative barriers
- To collaborate with entrepreneurial organizations
- To review administrative procedures for setting up new business
- To collaborate with public and private employment agencies to provide required staff
- To create a link to the transnational employment seeker database EURES

These objectives will be achieved through:

- Changes in the procedures
- Public Administrations focus on client
- Improvement of the communication among and within Administrations
- Continuously improved business environment

The bottom line of INFOBusiness will be:

- To develop a pilot system that brings to administrations in the area of business and employment creation closer to the public and to prove its validity of this system and its applicability by any European Administration
- To establish a European multilingual information network for business and employment creation on the Internet integrates know-how and documentation of several Public Administration of three different countries (Spain, Ireland and Germany)

The strategical importance of this project for the Administrations and entities involved guarantees its continuity, as thanks to INFOBusiness, the wealth and employment level in the regions will increase. Moreover, due to the INFOBusiness partners, it will be easier to draw the attention from other European administrations for their possible integration into the system in future phases.

Referència: 2000/9102 ECODIR.

Títol: *Study and implementation of an extra-judicial body for the settlement of consumer disputes in the field of electronic commerce.*

Centre: Departament de Dret Privat. Edifici Anselm Turmeda.

Investigador responsable: CAVANILLAS MÚGICA, Santiago.

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

Inici: 2000. **Fi:** 2001.

Socis:

Coordinador: Centre de Recherches Informatiques et Droit (CRID) (França)

Summary

The action of the European Commission concerning *extra-judicial body for the settlement of consumer disputes in the field of electronic commerce* is aimed at enforcing European consumers rights in the context of the Internet. The aim of the ECODIR project is to set up a prototype devoted to the electronic resolution of consumer disputes arising on the Internet. The prototype created will allow all steps of the resolution process to be electronic.

To reach this objective, the ECODIR project has a double advantage:

- First, the ECODIR project has constituted a Consortium of experienced partners, including European Universities as well as American partners specialised in the resolution of disputes on the Internet. Those American partners are the CRDP (Centre de Recherche en Droit Public) of the University of Montreal, who has set up the CyberTribunal (<http://www.cybertribunal.org/>); and Professor Ethan Katsh from the University of Massachusetts who has created the Online Ombuds Office (<http://www.ombuds.org>).

- Second, the approach of the Consortium is multi-disciplinary: it takes into account the European specificity on a cultural, social, organisational, economical, institutional and legal basis.

The participation in the Consortium of this Canadian partner brings the following advantages:

- It allows the ECODIR project to benefit from the Canadian prototype and to implement it in Europe;

- It enables the ECODIR to provide European consumers, as soon as the project begins, with the possibility to submit their disputes to the Canadian body, having the disputes treated by a European secretariat;

- It allows the project to take an international dimension due to the participation of the Canadian partner, ensuring consumers to enforce their rights granted by national and European legislation.

It is important to mention that the CyberTribunal already takes into account the principles set up in the European Commission Recommendation on the principles applicable to the bodies responsible for out-of-court settlement of consumer disputes (refer to <http://www.cybertribunal.org/english/html/principles.htm>). One important fact about the practice of the CyberTribunal, 90% had a European dimension (i.e. at least one of the party was European). The ECODIR project plans to implement a European prototype approximately at the half of the project (i.e. beginning of 2001). This implementation at the half of the project is aimed at ensuring a monitoring by the partners of the project in order to improve the prototype until the end of the project. Finally, the ECODIR project should deliver an operational prototype consumers could refer to when a dispute arises on the Internet.

Referència: 97/489/EC.

Títol: *Study on the implementation of Recommendation 97/489/EC concerning transactions carried out by electronic payment instruments and in particular the relationship between issuer and holder.*

Centre: Departament de Dret Privat. Edifici Anselm Turmeda.

Investigadora responsable: MARTÍNEZ NADAL, Apol·lònia.

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

Inici: 2000. **Fi:** 2001.

Socis:

Coordinadors: Centre de Recherches Informatiques et Droit (CRID) (França)
Queen Mary & Westfield College Univesity of London (Regne Unit)

Summary

The 30th July 1997, the European Commission issued a Recommendation concerning transactions carried out by electronic payment instruments and in particular the relationship between issuer and holder. The Commission has taken the engagement to monitor the implementation of the Recommendation and to propose appropriate binding legislation be the implementation unsatisfactory. In this context, the aims of this study is providing the European Commission with a scientific analysis of the way the Recommendation is implemented in the 15 Member States of the European Union, to enable the Commission to decide whether a binding legislation in the field of electronic payments is needed or not.

The study considers the use of new means of payment that allow both transfers of funds and cash withdrawals by means of an electronic payment instrument. It considers the relationship between the issuer of electronic payment instruments (EPIs) on the one hand, and the holder of an EPI on the other hand. For the purpose of the study, the following instruments are analysed: payment cards (whether credit cards, debit cards, deferred cards or charge cards); phone banking, home banking and Internet banking applications; and reloable payment instruments on which value units are stored electronically (such as tokens stored on a computer's memory, chip cards or smart cards).

In order to reach the goal of the study, the work is divided in: Legal steps taken in the Member States to implement the Recommendation; Contract analysis; Contact with consumer panels; Anonymous on-the-spot surveys; and finally statistical analysis.



DEPARTAMENT DE FÍSICA

- Theoretical foundations of sources for gravitational wave astronomy of the next century: synergy between supercomputer simulations and approximation techniques.
BONA GARCIA, Carles.
- Autonomous inspection of subsea telecommunication cables, power cables and pipelines.
CALVO IBÁÑEZ, Óscar A.
- Laboratory for distance-learning based on internet technology.
GARCIA MORENO, Eugeni.
- Optical chaos communications using laser-diodes transmitters.
MIRASSO SANTOS, Claudio Rubén.
- Quantum structures (QSTRUCT).
SAN MIGUEL RUIBAL, Maximino.



Referència: HPRN-CT-2000-00137.

Programa: Improving human research potential and the socio-economic knowledge base.

Títol: *Theoretical foundations of sources for gravitational wave astronomy of the next century: synergy between supercomputer simulations and approximation techniques.*

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

Investigador responsable: BONA GARCIA, Carles.

Categoria: CU (àrea de coneixement: Física Teòrica).

Inici: 2000. **Fi:** 2003.

Socis:

Friedrich Schiller Universität Jena (Alemanya)
Observatoire de Paris. Section de Meudon (França)
Universitat de València. Estudi General (Espanya)
Aristotle University of Thessaloniki. Department of Physics (Grècia)
Universita di Roma 'La Sapienza'. Dipartimento di Fisica (Itàlia)
Scuola Internazionale Superiore di Studi Avanzati (Itàlia)
University of Southampton (Regne Unit)
University of Portsmouth (Regne Unit)

Coordinador: Max Planck Institut für Gravitationsphysik. Albert Einstein Institut
(Alemanya)

Summary

There are five major objectives that will be achieved through this Network, important for GWA, that will not be possible without it. In summary they are: (1) The formation of a close alliance among the different expert groups to solve urgent problems required for GWA, too large and complex for any single group to tackle. Such a Network is needed, but does not exist at present. (2) The development and training of a young community of researchers to populate this emerging research area of GWA. Although there are strong, isolated European groups working in relevant research areas, there is no coordinated effort to build up the broad-based expertise required for a systematic attack on these problems. (3) The development of a community simulation code for relativistic astrophysics: Cactus. Simulation tools are essential for the success of this research area. As described below, the development and use of Cactus will be an important part of the training program for this Network. (4) The development of appropriate approximation tools, such as perturbation and post-Newtonian theory, to provide better physical understanding and conformation of numerical simulations. Without such schemes, simulations may provide little insight into the actual physics, and may be completely misinterpreted. Further, semi-analytic results may be used to confirm and validate numerical simulations in appropriate regimes. (5) The application of these tools to a set of core astrophysics problems, considered among the most urgent for the detection and interpretation of the first signals seen in the GEO and VIRGO detectors, and also seen as excellent focus problems for the development and training of the community and its research tools. These problems include GW signals from NSs and BHs.

Referència: G3RD-CT-2000-00265.

Programa: Competitive and sustainable growth.

Títol: *Autonomous inspection of subsea telecommunication cables, power cables and pipelines.*

Acrònim: AUTOTRACKER.

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

Investigador responsable: CALVO IBÁÑEZ, Óscar A.

Categoria: VISITANT (àrea de coneixement: Tecnologia Electrònica).

Inici: 2001. **Fi:** 2004.

Socis:

Heriot-Watt University (Regne Unit)
Innovatum International Ltd (Regne Unit)
SEAS Distribution AmbA (Dinamarca)
BP Exploration Operating Company Ltd (Regne Unit)
Alcatel Submarine Network AS (Dinamarca)
Coordinador: Maridan AS (Dinamarca)

Summary

The need for fast communication (telecom and internet) and transport of energy (power, oil and gas) has resulted in an increasing amount of subsea installations (cables and pipelines). To maintain the installations in safe and reliable condition preventive maintenance inspections are needed. The subsea network is greatly developed in certain geographic areas including the European seas (Baltic, North Sea, Atlantic Ocean and Mediterranean Sea), Gulf of Mexico and East Chinese Sea. Several parts of these areas are located at deep water (500-3500 m). Current inspection technology deploys shipboard monitoring sensors either from a free-flying surface towed platform (ROTV), which significantly degrades in quality, or from an ROV which is expensive. ROV operations require a DP survey vessel with some 40-man crew (DP stand for dynamic positioning, which is required for ROV operations). Shipboard inspection technology is not economically effective in water depths greater than 500 m and with oil exploration and development activity now moving into even deeper areas an alternative approach is required. The AUTOTRACKER project will provide a new autonomous platform (the AUTOTRACKER vehicle) for subsea inspections. The new platform can be deployed from any "ship of opportunity" and it can replace current inspection platforms in a much cheaper and safer way. The new platform is not physically connected by cables to the surface, such as ROVs and ROTVs. The sensors used today on ROVs and ROTVs can be used on the new platform giving improved data, and at reduced cost because the need for an expensive DP survey vessel is eliminated. Potential savings are dramatic: a reduction of inspection costs with a factor 10 or more! Typical cost of 20 days ROV inspection in the North Sea is approx. 1 million EURO. Typical cost of 20 days ROV inspection in the North Sea is approx. 1 million EURO. The SMEs in the consortium want to exploit the results of the project on the 1-2 billion EURO world market for subsea inspections. The project contributes to the following EU politics: employment, working conditions, environment, internatl market and standardisation (see section 4 and 5).

The AUTOTRACKER proposal responds to the Growth 2000 call by addressing the following priorities: 3.2.3 Innovative technologies for the monitoring, exploration and

sustainable exploitation of the sea and Generic activity 2: Measurements and testing, 6.1 Instrumentation.

Cost efficient Autonomous Underwater Vehicles (AUVs) are today available for seabed imaging and mapping, route surveys prior to installation of pipelines and cables, but they are not yet able to perform inspection of the subsea installations during and after the installations. The main limitation is the lack of reliable pipeline and cable tracking systems and obstacle avoidance systems to allow the AUVs to follow pipelines and cables while flying close to the seabed in an effective and safe manner.

Referència: AML/B7-311-97/0666/11-0077-A.

Programa: Latin America social development.

Títol: *Laboratory for distance-learning based on internet technology.*

Acrònim: LABDILEIT.

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

Investigador responsable: GARCIA MORENO, Eugeni.

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

Inici: 2001. **Fi:** 2003.

Socis:

Technische Universität Ilmenau (TUI). Fachgebiet Festkör Perelectronik (Alemanya)

Institute National des Sciences Appliquées (INSA). Toulouse (França)

UniK, Center for Technology. Kjeller (Noruega)

Universitat Simón Bolívar (USB) (Veneçuela)

Instituto Nacional de Astrofísica, Óptica y Electrónica (INAOE) (Mèxic)

Centro de Investigación y de Estudios Avanzados (CINVESTAV) (Mèxic)

Universidade Estadual de Campinas (UNICAMP) (Brasil)

Coordinador: Universitat de les Illes Balears (Espanya)

Summary

The objective of this proposal is to establish user-friendly and efficient technology for interactive, on-line operation of remote education laboratory experiments, utilizing the Internet and the Web. Through collaboration between several universities, this technology will permit lab courses within many disciplines of engineering and science to be offered to regular and continuing education students locally and remotely. The concept is of particular interest for countries with sparsely populated regions and with large distances between major educational centers. Also, the remote lab can be offered to local colleges that can benefit from this technology to augment their engineering and science curriculum. To demonstrate the feasibility of this concept each participating institution agrees to implement a remote lab site, and to create one experimental lab module. Because of the participants background, such lab modules will be devoted the characterization of electronic devices and circuits. In order to carry out the lab modules, the proposal also includes the fabrication of one Application Specific Integrated Circuit, ASIC. The ASIC will be formed by different test circuits, each one designed by one partner. El lab module to be developed by each partner will be based on the characterisation through Internet of the circuit that he has designed.

Referència: IST-2000-29683.

Programa: User-friendly information society.

Títol: *Optical chaos communications using laser-diodes transmitters.*

Acrònim: OCCULT.

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

Investigador responsable: MIRASSO SANTOS, Claudio Rubén.

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

Inici: 2001. **Fi:** 2004.

Socis:

University of Wales (Regne Unit)
Centre National de la Recherche Scientifique (França)
Technische Universitaet Darmstadt (Alemanya)
National and Kapodistrian University of Athens (Grècia)
Università degli Studi di Pavia (Itàlia)
Opto Speed SA (Suïssa)
Consell Superior d'Investigacions Científiques (Espanya)
Coordinador: Universitat de les Illes Balears (Espanya)

Summary

The general objective of the proposal is the experimental demonstration of an emitter/receiver chaotic optical system capable to transmit encoded information through optical fibres. Our proposal is directed at improving the privacy in the transmission of secure data in the context of the increasing volumes of data that fibre-based optical networks carry. We concentrate on relatively high bit rate fibre-optic communication systems utilising semiconductor diode lasers as the optical sources. Our approach exploits the properties of the dynamically chaotic emitter and receiver systems that, under specific conditions are able to synchronise, and therefore allow for the encryption and decryption of messages at a device level. Our technique is complementary and fully compatible with other existing methods for encoding information.

Referència: ERB FMRX-CT96-0077.

Títol: [Quantum structures \(QSTRUCT\)](#).

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

Investigador principal: [SAN MIGUEL RUIBAL, Maximino](#).

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

Inici: 1996. Fi: 2001.

Socis:

Universität Innsbruck (Àustria)
Université Pierre et Marie Curie (França)
Ecole Normale Supérieure (França)
Istituto Nazionale per la Fisica della Materia (Itàlia)
Max-Planck-Institut für Quantenoptik (Alemanya)
Coordinador: University of Strathclyde (Regne Unit)

Summary

The development of increasingly sophisticated lasers, nonlinear optical materials, detectors and traps has made possible the observation of an impressive range of nonlinear and quantum optical effects. Among these are the self-organisation of the light produced by nonlinear optical systems, the production of intrinsically quantum states of light and the trapping and cooling of small numbers of atoms or ions. The principal objective of this network is to bring together expertise in nonlinear optical patterns, atom and ion trapping and cooling, and the quantum properties of light in order to carry out a comprehensive study of the quantum features associated with self-organising systems. To date, almost all of the work on such systems has been limited to the classical regime, but our experience with quantum effects leads us to believe that we can extend these studies into the fully quantum regime of operation. Indeed, the teams forming our proposed network are uniquely qualified to undertake this study. Such an extension is important and novel for two reasons: Firstly, this is a new regime of optical physics at the interface between nonlinear dynamics and quantum physics and it provides scope for new and rich behaviors such as those predicted in studies of quantum chaos. Secondly, as optical devices get smaller we can expect quantum effects become of increasing significance in their operation, with the most interesting behavior arising from the interplay between nonlinearity and quantum effects. Although there is a strong interdependence between the underlying tasks of these two research topics, it is natural to divide our programme into two main objectives:

- Quantum effects in optical patterns (quantum images). To carry out an experimental, computational and theoretical study of quantum properties associated with spatio-temporal patterns produced in optical parametric oscillators (OPO), intracavity second harmonic generation (ISHG) and Kerr media.
- Preparation and study of ordered arrays of ions and atoms. To carry out an experimental, computational and theoretical study of the quantum properties associated with ordered arrays of trapped atoms and ions.



DEPARTAMENT DE QUÍMICA

- Development of an automatic analyser coupled with an integrated photocatalytic reactor for the determination of free and complexed heavy metals in water.

CERDÀ MARTIN, Víctor.



Endarrere



Endavant

Referència: HPMF-CT-2000-01057.

Programa: Improving human research potential and the socio-economic knowledge base.

Títol: *Development of an automatic analyser coupled with an integrated photocatalytic reactor for the determination of free and complexed heavy metals in water.*

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

Investigador responsable: CERDÀ MARTIN, Víctor.

Categoria: CU (àrea de coneixement: Química Analítica).

Inici: 2001. **Fi:** 2003.

Socis:

Coordinador: Universitat de les Illes Balears (Espanya)

Our proposal is to design and set-up an in-situ apparatus for sampling and monitoring of waters by on-line and simultaneous measurements of several metals in water bodies. The device will be able to early survey trace metallic pollution. To built up the apparatus for the automated fluorimetric analysis of metals in water, the project foresees primarily the optimisation of a photo-oxidation device. In fact, one main requirement for the development of a metal analyser based on following complexation of the relevant analytes, is that metals occur in sample in a non-complexed form. Metals in natural or industrial water are bound to organic compounds like fulvic and humic acids, or even incorporated in organo-metallic compounds with covalent bonds. In order to achieve a quantitative availability of the relevant metals, these compounds have to be destroyed, or at least have to be released from the complexes.

A suitable method to reach this purpose is the catalysed oxidation with ultraviolet (UV) light, using TiO₂ as catalyst. After the set-up of the photo-oxidation reactor and of the separation and complexing device, the most innovative aspect is the development of a prototype for automatic fluorescence analysis. This prototype will allow to automate all the above steps and will apply traditional techniques, as well as new ones like flow and sequential analysis (FIA, SIA) and multi-syringe flow analysis (MSFA). Actually, this training represents a great opportunity for the applicant to apply his academic/practical experience in a finalised research project and to enlarge its scientific skills in applied environmental catalysis. Furthermore, by entering more in deep into such new analytical technologies, based on flow and sequential injection analysis, the fellowship gives to the applicant the possibility to acquire further (and not common) skills on in-situ environmental analysis. At the same time, he will improve his consciousness and understanding about European Community policies in Environment related matter and measures to be taken against air and water pollution. This will give him a rare and precious degree of expertise in this important and complex scientific/social domain. The research host group has a nice experience in the development of automatic analytical methods, but needs someone with good experience in the set-up, development and optimising of the photo-reactor.



INSTITUT MEDITERRANI D'ESTUDIS AVANÇATS (IMEDEA)

- Otolit microchemistry as a means of identifying stocks of deep-water demersal fish

MORALES NIN, Beatriz.

- Effects of anthropic seawater on rocky shore ecosystems studied in large littoral mesocosm

DUARTE QUESADA, Carlos.

- Prediction of the resilience and recovery of disturbed coastal communities in the tropics.

DUARTE QUESADA, Carlos

- Implementation and networking of large-scale long-term marine biodiversity research in Europe.

DUARTE QUESADA, Carlos.

- Nutrients cycling and the trophic status of coastal ecosystems

DUARTE QUESADA, Carlos.

- Monitoring and managing of european seagrass beds.

DUARTE QUESADA, Carlos

- Energy, environment and sustainable development.

TINTORÉ SUBIRANA, Joaquim.

- New strategy of monitoring and management of HABs in the mediterranean sea

TINTORÉ SUBIRANA, Joaquim.

- VCSELs for information society technology applications

SAN MIGUEL RUIBAL, Maximino

- Quantum images.

SAN MIGUEL RUIBAL, Maximino

- Modeling and testing of vertical cavity surface emitting laser arrays.

SAN MIGUEL RUIBAL, Maximino



Endarrere



Endavant



- Effects of nutrient release from Mediterranean fish farms on benthic vegetation in coastal ecosystems.

DUARTE QUESADA, Carlos.

- Exotic plant invasions: deleterious effects on mediterranean island ecosystems.

TRAVESET VILAGINES, Anna.

- Effects of changes in fishery discarding rates on seabird communities.

ORO DE RIVAS, Daniel.

- RA-2 Tide Gauges and Buoy Deployment.

GOMIS BOSCH, Damià.

- Processing of information by arrays of non-linear optical solitons.

BALLE MONJO, Salvador.



Referència: FAIR-CT98-4365.

Programa: Agriculture and fisheries programme.

Títol: *Otolith microchemistry as a means of identifying stocks of deep-water demersal fish.*

Acrònim: OTOMIC.

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

Investigadora responsable: [MORALES NIN, Beatriz](#).

Categoria: Investigador científic CSIC.

Inici: 1999. **Fi:** 2001.

Socis:

University of Liverpool. Port Erin Marine Laboratory (Regne Unit)

Coordinador: Scottish Association for Marine Science (Regne Unit)

Summary

The objective of this proposal is therefore to investigate the elemental composition of the otoliths of deep-water fish species using the latest ICP-MS techniques.

Referència: MAS3-CT97-0153.

Programa: Marine and science technologies.

Títol: *Effects of entrophicated seawater on rocky shore ecosystems studied in large littoral mesocosm.*

Acrònim: EULIT.

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

Investigador responsable: DUARTE QUESADA, Carlos.

Categoria: Professor d'investigació del CSIC.

Inici: 1998. **Fi:** 2001.

Socis:

Roskilde Universitet Center (Dinamarca)

Aabo Akademi University (Finlàndia)

Stockholms Universitet (Suècia)

Chistian-Albrechts Universität Kiel (Alemanya)

Norsk Hydro AS (Noruega)

Coordinador: Norwegian Institute for Water Research (Noruega)

Summary

Objectives:

The overall objectives are to predict the response of rocky ecosystems to increased nutrient availability by

- 1) modelling the changes in ecosystem processes
- 2) evaluating the increased production of herbivores
- 3) assessing effects on growth responses of key organisms
- 4) predicting the resulting ecosystem structure and metabolism.

In doing so, EULIT would allow the formulation of tolerable nutrient inputs to coastal waters, and to evaluate the capacity for increased production of animal protein as a side benefit of the buffering effect exerted by herbivores.

Referència: IC18-CT98-0292.

Títol: *Prediction of the resilience and recovery of disturbed coastal communities in the tropics.*

Acrònim: PREDICT.

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

Investigador responsable: DUARTE QUESADA, Carlos.

Categoria: Professor d'investigació del CSIC.

Inici: 1998. **Fi:** 2002.

Socis:

Hanoi National Pedagogic University (Vietnam)

Instituto do Mar (Portugal)

University Wales (Regne Unit)

Kobenhvns Universitet (Dinamarca)

Internat.Instit. for Infrastrustural ,Hydraulic and Envir. Engineering (Holanda)

University of the Philippines (Filipines)

Coordinador: Institut Mediterrani d'Estudis Avançats (IMEDEA)

Summary

The objective is to contribute to the sustainability of SE Asian coastal ecosystems through the development of models predicting the resilience of SE Asian seagrass and mangrove ecosystems against human pressure. These models, simple enough as to be readily embedded in current frameworks for integrated coastal management, will assist decisions by coastal managers and policy makers.

Referència: EVR1-CT2000-20002.

Programa: Energy, environment and sustainable development.

Títol: *Implementation and networking of large-scale long-term marine biodiversity research in Europe.*

Acrònim: BIOMARE.

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

Investigador responsable: DUARTE QUESADA, Carlos.

Categoria: Professor d'investigació del CSIC.

Inici: 2000. **Fi:** 2002.

Socis:

National Environment Research Council
Centre National de la Recherche Scientifique
Ecological Consultancy Services Ltd
Instituto do Mar
Akvaplan-niva AS
Institute of Marine Biology of Crete
Institute of Oceanology-Polish Academy of Sciences
Alfred Wegener Institut für Polar und Meeresforschung
Stazione Zoologica Anton Dohrn
University of Ljubljana
Université de la Méditerranée Aix-Marseille II
Israel Oceanographic & Limnological Research Ltd
Middle-East Technical University
Universiteit Gent
Centre for Environmental Research into Coastal Issues
ABO Akademi University
Helsinki University of Technology
Klaipėdos Universitetas
Université de Nantes
Université Pierre et Marie Curie-Paris VI
Coordinador: Nederlands Instituut voor Oecologisch Onderzoek

Summary

The objectives of the concerted action are to achieve a European consensus on the selection and implementation of:

1) a network of reference sites as the basis for long-term and large-scale marine biodiversity research in Europe.

2) internationally agreed standardised and normalised measures and indicators for (the degree of) biodiversity.

3) facilities for capacity building, dissemination and networking of marine biodiversity research, by a) workshops, b) improving training and mobility, c) an internet web-site including an overview of ongoing research programs and existing infrastructure for marine biodiversity research in Europe, d) a database on, reviewed and evaluated, available data, aiming at employing data for socio-economic questions such as the impact of fisheries or tourism.

Referència: EVK3-CT2000-00040.

Programa: Energy, environment and sustainable development.

Títol: *Nutrients cycling and the trophic status of coastal ecosystems.*

Acrònim: EUROTROPH.

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

Investigador responsable: DUARTE QUESADA, Carlos.

Categoria: Professor d'investigació del CSIC.

Inici: 2001. **Fi:** 2004.

Socis:

Université Libre de Bruxelles (Bèlgica)
Netherlands Institute of Ecology (Holanda)
Centre National de la Recherche Scientifique (França)
Université Pierre et Marie Curie-Paris VI (França)
Aalborg Universitet (Dinamarca)
University of Hull (Regne Unit)
Coordinador: Université de Liège (Bèlgica)

Summary

EUROTROPH aims to apprehend the functioning of carbon and nutrients storage in coastal ecosystems. The objectives of the projects are: 1- to determine the trophic status of four European coastal sites using different approaches, 2- to breakdown the effects of the various nutrients and organic matter species on the trophic level, 3- to develop biogeochemical and socio-economic models in order to forecast changes and provide management tools, 4- to converse the data into information for wider use and disseminate the results at appropriate levels (end-users), 5- to provide advises for a better control for coastal areas (monitoring procedures, regulation adapted to the trophic status, cost-effective management of nutrients and their disposal).

Referència: EVK3-CT2000-00044.

Programa: Energy, environment and sustainable development.

Títol: *Monitoring and managing of european seagrass beds.*

Acrònim: M&MS.

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

Investigador responsable: DUARTE QUESADA, Carlos.

Categoria: Professor d'investigació del CSIC.

Inici: 2001. **Fi:** 2004.

Socis:

University of Wales-Bangor (Regne Unit)
Universidade do Algarve (Portugal)
Danmarks Milj(unders(gelse (Dinamarca)
Instituto da Conservação da Natureza (Portugal)
Direcció General de Pesca del Govern Balear (Espanya)
Coordinador: K(benhavns Universitet (Dinamarca)

Summary

The objective of the M&MS project is to define the habitat requirements of European seagrass ecosystems, the present threats to their sustainability, and their resilience to disturbance in order to strengthen our forecast capacity and formulate cost-effective monitoring plans and management strategies. The objective will pursue the specific objectives: (1) to determine if isotopic composition of C, N and S in seagrasses reflects human disturbance, (2) to compile and analyse data on relationships between water column conditions and performance of different seagrass species, (3) to determine the interaction between seagrass performance and sediment conditions, (4) to determine the role of sexual reproduction and genetic diversity on recovery of European seagrass beds, (5) to investigate the dynamics of spatial occupation of seagrasses, its importance for recovery of seagrass beds and their role in coastal protection, and (6) to integrate existing and acquired knowledge into recommendations for monitoring and sustainable management of European seagrass beds.

Referència: EVK3-CT2000-00028.

Programa: [Energy, environment and sustainable development](#).

Títol: *Satellite-based ocean forecasting.*

Acrònim: SOFT.

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

Investigador responsable: [TINTORÉ SUBIRANA, Joaquim](#).

Categoria: Professor d'investigació del CSIC.

Inici: 2001. **Fi:** 2003.

Socis:

Université de Liège (Bèlgica)

Natural Environment Research Council (Regne Unit)

Safege Cetiis, SA (França)

Saclant Undersea Research Center (Itàlia)

Coordinador: Consell Superior d'Investigacions Científiques (Espanya)

Summary

One of the actual challenges in operational oceanography is the prediction of ocean variability. Techniques useful to estimate the near future states of the ocean provide enormous benefits on human activities related to the sea. For such reason, efforts are carried out to get reliable and manageable ocean forecasting systems. Numerical ocean models are by far the most used tools for ocean prediction. This methodology requires the derivation of the dynamical laws controlling the ocean processes as well as the detailed knowledge of the initial conditions, ocean forcings, and monitoring of the space-time ocean variability for their validation. The objectives of SOFT are:

1. To develop an operative, reliable and manageable ocean forecasting system based on satellite imagery.
2. The integration of the above system into numerical ocean models in order to improve their numerical forecasts.

Projecte núm: EVK3-CT-2001-00046.

Programa: Energy, environment and sustainable development.

Títol: *New strategy of monitoring and management of HABs in the mediterranean sea.*

Acrònim: STRATEGY.

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

Investigador responsable: TINTORE SUBIRANA, Joaquim.

Categoría: Professor d'investigació CSIC.

Inici: 2001. **Fi:** 2004.

Socis:

FOA Ambiental, SL (Espanya)
Università degli Studi di Urbino (UURB.CBA) (Itàlia)
Instituto Español de Oceanografía (IEO) (Espanya)
National Centre for Marine Research (NCMRG.IO) (Grècia)
Consiglio Nazionale delle Ricerche (CNR.IST) (Itàlia)
Coordinador: Instituto de Ciencias del Mar CSIC (Espanya)

Keywords: HAB Monitoring Coastal management Mediterranean.

Summary

In the last decades there has been a clear trend towards the exploitation of the coastline for recreational purposes causing a significant increase of confined areas. STRATEGY main goal is to provide the keys for tackling one of the main risks of coastal regions on a world scale, and specifically along the Mediterranean coastline: the increased frequency of Harmful Algal Bloom (HAB) as the possible consequence of anthropogenic activities. In particular, STRATEGY aims at elucidating the importance of confined areas created or modified by human activity in HAB events. STRATEGY is centred in three species of the genus *Alexandrium* and is focused mainly through in situ studies in the Northern Mediterranean basin where blooms associated with *Alexandrium* species are recurrent and frequently cause public health, economic, and social problems. These regions have a common characteristic: the exploitation of the coastal zone for recreational use, with important highly established tourism industries or plans for development of the near future, and the same concern to conserve the quality of near-shore waters (substantial economical inputs depend on it). Effective communication and active participation of all the players involved at different levels and areas will be promoted. The outputs of STRATEGY will be essential to develop a new concept of monitoring and will provide the basis of an integrated coastal zone management in relationship with the coastal recreational waters (i.e. formulate new criteria of near-shore waters use).

Referència: HPRN-CT-2000-00034.

Programa: Improving human research potential and the socio-economic knowledge base.

Títol: *VCSELS for information society technology applications.*

Acrònim: VISTA.

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

Investigador responsable: [SAN MIGUEL RUIBAL](#), Maximino.

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

Inici: 2000. **Fi:** 2003.

Socis:

UCC (Irlanda)
CNET (França)
EPFL (Txèquia)
UNI_ULM (Alemanya)
INFN_MI (Itàlia)
UPMC_LKB (França)
KTH (Suècia)

Coordinador: Istituto Nazionale per la Fisica della Materia (INFN.RUF) (Itàlia)

Summary

Opto-electronics will have to play a crucial role in future development of communications and information processing and, as a consequence, will influence very much our society in the next years. The Vertical Cavity Surface Emitting Lasers (VCSEL) are likely to become much more important than standard semiconductor lasers in the near future in opto-electronic devices. In order to reach this major breakthrough, an effort must be faced for solving some problems related to the VCSEL behaviour, in particular for polarisation instabilities pattern complexity, modulation patterning effects, low power, thermal lensing and feedback effects. Even more important, VCSEL special characteristics can be fruitfully used for improving systems performance, for instance with polarisation control, by employing spatial structures for information processing, by achieving quantum-limited performance. The main objectives of the Project are the understanding of the underlying physical mechanisms relevant to VCSEL operation, the subsequent improvement of their efficiency and the transfer of this knowledge to VCSEL based systems. These objectives are achieved by exploiting new possibilities associated with VCSEL features and by novel kind of lasers and device concepts.

At this purpose, a tight collaboration is necessary among laboratories with device construction facilities, laboratories with nonlinear and quantum optics and electronics expertise, theoretical groups. Indeed, the samples production requires a large research infrastructure and few European groups (and in few European countries) have this possibility. Besides, a complete characterisation and understanding of the laser behaviour implies specialised competencies and must be performed by groups with the necessary experience. This network will provide the link between the most important European groups in the involved research fields, connecting device production, characterisation and implementation in communication systems.

Referència: IST2000-26019.

Programa: User-friendly information society.

Títol: *Quantum images*.

Acrònim: QUANTIM.

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

Investigador responsable: [SAN MIGUEL RUIBAL, Maximino](#).

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

Inici: 2001. **Fi:** 2003.

Socis:

Istituto Nazionale per la Fisica della Materia (Itàlia)
University of Strathclyde (Regne Unit)
Universite de Franche-Comte (França)
Centre National de la Recherche Scientifique (França)
Northwestern University (EUA)
Trustees of Boston University (EUA)
Universite des Sciences et Technologies de Lille (França)
Coordinador: Ecole Normale Supérieure Paris (França)

Summary

Information technologies, which mostly deal with single channel signals, involve more and more often the manipulation of more complex signals, for example when the information is contained in images, and also in parallel computing. Our general objective is to demonstrate that one can take advantage at the same time of the quantum mechanical aspects of light and of the fundamental and intrinsic parallelism of optical signals to develop new techniques in image and parallel information processing at the quantum level. It is in particular to show how, by tailoring the local quantum fluctuations and the spatial quantum correlations of light beams produced by various optical devices, one can improve the quality of different functions which are of great information technologies, such as recording, encryption, storage, read-out, refreshment and duplication of optical information.

Referència: HPMF-CT-2000-00610.

Programa: Improving human research potential and the socio-economic knowledge base.

Títol: *Modeling and testing of vertical cavity surface emitting laser arrays.*

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

Investigador responsable: [SAN MIGUEL RUIBAL, Maximino](#).

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

Inici: 2000. **Fi:** 2002.

Socis:

Coordinador: IMEDEA (Espanya)

The main objective of the proposed research is the full modelling of the VCSELs (Vertical Cavity Surface Emitting Semiconductor Lasers) array. The VCSEL array is one of the most interesting topic of the today's photonic research. Even through high power arrays have been recently demonstrated many problems such as polarisation synchronisation and spatial patterns are still open. Concerning the research activity, the first training period will be spent by the applicant in learning the main VCSELs model (Spin Flip Model), through the application of this model to the analysis of self-pulsations in VCSELs. This topic is important in itself and will provide a good training to the applicant. The analysis of VCSELs array will start from the study of two coupled VCSELs via evanescent wave and carrier diffusion. The polarisation properties of two coupled VCSELs will be investigated too. The complete understanding of polarization properties is fundamental for all the application requiring a well stabilised polarisation, such as fast polarisation modulation and optical switching. The following step is the VCSELs array. The research objective is the complete modelling of the VCSEL array: polarisation properties and spatial pattern structure. The model will be devoted to characterization of VCSELs devices and arrays and will provide a useful experimental training to the applicant.

Referència: Q5RS-2001-02456.

Títol: *Effects of nutrient release from Mediterranean fish farms on benthic vegetation in coastal ecosystems.*

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

Investigador responsable: DUARTE QUESADA, Carlos.

Categoria: Professor d'investigació del CSIC.

Inici: 2001. **Fi:** 2004.

Socis:

Institute of Marine Biology of Crete (Grècia)

Universitat de Barcelona (Espanya)

Department of Fisheries and Marine Research, Marine Biology and Ecology Section
(Xipre)

National Environmental Research Institute (Dinamarca)

Universita degli Studi di Ancona (Itàlia)

Coordinador: University of Southern Denmark (Dinamarca)

Summary

The main objectives are to study the environmental impacts of fish farming on benthic vegetation (seagrasses and macroalgae) and benthic fauna and to provide new insights for monitoring purposes. The specific objectives are to explore 1) the loss of nutrients from Mediterranean fish farms, 2) the incorporation of nutrients into pelagic and benthic vegetation in the surroundings of fish farms, 3) the impact of releases nutrients and fish farm effluents on benthic vegetation and fauna. We wish to evaluate if seagrasses and benthic fauna can be used as early warning indicators of fish farming impacts. Finally the obtained information on nutrient release and effects of nutrients on pelagic and benthic vegetation will be incorporated into a dose/response model. An important objective of this project is to include exchange of knowledge between scientist and end-users through workshops and conferences.

Referència: EVK2-CT2000-00074.

Programa: Energy, environment and sustainable development.

Títol: *Exotic plant invasions: deleterious effects on mediterranean island ecosystems.*

Acrònim: EPIDEMIE.

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

Investigadora responsable: TRAVESET VILAGINES, Anna.

Categoria: Investigadora científica del CSIC.

Inici: 2001. **Fi:** 2004.

Socis:

Centre de Recerca Ecològica i Aplicacions Forestals (Espanya)

University of the Aegean (Grècia)

Università degli Studi di Sassari (Itàlia)

University of Wales-Bangor (Regne Unit)

Lund University (Suècia)

Université de Droit d'Economie et des Sciences d'Aix Marseille (França)

Coordinador: Natural Environment Research Council (Regne Unit)

Summary

To assess the relative importance of the environmental & socioeconomic factors that determine the likelihood of exotic plant invasions in order to evaluate the sustainability of management strategies directed towards reducing the risks of invasion. To quantify the impacts of exotic plants on ecosystem function & services with the purpose of incorporating assessments of the economic and environmental hazards of invasion into management priorities. To integrate assessments of risk & hazard to predict the current & future vulnerability of ecosystems to exotic plant invasions, identify optimum management strategies & highlight appropriate planning & policy development to mitigate harmful impacts. To increase awareness & understanding among the general public, stakeholders, scientists, and policy makers of the vulnerability of semi-natural ecosystems to exotic invasion, the risks posed by exotic plant species and the ecological & economic consequences of invasion in Mediterranean islands.

Referència: Q5RS-2001-00839.

Títol: *Effects of changes in fishery discarding rates on seabird communities.*

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

Investigador responsable: [ORO DE RIVAS, Daniel.](#)

Categoria: Científic titular CSIC.

Inici: 2001. **Fi:** 2005.

Socis:

Universität Hamburg (Alemanya)

University of Joensuu (Finlàndia)

Coordinador: University of Glasgow (Regne Unit)

Summary

To quantify impact of change in fishery discarding rates on seabird communities, in order better to inform fishery discard management. We will determine whether winter at-sea distribution of appropriately selected species of scavenging seabirds is influenced by distribution of fisheries generating large quantities of discards, and quantify how feeding on discards in winter affects seabird demography through influences on adult body condition, breeding and survival. We will use existing databases to determine how changes in discard rates in well-documented fisheries in northwest North Sea and western Mediterranean over many years have influenced seabird breeding season diet, demographic parameters, and populations, and how changes in discarding rates are effecting predatory impacts of scavenging seabirds on smaller seabird species, and hence altering seabird community structure. Our aim is to provide a better understanding of scavenging seabird ecology that can be used to inform policy.

Referència: 15507/01/NL/SF. European Space Agency.

Títol: *RA-2 Tide Gauges and Buoy Deployment.*

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

Investigador responsable: GOMIS BOSCH, Damià.

Categoria: TU (àrea de coneixement: Física de la Terra).

Inici: 2001. **Fi:** 2002.

Summary

The main objective of this project funded by the European Spatial Agency is to participate in the ENVISAT calibration team. The ENVISAT will be the largest satellite devoted to the Earth observation, and is expected to be launched the 1st of March, 2002. Within the ENVISAT calibration team, our Group will be involved in the tasks related to the calibration of the Radar Altimeter RA-2, one of the instruments onboard the satellite.

The RA-2 will measure the sea surface height relative to a reference ellipsoid with an accuracy of 1-2 cm. Its calibration will consist of obtaining 'in situ' measures of sea surface height (referred to the same ellipsoid) by means of a set of GPS buoys and tide gauges. The measures will be obtained on the satellite ground track simultaneously to the passage of the satellite. Namely, 4 GPS buoys and 3 tide gauges will be deployed at about 6 nm to the NW of Menorca. The buoys will transmit the data to a Reference Station located on the shore of Menorca and from there to Germany by mobile phone. Another tide gauge will be deployed near Es Vedrà (Eivissa) and a fourth one in Sant Antoni harbour (Eivissa).

The GPS buoys will be produced and instrumented by the Institute of Geodesy and Navigation (Munich), and three tide gauges will be provided by the Univ. of Dresden. IMEDEA will provide the fourth tide gauge (and process all its data) and will be responsible for the deployment, maintenance and retrieval of all the instruments.

The schedule is that nine months of successful measures should be enough to perform the calibration, so that in principle all the instruments would be retrieved by December 2002 or January 2003.

More info at:

http://www.imedeaiuib.es/Natura/goi/oceanography/html/research/Projects/WEB_ecbi/

Referència: Esprit project núm. 28235.

Programa: Information technologies programme.

Títol: *Processing of information by arrays of non-linear optical solitons.*

Acrònim: PIANOS.

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

Investigador responsable: [BALLE MONJO, Salvador](#).

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

Socis:

University ULM (Alemanya)

University of Strathclyde (Regne Unit)

Centre National de la Recherche Scientifique (França)

Istituto Nazionale per la Fisica della Materia (Itàlia)

France Telecom (França)

Coordinador: Physikalisch Technische Bundesanstalt (Alemanya)



ALTRES ACCIONS

- Non linear and non-adiabatic magnetohydrodynamic waves in solar coronal structures.
BALLESTER MORTES, Josep L.
- Interaction of magnetohydrodynamic waves and flows in astrophysical plasmas..
BALLESTER MORTES, Josep L.
- Study on obesity and functional foods in Europe.
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- Body weight and energy expenditure. Functional food and nutrition technology.
PALOU OLIVER, Andreu.
- Wavelength scale photonic components for telecommunications
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- Semiconductor devices for signal processing.
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- Electronic conference on Marine Biodiversity in Europe.
DUARTE QUESADA, Carlos
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- Desarrollo de métodos automáticos para la especiación de compuestos nitrogenados y fosforados. aplicación al análisis de aguas residuales.
CERDÀ MARTÍN, Víctor.



Endarrere



Endavant

Referència: NATO PST.CLG. 976135.

Títol: *Non linear and non-adiabatic magnetohydrodynamic waves in solar coronal structures.*

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

Investigador responsable: BALLESTER MORTES, Josep L.

Categoria: CU (àrea de coneixement: Astronomia i Astrofísica).

Inici: 1999. **Fi:** 2001.

Socis:

University of St Andrews (Regne Unit)

Technical University of Lublin (Polònia)

Coordinador: Universitat de les Illes Balears (Espanya)

Referència: INTAS 31931.

Títol: *Interaction of magnetohydrodynamic waves and flows in astrophysical plasmas.*

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

Investigador responsable: BALLESTER MORTES, Josep L.

Categoria: CU (àrea de coneixement: Astronomia i Astrofísica).

Inici: 1999. **Fi:** 2001.

Socis:

Abastumani Astrophysical Observatory (Geòrgia)

University of Nizhny Novgorod (Rússia)

Coordinador: University of St Andrews (Regne Unit)

Projecte: Acció COST 918. ICC2-CT-2000-04003.

Títol: *Study on obesity and functional foods in Europe.*

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

Investigador responsable: PALOU OLIVER, Andreu.

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

Inici: 2000. **Fi:** 2002.

Projecte: Acció COST 918.

Títol: *Body weight and energy expenditure. Functional food and nutrition technology.*

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

Investigador responsable: PALOU OLIVER, Andreu.

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

Inici: 1998. **Fi:** 2003.

Projecte: Acció COST 268.

Títol: *Wavelength scale photonic components for telecommunications.*

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

Investigador responsable: SAN MIGUEL RUIBAL, Maximino.

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

Inici: 1998. **Fi:** 2001.

Projecte: Acció COST 267.

Títol: *Semiconductor devices for signal processing.*

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

Investigador responsable: BALLE MONJO, Salvador.

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

Referència: EVR1-CT-2001-80001.

Títol: *Electronic conference on Marine Biodiversity in Europe.*

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

Investigador responsable: DUARTE QUESADA, Carlos.

Categoria: Professor d'investigació del CSIC.

Inici: 2001. **Fi:** 2001.

Socis:

Coordinador: Koninklijke Nederlandse Akademie van Wetenschappen (Holanda)

Referència: IST-1999-29064.

Títol: *Quantum information processing & communications network of excellence.*

Acrònim: QUIPROCONE.

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

Investigador responsable: [SAN MIGUEL RUIBAL, Maximino](#).

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

Inici: 2000. **Fi:** 2003.

Socis:

Coordinador: Hewlett-Packard Ltd. (Regne Unit)

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](#).

Categoria: 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.

Summary

The aim of the project is to develop of and automatic system allowing the determination of ammonium, nitrates, nitrites, total nitrogen, orthophosphates and total phosphorous in an in situ, simple and cheaper way, both for irrigation and waste waters.



PROJECTES FINANÇATS PEL GOVERN ESPANYOL I EL GOVERN DE LES ILLES BALEARS



Endarrere



Endavant



DEPARTAMENT DE BIOLOGIA

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- Estudio farmacológico y molecular del efecto del ácido oleico sobre la estructura y función de membranas celulares y evaluación de su utilización clínico-farmacológica en pacientes con diversos procesos tumorales.

ESCRIBÁ RUIZ, Pablo Vicente.

- Estudio del efecto de fármacos opiáceos sobre la viabilidad neuronal y su relación con el desarrollo de la tolerancia al efecto antinociceptivo.

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- Modulación farmacológica de la presión arterial mediante lípidos que alteran la estructura de la membrana

ESCRIBÁ RUIZ, Pablo Vicente

- Dinámica de los haplotipos mitocondriales en poblaciones naturales de *Drosophila subobscura*: aspectos genético-poblacionales, ecológicos y moleculares.

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- Taxonomía, filogenia y ecología de *Salinibacter*.

ROSSELLÓ MORA, Ramon.

- Análisis molecular de comunidades microbianas y teledetección, dos apuestas de futuro en la detección de contaminación y en la gestión de aguas territoriales.

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- Estructura poblacional y variabilidad genética en coleópteros endémicos de las islas Canarias pertenecientes a diferentes ambientes.

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- Biología y regulación por opiáceos de receptores para imidazolinas
GARCÍA SEVILLA, Jesús A.
- Selección de especies leñosas y diseños de rehabilitación paisajística de riberas para la depuración de aguas residuales.
MARTÍNEZ TABERNER, Antoni.
- Exclusión, detoxificación y compartimentación como mecanismos básicos de resistencia al estrés iónico en las plantas.
CABOT BIBILONI, Catalina
- Utilización de indicadores fisiológicos para la aplicación del riego en vid: regulación de la fotosíntesis y del reparto de asimilados y efectos de la calidad del fruto.
MEDRANO GIL, Hipólito.
- Estado ecológico de los ríos mediterráneos en ambientes insulares. Regionalización ecológico, estaciones de referencia y métodos predictivos de evaluación de calidad.
MOYÀ NIELL, Gabriel.
- Evolución de las especies vegetales y efectos de la fragmentación en las islas continentales: aspectos ecológicos y funcionales.
MUS AMÉZQUITA, Maurici.
- Selección clonal y saneamiento de variedades de vid de Baleares.
MEDRANO GIL, Hipólito.
- Sistemática, ecología y evolución de *Pseudomonas stutzeri*.
LALUCAT JO, Jordi.
- Regulación de la expresión de cápsula y su relación con la respuesta inmunitaria en las infecciones respiratorias causadas por *Streptococcus pneumoniae* y *Klebsiella pneumoniae*
ALBERTÍ SERRANO, Sebastià
- Receptores de imidazolinas y adrenoceptores alfa-2 en el SNC. Caracterización bioquímica y molecular, y modulación fisio-farmacológica y patológica
ESCRIBÁ RUIZ, Pablo Vicente.



Endarrere



Endavant

•Evaluación del análisis del óxido nítrico exhalado para la monitorización de las infecciones bacterianas en la enfermedad pulmonar obstructiva crónica (EPOC).

ALBERTÍ SERRANO, Sebastià

• Aplicació de les noves tecnologies a l'ensenyament de la Biologia Molecular a la UIB.

BENEDÍ BENITO, Vicente Javier

• Possibilitats tecnològiques d'aprofitament de l'efluent de les indústries formatgeres de Balears (lactosuero) com a estratègia de depuració.

BOSCH ZARAGOZA, Rafael.

• Estudi del procés de compostatge i de la qualitat del compost.

LALUCAT JO, Jordi

• Participacions a altres projectes



Endarrere



Endavant

Referència: PB97-0163-C02-02. Programa sectorial de promoció general del coneixement.

Títol: *Mecanismos adaptativos de la raíz al estrés iónico.*

Classificació UNESCO: 241719.

Centre: Departament de Biologia. Edifici Guillem Colom Casasnovas.

Investigadora responsable: CABOT BIBILONI, Catalina.

Categoria: TU (àrea de coneixement: Biologia Vegetal).

Inici: 1998. **Fi:** 2001.

Membres de l'equip	Categoria	Dedicació (h/setm.)
Cabot Bibiloni, Catalina	TU	32
Llorens Garcia, Lleonard	TU	32
Bennàsar Roig, Antoni	CEU	16

Nombre total d'investigadors de la UIB: 3.

Total EJC/setmana: 2.

Summary

The primary effects of potentially toxic concentrations of Na⁺ and Cl⁻ on root physiology will be studied using plan genotypes that exhibit considerable differences in salt stress resistance or tolerance (*Phaseolus vulgaris*, *Medicago arborea* and *Medicago citrina*), in order to distinguishing between those alterations that are specifically related to higher stress resistance or tolerance from those that only induce multiple secondary strains which lead to inespecific defense mechanisms that are unable to protect plants from ion toxicity.

Referència: PM97-0041. Programa sectorial de promoció general del coneixement.

Títol: *Análisis genético a nivel de STRs y secuenciación de la región I del mtDNA. Aplicación de la evolución de las poblaciones chueta y balear y a la genética de la otosclerosis y la miopía.*

Classificació UNESCO: 2409.

Centre: Departament de Biologia. Edifici Guillem Colom Casanovas.

Investigadora responsable: RAMON JUANPERE, Misericòrdia.

Categoria: TU (àrea de coneixement: Genètica).

Inici: 1998. **Fi:** 2001.

Membres de l'equip	Categoria	Dedicació (h/setm.)
Ramon Juanpere, Misericòrdia	TU	16
Castro Ocón, José Aurelio	TU	16
Picornell Rigo, Antònia	Aj. U	16
Rosell Andreu, Jordi	As.	16
Oliver Capó, Gabriel		16
Frau Rotger, Elisabet		16

Nombre total d'investigadors de la UIB: 4.

Total EJC/setmana: 1,6.

Keywords: chuetas, STRs, mtDNA, human populations, genetics of myopia, genetics of otosclerosis.

Summary

The aim of the project is to study the genetics of the human population of the Balearic Islands by means of the analysis of individuals from Majorca, Minorca, Ibiza and Chueta populations. The level of polymorphism in nuclear genes (STRs) and in the hypervariable region I of mtDNA will be detected. We will establish the filogenetic relationship between our populations and between them and other mediterranean ones of the literature. We are specially interested in confirming the jewish origin of the Chueta population and also the different substrata of Ibiza island that previous studies have indicated. The comparison between the evolution nuclear patterns (STRs and hematic markers) and the mitochondrial ones (RFLPs and sequence of region I) provides information about the differences in evolution taxa and also the dynamics of female vs male mediated movement of DNA in Chueta and Ibiza populations. The study of diseases with a genetic study of myopia and otosclerosis in Balearic Islands. The patterns of inheritance of both diseases and their probable association with hematic markers will be determined with family studies. Also the existence of linkage disequilibria between STRs and disease genes will be tested.

Referència: HID98-0323-C05-02. Programa nacional de recursos hídrics.

Títol: *El estado ecológico de los ríos temporales en ambientes insulares.*

Classificació UNESCO: 250811, 250805.

Centre: Departament de Biologia. Edifici Guillem Colom Casasnovas.

Investigador responsable: MOYÀ NIELL, Gabriel.

Categoria: TU (àrea de coneixement: Ecologia).

Inici: 1998. **Fi:** 2001.

Membres de l'equip	Categoria	Dedicació (h/setm.)
Moyà Niell, Gabriel	TU	16
Ramon Pérez de Rada, Guillem	TU	16
Martínez Taberner, Antoni	TU	16

Nombre total d'investigadors de la UIB: 3.

Total EJC/setmana: 1,2.

Keywords: ecological status, water quality, macroinvertebrates, riparian forest.

Summary

The recent proposal of Freshwater Framework Directive (published in 27.2.1997; COM(97) 49 final) implies that member states of the EU should elaborate in the future maps of ecological status of their aquatic ecosystems, including rivers. The ecological status concept is mainly based in the qualification of freshwater quality using its biological components. The objective of our project is to study 10 mediterranean rivers in Spain where the establishment of their ecological status may present several difficulties due to ecological conditions of these rivers (droughts, flash floods). This fact means that methodological problems can be a bottleneck of the applications of these indices to mediterranean rivers and, therefore, studies have to be performed in order to solve these methodological problems. We propose to study 10 rivers basins in the mediterranean coast of Spain with the same sampling systems and data treatment. The result must help us to define an integrate index that using the biological quality of waters and the conservation of the riparian forest, allow us to classify the mediterranean rivers in the five classes of ecological status defined in the proposal of Freshwater Framework Directive. At the moment when the directive should be implemented, managers and policy makers will have a valuable instrument of water quality qualification in order to produce the ecological status maps. This system can be, probably, applied to many other Spanish rivers with minor changes.

Referència: FIS00-1029. Fons d'Investigació Sanitària. Ministeri de Sanitat i Consum.

Títol: *Estudio farmacológico y molecular del efecto del ácido oleico sobre la estructura y función de membranas celulares y evaluación de su utilización clínico-farmacológica en pacientes con diversos procesos tumorales.*

Centre: Departament de Biologia. Edifici Guillem Colom Casasnovas.

Investigador responsable: [ESCRIBÁ RUIZ, Pablo Vicente](#).

Categoria: CEU (àrea de coneixement: Biologia Cel·lular).

Inici: 2000. **Fi:** 2002.

Membres de l'equip	Categoria	Dedicació (h/setm.)
Escribá Ruiz, Pablo Vicente	CEU	16
Barceló Mairata, Francesca M.	TU	16
Besalduch Vidal, Joan		16
Galmés Llodrà, Antoni		16
Novo Garcia, Andrés		16
Ventayol Bosch, Pere		40
Vila Bonet, Maria À.		40

Nombre total d'investigadors de la UIB: 2.

Total EJC/setmana: 0,8.

Keywords: cell signaling, receptors, G proteins, blood pathologies.

Summary

During the last few years we have demonstrated that the plasma membrane lipid structure plays a crucial role in peripheral membrane protein-associated signal transduction [Escribá *et al.*, Proc. Natl. Acad. Acad. Sci. USA **92** (1995) 7595-99; Escribá *et al.*, Proc. Natl. Acad. Acad. Sci. USA **94** (1997) 11375-80]. Recently, we have observed that monounsaturated fatty acids (e. g., oleic acid) are able to regulate (10-50 (M) the interaction between some peripheral proteins involved in signal transduction and the plasma membrane, by modulating the physico-chemical membrane properties provided by phosphatidylethanolamine (unpublished results). Because the consumption of oleic acid is directly associated with a lesser incidence of tumoral processes (Farchi *et al.*, Eur. J. Cancer Prev. **5**, 113-120) and the antitumor drug daunomycin exhibits a similar effect to that of the fatty acid on the modulation of the plasma membrane structure and function, we propose a pharmacological and molecular study of this fatty acid to evaluate its use in onco-hematological processes, which could result in a similar use to that of trans-retinoic acid (vitamin A) for acute promyelocytic leukemia treatment. For this purpose, we plan two well defined experimental strategies. On one side, it will be performed an in-depth study on the molecular mechanism of interaction between oleic acid and the plasma membrane and its effect on plasma membrane-associated signals. This part of the study will allow a later design of new molecules with better pharmacological activity. On the other hand, it will be evaluated its therapeutic effectivity in humans and its pharmacological efficacy in model systems (tissue cultures and laboratory animals). This study constitutes a complete evaluation of a molecule, from its molecular and cellular mechanism of action to the assessment of its pharmacological and clinical applications. The achievement of the proposed basic aims would mean the elucidation of the mechanism of peripheral membrane protein translocation, still unknown, and could result in important pharmacological consequences, derived of its pharmacological application to new therapeutical approaches involving the modulation of the plasma membrane structure and function.

Referència: SAF2000-0164-C02-02. Programa nacional de salud.

Títol: *Estudio del efecto de fármacos opiáceos sobre la viabilidad neuronal y su relación con el desarrollo de la tolerancia al efecto antinociceptivo.*

Centre: Departament de Biologia. Edifici Guillem Colom Casasnovas.

Investigador responsable: OLMOS BONAFÈ, Gabriel.

Categoria: TEU (àrea de coneixement: Biologia Cel·lular).

Inici: 2000. **Fi:** 2003.

Membres de l'equip	Categoria	Dedicació
Olmos Bonafè, Gabriel Iglesias Durán, Montserrat Minteig Florensa, Gerard Segura Ginard, Miguel F.	TEU	Única

Nombre total d'investigadors de la UIB: 1.

Keywords: opioid drugs, morphine, heroine, metadone, tolerance, analgesia, pain, neurotoxicity, apoptosis, neuroprotection, cell culture.

Summary

The development of opioid tolerance (decrease in antinociceptive efficacy) is related to the activation of the N-methyl-D-aspartate receptor which induces increased cytoplasmic calcium levels in the neurone and activation of calcium-dependent nitric oxide synthase. It is known that this morphine exposure to cells induces apoptosis or increases their susceptibility to drugs that stimulate apoptosis. This research project is designed to assess the *in vitro* effects of opioid drug exposure on the pathways related with neuronal viability, the potential neuronal damage after chronic *in vivo* treatment and the relationship with the development of tolerance to the antinociceptive effect. The results of this study will help to design new approaches to reduce or protect from the potential neuronal damage after chronic opioid drug exposure and/or block or attenuate tolerance.

Referència: SAF2001-0839. Programa nacional de salud.

Títol: *Modulación farmacológica de la presión arterial mediante lípidos que alteran la estructura de la membrana.*

Centre: Departament de Biologia. Edifici Guillem Colom Casanovas.

Investigador responsable: [ESCRIBÁ RUIZ, Pablo Vicente](#).

Categoria: CEU (àrea de coneixement: Biologia Cel·lular).

Inici: 2001. **Fi:** 2004.

Membres de l'equip	Categoria	Dedicació
Escribá Ruiz, Pablo Vicente	CEU	0.5
Barceló Mairata, Francesca M.	TU	0.5
Saus Sarrià, Carles	As.	0.5
Alemaný Alonso, Regina		1
Benet, Mikhail		1
Capó, Damiana		1
Kitatja, Klara		1
Seghini, Khadija		1
Prades, Jesús		1
Herrera, Maria Teresa		1

Nombre total d'investigadors de la UIB:10.

Summary

In the present project, we propose the elucidation of a pivotal mechanism of peripheral membrane protein and cell membrane interaction. Propagation of messages is such an important phenomenon that a half of our genome is devoted to this task . In addition, the proteins that will be studied here (G protein-coupled receptors) constitute about 80% of the known hormone and neurotransmitter receptors. For this reason, the study of G protein-membrane interaction mechanisms has a great relevance. On the other hand, these receptors control a wide variety of important physiological functions, so that important human pathologies are associated with the abnormal function of these receptors. This fact makes more relevant the knowledge of their functional properties. In addition to the contribution to basic knowledge, the discovered mechanism can be used for the treatment of human pathologies. In this project we will study the hypotensive effects of a variety of lipid molecules, capable to modulate blood pressure through the new mechanism of action discovered. Finally, new molecules with potential farmacological interest for clinical treatment of blood pressure will be designed and synthesized. Blood pressure control is very important, since hypertension is the main risk factor for developing cardiovascular pathologies. Noreover, cardiovascular pathologies constitute the main cause of death in occidental societies.

Referència: BOS2000-1000. Ministeri de Ciència i Tecnologia.

Modalitat: P1. Projecte d'investigació bàsica no orientada.

Títol: *Dinámica de los haplotipos mitocondriales en poblaciones naturales de Drosophila subobscura: aspectos genético-poblacionales, ecológicos y moleculares.*

Acrònim: mtDNA.

Classificació UNESCO: 2409.

Centre: Departament de Biologia. Edifici Guillem Colom Casasnovas.

Investigador responsable: CASTRO OCÓN, José Aurelio.

Categoria: TU (àrea de coneixement: Genètica).

Inici: 2000. **Fi:** 2003.

Membres de l'equip	Categoria	Dedicació
Castro Ocón, José Aurelio	TU	Compartida
Ramon Juanpere, Misericòrdia	TU	Compartida
Picornell Rigo, Antònia	Aj. U	Compartida
Oliver Llamas, Pere	Aj. EU	Única
Terrasa Pont, Bàrbara	As.	Única

Nombre total d'investigadors de la UIB: 5.

Keywords: *Drosophila subobscura*, haplotypes, mitochondrial DNA, linkage disequilibrium, chromosomal arrangements, DNA sequencing, biological fitness.

Summary

In most natural populations of *Drosophila subobscura* studied it has been found that there are two frequent haplotypes of mitochondrial DNA, I and II, which differ by a synonymous change in a target of the restriction enzyme *HaeIII*, as well as a series of less common haplotypes (less than 5%) that are different in time and location. The results obtained up to now have not solved yet the populational dynamics of these haplotypes in nature, and, although a superiority of the haplotype II over I in populational cages was initially found, this result has not been confirmed in current experiments. The cytonuclear disequilibrium experiments with haplotypes and enzymatic nuclear markers have not been significant. On the contrary, the association with chromosomal arrangements seems to be so. The hypothesis we are carrying out now is that in order to explain the presence of the most common haplotypes and the less frequent ones in nature, this must be studied from a population-genetics, ecology and molecular point of view that could help to explain their dynamics. For this reason, in the present project we establish the following objectives: 1.- Annual dynamics of the mitochondrial haplotypes in a natural population of *Drosophila subobscura*. 2.- Effect of the environment on the haplotype distribution. 3.- Study of the fitness of the less common haplotypes. 4.- Reaction norm of the population cages with temperature. 5.- Association of mitochondrial haplotypes and chromosomal arrangements. 6.- Association of the mitochondrial haplotypes with nuclear STRs-like markers. 7.- Analysis of the nucleotide sequence in a 5 subunit region of the NADH dehydrogenase.

Referència: BOS2000-1123-C02-01. Ministeri de Ciència i Tecnologia.

Modalitat: P1. Projecte d'investigació bàsica no orientada.

Títol: *Taxonomía, filogenia y ecología de Salinibacter.*

Acrònim: CASAL-1.

Classificació UNESCO: 2414.

Centre: Departament de Biologia. Edifici Guillem Colom Casanovas.

Investigador responsable: ROSSELLÓ MORA, Ramon.

Categoria: TEU (àrea de coneixement: Microbiologia).

Inici: 2000. **Fi:** 2003.

Membres de l'equip	Categoria	Dedicació
Roselló Mora, Ramon	TEU	Única
Antón Botella, Josefa		Única

Nombre total d'investigadors de la UIB: 1.

Keywords: prokaryotes, bacteria, extremely halophilic organisms, taxonomy, genomics, ecology.

Summary

This project involves a taxonomic, genomic, and autoecologic study of the new taxon *Salinibacter*, included in the Bacteria Domain. We have recently described the occurrence of such bacteria in crystallizer ponds from solar salterns of the West Mediterranean and East Atlantic. Unexpectedly, this bacteria accounted for up to 30% of the total prokaryotic population. *Salinibacter* is the first extremely halophilic bacteria whose ecological importance has been reported. Additionally, its phylogenetic affiliation shows that it is fairly remote from those bacteria described so far. In this regard, the combined study of physiology, ecology and genomics would help to improve the understanding of the organisms belonging to the domain Bacteria, as well as the mechanisms of haloadaptation. Furthermore, given the extremophilic nature of *Salinibacter*, likely the study of their physiology may lead to the recognition of new compounds of biotechnological interest.

Referència: COO1999-AX108. Ministeri de Ciència i Tecnologia.

Modalitat: Projecte coordinat amb participació interempresarial.

Títol: *Análisis molecular de comunidades microbianas y teledetección, dos apuestas de futuro en la detección de contaminación y en la gestión de aguas territoriales.*

Centre: Departament de Biologia. Edifici Guillem Colom Casanovas.

Investigador responsable: BOSCH ZARAGOZA, Rafael.

Categoria: TEU (àrea de coneixement: Microbiologia).

Inici: 2000. **Fi:** 2002.

Membres de l'equip

Categoria

Bosch Zaragoza, Rafael	TEU
Bergueiro López, José Ramón	TU
Ruiz Pérez, Maurici	Tèc.
Guasp Mascaró, Caterina	B

Nombre total d'investigadors de la UIB: 4.

Keywords: microbial ecology, littoral waters, microbial populations evolution, microbial community, molecular biology, pollution, hydrocarbons, oil and derivatives, geographical information system, GIS, remote sensing, data base, internet, natural areas management, environmental analysis impact.

Summary

Seas and oceans are masses of water that cover more than the 70% of the Earth surface. Their chemical composition is characterized by, constant, lower amounts of solved organic compounds and nutrients. Exceptionally, offshore zones and coastal waters are areas showing high productivity, mainly due to its relative 'high' concentration of organic compounds and nutrients (due to surgery of nutrients and to the continental waters inflet, respectively). Anyhow, these areas are in ecological equilibrium, and they have 'climax' microbial communities. Human activity is able to dilute this equilibrium and thus, harbours and water treatment plant outlets are, for example, focus of oil and pathogenic bacteria contamination. Expensive and less-sensitive chemical analysis can be performed to detect and quantify this pollution. In this project we propose, using molecular biology, to characterize 'climax' microbial community of coastal waters and to analyze its changes in front of human contamination (harbours and water treatment plants effluent). Our aim is to use microbial community and its variations as sensors of pollution in coastal waters. Furthermore, we also propose to use remote sensing technology to study contamination levles and community changes in littoral waters. If both tehcniques, molecular microbial ecology and remote sensing technology, are able to show presence of pollution, we will posses two really efficient, sensitive, tools to determine the 'health' of a coastal water and to improve its management.

Referència: REN2000-0282/GLO. Ministeri de Ciència i Tecnologia.

Modalitat: P2. Projecte d'investigació bàsica orientada.

Títol: *Estructura poblacional y variabilidad genética en coleópteros endémicos de las islas Canarias pertenecientes a diferentes ambientes.*

Acrònim: CANBIO.

Classificació UNESCO: 2409-03.

Centre: Departament de Biologia. Edifici Guillem Colom Casanovas.

Investigador responsable: JUAN CLAR, Carles.

Categoria: TEU (àrea de coneixement: Genètica).

Inici: 2000. **Fi:** 2003.

Membres de l'equip	Categoria	Dedicació
Juan Clar, Carles	TEU	Compartida
Petitpierre Vall, Eduard	CU	Compartida
Oromi Masoliver, Pedro		Única
Fragoso Jerez, Rosario		Única

Nombre total d'investigadors de la UIB: 2.

Keywords: genetic variability, biodiversity, *coleoptera*, endemic beetles, Canary Islands, laurel forest, mitochondrial DNA, PCR, DNA sequencing, phylogenetics, conservation.

Summary

The main goal of this project is to determine the effects of humid forest fragmentation on organisms with limited geographic distribution. We will use populations of carabid and tenebrionid beetles endemic to the Canary Islands as a model system. Also, we want to relate the historical (phylogeny and colonization patterns) and ecological factors (specialization to hypogean life and to different food resources) with the evolutionary success, genetic variability and population structure of these insects. The effect of the laurel forest regression on the decrease of biodiversity and in relation to conservation policies of this important habitat will be preferentially studied. To undertake these objectives, we will use DNA sequences of mitochondrial and nuclear markers obtained from individuals collected in populations of Tenerife, La Gomera, La Palma and El Hierro islands for population and phylogeographic analyses. This study should provide a basis from which to understand the genetic variability and biodiversity in a perspective of habitat fragmentation in insular ecosystems. We expect the results will have a broad application strategies in a wide number of organisms.

Referència: BFI2000-0306. Ministeri de Ciència i Tecnologia.

Modalitat: P1. Projecte d'investigació bàsica no orientada.

Títol: *Biología y regulación por opiáceos de receptores para imidazolininas.*

Acrònim: BRORI.

Classificació UNESCO: 3209-09.

Centre: Departament de Biologia. Edifici Guillem Colom Casasnoves.

Investigador responsable: GARCÍA SEVILLA, Jesús A.

Categoria: CU (àrea de coneixement: Farmacologia).

Inici: 2000. **Fi:** 2003.

Membres de l'equip	Categoria	Dedicació
García Sevilla, Jesús A.	CU	Única
Miralles Socias, Antoni	TU	Única
Esteban Valdés, Susana	TU	Compartida
Escribá Ruiz, Pablo Vicente	CEU	Compartida
Saus Sarrià, Carles		Compartida
Gómez Bellvert, Cristina		Compartida

Nombre total d'investigadors de la UIB: 4.

Keywords: imidazoline receptors, opiate addiction, MAP kinases, β -carbolines, neuroprotection.

Summary

The imidazoline receptors are novel ill-defined molecular entities, but with a great physiological/physiopathological and pharmacological/therapeutic potentials. The aim of this project (a follow-up of DGICYT 94-0002 project) are, on the one hand, to characterize and eventually clone these receptors, and on the other hand, to unravel their participation in opiate addiction and their interaction with endogenous β -carbolines. It is proposed to prepare various probes (mainly antibodies) directed against purified imidazoline receptors, which will be used to assess the cloning of these receptors through cDNA libraries and to characterize the molecular nature of these receptors. Moreover, it is proposed to study the effects of selective I_2 ligands on the MAP kinase signalling, in various models of opiate addiction, to assess whether these drugs are able to counteract the negative effects of opiate drugs on this signal transduction system. Finally, it is proposed to study the eventual participation of β -carbolines, as neuromodulators of imidazoline receptors, in the processes of opiate addiction. The results of this project will contribute to unravel the nature of imidazoline receptors and their involvement in the complex mechanisms of opioid tolerance and dependence, as well as the eventual potential of I_2 -selective ligands as neuroprotectors.

Referència: REN2000-1236/TECNO. Ministeri de Ciència i Tecnologia.

Modalitat: P3. Projecte d'investigació aplicada.

Títol: *Selección de especies leñosas y diseños de rehabilitación paisajística de riberas para la depuración de aguas residuales.*

Acrònim: DENDRODEPURACIÓN

Classificació UNESCO: 250811, 330806, 330811.

Centre: Departament de Biologia. Edifici Guillem Colom Casanovas.

Investigador responsable: MARTÍNEZ TABERNER, Antoni.

Categoria: TU (àrea de coneixement: Ecologia).

Inici: 2000. **Fi:** 2003.

Membres de l'equip	Categoria	Dedicació
Martínez Taberner, Antoni	TU	Compartida
Ramon Pérez de Rada, Guillem	TU	Compartida
Morey Andreu, Miquel	CU	Compartida
Vadell Adrover, Jaume	TEU	Compartida
Moyà Niell, Gabriel	TU	Compartida
Sampol Barceló, Pere		Compartida
Cañellas Serrano, Nicolau		Compartida
Salgot Marçay, Miquel		Compartida
Romero Bosch, Joan J.		Compartida
Ocón Buira, Rosa		Compartida
Garcia Mas, Francesc		Compartida

Nombre total d'investigadors de la UIB: 5.

Keywords: waste waters, water purification, trees, riverbanks, landscape restoration, purification efficiency, environmental quality.

Summary

The mediterranean basin is one of the world's sites where the recycling of waste waters is most advanced. The European Union is financing diverse projects in relation to this. On the other hand, there is intense activity at local level correctly manage and recycle such scarce resource as water. The Dendropurification, as waste water improvement by means of trees, is a poorly tested method which may be applied to tertiary water treatment and which also benefits the environment, landscape quality and water table levels. It is thus of special importance to areas dedicated to tourism. This project propose the use of secondary waste waters for the restoration of temporary streams and drainage ditch banks with autochthonous trees previously selected for their capacity for purification. Seepage waters, where levels of pathogenic microorganism are reduced by the filtering action of the soil and nutrient salts by root uptake, will reappear in the watercourses or replenish the water table with an improved quality. This general objective will be structured in two ways: firstly by an analysis under controlled conditions of plant growth and ion accumulation, particularly CL, Na and nutrients and secondly by a study of nutrient cycling applied to different tree species combinations growing in either restored or field environmental conditions.

Referència: BFI2001-2475-C02-02. Ministeri de Ciència i Tecnologia.

Modalitat: Programa nacional de promoció general del coneixement.

Títol: *Exclusión, detoxificación y compartimentación como mecanismos básicos de resistencia al estrés iónico en las plantas.*

Centre: Departament de Biologia. Edifici Guillem Colom Casasnovas.

Investigadora responsable: CABOT BIBILONI, Catalina.

Categoria: TU (àrea de coneixement: Biologia Vegetal).

Inici: 2001. **Fi:** 2004.

Membres de l'equip	Categoria	Dedicació (EDP)
Cabot Bibiloni, Catalina	TU	1
Bennàsar Roig, Antoni	CEU	0.5
Llorens Garcia, Lleonard	TU	1
Gil Vives, Llorenç	Aj. EU	1
García Oliverors, María C.	B	1

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

Keywords: ABA, ATP-ase, exclusion, halophyte, heavy metal, ion stress, metallophyte, phytoremediation, protective substances, resistance, root exudate, salinity, subcellular compartmentation, tolerance, toxicity.

Summary

Knowledge of ion stress resistance mechanisms is fundamental for improving plant productivity in regions with salinity problems (Na^+ and Cl^- toxicity), acid soils (Al^{3+} toxicity), or sites affected by industrial pollution or toxic spills (heavy metal ions). There is substantial experimental evidence showing that mechanisms that allow plants to perform in environments with a high activity of toxic ions are based on three fundamental strategies: exclusion, detoxification and compartmentation. However, the different biochemical and physiological processes that, in an ion-specific manner, underlie these basic mechanisms are poorly characterized. The main objective of this coordinated project is the study of these mechanisms by using different model plants with clearly distinct behaviours. In subproject 1, tropical varieties of maize that differ in Al resistance will be used to study the exclusion of Al via root exudate analysis and to ascertain the subcellular compartmentation mechanisms with micromanipulation techniques. For the experiments that address the relative importance of exclusion and internal des-toxification of heavy metals (Cu, Ni, Zn) ecotypes of *Silene*, *Alyssum* and other metallophytes with a potential for phytoremediation will be used. Subproject 2 examines the NaCl exclusion and compartmentation mechanisms for two types of models: *Phaseolus vulgaris*, a salt sensitive glucopyte, and two species of the more salt resistant genus *Medicago* (*M. arborea* and *M. citrina*) that also clearly differ in their response to salt stress. Investigations will mainly center on the plasmalemma ATP-ase using kinetic studies, electrophoresis and Western-blot techniques. The study of the importance of heavy metal exclusion and compartmentation in the cuticle and epidermal cells, with the prospect of application to the phytoremediation of arid or semi-arid areas affected by aerial contamination (aerosols, fumes and particulates) will be examined in several species that inhabit an area exposed to pollution sources emitted by airline fuel exhaust. The coordinative character of the project will allow a fluent and continuous exchange of scientific information and experimental techniques between the partners.

Referència: AGL2001-1285-C03-01. Ministeri de Ciència i Tecnologia.

Modalitat: Programa nacional de recursos y tecnologies agroalimentàries.

Títol: *Utilización de indicadores fisiológicos para la aplicación del riego en vid: regulación de la fotosíntesis y del reparto de asimilados y efectos de la calidad del fruto.*

Acrònim: EFICALVID.

Centre: Departament de Biologia. Edifici Guillem Colom Casanovas.

Investigador responsable: MEDRANO GIL, Hipólito.

Categoria: CU (àrea de coneixement: Biologia Vegetal).

Inici: 2001. **Fi:** 2004.

Membres de l'equip	Categoria	Dedicació (EDP)
Medrano Gil, Hipólito	CU	0.5
Bennàsar Roig, Antoni	CEU	0.5
Vadell Adrover, Jaume	TEU	0.5
Escalona Lorenzo, José M.	As.	1
Alorda Martorell, Maria	As.	0.5
Bota Salort, Josefina	B	1
Sampol Trujillo, Bartomeu	B	0.5
Flexas Sans, Jaume	B	0.5

Investigadors d'altres entitats

García-Escudero Domínguez, Enrique	CIDA (La Rioja)
Zaballa Ogueta, Olga	CIDA (La Rioja)

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

Keywords: grapevine, *Vitis vinifera* L., drought, moderate irrigation, photosynthesis, assimilate partitioning, sap flow, quality, leaf senescence, genetic variability.

Summary

The present project is based on previous knowledge, acquired during the development of previous projects on the effects of water stress in grapevine (*Vitis vinifera* L.) physiology. This new project has two aspects: a basic and an applied one. In its basic aspect, it is intended to improve the knowledge about the physiological responses of grapevines to water stress and moderate irrigation, as well as their modulation as a function of the studied cultivar and rootstock. Specifically, the following processes will be studied: hydraulic conductivity and embolism, stomatal regulation by embolism and abscisic acid, non-stomatal inhibition of photosynthesis (photophosphorylation, Calvin cycle and mesophyll resistance), assimilate partitioning between different plant parts, early leaf senescence and abscission, yield, grape quality (specially focussed on colour compounds), and wine quality. In a more applied aspect, it is intended to use different physiological markers to meliorate the application of moderate irrigation, with the aim of optimising the balance between fruit yield and quality. Specifically, the utilisation of sap flow meters and dendrometers will allow a continuous monitoring of plant water expenses, which will be used to control the irrigation schedule. In one of the subprojects, such a control will be supported as well by the establishment of a stomatal conductance threshold, derived from previous studies, in order to maximise water use efficiency and grape quality.

Referència: REN2001-3438-C07-02/HID. Ministeri de Ciència i Tecnologia.

Modalitat: Programa nacional de recursos naturals.

Títol: *Estado ecológico de los ríos mediterráneos en ambientes insulares. Regionalización ecológico, estaciones de referencia y métodos predictivos de evaluación de calidad.*

Acrònim: GUADALMED2-Insulares.

Centre: Departament de Biologia. Edifici Guillem Colom Casanovas.

Investigador responsable: MOYÀ NIELL, Gabriel.

Categoria: TU (àrea de coneixement: Ecologia).

Inici: 2001. **Fi:** 2004.

Membres de l'equip	Categoria	Dedicació (EDP)
Moyà Niell, Gabriel	TU	0.5
Ramon Pérez de Rada, Guillem	TU	0.5
Aguiló Ribas, Josep Antoni	As.	1

Investigadors d'altres entitats

Pardo Gamundí, Isabel	Universitat de Vigo
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EDP del grup investigador de l'entitat sol·licitant: 2.

Keywords: ecological status, mediterranean streams, multimetric indexes, predictive index, macroinvertebrates, reference stations.

Summary

The European Union Water Framework Directive is now in its final step. The last version (CE 41/99, approved by the council in October 22nd 1999) will ask to all the countries to elaborate maps of the Ecological Status of freshwater ecosystems, including streams and rivers. The ecological status is based on the determination of water quality using ecological indicators. The Guadalmed working group is presently studying the application of several ecological indicator's systems in 12 mediterranean stream watersheds, from the Besòs river in Barcelona to river Guadalfeo in Granada, including some temporary streams in Majorca Island. We have focused the effort in the combination of 4 multimetric indexes: habitat, riparian vegetation, macrophytes and macroinvertebrates, together with water physicochemical parameters. Our present results are still not conclusive, as we are in the second year of sampling and collection of data, but some advanced aspects cannot be studied in the Guadalmed1 project and will be the objective of this new proposal Guadalmed2.

Referència: REN2001-3506-C02-01. Ministeri de Ciència i Tecnologia.

Modalitat: Programa nacional de recursos naturals.

Títol: *Evolución de las especies vegetales y efectos de la fragmentación en las islas continentales: aspectos ecológicos y funcionales.*

Acrònim: EVOLUCIÓN E INSULARIDAD.

Centre: Departament de Biologia. Edifici Guillem Colom Casanovas.

Investigador responsable: MUS AMÉZQUITA, Maurici.

Categoria: TEU (àrea de coneixement: Botànica).

Inici: 2001. **Fi:** 2004.

Membres de l'equip	Categoria	Dedicació (EDP)
Mus Amézquita, Maurici	TEU	1
Medrano Gil, Hipólito	CU	0.5
Rita Larrucea, Joan	TU	0.5
Bibiloni Oliver, Gabriel	As.	1
Galmés Galmés, Jeroni	B	1
Gulías León, Javier	Tèc.	1

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

Summary

The project deals, for the first time in Spain, with one of the main issues concerning the Conservation of Biodiversity and Natural Resources: that of understanding the evolutionary origin, distribution and ability to survive of those endemic plant species inhabiting continental islands in the Mediterranean Basin. The approach followed is based on a comparative analysis of several plant species with similar distribution range but contrasting life-history traits:

Two species that show both similar distribution range and dispersal ability, but occurring in different habitats: *Senecio rodriguezii* and *Crepis triasii*.

Three outcrossing species that show both similar distribution range and levels of fragmentation, but with a limited ability to disperse: *Digitalis minor*, *Hippocrepis balearica* and *Rhamnus ludovici-salvatoris*. While the last one does not seem to show any kind of differentiation throughout its range, *H. balearica* and *D minor* show well-differentiated and characterized morphs throughout the archipelago.

The specific questions addressed are: **(i)** Which are the patterns of distribution of the genetic variability and gene flow among populations? **(ii)** Which is the structure and dynamics of fragmented populations, and which is the relative importance of abiotic factors that best explain the ecophysiological behaviour which might be relevant for the extinction of the species concerned? **(iii)** Which is the degree of agreement in the phylogeography of the endemic species that have similar distribution ranges but different dispersal abilities and levels of fragmentation? **(iv)** Which is the genetic variability for those traits concerning dispersal ability and physiological adaptation?

The aims of this project are designed to match and complement the objectives addressed in the European Project (*Plant Dispersal*, EVK2-199-00246), and will allow to assess which type of analogies can be established between the consequences of insularity and the effects of habitat fragmentation in continental landscapes.

Referència: VIN00-013. Programa nacional d'alimentació.

Modalitat: Acció estratègica de millora de la qualitat i la competitivitat dels vins.

Títol: *Selección clonal y saneamiento de variedades de vid de Baleares.*

Centre: Departament de Biologia. Edifici Guillem Colom Casasnovas.

Investigador responsable: MEDRANO GIL, Hipólito.

Categoria: CU (àrea de coneixement: Biologia Vegetal).

Inici: 2000. **Fi:** 2003.

Membres de l'equip	Categoria
Medrano Gil, Hipólito	CU
Bota Salort, Josefina	B
Sampol Trujillo, Bartomeu	B
Escalona Lorenzo, José Mariano	

Nombre total d'investigadors de la UIB: 3.

Summary

Local grapevine varieties are increasing their interest because they provide peculiar 'regional' characteristics to the wine. For this reason, the genetic improvement of these varieties are matter of interest and, in that way, the selection of clones from current populations with typical characteristics and good sanitary, productivity and quality levels is necessary. For Balearic Islands, the varieties 'Prensal Blanc o Moll', (white wine), Callet and Manto Negro (black wine) are the most widely used in local wineries and also are part of the authorised varieties in the two 'Denominaciones de Origen' of the Island. The present project will try to obtain selected clones with high quality and productivity as well as to achieve an ampelographic description of such varieties according to the international rules (OIV).

Referència: BOS2001-0303. Ministeri de Ciència i Tecnologia.

Modalitat: Programa nacional de promoció general del coneixement.

Títol: *Sistemática, ecología y evolución de Pseudomonas stutzeri*.

Classificació UNESCO: 2414.

Centre: Departament de Biologia-IMEDEA. Edifici Guillem Colom Casanovas.

Investigador responsable: LALUCAT JO, Jordi.

Categoria: CU (àrea de coneixement: Microbiologia).

Inici: 2001. **Fi:** 2004.

Membres de l'equip	Categoria	Dedicació (EDP)
Lalucat Jo, Jordi	CU	0.5
García-Valdés Pukkits, Elena	TU	1
Bosch Zaragoza, Rafael	TEU	1
Bennàsar Figueras, Antoni	As.	1
Alonso Frau, Diana	B	1

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

Keywords: *Pseudomonas stutzeri*, phylogeny, ecology, evolution, naphthalene, degradation, microdiversity, population genetics.

Summary

Pseudomonas stutzeri is found very frequently in natural environments. Characteristic of the species is the enormous metabolic potential: in the carbon cycle, due to the huge amount of substrates that can be metabolized, specially for the ability to transform or degrade contaminants; in the nitrogen cycle for the ability of certain strains to fix dinitrogen and for being a very active denitrifier. Taxonomically the species is distributed in 9 genomic groups, phylogenetically close related. Main objectives of the project are: 1) Characterization of the genetic microdiversity of the species; 150 collection strains and new relevant isolates will be studied. 2) Determine the genetic structure of the species through MLST. 3) Quantify the abundance of the species in natural environments using traditional and molecular microbiological methods. 4) The evolution of metabolic pathways in *P. Stutzeri* and in the genus *Pseudomonas*, including the naphthalene degradation as a model. 5) To develop a theoretical model on the evolution of the species.

Referència: FIS00-0486. Fons d'Investigació Sanitària. Ministeri de Sanitat i Consum.

Títol: *Regulación de la expresión de cápsula y su relación con la respuesta inmunitaria en las infecciones respiratorias causadas por Streptococcus pneumoniae y Klebsiella pneumoniae.*

Centre: Hospital Son Dureta.

Investigador responsable: ALBERTÍ SERRANO, Sebastià.

Categoria: AS. (àrea de coneixement: Microbiologia).

Inici: 2000. **Fi:** 2002.

Membres de l'equip	Categoria
Albertí Serrano, Sebastià	As.
Cortés García, Guadalupe	B
Borrel Solé, Núria	
Noguera Bennàsar, Francesca A.	
Riera Jaume, Melsion	
Ramírez Rosales, Antoni	

Nombre total d'investigadors de la UIB: 2.

Summary

Respiratory infections caused by *Streptococcus pneumoniae* and *Klebsiella pneumoniae* are particularly common in patients with certain underlying conditions (i.e. COPD). These patients are more susceptible to these infections, but the reasons for their susceptibility are not clear.

Objetives: to study two aspects involved in the predisposition to bacterial respiratory infections of certain patients: the expression or upregulation of a bacterial virulence factors (i.e. capsule polysaccharide) and the immune response.

Metodology: we will investigate whether the cellular or environmental conditions of the lungs from these patients enhance the production of the capsule polysaccharide, the most important virulence factor of these pathogens. For this purpose, we will study in constructing transcriptional fusions between the promoter regions of the capsule genes and the CAT reporter system using representative strains from both microorganisms. In addition, we will compare the humoral and cellular immune innate response of patients with infections by *Streptococcus pneumoniae* and *Klebsiella pneumoniae* and of healthy controls to identify the predisposing factors leading to those infections. For this purpose, we will characterize the deposition and degradation of complement, and the resistance to opsonophagocytosis and to certain antimicrobials of the bacterial isolates from patients. These experiments will be carried out both with serum and immune cells from patients and healthy controls.

Projectes d'estímul a la transferència de resultats d'investigació (PETRI)

Referència: PTR95-0421-OP. Projectes d'estímul a la transferència de resultats d'investigació.

Títol: *Receptores de imidazolinas y adrenoceptores alfa-2 en el SNC. Caracterización bioquímica y molecular, y modulación fisio-farmacológica y patológica.*

Centre: Departament de Biologia. Edifici Guillem Colom Casasnovas.

Investigador responsable: [ESCRIBÁ RUIZ, Pablo Vicente](#).

Categoria: CEU (àrea de coneixement: Biologia Cel·lular).

Inici: 2000. **Fi:** 2002.

Membres de l'equip	Categoria	Dedicació (h/setm.)
Escribá Ruiz, Pablo Vicente	CEU	20
Miralles Socias, Antoni	TU	20
Estebán Valdés, Susana	TU	10

Nombre total d'investigadors de la UIB: 3.

Total EJC/setmana: 1,25.

Referència: PTR95-0453-OP. Projectes d'estímul a la transferència de resultats d'investigació.

Títol: *Evaluación del análisis del óxido nítrico exhalado para la monitorización de las infecciones bacterianas en la enfermedad pulmonar obstructiva crónica (EPOC).*

Centre: Hospital Son Dureta.

Investigador responsable: [ALBERTÍ SERRANO, Sebastià](#).

Categoria: AS. (àrea de coneixement: Microbiologia).

Inici: 2000. **Final:** 2002.

Membres de l'equip	Categoria
Albertí Serrano, Sebastià	As.
Benedí Benito, Vicente Javier	TU
Borrel Solé, Núria	
Busquets Xaubet, Xavier	
Agustí García-Navarro, Àlvar	
Salas Llinàs, Ernest	
Sauleda Roig, Jaume	

Nombre total d'investigadors de la UIB: 2.

Ajudes de la Comissió Interdepartamental de Ciència i Tecnologia. Conselleria d'Innovació i Energia. Govern Balear

Títol: *Aplicació de les noves tecnologies a l'ensenyament de la Biologia Molecular a la UIB.*

Centre: Departament de Biologia. Edifici Guillem Colom Casanovas.

Investigador responsable: BENEDÍ BENITO, Vicente Javier.

Categoria: TU (àrea de coneixement: Microbiologia).

Inici: 2000. **Fi:** 2002.

Membres de l'equip	Categoria	Dedicació (h/setm.)
Benedí Benito, Vicente Javier	TU	16
Miralles Socias, Antoni	TU	16
Escribá Ruiz, Pablo Vicente	CEU	16
Juan Clar, Carles	TEU	16

Nombre total d'investigadors de la UIB: 4.

Total EJC/setmana: 1,6.

Keywords: new technologies, teaching, applications in remote servers, molecular biology, DNA, RNA, proteins, 2D and 3D structures of biologically relevant molecules.

Summary

The application of new technologies to the teaching of undergraduate *curricula* and Ph. D. courses is a relatively new field in which the Universitat de les Illes Balears (UIB) has gained a relevant position, within an Autonomous Community which is on the forefront of this field. In the molecular biology area, meant as a multidisciplinary field with technological applications in the classic areas of Biology, such as Microbiology, Cell Biology, Genetics, Biochemistry, Plant Biology, etc., a new concept known as Bioinformatics has born in the last years. This new area assembles those hardware and, in particular, software resources applied to the study of Biology. A typical example of these applications are the building and management of large databases of DNA/RNA and protein sequences, as well as of crystallographic coordinates of biologically relevant molecules. This project aims to build up at the UIB the basic bioinformatic resources and their application to the teaching of molecular biology within the fields of Cell Biology, Microbiology, and Genetics at the Ph. D. level. These basic goals will be of application in the future at the undergraduate level. The bioinformatic resources generated as a consequence of this project will be organized in the form of an on line course in the UIB Internet server, and it will be fully accessible from the web. An obvious advantage of the proposed structure of this course is that it will be used within ongoing teaching initiatives in the UIB, like the noclassroom teaching project *Campus Extens*.

Títol: *Possibilitats tecnològiques d'aprofitament de l'efluent de les indústries formatgeres de Balears (lactosuero) com a estratègia de depuració.*

Centre: Departament de Biologia. Edifici Guillem Colom Casanovas.

Investigador responsable: BOSCH ZARAGOZA, Rafael.

Categoria: TEU. (àrea de coneixement: Microbiologia).

Inici: 2000. **Fi:** 2002.

Membres de l'equip	Categoria
Bosch Zaragoza, Rafael	TEU
García-Valdes Pukkits, Elena	TU
Bergueiro López, José Ramón	TU
Jiménez-Flores, Rafael	
Guasp Mascaró, Caterina	B

Nombre total d'investigadors de la UIB: 4.

Keywords: cheese, whey, α -lactalbumin, β -lactoglobulin, lactoferrin, lactose, acid lactic, bacteria, lactate, environmental contamination, depuration, ultrafiltration, reverse osmosis, FPLC, antibodies, ELISA, pathogens, bacteriophage, acid lactic fermentation, whole cell mass, food technology, dairy industry, food industry, animal feed supplement.

Summary

Cheese making is a fermentation process with long history and that allows the preservation of the nutritional value of milk. In cheese making only 10% by weight becomes cheese, the rest is an industrial waste stream (90% of the milk volume), whey. This effluent has a high organic content (mainly protein and lactose) that, accounting to current laws, has to be eliminated before its disposal. Anaerobic and aerobic treatment of whey is a possible solution to the contamination problema that represents whey from cheese. However, the qualities of the main proteins from whey (α -lactalbumin, β -lactoglobulin, BSA and Lactoferrin) such as gelling, water retention, emulsification, foaming and antibacterial capacity, as well as the high lactose concentration, make whey a product with high potential to be used in industries such as feed, meats, dairy and pharmaceutical. In this project, we propose to study the biochemical and microbiological quality of whey using molecular and traditional techniques with the objective of evaluating its particular potential in the above-mentioned industries. We will apply experimental models in the laboratory to process whey produced locally and evaluate its commercial potential. Finally, based on the generated data, an assessment will be made on the possible technological and economical potential of whey within the community of Balearic Islands.

Títol: *Estudi del procés de compostatge i de la qualitat del compost.*

Centre: Departament de Biologia. Edifici Guillem Colom Casasnovas.

Investigador responsable: LALUCAT JO, Jordi

Categoria: CU (àrea de coneixement: Microbiologia).

Inici: 2000. **Fi:** 2001.

Membres de l'equip	Categoria	Dedicació (h/setm.)
Lalucat Jo, Jordi	CU	32
Estela Ripoll, Josep Manuel	TU	32
Garcia Garí, Patrícia	B	32
Ferrero, Marcela		32

Nombre total d'investigadors de la UIB: 3.

Total EJC/setmana: 2,4.

Keywords: compositing, compost, sludge, microbiology, analytical chemistry.

Summary

The aim of the compositing process is the reduction in volume of solid organic wastes, and its transformation in a stable product to be used in agriculture, gardening or forestry. Compost quality is influenced by the starting substrate, the efficiency of the process and the consistency of the product. Quality is measured basically by the absence of heavy metals and the absence of pathogens. The physical, chemical and microbiological characteristics of starting materials, process and product will be studied. Main objective is the characterization of the process to ensure a compost of good quality. Traditional microbiological procedures, together with techniques used in molecular microbial ecology, will be used to characterize the microbial communities. At the same time, the physical and chemical parameters will be determined to favor the metabolic processes in each phase. The time needed for the process can be shortened optimizing the microbial activities. Taken all the results together, the standards of quality for the application of the compost in the Balearic Islands may be established. The knowledge gained during the study can be transferred immediately to the industrial sector. It will be applied very soon, due to the new local directive for the treatment of urban refuse in the Balearic Islands.

Participacions a altres projectes

Referència: 2FD97-0287. Fons FEDER.

Títol: *Papel de la molécula de la membrana externa de bacterias gram-negativas: como inmunomodulador de la prevención y tratamiento de procesos infecciosos en avicultura.*

Investigador responsable: TOMÁS MAGAÑA, Juan.

Centre: Universitat de Barcelona.

Investigadors de la UIB:

BENEDÍ BENITO, Vicente Javier.

Categoria: TU (àrea de coneixement: Microbiologia).

ALBERTÍ SERRANO, Sebastià.

Categoria: As. (àrea de coneixement: Microbiologia).

Inici: 1998. **Fi:** 2001.

Referència: PB97-0932. Programa sectorial de promoció general del coneixement.

Títol: *Moléculas de la membrana externa y estructuras adicionales de tres bacterias gram-negativas implicadas en la virulencia: estudio genético y su uso como vacunas.*

Investigador responsable: TOMÁS MAGAÑA, Juan.

Centre: Universitat de Barcelona.

Investigador de la UIB: BENEDÍ BENITO, Vicente Javier

Categoria: TU (àrea de coneixement: Microbiologia).

Total EJC/setmana: 0,4.

Inici: 1998. **Fi:** 2001.

Referència: PB97-0790. Programa sectorial de promoció general del coneixement.

Títol: *Patrones morfológicos en partes esqueléticas de moluscos actuales y fósiles. Origen e implicaciones evolutivas.*

Investigador responsable: CHECA GONZÁLEZ, Antonio G.

Centre: Universitat de Granada.

Investigador de la UIB: GÁLLEGO CASTEJÓN, Luis.

Categoria: CU (àrea de coneixement: Biologia Animal).

Total EJC/setmana: 0,8.

Inici: 1999. **Fi:** 2001.

Referència: OT00-037-C17-05.

Títol: *Tipificación, cartografía y evaluación de los pastos españoles.*

Investigador responsable: RALLO GARCÍA, Juan.

Centre: Conselleria d'Agricultura i Pesca del Govern Balear.

Investigador de la UIB: MEDRANO GIL, Hipólito.

Categoria: CU (àrea de coneixement: Biologia Vegetal).

Inici: 2000. **Fi:** 2003.

Referència: 11179/R1. Ministeri d'Agricultura i Pesca (INIA).

Títol: *Investigación epidemiológica y diagnóstico molecular del brote de lengua azul en las Islas Baleares.*

Investigador responsable: DOMINGO, Mariano.

Centre: Centre de Recerca en Sanitat Animal de Barcelona.

Investigadors de la UIB:

MIRANDA CHUECA, Miguel Ángel;

Categoria: TU (àrea de coneixement: Biologia Animal).

ALEMANY FERRÀ, Aina.

Categoria: TEU int. (àrea de coneixement: Zoologia).

Total EJC/setmana: 0,8.

Inici: 2000. **Fi:** 2001.



DEPARTAMENT DE BIOLOGIA FONAMENTAL I CIÈNCIES DE LA SALUT

- Regulación por nutrientes de la termogénesis y genes relacionados con la obesidad.

PALOU OLIVER, Andreu

- Aplicación de las técnicas de análisis espectral y no lineal de series temporales al estudio de la evolución del sueño y la regulación cardiorespiratoria.

RIAL PLANAS, Rubén Víctor.

- Bases genético-moleculares de la regulación del peso corporal y la obesidad.

PALOU OLIVER, Andreu

- Efecto termogénico de nutrientes en el control del peso corporal.

SERRA VICH, Francesca

- Caracterización del sistema de la leptina en el tracto gastrointestinal

PICÓ SEGURA, Catalina

- Dimorfismo sexual en la regulación adrenérgica de la termogénesis.

ROCA SALOM, Maria Pilar.

- Cambios termogénicos durante la biogénesis y desarrollo mitocondrial.

GARCÍA PALMER, Francisco José

- Regulación termogénica a nivel mitocondrial

GIANOTTI BAUZÀ, Magdalena

- Aproximación molecular a la obesidad

PALOU OLIVER, Andreu

- Influencia de la ingesta de nutrientes antioxidantes sobre el estado inmunológico, el rendimiento, y la salud de los deportistas de élite de las actividades subacuáticas

PONS BIESCAS, Antoni

- Participacions a altres projectes



Referència: PM97-0094. Programa sectorial de promoció general del coneixement

Títol: *Regulación por nutrientes de la termogénesis y genes relacionados con la obesidad.*

Classificació UNESCO: 230221.

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

Investigador responsable: [PALOU OLIVER, Andreu](#).

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

Inici: 1998. **Fi:** 2001.

Membres de l'equip	Categoria	Dedicació (h/setm.)
Palou Oliver, Andreu	CU	32
Bonet Piña, M. Lluïsa	TEU	32
García Palmer, Francisco José	TU	32
Gianotti Bauzá, Magdalena	CEU	32
Picó Segura, Catalina	TEU	32
Pons Biescas, Antoni	TU	32
Roca Salom, Maria Pilar	TU	32
Serra Vich, Francesca	CEU	32
Lladó Sampol, Isabel	TEU	32
Proenza Arenas, Ana María	Aj. U	32
Oliver Oliver, Jordi	Aj. U	32
Balaguer Covas, Jaume	As.	16
Pablo Cànaves, Josep A.	As.	16
Matamoros Florí, Núria	As.	16
Quevedo Coli, Santiago	As.	16
Vilimelis Montsó, Josepa	As.	16
Crespí Rotger, Sebastià		16
Crespí Bestard, Catalina		16
Oliver Vara, Paula	B	40
Ribot Riutort, Joan	B	40

Nombre total d'investigadors de la UIB: 18.

Total EJC/setmana: 12,8.

Keywords: obesity, thermogenesis, cell differentiation, adipocytes, brown and white adipose tissue, UCP, uncoupling proteins.

Summary

This project comes from our accumulated experience in the subject of facultative thermogenesis, both at the molecular and the cellular levels. We are intending to obtain new insights into the obesity-related genes, focusing on adipocytes and thermogenesis and their physiological significance in relationship with obesity and its metabolic complications. Our current goal is to delineate the properties of some essential nutrients and related products as potential regulators of the thermogenic activity and cell proliferation/differentiation, particularly of brown and white adipocytes. For such studies, the pre-selected nutrients include: essential fatty acids (linoleic acid, arachidonic acid), retinoic acid (all-trans and 9-cis) and several carotenoids related to vitamin A, butyric and

hydroxybutyric acid, vitamin D3 and the amino acids tryptophan and arginine. The action of these compounds is to be studied both in systems *in vitro* (isolated adipocytes, adipocyte primary cultures, immortal adipocyte cell lines) and *in vivo* in rodents, including animals with dietary-induced obesity and nutritional deficiencies. The parameters to be determined include: thermogenesis (heat production, UCPs levels, GDP-binding), cell proliferation (protein and DNA content, cellularity, DNA synthesis) and cell differentiation (morphology and levels of molecular markers of the brown and white adipocyte differentiated phenotype, such as triglycerides, LPL, C/EBP α , ap2, pRB, β 3 adrenergic receptors, leptin and its receptors, TNF α and others). Besides, and through collaborations with other research groups, the polymorphism of genes potentially involved in body weight control in relationship with obesity and its clinical complications will be studied in human populations.

Referència: FIS00-0022-01. Fons d'Investigació Sanitària. Ministeri de Sanitat i Consum.
Títol: *Aplicación de las técnicas de análisis espectral y no lineal de series temporales al estudio de la evolución del sueño y la regulación cardiorespiratoria.*
Centre: Departament de Biologia Fonamental i Ciències de la Salut. Edifici Guillem Colom Casasnovas.
Investigador responsable: RIAL PLANAS, Rubén Víctor.
Categoria: CU (àrea de coneixement: Fisiologia).
Inici: 2000. **Fi:** 2002.

Membres de l'equip	Categoria	Dedicació (h/setm.)
Rial Planas, Rubén Víctor	CU	32
Nicolau Llobera, Cristina	TEU	32
Gené Ramis, Lluís		16
Revert Vidal, Xavier	B	16
Esteban Valdés, Susana	TU	12

Nombre total d'investigadors de la UIB: 4.

Total EJC/setmana: 2,7.

Keywords: sleep, evolution, cardiorespiratory regulation, neonates, reptiles, sudden infant death, spectral analysis, nonlinear analysis.

Summary

This study aims at understanding the origin and the functions of the REM sleep by analysing the cardiorespiratory regulation in reptiles and neonates. This will be performed by using non-linear analysis techniques that seems to overcome the limitations of the linear techniques with regard to EEG sleep studies. Cardiac activity, respiration (frequency, amplitude, pauses) and EEG will be studied in both reptiles and new-borns. Data will be recorded in reptiles by using chronically implanted electrodes, while disk adhesive electrodes will be used in the new-born. The obtained signals will be stored in a computer for further analysis. The obtained results will be used to develop evidence of homology between reptilian rest and human sleep states. It has been claimed that the reptilian respiration shows many characteristics similar to that of the foetus and neonate. In addition it is well known that this physiological variable deeply depends on the vigilance status, with an increased vulnerability during REM sleep. In consequence, the results obtained in reptiles could contribute to increase the knowledge on the cardiorespiratory pathologies in the new-born: periodic breathing, distribution of apneic pauses and their determining factors, irregularity in cardiac frequency, asystolia, sudden infant death, etc.

Referència: BFI2000-0988-C06. Ministeri de Ciència i Tecnologia.
Modalitat: P1. Projecte d'investigació bàsica no orientada.
Classificació UNESCO: 320602, 230221, 230204.
Centre: Departament de Biologia Fonamental i Ciències de la Salut. Edifici Guillem Colom Casasnovas.
Títol del projecte coordinat: *Bases genético-moleculares de la regulación del peso corporal y la obesidad.*
Acrònim: GENOBES.
Investigador responsable: PALOU OLIVER, Andreu.
Categoria: CU (àrea de coneixement: Bioquímica i Biologia Molecular).
Inici: 2000. **Fi:** 2003.

Subprojecte 2: BFI2000-0988-C06-02.
Títol del subprojecte: *Efecto termogénico de nutrientes en el control del peso corporal.*
Acrònim: NUTRITERM.
Investigadora responsable: SERRA VICH, Francesca.
Categoria: CEU (àrea de coneixement: Nutrició i Bromatologia).

Subprojecte 3: BFI2000-0988-C06-03.
Títol del subprojecte: *Caracterización del sistema de la leptina en el tracto gastrointestinal.*
Acrònim: GASTRILEP.
Investigadora responsable: PICÓ SEGURA, Catalina.
Categoria: CEU (àrea de coneixement: Bioquímica i Biologia Molecular).

Subprojecte 4: BFI2000-0988-C06-04.
Títol del subprojecte: *Dimorfismo sexual en la regulación adrenérgica de la termogénesis.*
Acrònim: DISRAT.
Investigadora responsable: ROCA SALOM, Maria Pilar.
Categoria: TU (àrea de coneixement: Bioquímica i Biologia Molecular).

Subprojecte 5: BFI2000-0988-C06-05.
Títol del subprojecte: *Cambios termogénicos durante la biogénesis y desarrollo mitocondrial.*
Acrònim: CAMTER.
Investigador responsable: GARCÍA PALMER, Francisco José.
Categoria: TU (àrea de coneixement: Bioquímica i Biologia Molecular).

Subprojecte 6: BFI2000-0988-C06-06.
Títol del subprojecte: *Regulación termogénica a nivel mitocondrial.*
Acrònim: TERMIT.
Investigadora responsable: GIANOTTI BAUZÀ, Magdalena.
Categoria: CEU (àrea de coneixement: Bioquímica i Biologia Molecular).

Membres de l'equip	Categoria	Dedicació
Palou Oliver, Andreu	CU	Compartida
Serra Vich, Francesca	TEU	Única
Picó Segura, Catalina	CEU	Única
Roca Salom, Maria Pilar	TU	Única
García Palmer, Francisco José	TU	Única

Gianotti Bauzà, Magdalena	CEU	Única
Bonet Piña, M. Lluïsa	CEU	Única
Lladó Sampol, Isabel	TEU	Única
Proenza Arenas, Ana María	TEU int.	Única
Quevedo Coli, Santiago	As.	Única
Oliver Oliver, Jordi	TEU int.	Única
Pablo Cànaves, Josep A.	As.	Única
Conde Riera, Pere B.		Única
Vilimelis Montsó, Josepa	As.	Única
Veny Riera, Guillem		Única
Balaguer Covas, Jaume	As.	Única
Guardiola Serrano, Francesca	As.	Única

Nombre total d'investigadors de la UIB: 15.

Keywords: obesity, thermogenesis, leptin, UCPs, obesity genes, mitochondria, regulation by nutrients.

Summary

This co-ordinated project is aimed to contribute to the knowledge of the genetic and molecular bases of body weight control and obesity. In the last 5 years, basic research in this field has lived a bust, with milestones such as the cloning of the ob gene and the identification of its products, leptin, as a key hormone in the control of food intake (as well as thermogenesis) through the CNS, and the decoding of the thermogenic systems, which determines the energy efficiency of nutrient metabolism. Our group, with a continuous interest in the field dating back 15 years, has been at the centre of this huge activity. Among our more recent contributions are: 1) the discovery that some nutrients can regulate the expression of genes related to thermogenesis and obesity, 2) the discovery of an association between certain gene polymorphisms and obesity and 3) the discovery that leptin, which is produced mainly in adipose tissues, is also produced in the human stomach (results in press). These contributions are the foundations of three of the subprojects presented here, the goals of which are: to further study the effects and mechanisms of action of already identified regulatory nutrients and to identify new putative regulatory nutrients, to establish possible associations between new gene polymorphisms and obesity and to investigate the possible role of leptin as a short-term satiating signal, characterising leptin expression in the gastrointestinal tract. In close association, another subproject deals with the study of the molecular and physiological bases of the sexual dimorphism in the regulation of thermogenesis and the mobilisation of fat stores, which has been previously reported by our group and could be related to the well known gender differences in fat distribution. Finally, two subprojects go further in the characterisation of the distinct thermogenic capacity and activity of the different mitochondrial subpopulations, and its possible implication in body weight disorders. This project is connected to other European activities, since, with complementary objectives, we have already established collaborations with the most important groups in the field, in the framework of COST action 918 (participated by 17 European Countries and managed by the co-ordinator of the present project) and of other projects requested to the V Framework Programme. This co-ordinated project is the natural continuity of our previous efforts in a field that has a great and increasing scientific impact, as well as important economic and social implications.

Referència: FIS01-1379. Fons d'Investigació Sanitària. Ministeri de Sanitat i Consum.

Títol: *Aproximación molecular a la obesidad.*

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

Investigador responsable: PALOU OLIVER, Andreu.

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

Inici: 2001. **Fi:** 2003.

Membres de l'equip	Categoria
Palou Oliver, Andreu	CU
Bonet Piña, M. Lluïsa	CEU
Picó Segura, Catalina	CEU
Roca Salom, Maria Pilar	TU
Serra Vich, Francesca	CEU
Garcia Palmer, Francisco José	TU
Gianotti Bauzá, Magdalena	CEU
Lladó Sampol, Isabel	TEU
Proenza Arenas, Ana María	TEU int.
Oliver Oliver, Jordi	TEU int.
Pablo Cànaves, Josep A.	As.
Quevedo Coli, Santiago	As.
Conde Riera, Pedro B.	
Vilimelis Montsó, Josepa	As.
Veny Riera, Guillem	
Balaguer Covas, Jaume	As.
Guardiola Serrano, Francesca	As.
Ribot Riutort, Joan	B
Miralles Barrachina, Olga	
Cabello Vives, Mercedes Y.	B
Oliver Vara, Paula	B
Moreiro Socias, José	
Rodríguez Guerrero, Ana M.	B
Rodríguez Padrona, Enrique	B
Felipe Legaz, Francisco	B
Ramis Morey, Joana M.	B
Monjo Cabrer, Marta	B
Rodríguez Cuenca, Sergio	
Pujol Holgado, Maria E.	B
Justo López, Roberto	

Nombre total d'investigadors de la UIB: 24.

Summary

This project is aimed to contribute to the knowledge of the genetic and molecular bases of body weight control and obesity. In the last 5 years, basic research in this field has lived a burst, with the cloning of the ob gene and the identification of its product, leptin, as a key hormone in the control of food intake (as well as thermogenesis), and the decoding of the

thermogenic system, which determines the energy efficiency of nutrient metabolism. Our group, with a continuous interest in the field dating back 15 years, has been at the centre of this huge activity with notable contributions. The present proposal is based in our knowledge and expertise in the field. The main goals of the project are: 1) to establish possible associations between new gene polymorphisms and obesity; 2) to investigate the possible role of leptin as a short-term satiating signal, characterising leptin expression and function in the gastrointestinal tract; 3) to further study the effects and mechanism of action of candidate regulatory nutrients; 4) to study the molecular and physiological bases of the sexual dimorphism in the regulation of thermogenesis and the mobilisation of fat stores; and 5) to characterise the thermogenic capacity and activity of different mitochondrial subpopulations, and their possible implication in body weight disorders.

This project is connected to other European activities, since, with complementary objectives, we have already established collaborations with the most important European groups in the field, in the framework of COST action 918 (participated by 17 European countries and managed by the principal investigator of the present project) and other requested at the VFWP.

Referència: 10/UNI10/00. Consell Superior d'Esports.

Títol: *Influencia de la ingesta de nutrientes antioxidantes sobre el estado inmunológico, el rendimiento, y la salud de los deportistas de élite de las actividades subacuáticas.*

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

Investigador responsable: PONS BIESCAS, Antoni

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

Inici: 2001. **Fi:** 2002.

Membres de l'equip	Categoria	Dedicació (h/setm.)
Pons Biescas, Antoni	TU	16
Tur Marí, Josep Antoni	TU	16
Aguiló Pons, Antoni		16
Cases Porcel, Núria	B	20
Tauler Riera, Pedro J.	B	20
Batle Vidal, Joan M.		20

Nombre total d'investigadors de la UIB: 4.

Total EJC/setmana: 2,7.

Summary

Last years, subaquatic diving have become very popular in the Balearic Islands, and perhaps this increased popularity could be due to the fact of the last world champions of this sport are native and/or living the Balearic Islands. The decompression and oxidative stress are the most important problems, because the sportmen commonly arrive to 63 m deep practising the subaquatic diving. The epidemiological data show that in the Balearic Islands there are a great incidence of letal accidents due to decompression and oxidative stress within the subaquatic divers. The aim of this study is to determine the muscle and nutritive damage, and the immunological and enzymic responses to the exercise of high level subaquatic divers in hypoxia and at 6 atm absolute pression. Also, a relationship between these data with the sport performance, immunological status, and the health of the high level subaquatic divers will be found. Finally, the possible benefits of a supplementary intake of antioxidant nutrients will be evaluated, as well as the control of behaviour at the sea depth.

Participacions a altres projectes

Referència: PB98-0469. Programa sectorial de promoció general del coneixement.

Títol: *Modificaciones del DNA y la cromatina por factores intrínsecos y extrínsecos: efecto sobre la expresión génica.*

Investigador responsable: PORTUGAL, J.

Centre: CSIC.

Investigadora de la UIB: BARCELÓ MAIRATA, Francesca M.

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

Inici: 1999. **Fi:** 2001.



DEPARTAMENT DE CIÈNCIES DE L'EDUCACIÓ

- Diseño e implementación de un dispositivo metodológico para sistemas de enseñanza flexible mediante aplicaciones y servicios telemáticos.

SALINAS IBAÑEZ, Jesús.

- Análisis y optimización de los itinerarios formativos para favorecer la calidad de vida de las personas con discapacidad.

MUNTANER GUASP, Joan Jordi

- Asociaciones juveniles, educación y socialización (1900-1976). Un estudio comparativo entre Cataluña, Valencia y Baleares.

SUREDA GARCIA, Bernat



Endarrere



Endavant

Referència: BSO2000-0949. Ministeri de Ciència i Tecnologia.

Modalitat: P1. Projecte d'investigació bàsica no orientada.

Títol: *Diseño e implementación de un dispositivo metodológico para sistemas de enseñanza flexible mediante aplicaciones y servicios telemáticos.*

Acrònim: DIMESEF-TEL.

Classificació UNESCO: 5802.

Centre: Departament de Ciències de l'Educació. Edifici Guillem Cifre de Colonya.

Investigador responsable: SALINAS IBÁÑEZ, Jesús.

Categoria: TU (àrea de coneixement: Didàctica i Organització Escolar).

Inici: 2000. **Fi:** 2003.

Membres de l'equip	Categoria	Dedicació
Salinas Ibáñez, Jesús	TU	Compartida
Bibiloni Coll, Antoni	TEU	Compartida
Pérez Garcias, Adolfinia	TEU	Compartida
Urbina Ramírez, Santos	Aj. EU	Compartida
Morlà Garcias, M. Miquela	Aj. EU	Única
de Benito Crosetti, Bàrbara	Tèc.	Compartida
Oliver Ribas, Miquel	Tèc.	Compartida

Nombre total d'investigadors de la UIB: 7.

Keywords: flexible learning, tele-teaching, real time applications, internet, videoconference, computer mediated communication, virtual training environment, distributed hypermedia, lifelong training.

Summary

The basic objectives of this project refer to the correct use of the Information and Communication Technologies in the teaching and learning process. And more exactly in the Campus Extens project of the University of Balearic Islands. Campus Extens is to offer masters, postgraduate courses and inservice and preservice education to people of Menorca and Ibiza through videoconference systems, hypermedia distributed materials, computer mediated communications, etc.

In this context is planned the identification of the correct integration of the telematic tools in the education and teacher training. Refers to the organization of a methodological system to implement a tele-teaching system of the Campus Extens, the design and development of materials and the validation of methodologies and pedagogic models.

Referència: SEC2000-1620. Ministeri de Ciència i Tecnologia.

Modalitat: P2. Projecte d'investigació bàsica orientada.

Títol: *Análisis y optimización de los itinerarios formativos para favorecer la calidad de vida de las personas con discapacidad.*

Acrònim: FORDIS.

Classificació UNESCO: 5802, 6102.

Centre: Departament de Ciències de l'Educació. Edifici Guillem Cifre de Colonya.

Investigador responsable: MUNTANER GUASP, Joan Jordi.

Categoria: CU (àrea de coneixement: Didàctica i Organització Escolar).

Inici: 2000. **Fi:** 2003.

Membres de l'equip	Categoria	Dedicació
Muntaner Guasp, Joan Jordi	CU	Compartida
Forteza Forteza, M. Dolors	TEU	Compartida
Rosselló Ramon, M. Rosa	TEU	Compartida
Verger Gelabert, Sebastià	Aj. EU	Compartida
Ferrer Cerdà, Elena	As.	Compartida

Nombre total d'investigadors de la UIB: 5.

Keywords: transition, handicapped, occupational integration, social integration, quality of life.

Summary

At present nobody questions that the occupational integration of the handicapped persons is an indispensable requirement for the full normalization. Equally, nobody casts doubt on that the adequate professional training, promoting to the maximum the capacities of the handicapped persons, it is the key to improve their situation in the occupational world and consequently the social integration. Nevertheless, in spite of the training proposals adopted by the educational system, exists a vacuum and discontinuity among the obligatory education and the different formative itineraries that prepare for the active life. This study not only intends to analyze these itineraries but also to outline action proposals in order to adjust the formative offer that make possible that the handicapped persons could live a so full life as to them will be possible. As well as in the different educational stages is underlined the importance of a comprehensive curriculum in the professional training of handicapped persons this conceptualization acquires, if fits, a special relevancy. First of all because the transition process to the adult life must answer to a detailed planning and coordinated by an interdisciplinary equipment, on the base of an individualized approach of a needs of handicapped persons. From the premise of the fact that only as of a professional training of agreed quality to the characteristics and possibilities of the handicapped persons is possible the integration of these in the occupational market, the position of this investigation has as end last to guide the work of the professionals towards the community integration of the handicapped persons.

Referència: BSO2000-0663-C04-02. Ministeri de Ciència i Tecnologia.

Modalitat: P1. Projecte d'investigació bàsica no orientada.

Títol: *Asociaciones juveniles, educación y socialización (1900-1976). Un estudio comparativo entre Cataluña, Valencia y Baleares.*

Classificació UNESCO: 550607.

Centre: Departament de Ciències de l'Educació. Edifici Guillem Cifre de Colonya.

Investigador responsable: SUREDA GARCIA, Bernat.

Categoria: CU (àrea de coneixement: Teoria i Història de l'Educació).

Inici: 2000. **Fi:** 2003.

Membres de l'equip	Categoria	Dedicació
Sureda Garcia, Bernat	CU	Compartida
Pastor Homs, Maria	TU	Única
Comas Rubí, Francesca	TEU int.	Única
Vallespir Soler, Jordi	TU	Compartida

Nombre total d'investigadors de la UIB: 4.



DEPARTAMENT DE CIÈNCIES DE LA TERRA

- Anàlisis comparatiu entre les unitats bàsiques de acreció en dipòsits carbonatats del cretàcic, paleògen, miocè i pliocè; arquitectura de facies en funció de canvis, producció, sediment, acomodació.

POMAR GOMÀ, Lluís

- El karst i la morfogènesis litoral en les illes Balears i la costa valenciana: la seva relació amb les oscil·lacions del nivell marí a lo llarg del Quaternari.

FORNÓS ASTÓ, Joan Josep.

- Canvi rural i productivisme. Les repercussions de la reforma de la PAC de 1992 en les illes Balears.

SALVÀ TOMÀS, Pere A

- Anàlisis de la variabilitat espacial i temporal en la ocurrencia de fenòmens tèrmics extrems en les illes Balears

LAITA RUIZ DE ASÚA, M. Mercedes

- Anàlisis comparatiu entre plataformes carbonatades: la arquitectura de facies en funció dels camps de producció de sediment i de acomodació

POMAR GOMÀ, Lluís

- Caracterització hidrològica i transport de sediments sota diferents usos del sòl en la conca del torrent de na Borges (Mallorca).

GARCÍA GARCÍA, Celso

- Anàlisis de la irregularitat pluviomètrica a diferents escales temporals en la península ibèrica i Balears, i les seves connexions regionals.

GRIMALT GELABERT, Miquel

- Gestió turística del patrimoni natural i cultural, i desenvolupament local en espais de interior en les Illes Balears.

BLÀZQUEZ SALOM, Macià.

- Disseny i implementació d'una SIG per a la gestió i planificació del transport escolar de Balears

SEGUÍ PONS, Joana Maria



Endarrere



Endavant

Referència: PB97-0135-C02-01. Programa sectorial de promoció general del coneixement.

Títol: *Análisis comparativo entre las unidades básicas de acreción en depósitos carbonatados del cretácico, paleógeno, mioceno y plioceno; arquitectura de facies en función de cambios, producción, sedimento, acomodación.*

Classificació UNESCO: 2506.

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

Investigador responsable: POMAR GOMÀ, Lluís.

Categoria: CU (àrea de coneixement: Estratigrafia).

Inici: 1998. **Fi:** 2001.

Membres de l'equip	Categoria	Dedicació (h/setm.)
Pomar Gomà, Lluís	CU	16
Mateos Ruiz, Rosa M.	As.	16
Calvet Rovira, Francesc		16

Nombre total d'investigadors de la UIB: 2.

Total EJC/setmana: 0,8.

Keywords: carbonates, platforms, shelves, facies architecture.

Summary

The aim of this project is to establish the relationships between carbonate production, accommodation changes and facies architecture in four examples of carbonate platforms and shelves from the Cretaceous and Paleogene of the southeastern-Pyrenees area, upper Miocene of Menorca (Balearic Islands) and Plio-Pleistocene of Puglia (southern Italy). Carbonate production in these examples was related to different types of biota, clima and geodynamic context.

Referència: PB98-0132. Programa sectorial de promoció general del coneixement.

Títol: *El karst y la morfogénesis litoral en las islas Baleares y la costa valenciana: su relación con las oscilaciones del nivel marino a lo largo del Cuaternario.*

Classificació UNESCO: 250619.

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

Investigador responsable: FORNÓS ASTÓ, Joan Josep.

Categoria: TU (àrea de coneixement: Estratigrafia).

Inici: 1999. **Fi:** 2002.

Membres de l'equip	Categoria	Dedicació (h/setm.)
Fornós Astó, Joan Josep	TU	32
Rodríguez Perea, Antoni	TU	16
Ginés Gracia, Joaquín	As.	16
García García, Celso	TEU	16
Giménez Garcia, Jordi	Aj. U	16
Servera Nicolau, Jaume	TEU	16
Gelabert Ferrer, Bernadí	As.	16
Rosselló Verger, Vicenç M.		24
Segura Beltran, Francesca S.		16
Pardo Pascual, José E.		16

Nombre total d'investigadors de la UIB: 7.

Total EJC/setmana: 3,2.

Keywords: speleochronology, geomorphology, sea-level oscillation, littoral karst, pleistocene, holocene.

Summary

Mallorca and Menorca are islands mainly integrated by limestone lithologies. They represent an adequate scenery for developing pluridisciplinary investigations focused on littoral geomorphology and, more particularly, on coastal karst morphogenesis. Several research programmes have been independently devoted in the past to topics such as the study of paleo sea-level related speleothems or the peculiar 'cala' -type landscape, which is one of the most characteristic features along the coast of the Balearic Islands. Within this framework, it is of interest to carry out an integrated investigation of littoral morphogenetic processes controlled by pleistocenic and holocenic Mediterranean sea oscillations; this would contribute to a better understanding of both the recent sea-level history and the geomorphological evolution of associated phenomena. The main subjects to be approached in the proposed project are as follows:

- Speleo-diving techniques aimed at sampling of the phreatic speleotherm alignments that record paleo sea-levels between +0 and -25 m below the current Mediterranean level.
- Isotope dating of the phreatic speleothem samples, in order to determine a eustatic curve that will provide data on negative sea-level stabilizations connected with cold climatic events.
- Correlation of the chronological data obtained on the geomorphological evolution of both littoral endokarst and fluvio-torrential systems which originate the 'cala'-type coast and the infillings associated with them.

— Localization, measurement, and dating of eolianite sets and the study of their karstic evolution in Balearic and Valencian coasts.

— Comparison between coastal morphogenesis on the Balearic Islands and in carbonate littorals of eastern Iberia, and establishment of common and/or differential trends in the tectono-eustatic evolution of both areas.

This research project will be an adequate means of bringing out substantial information on a poorly known topic in the study of the Balearic Quaternary: the lower paleo sea-levels, the chronology of the events, and its implications on the littoral morphogenetics of the islands in question.

Referència: BSO2000-1207. Ministeri de Ciència i Tecnologia.

Modalitat: P1. Projecte d'investigació no orientada.

Títol: *Cambio rural y productivismo. Las repercusiones de la reforma de la PAC de 1992 en las islas Baleares.*

Acrònim: POST-CHANGE.

Classificació UNESCO: 540402.

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

Investigador responsable: SALVÀ TOMÀS, Pere A.

Categoria: CU (àrea de coneixement: Geografia Humana).

Inici: 2000. **Fi:** 2003.

Membres de l'equip	Categoria	Dedicació
Salvà Tomàs, Pere A.	CU	Única
Binimelis Sebastián, Jaume	TEU	Única
Ginard Bujosa, Antoni	TEU	Única
Picornell Bauzà, Climent	TU	Única
Seguí Pons, Joana Maria	TU	Única
Ramon Molinas, Jerònia	Tèc.	Compartida
Martínez Reynés, Maria R.	As.	Compartida

Nombre total d'investigadors de la UIB: 7.

Keywords: ACP, rural change, post-productivism, Balearic islands.

Summary

They are tried to analyze the repercussions of the CAP in the rural spaces of the Balearic Islands, mainly the consequences of the Reformation McSharry of 1992. The situation of the society and the rural space of the islands will study verifying the diverse mechanisms of adjustment of the agrarian active population before the communitarian norm of the Nineties, which have supossed the take effect of the post-productivistas expositions.

Referència: REN2000-1769-C06-06. Ministeri de Ciència i Tecnologia.

Modalitat: P2. Projecte d'investigació bàsica orientada.

Títol: *Análisis de la variabilidad espacial y temporal en la ocurrencia de fenómenos térmicos extremos en las islas Baleares.*

Classificació UNESCO: 250201, 250202, 250207, 250507.

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

Investigadora responsable: LAITA RUIZ DE ASÚA, M. Mercedes.

Categoria: TEU (àrea de coneixement: Geografia Física).

Inici: 2001. **Fi:** 2002.

Membres de l'equip	Categoria	Dedicació
Laita Ruiz de Asúa, M. Mercedes	TEU	Compartida
Grimalt Gelabert, Miquel	TU	Compartida
Rosselló Geli, Joan	As.	Única
Ruiz Pérez, Maurici	Tèc.	Compartida
Ramon Molinas, Jerònia	Tèc.	Compartida

Nombre total d'investigadors de la UIB: 5.

Keywords: extreme temperature events, heat weaves, cold weaves, freezes, homogenised daily temperatures, gridded data set, Spain.

Summary

The aim of this project is to analyse the spatial and temporal variations and trends in the occurrence of extreme thermal events in Spain and to estimate the high-frequency variability of the several spanish regions incorporated in the study. The first step will be the creation of a long-term high-quality and homogenised daily temperature data set (daily maximum and minimum temperatures). The spatial dimension of this work will be established through the combination of individual station records to generate a regional gridded data set. The analyse of temporal changes and trends in the frequency of extreme temperature events in the entire territory and in the different regions will ground on the initial establishment of this events (heat weaves, cold weaves, number days exceeding temperature thresholds). Estimations of variations and trends (total and partial) will be performed with several statistical techniques (lineal trends, low-pass filters, change point detection, etc). We will also study the characteristics persistence and intensity of previously established events, both for Spain and sub-regions, to detect different spatial signals in these events. Finally, we will examine its inter-seasonal and inter-annual variability to determine the modes of change that have influenced its temporal pattern.

Referència: BTE2001-0372-C02-01. Ministeri de Ciència i Tecnologia.

Modalitat: Programa nacional de promoció general del coneixement (PGC).

Títol: *Análisis comparativo entre plataformas carbonatadas: la arquitectura de facies en función de los campos de producción de sedimento y de acomodación.*

Acrònim: PRODAC.

Classificació UNESCO: 250619.

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

Investigador responsable: POMAR GOMÀ, Lluís.

Categoria: CU (àrea de coneixement: Estratigrafia).

Inici: 2001. **Fi:** 2004.

Membres de l'equip	Categoria	Dedicació (EDP)
Pomar Gomà, Lluís	CU	1
López García, José María	As.	0.5

Investigadors d'altres entitats

Mateos Ruiz, Rosa	Instituto Geológico-Minero de España
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EDP del grup investigador de l'entitat sol·licitant: 1.5.

Keywords: carbonates, platforms, shelves, facies architecture.

Summary

Depositional profile and facies architecture develop in response to sediment flux and the available space for sediment accumulation (accommodation). In terrigenous systems, these two parameters are independent. In carbonates, however, they are highly interdependent: (1) Sediment input (carbonate production) highly depends on biological systems and, consequently on intrabasinal conditions (nutrients, temperature, salinity, etc). (2) Sediment dispersal depends on the production loci and on the interaction between the amount and type of sediment being produced and the hydraulic energy; additionally biological processes (binding, baffling, framework construction) and even cementation frequently modify it. (3) Accommodation is not an independent factor with respect to sediment input: type, efficiency and area of the carbonate factory depend on sea-level changes and sea-floor morphology. The base level for sediment to accumulate (accommodation) depends on the type and locus of sediment being produced. The aim of this project is to establish the relationships between carbonate production, accommodation changes and facies architecture in four examples of carbonate platforms and shelves from the Lower Cretaceous (Iberian range), Upper Cretaceous and Paleogene of the south-Pyrenees, and Upper Miocene of Menorca (Balearic Islands). Carbonate production in these examples to different types of biota, climate and geodynamic context.

Referència: REN2001-0281. Ministeri de Ciència i Tecnologia.

Modalitat: Programa nacional de recursos naturals.

Títol: *Caracterización hidrológica y transporte de sedimentos bajo diferentes usos del suelo en la cuenca del torrent de na Borges (Mallorca).*

Acrònim: NA-BORGES.

Classificació UNESCO: 250507, 250801, 250806.

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

Investigador responsable: GARCÍA GARCÍA, Celso.

Categoria: TEU (àrea de coneixement: Geografia Física).

Inici: 2001. **Fi:** 2004.

Membres de l'equip	Categoria	Dedicació (EDP)
García García, Celso	TEU	0.5
Servera Nicolau, Jaume	TEU	0.5
Pons Buades, Guillem Xavier	TEU int.	0.5

Investigadors d'altres entitats

Sala Sanjaume, Maria	Universitat de Barcelona
Ubeda Cartaña, Xavier	Universitat de Barcelona
Sánchez-Mateos Rubio, María	Direcció G. de Recursos Hídrics

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

Keywords: hydrological response, sediment transport, land-use, experimental basin, flood risk, Mallorca.

Summary

The project has the main aim of study the hydrological response of the *torrent na Borges* (Mallorca) through the experimental research on runoff production under different types of land use, calculating flood frequency discharges, establishing flood risk areas, and computing the sediment yield of the basin. The drainage basin of the *torrent na Borges* (327 km²) will be used as experimental basin for the study of the main hydrological and geomorphological processes. The field and laboratory work will permit to achieve the following objectives:

— Analysis of the hydrological response of the basin. The purpose is to know the behaviour of different types of land use (irrigated lands, crops, abandoned fields, shrubs and wood) to rainfall and how each type contributes to runoff. Using rainfall frequency estimation and applying hydrological models and field data, will be calculated infiltration capacity, runoff and the final flood discharge.

— Establish the flood risk areas for different magnitude and frequency discharges. A hydraulic study will be carried out along the fluvial network and the different flood frequency discharge levels will be represented in a flood-risk mapping. The area existent of inundation is determined by taking each flooded river point in turn and using a Digital Terrain Model (DTM) to identify contiguous areas of its catchment that are lower or equal to the flood surface elevation.

— Compute sediment yield of the basin for different flood frequency. This objective will be achieved using sediment transport measurements during floods and total sediment transport equations.

Referència: REN2001-2865. Ministeri de Ciència i Tecnologia.

Modalitat: Programa nacional de recursos naturals.

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

Classificació UNESCO: 2502.

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

Investigador responsable: GRIMALT GELABERT, Miquel.

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

Inici: 2001. **Fi:** 2004.

Membres de l'equip	Categoria	Dedicació (EDP)
Grimalt Gelabert, Miquel	TU	0.5
Laita Ruiz de Asúa, Mercedes	TEU	0.5
Ordinas Garau, Antoni	As.	1
Rosselló Geli, Joan	As.	0.5
Segura Cortés, Pere	As.	1

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

Summary

The aim of the project is to improve our knowledge of rainfall irregularity and variability over the Spanish peninsula and Balearic Islands, from the daily to the centennial scale, paying special attention to the Peninsula-Balearics connexions.

With this objective, an instrumental daily (with 40 observatories, 1951-90) and monthly (with 50 observatories covering more than a century) database will be constructed together with an historical database (proxy-data) over Catalonia and the Balearic Islands.

The main goals of the proposal are: to assess the yearly, seasonally and monthly rainfall irregularity by means of temporal irregularity indices; to analyze the daily rainfall persistence and concentration; to assess the fractal distribution of precipitation; to define an index of variability, irregularity, persistence and fractality, and its regional distribution over the area of study, as well as to analyze the connexions patterns; to study the plurisecular evolution of rainfall irregularity, and to define future scenarios of precipitation over the Western mediterranean.

The results obtained will improve our knowledge of the WeMO and the evolution of the probability of dry and rainy sequences, will fix rainfall anomalies hazards depending on the regions and will be used to determine rainfall variability trends. As a result, and from another point of view, the results could be applied to define rainfall hazards, soil degradation and hydrological policies.

Referència: BSO2001-3302-C02-02. Ministeri de Ciència i Tecnologia.

Modalitat:

Títol: *Gestión turística del patrimonio natural y cultural, y desarrollo local en espacios de interior en las Islas Baleares.*

Acrònim: Gestur-Patrimonio IB.

Classificació UNESCO: 540104.

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

Investigador responsable: BLÀZQUEZ SALOM, Macià.

Categoria: TEU (àrea de coneixement: Anàlisi Geogràfica Regional).

Inici: 2001. **Fi:** 2004.

Membres de l'equip	Categoria	Dedicació (EDP)
Blàzquez Salom, Macià	TEU	1
González Pérez, Jesús M.	TU int.	0.5
Seguí Llinàs, Miquel	TEU	0.5
Artigues Bonet, Antoni A.	TEU	0.5
Cors Iglesias, Martí	Aj. EU	1
Novo Malvárez, Margarita	As.	0.5

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

Summary

This research is aimed to analyse, from social sciences and especially from geographic perspective, the results of the tourism as local development factor. Also to determine the basis, potentialities and preventions of the management and setting in value of the heritage (cultural and natural), for tourist uses and activities in the inland areas of two autonomous communities: Balearic Islands and Catalonia. In Balearic Islands the tourism is an almost exclusive activity, while Catalonia presents a diversified economy with an outstanding role of the tourism. In both the tourist systems are in need of bigger competitiveness, for it reason, its inland districts and municipalities are being developed as new tourist sceneries, fact that agrees the necessity that these areas have of joining new activities for its revival. The study of two community –Catalonia and Balearic Islands- which is the basis of the application of a Coordinated Project with two Subprojects, which will allow to detect the results in every case of the processes that are studied, its similitudes and differences and its evaluation to formulate the development strategies more suitable.

Ajudes de la Comissió Interdepartamental de Ciència i Tecnologia. Conselleria d'Innovació i Energia. Govern balear

Títol: *Disseny i implementació d'una SIG per a la gestió i planificació del transport escolar de Balears.*

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

Investigadora responsable: *SEGUÍ PONS, Joana Maria.*

Categoria: TU (àrea de coneixement: Geografia Humana).

Inici: 2000. **Fi:** 2001.

Membres de l'equip	Categoria	Dedicació (h/setm.)
Seguí Pons, Joana Maria	TU	16
Ruiz Pérez, Maurici	Tèc.	16
Salvà Tomàs, Pere A.	CU	16
Spadaro, Amedeo	TU int.	16
Ramon Molinas, Jerònia	Tèc.	16
Martínez Reynés, M. Rosa	As.	16
Gutiérrez Puebla, Javier		16

Nombre total d'investigadors de la UIB: 7.

Total EJC/setmana: 2,8.

Keywords: transport models, network modelling, gis development.

Summary

The aim of the project is the development of an informatic program built over a GIS oriented to the planning and management of the transport routes in the Balearic Islands. Firts, a data base will be created with information about educational centers (offer) and real demand (scholar population). Theoretic models of location will be developed in order to obtain the best routes of transport students. Finally the model will be translated to an informatic from and it could be applied to planning the scholar transport routes. Also the transport routes will be analysed and a second application build over a GIS will be developed to imporve its management.



DEPARTAMENT DE CIÈNCIES HISTÒRIQUES I TEORIA DE LES ARTS

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JUAN VIDAL, Josep
- El asociacionismo en las islas Baleares y sus publicaciones periódicas (1887-1983).
SERRA BUSQUETS, Sebastià
- Política municipal y servicios sociales. Análisis comparado de núcleos urbanos y rurales, 1850-1936.
MOLL BLANES, Isabel.
- La arquitectura del ocio. La incidencia del fenómeno turístico en la arquitectura y urbanismo de las islas Baleares.
SEGUÍ AZNAR, Miquel
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Referència: PB97-0152. Programa sectorial de promoció general del coneixement.

Títol: *El reinado de Felipe II en Mallorca.*

Classificació UNESCO: 550404.

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

Investigador responsable: [JUAN VIDAL, Josep](#).

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

Inici: 1998. **Fi:** 2001.

Membres de l'equip	Categoria	Dedicació (h/setm.)
Juan Vidal, Josep	CU	24
Deyà Bauzà, Miquel	As.	18
Vaquer Bennàsar, Onofre	As.	18
Serra Barceló, Jaume		20

Nombre total d'investigadors de la UIB: 3.

Total EJC/setmana: 1,5.

Summary

Studying the reign of Philip II in Mallorca involves investigating in depth a series of fundamental topics in order to be able to understand fully the evolution of society and the way of life during that area. Amongst these topics we highlight the following:

1. The system of government and the types of ruling power of the time: the privileges of the kingdom, royal administration and that of the University and the institutional reforms which took place.
2. Economic activities: demographic evolution, the agrarian problem, manufacturing activities and business relations, as well as the complex web of taxes and finance.
3. Defence and protection of the realm in the face of moslem pirate attacks.
4. Violence and internal social conflict, with special emphasis on the outlaw problem.
5. The Church and religious feeling at that particular crossroads marked by the conclusion of the Council of Trent.
6. Cultural life: the "Estudi General", "Lulismo", history and literature.

Referència: PB97-0138. Programa sectorial de promoció general del coneixement.

Títol: *El asociacionismo en las islas Baleares y sus publicaciones periódicas (1887-1983).*

Classificació UNESCO: 4500.

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

Investigador responsable: [SERRA BUSQUETS, Sebastià](#).

Categoria: TU (àrea de coneixement: Història Contemporània).

Inici: 1998 **Fi:** 2001.

Membres de l'equip	Categoria	Dedicació (h/setm.)
Serra Busquets, Sebastià	TU	16
Duran Pastor, Miquel	CU	32
Castro Valdomar, M. Jesús	TEU	32
Marimon Riutort, Antoni	Aj. EU	16
Buades Juan, Josep Maria	B	40

Nombre total d'investigadors de la UIB: 5.

Total EJC/setmana: 3,4.

Keywords: associationism, Balearic Islands, periodic publications.

Summary

With this project we pretend realize an exhaustive and informatic catalog of the associations that have developed their activities in Balearic Islands and their periodic publications, as soon as an analysis of their incidence in society and their ideologic contributions, from the adoption of the juny 30th 1887 associations law until the promulgation of the Balearic Island Home Rule (1983).

Referència: PB98-0126. Programa sectorial de promoció general del coneixement.

Títol: *Política municipal y servicios sociales. Análisis comparado de núcleos urbanos y rurales, 1850-1936.*

Classificació UNESCO: 630302.

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

Investigadora responsable: MOLL BLANES, Isabel.

Categoria: TU (àrea de coneixement: Història Contemporània).

Inici: 1999. **Fi:** 2001.

Membres de l'equip	Categoria	Dedicació (h/setm.)
Moll Blanes, Isabel	TU	16
Fullana Puigserver, Pere	As.	16
Salas Vives, Pere	As.	16

Nombre total d'investigadors de la UIB: 3.

Total EJC/setmana: 1,2.

Keywords: social history, local politics, life conditions.

Summary

The aim of the project is the analysis of local politics (city and village) in terms of providing services to change the conditions of urban life (water-supply networks, sewerage systems, illumination of the streets, construction of hard pavements, removal of human waste, schools...). We want to test the creation of those social services before the rise of Welfare State, to link this policy to the growing of urban population, and to look for its ideological background. Finally we want to observe if there is any kind of relation between the growing exercise of civil rights and the increase of those services. We compare urban and rural settings in a context of agrarian development, in Mediterranean Europe.

Referència: PB98-0168. Programa sectorial de promoció general del coneixement.

Títol: *La arquitectura del ocio. La incidencia del fenómeno turístico en la arquitectura y urbanismo de las islas Baleares.*

Classificació UNESCO: 550602.

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

Investigador responsable: [SEGUÍ AZNAR, Miquel](#).

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

Inici: 1999. **Fi:** 2001.

Membres de l'equip	Categoria	Dedicació (h/setm.)
Seguí Aznar, Miquel	CU	32

Nombre total d'investigadors de la UIB: 1.

Total EJC/setmana: 0,8.

Keywords: history, architecture, urbanism, tourism, legislation, balearic islands.

Summary

The main objective of this research project is the study of the effects of the touristic phenomenon in the architecture and urbanism of the Balearic Islands -Majorca, Minorca, Ibiza and Formentera- between 1900, date in which the majorcans begin to realize the economical value of the touristic exploitation of the islands, and 1983, date of the approval of the "Plan provincial de ordenación de Baleares" (Provincial urbanistic plan of the Balearic Islands). We pretend to study two things: 1. The hotel and residential buildings from a typological and stylistic point of view; 2. The proposals and carrying out of the new touristical sites, both in the context of the historical development of the local tourism, and taking into account the evolution of the architecture and urbanism as well as the local and welfare estate dispositions and norms which have regulated them.

Referència: PB98-0166. Programa sectorial de promoció general del coneixement.

Títol: *Vivir en Mallorca medieval: documentación iconográfica.*

Classificació UNESCO: 5503.

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

Investigadora responsable: [BARCELÓ CRESPI, Maria](#).

Categoria: TU (àrea de coneixement: Història Medieval).

Inici: 1999. **Fi:** 2002.

Membres de l'equip	Categoria	Dedicació (h/setm.)
Barceló Crespi, Maria	TU	16
Rosselló Bordoy, Guillem		16

Nombre total d'investigadors de la UIB: 1.

Total EJC/setmana: 0,4.

Keywords: majorca, medieval history, iconography, documentation, daily living, archaeology, cultural history.

Summary

The combination of different methods of investigation makes possible the intention of obtaining a documentary vision, archaeological and iconographic, of daily living in a concrete period of the history of Majorca (XIII-XVI centuries). That was a period of special importance, inasmuch as it meant the integration of the island in the Christian ambit (1229). It involved an evident cultural change. XIII and XIV centuries meant the full immersion in the european medieval culture, while the XV century. Although the social and economical problems linked to the period, was the prelude to the access to the new renacentist mentality.

Referència: PB98-0173. Programa sectorial de promoció general del coneixement.

Títol: *Bases para una sistematización de las fuentes documentales y gráficas para el estudio de la historia de las artes plásticas y de la fotografía en Baleares entre 1890 y 1980.*

Classificació UNESCO: 550602.

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

Investigadora responsable: CANTARELLAS CAMPS, Catalina.

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

Inici: 1999 **Fi:** 2002.

Membres de l'equip	Categoria	Dedicació (h/setm.)
Cantarellas Camps, Catalina	CU	32
Mulet Gutiérrez, M. Josep	TEU	32
Lladó Pol, Francesca	TEU	32
Falero Folgado, Francisco José	TEU	32
Reus Morro, Jaume	Aj. EU	32

Nombre total d'investigadors de la UIB: 5.

Total EJC/setmana: 4.

Keywords: painting, sculpture, photography, art criticism.

Summary

This research project is devoted to solve two main questions. 1) To compile systematically, and at the same time, selectively all kinds of sources -bibliographics, documentaries and graphics- related to the working, theory and criticism of Plastic Arts and Photography made at Balearic Islands between 1890 and 1980. 2) The artistic products research begin by choosing the most representative episodes and also the worst known of them belonging to this period. Together to this we also accomplish the task of contextualize the different artistic languages used. Two significative examples are the Modern Style and the art of the 70's. In short, this research try to developed a historical-artistic point of view, nowadays non-existent, from the work on two areas, concerning, in one hand, to document and cataloguing, and in the other hand, to analyze artistic products.

Referència: BHA2000-1335. Ministeri de Ciència i Tecnologia.

Modalitat: P1. Projecte d'investigació bàsica no orientada.

Títol: *Sociedades prehistóricas y cambio paleoecológico en ecosistemas insulares. El paradigma balear.*

Acrònim: ARQUEOBALEAR.

Classificació UNESCO: 55045, 550501.

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

Investigador responsable: GUERRERO AYUSO, Víctor Manuel.

Categoria: TU (àrea de coneixement: Prehistòria).

Inici: 2000. **Fi:** 2003.

Membres de l'equip	Categoria	Dedicació
Guerrero Ayuso, Víctor Manuel	TU	Única
Calvo Trias, Manuel A.	Aj. EU	Única
Villanueva Bohigas, Gemma	Aj. EU	Única
Gomés Hachero, José S.		Compartida
Gual Cerdó, Joana M.		Compartida
López Pons, Antoni		Compartida
Costa Ribas, Benjamí		Compartida
Ensenyat Alcover, Josep F.		Compartida
Pons Homar, Gabriel		Única
Coll Conesa, Jaume		Compartida
Fornès Bisquerra, Joan F.		Única
Garcia Rosselló, Jaume		Única
Salvà Simonet, Bartomeu		Única
Quintana Abraham, Carles A.		Única

Nombre total d'investigadors de la UIB: 3.

Keywords: Balearic islands, palaeoecology, biogeography, prehistoric societies.

Summary

The project aims to establish the impact that prehistoric groups with different degree of development have had on the insular ecosystem of the Balearic Islands. One of the main goals of the project will be to ascertain the principal changes that have occurred in the local vegetation through time, including how the introduction of domesticated species has affected the existing flora and how these plants have been cultivated. Another important aspect of the project is to determine when domestic animals were introduced in the islands, to study the development of stockbreeding throughout prehistory (c. 6500-2000 BP) as well as other complementary subsistence means (fishing, hunting and gathering). The project will also focus on the use of non biological resources, their transformation, supply and exchange.

Referència: BXX2000-1463. Ministeri de Ciència i Tecnologia.

Modalitat: P1. Projecte d'investigació bàsica no orientada.

Títol: *Imaginería y retablo en Mallorca (época medieval y moderna). Bases científico-técnicas para su conservación.*

Acrònim: IRMC.

Classificació UNESCO: 550602-2301.

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

Investigadora responsable: GAMBÚS SAIZ, Mercè.

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

Inici: 2000. **Fi:** 2003.

Membres de l'equip	Categoria	Dedicació
Gambús Saiz, Mercè	TU	Única
Genestar Julià, Catalina	TU	Única
Palou Franco, Josefina	TU	Única
Sabater Rebassa, Sebastiana	TEU	Única
Sastre Moll, Jaume		Compartida
Reig Morro, Antònia		Compartida

Nombre total d'investigadors de la UIB: 4.

Keywords: itarpiece, sculpture, painting, polychromy, pigment/binding media determination, FTIR, SEM, TG, DTA conservation/restoration, catalogue/finger-prints of works of art.

Summary

The proposed research project establishes a line of continuity with a project which is actually being carried out in the scientific-technical study of alterpieces in Majorca during modern times, in this case incorporating statues is a specific object of study and extending the chronology to medieval times.

The main aim of this project is, with an interdisciplinary approach, to draw up scientific-technical bases for the conservation of alterpiece and statue heritage in Majorca, which corresponds, to medieval and modern times. With this in mind we propose a scheme based on the conservation and restoration of a series of works by means of dialogue between art historians, archivists, chemists and restorers which would enable us to establish a diagnosis before hand and to supervise all the processes related to the protection of the art heritage studied all included at the memory.

Referència: BHA2001-0770. Ministeri de Ciència i Tecnologia.

Modalitat: P1. Projecte d'investigació bàsica no orientada.

Títol: *La Comisión Provincial de Monumentos Históricos y Artísticos de Baleares (1844-1987).*

Acrònim: CPMB.

Classificació UNESCO: 550602.

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

Investigador principal: MORATA SOCIAS, Josep.

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

Inici: 2001. **Fi:** 2004.

Membres de l'equip	Categoria	Dedicació
Morata Socias, Josep	TU	Única

Keywords: art history, protection of historical and artistic heritage, Balearic Isles, 19th and 20th centuries.

Summary

The target of this project is to analyse the history of the Country Monuments Commission of the Balearic Isles, starting at the moment of its establishment in 1844 until the moment of its dissolution in 1987. Different changes in the objectives and composition of the Commission succeeded in its life but always remained as the institution responsible for the conservation and protection of the historical and artistic heritage in the region. This work intends to study the commission composition characteristics, the bureaucracy complexity and the economic difficulties. It will be made in order to explain the results that made possible the conservation of an important and relevant part of the heritage of the Balearic region; and in the other hand, to show the failures and to know the encountered difficulties.

Participacions a altres projectes

Referència: PB98-0478. Programa sectorial de promoció general del coneixement.

Títol: *Poder y fiscalidad en la Cataluña de los siglos XIII y XIV: bases jurídicas, y transfondo político.*

Investigador responsable: SÁNCHEZ MARTÍNEZ, Manuel.

Centre: Consell Superior d'Investigacions Científiques. Institució Milà i Fontanals.

Investigador de la UIB: MORELLÓ BAGET, Jordi.

Categoria: Aj. U (àrea de coneixement: Història Medieval).

Total EJC/setmana: 0,4.

Referència: BHA2000-0192-C08-03. Programa sectorial de promoció general del coneixement.

Títol: *El comportamiento de las catedrales españolas del Barroco a la Restauración en el Levante Mediterráneo: Sigüenza, Cuenca, Segorbe, Valencia, Orihuela, Murcia, Almería, Mallorca, Menorca e Ibiza.*

Investigador responsable: RAMALLO ASENSIO, Germán.

Centre: Universitat de Murcia.

Investigador de la UIB: SEGUÍ AZNAR, Miquel.

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

Total EJC/setmana: 0,8.



DEPARTAMENT DE CIÈNCIES MATEMÀTIQUES I INFORMÀTICA

- DREAMS: Demostrador de red ATM móvil con acceso SDMA.
FEMENIES NADAL, Guillem
- Propuesta y análisis de las especificaciones de CORBA en tiempo real.
PUIGJANER TREPAT, Ramon
- Un sistema de modelización, análisis y simulación del cuerpo humano
PERALES LÓPEZ, Francisco José
- Modelos para el análisis de imágenes: análisis del movimiento, imágenes en color y aplicaciones médicas.
COLL VICENS, Bartomeu
- Estudio y desarrollo de un vehículo autónomo submarino.
OLIVER CODINA, Gabriel.
- Modelos formales y lógicos en computación biomolecular.
ROSSELLÓ LLOMPART, Francesc A
- Mortalidad infantil y condiciones de vida en las Baleares (1876-1936)
BUJOSA HOMAR, Francesc
- Funciones de agregación y ecuaciones funcionales. Estudio teórico y aplicaciones a la fusión de información.
MAYOR FORTEZA, Gaspar
- Análisis y síntesis del movimiento humano mediante técnicas de visión y animación por ordenador
PERALES LÓPEZ, Francisco José
- Plataformas de experimentación en robótica submarina
OLIVER CODINA, Gabriel.
- Demostrador adaptativo reconfigurable de un WLAN para entornos interiores
FEMENIES NADAL, Guillem
- Análisis de las prestaciones de los entornos web
PUIGJANER TREPAT, Ramon
- Participacions a altres projectes



Referència: TIC98-0263. Programa nacional de tecnologies de la informació i de les comunicacions.

Títol: *DREAMS: Demostrador de red ATM móvil con acceso SDMA.*

Classificació UNESCO: 332505.

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

Investigador responsable: *FEMENIES NADAL, Guillem.*

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

Inici: 1998. **Fi:** 2001.

Membres de l'equip	Categoria	Dedicació (h/setm.)
Femenies Nadal, Guillem	TU	32
Huguet Rotger, Llorenç	CU	16
Ferrer Gomila, Josep Lluís	TEU	16
Furió Caldentey, Ignasi	TEU	32
Carrasco Martorell, Loren	As.	16
Mut Puigserver, Macià	As.	16

Nombre total d'investigadors de la UIB: 6.

Total EJC/setmana: 3,2.

Keywords: WATM, WMAC, WDLN, SDMA, intelligent antennas, security.

Summary

The primary goal of the DREAMS project is to specify and implement a WATM network demonstrator that will provide QoS support for mobile multimedia services, such as e. g. video conferencing, video on demand, etc. The protocol stack of the proposed WATM network will be fully harmonized with that of the standard ATM. The basic idea consists on the integration of physical (PHY) (based on the use of adaptive antenna arrays), media access control (MAC) (based on SDMA), data link control (DLC) and network control sublayers, specific on radio link, in the ATM protocol stack. Mobile terminal migration related functions, such as e. g. handover control and location management, and security management related functions will be handled through mobility/security support extensions in the control and signalling ATM protocols, implemented at the base station and wired network switching systems. Because the project deals with a new technology, the original system specification might have to be modified even during the final implementation phases. Therefore, the demonstrator platform will be designed to be as flexible as possible. The DREAMS demonstrator will contain six subsystems, namely two mobile terminals (TM), two base stations (EB), ATM switch and control station. This architecture allows for the implementation of two radio cells and, therefore, allows for the evaluation of handover protocols. The radio links and, thus, the integration of physical (PHY), media access control (MAC), data link control (DLC) and network control sublayers with the ATM protocol stack, will be simulated using standard DSP (Digital Signal Processor) boards controlled by using either PCs or a workstation.

Referència: TIC98-0483-C03-01. Programa nacional de tecnologies de la informació i de les comunicacions.

Títol: *Propuesta y análisis de las especificaciones de CORBA en tiempo real.*

Classificació UNESCO: 330408.

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

Investigador responsable: PUIGJANER TREPAT, Ramon.

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

Inici: 1998. **Fi:** 2001.

Membres de l'equip	Categoria	Dedicació (h/setm.)
Puigjaner Trepato, Ramon	CU	16
Serra Cifre, Bartomeu Jaume	CU	16
Galmés Obrador, Sebastià	TEU	16
Santamaría Pérez, M. Luisa	TEU	16
Garcias Salom, Miquel A.	As.	16
Juíz García, Carlos	As.	16
Mañas Florit, Josep	As.	16
Servera Rullan, Guillem	As.	16

Nombre total d'investigadors de la UIB: 7.

Total EJC/setmana: 2,8.

Keywords: performance modelling, simulation, queueing networks, petri nets, fault tolerance, distributed systems, object orientation, client-server systems.

Summary

Distributed systems habitually work in real-time environments mainly soft and sometimes hard. A real time environment has associated characteristics affecting performance as well as fault tolerance. CORBA (Common Object Request Broker Architecture) is the standar proposed by the *Object Management Group* (association in which there is software houses, integrators and users) in order to have a common framework to ease the development of object-oriented client-server systems. However, this standard does not have any help for the designer of object-oriented client-server soft real-time systems (those that most frequently appear in applications). Real-time characteristics include performance and dependability aspects. The goal of this project is to develop a proposal to enhance the CORBA standard with the definition of the quality of service required by the user and with the aspects to be covered to ease the task of the client-server system designers. So, it will be necessary to analyse performance characteristics by means of queueing networks or Petri nets as well as the algorithms to be included in CORBA to manage the tasks of admission control, traffic shapping and policing congestion control. In the dependability domain, it will be necessary to study the dependability and, so the software system reliability maintainability and availability by means of Markov chains and Petri nets. For these analyses and the later algorithms implementation it is very important to have tools allowing shortering computation times. Also, for running these systems it is needed physical elements with an appropriate level of fault tolerance; so it will be necessary to develop techniques allowing the design and the enhancement the fault tolerance aspects of such systems.

Referència: TIC98-0302-C02-01. Programa nacional de tecnologies de la informació i de les comunicacions.

Títol: *Un sistema de modelización, análisis y simulación del cuerpo humano.*

Classificació UNESCO: 3304.

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

Investigador responsable: PERALES LÓPEZ, Francisco José.

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

Inici: 1998. **Fi:** 2001.

Membres de l'equip	Categoria	Dedicació (h/setm.)
Perales López, Francisco J.	TU	16
Oliver Codina, Gabriel	TU	16
Rocha Cárdenas, Jairo	TEU int.	16
González Hidalgo, Manuel	TU	16
Mas Pichaco, Antònia	TEU	16
Fontanet Nadal, Gabriel	TEU	16
Mascaró Oliver, Miquel	TEU	16
Ortíz Rodríguez, Alberto	TEU	16
Palmer Rodríguez, Pere A.	TEU	16
Mascaró Portells, Miquel	TEU	16
Yañiz Aguado, Carlos	Aj. EU	32
Clar Matheu, Albert	Tèc.	16
Bibiloni Coll, Antoni	TEU	16

Nombre total d'investigadors de la UIB: 13.

Total EJC/setmana: 5,6.

Keywords: digital image processing, human motion, computer animation articulated systems, 3D-matching, stereoscopy, biomechanics, 3D-tracking.

Summary

The project goal is the design of a system that allows modelling, analysis and simulation of human movement by using new techniques that functionally combine digital image processing over image processing sequences, with articulate structure modeling mechanisms, on a computer. This project attempts to be the basis for a modular system where the current and future main techniques can be geared in a common environment to carry out analysis and synthesis. Current analysis for subjects on some domains of application (sportive performance, choreographic or medical analysis, etc) show the need of complementary mechanisms. Manual methods used nowadays are subjective and its reliability depends on the operator. Semi-automatic methods based on optical markers whose information is later processed as stereoscopic images carry additional problems: markers occluded by mobile body parts, and the need to establish a matching between the surface where the markers are, and the articulation whose movement is analysed. In addition, they constrain the application range of the system by interfering with the subject to be evaluated. We proposed for this project the use of a biomechanic model built on a hierarchical and articulated structure. Correlation between each of the structural elements

of the model is established with the analytical features of the stereoscopic images obtained from time synchronised cameras. To allow a wide range of application, subjects are not required to carry optical markers or special clothing, although usual constraints are imposed to the background (static or uniform, constant illumination, etc).

By using several algorithms and techniques for digital processing of image sequences at different scales, we will get a set of analytical objects (points, segments in movement) that combined with the biomechanic constraints will allow us to track, identify and match the parts of the synthetic model with the body poses on the different views.

From the synthetic point of view, the system will allow generation of scenes that have not been previously filmed. This comprises modeling and animation of several parts of the human body, including deformable models and simulation of mechanical systems applied to human body.

The graphical environment description and the programming methodology are defined in such a way that it is possible to interactively generate by high level commands, a sequence of movements either real or synthetic. Besides that, the routines and libraries delivered will be portable and reusable according to an object oriented programming methodology. Thus there is a subsection on development of reusable software using the appropriate tools, at both methodological and implementation levels. Finally, in coordination with the Robotic Group in our departament and with others projects, it is possible to use these results on industrial environments applications with robots and people in movement to guarantee the safe interaction among them.

Referència: TIC99-0266. Programa nacional de tecnologies de la informació i de les comunicacions.

Títol: *Modelos para el análisis de imágenes: análisis del movimiento, imágenes en color y aplicaciones médicas.*

Classificació UNESCO: 120304.

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

Investigador responsable: COLL VICENS, Bartomeu.

Categoria: TU (àrea de conixement: Matemàtica Aplicada).

Inici: 1999. **Fi:** 2002.

Membres de l'equip	Categoria	Dedicació (h/setm.)
Coll Vicens, Bartomeu	TU	32
Prohens Sastre, Rafael Jaume	TEU int.	32
Sbert Juan, Catalina	TU	32
Lisani Roca, Josep Lluís	TEU int.	32
Petro Balaguer, Ana Belén	Aj. EU	32

Nombre total d'investigadors de la UIB: 4.

Total EJC/setmana: 3,2.

Keywords: informing processing, images, vision, algorithms, movement, compression, medical applications.

Summary

The aims of these project are:

- 1) From the description of the image given by the topographic map and the junctions in T, we try to extend this concept to the image movement, and, on the other hand, to define the topographic map of colour image. The applications will be given to follow the objects in a sequence of images, and, in the colour images, to give a compression model of the image from the structure of the topographic map.
- 2) The reconstruction 3D of the objects of a scene from two or more images taken on the scene. The model we suggest is based on the idea of evolution of curves of surfaces, the active contours. The medical application we pretend is the 3D reconstruction of the veins and blood vessels from two angiographies images.
- 3) To developp the corresponding software of these projects and integrate it in a software platform with a friendly user interface which allows a more generalized use of it.

Referència: MAR99-1062-C03-03. Programa nacional de ciència i tecnologia marines.

Títol: *Estudio y desarrollo de un vehículo autónomo submarino.*

Classificació UNESCO: 120305.

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

Investigador responsable: OLIVER CODINA, Gabriel.

Categoria: TU (àrea de coneixement: Arquitectura i Tecnologia de Computadors).

Inici: 2000. **Fi:** 2001.

Membres de l'equip	Categoria	Dedicació (h/setm.)
Oliver Codina, Gabriel	TU	16
Llamosí Casas, Albert	CU	32
Valverde Garcia, Llorenç	CU	16
Ortiz Rodríguez, Alberto	TEU	16
Proenza Arenas, Julián	TEU	16
González Cid, Yolanda	TEU int.	32

Nombre total d'investigadors de la UIB: 6.

Total EJC/setmana: 3,2.

Summary

The aim of this project is the study and development of an autonomous underwater robot, mainly thought for carrying out programmed tasks in sub-sea environments. The main goal is to deal with local image processing applied to inspection tasks as well as to collect biological samples for research and environment supervision. On the other hand, such an explorer vehicle will operate like a slave of the teleoperated robot already build up by our research team (Garbí project), which is provided by two articulated arms, and able to carry out, from the outside water, a great number of specific tasks. However, its physical link, by means of an umbilical cable, constrains its explorer capabilities. So, the whole system composed by an autonomous explorer vehicle and a teleoperated one (which could work from the supplied information by the first one) can be considered an intelligent master-slave robot system of a great scientifically and technological interest, specially for its high possibilities concerning industrial applications.

Referència: BFM2000-1113-C02-01. Ministeri de Ciència i Tecnologia.

Modalitat: P1. Projecte d'investigació bàsica no orientada.

Títol: *Modelos formales y lógicos en computación biomolecular.*

Acrònim: MOBIOCO.

Classificació UNESCO: 1201, 1203, 1199, 2415.

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

Investigador responsable: [ROSSELLÓ LLOMPART, Francesc A.](#)

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

Inici: 2000. **Fi:** 2003.

Membres de l'equip	Categoria	Dedicació
Roselló Llompart, Francesc A.	CEU	Única
Alberich Martí, Ricard	TEU	Única
Casasnovas Casasnovas, Jaume	CEU	Compartida
Llabrés Segura, Mercè	Aj. U	Única
Miró Julià, Josep J. A.	TU	Única

Nombre total d'investigadors de la UIB: 5.

Keywords: biomolecular computing, rewriting systems, fuzzy logic, cryptology.

Summary

Biomolecular computing is the computing paradigm where information is encoded in nucleic acid and protein molecules and is processed by means on biochemical operations on these molecules. The goal is to contribute to the following three aspects of biomolecular computing:

- i) The development of formal rewriting models of the nucleic acids' and proteins' non-linear structure.
- ii) The analysis of biomolecular computing processes by means of fuzzy logic and the implementation of different logic and arithmetic gates within this paradigm.
- iii) The use of biomolecular computing in cryptology.

Referència: BSO2000-1413. Ministeri de Ciència i Tecnologia.

Modalitat: P1. Projecte d'investigació bàsica no orientada.

Títol: *Mortalidad infantil y condiciones de vida en las Baleares (1876-1936).*

Acrònim: MI.

Classificació UNESCO: 520404.

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

Investigador responsable: BUJOSA HOMAR, Francesc.

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

Inici: 2000. **Fi:** 2003.

Membres de l'equip	Categoria	Dedicació
Bujosa Homar, Francesc	CU	Única
Moll Blanes, Isabel	TU	Única
Sureda Garcia, Bernat	CU	Compartida
Fernández Bennàssar, M. Carme	CEU	Compartida

Nombre total d'investigadors de la UIB: 4.

Keywords: infant mortality, health conditions, education, quality of life, economic development.

Summary

This project develops the findings of a previous one (health, education and culture as factors concerning the decline of infant mortality, Mallorca 1860-1930), by the analysis of the geographical patterns of infant mortality in two different contexts: the city of Palma (and inside the city too) and the rural area of Mallorca. Next, we shall relate those patterns to the forms how medical care is organized, as well as health, education and hygiene services, making a distinction between Palma (and within Palma), and the rest of the Island, as well as between public and private services. One of the aims of the project consist on to test if the supply of public services is more relevant than the economic growth, regarding the infant mortality decline. And also, to see the proportion of population with the capability to enjoy the benefits of these services. We can work with a set of data from the previous project, but it is necessary to enlarge it with more information about the city of Palma. Besides, we are going to get more data on demography, health, education and hygiene questions.

Referència: BFM2000-1114. Ministeri de Ciència i Tecnologia.

Modalitat: P1. Projecte d'investigació bàsica no orientada.

Títol: *Funciones de agregación y ecuaciones funcionales. Estudio teórico y aplicaciones a la fusión de información.*

Acrònim: FAEF.

Classificació UNESCO: 1203.

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

Investigador responsable: MAYOR FORTEZA, Gaspar.

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

Inici: 2000. **Fi:** 2003.

Membres de l'equip	Categoria	Dedicació
Mayor Forteza, Gaspar	CU	Única
Calvo Sánchez, Tomasa	TU	Compartida
Casasnovas Casasnovas, Jaume	CEU	Compartida
Torrens Sastre, Joan	CEU	Única
Monserrat Antich, Miquel	TU	Única
Mas Grimalt, Margarida	TEU	Única
Suñer Llabrés, Jaume	TEU	Única
Martín Pelayo, Javier	Aj. EU	Única

Nombre total d'investigadors de la UIB: 8.

Keywords: aggregation functions, t-norms, uninorms, t-operators, means, multi-dimensional, aggregation functions, discrete measures and integrals, generalized natural numbers and fuzzy numbers, functional equations, functional equations related to idempotency, distributivity and modularity, measures of dispersion, optimization, fusion of information.

Summary

In this project we intent to give a new impulse to the theory and applications of the Aggregation Functions, meaning functions/operators which allow to (functionally) modelize the action of "aggregating" several inputs in order to produce a unique output. In the same way, it will be strengthened the use of technics for solving Functional Equations to obtain solutions to problems derived from the study mentioned above. It is worth to emphasize our interest in finishing the study and characterization of associative aggregation functions (like t-norms, uninorms and t-operators) defined on ordered sets, as well as non-associative ones (like quasi-linear means and weighted ordered means) defined in various domains. In particular, previous studies related to (non-associative) aggregation functions of a multi-dimensional nature are going to be finished, as well as the study of discrete measures which determine (non-associative) aggregation functions with interesting properties through integrals (like Choquet or Sugeno). With regard to applications, it is intended to obtain final results corresponding to the determination of aggregation functions like weighted means with maximum dispersion (entropy) of its weighting list, subjected to restrictions which can be related for example to a degree of optimism ('orness'). In this section, it will be dealt as well with the practical problem of the fusion of imprecise information through the aggregation of fuzzy numbers, in particular of those representing generalized natural numbers.

Referència: TIC2001-0931. Ministeri de Ciència i Tecnologia.

Modalitat: Programa nacional de tecnologies de la producció i les comunicacions.

Títol: *Análisis y síntesis del movimiento humano mediante técnicas de visión y animación por ordenador.*

Acrònim: Adan.

Classificació UNESCO: 120318.

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

Investigador responsable: PERALES LÓPEZ, Francisco José.

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

Inici: 2001. **Fi:** 2004.

Membres de l'equip	Categoria	Dedicació (EDP)
Perales López, Francisco José	TU	1
González Hidalgo, Manuel	TU	0.5
Mir Torres, Arnau	TU	0.5
Mas Sansó, Ramon	TU	0.5
Colom Muntaner, Guillem	TEU	1
Mascaró Oliver, Miquel	TEU	1
Abasolo Guerrero, María José	Visitant	1
Buades Rubio, Josep M.	Aj. EU	1
Amengual Alcover, Esperança	Aj. EU	0.5
Igelmo Ganzo, Ángel	CEU	1
Fontanet Nadal, Gabriel	TEU	0.5
Palmer Rodríguez, Pere A.	TEU	0.5
Mascaró Portells, Miquel	TEU	0.5
Bibiloni Coll, Antoni	TEU	0.5
Tous Duran, Pere	As.	1

Investigadors d'altres entitats

Escoda Saloni, Josep	Centre d'Alt Rendiment de Sant Cugat
Balius Matas, Xavier	Centre d'Alt Rendiment de Sant Cugat
Aguiló Pons, Antoni	Conselleria d'Educació i Cultura
La Fuente, Diego	EPTRON, SA

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

Keywords: advanced graphic models, digital image processing, human motion, computer animation, articulated systems, 3D-matching, stereoscopy, biomechanics, 3D-tracking, virtual reality, H-anim, VRML.

Summary

The aim of the proposed project is the design of an integrated system which would enable us to carry out multiple studies on human motion by computer. The system proposed is based on an existing model which allows for the modelization, analysis and simulation of human motion at different levels. Our fundamental aim is -in a reasonable amount of time and, if possible, in real time for some applications- to obtain a 3D model of the person or persons by means of a sequence of grey and/or colour images taken from different viewpoints. With this information we aim to carry out different tasks such as: realistic animation of a person, biomechanical study of sports or dance movements, recognition of

a person (face and movements), integration of a virtual humanoid with real characters, interaction in a person and humanoid immersed environment, robot tracking of a person, etc. This project is the continuation of an existing system (TIC98-0302) in which the main current techniques are brought together in order to carry out the processes of analysis and synthesis of human motion in a common environment.

Traditional systems, from the 90s, on the analysis of applied human motion (analysis of sports performance, choreographic movements, medicine, robotics, etc) have evolved towards current semi-automatic systems based on the implantation of optical markers which are afterwards digitalized by stereoscopic images. Although they are much more efficient and safer than the manual ones: they still have certain restrictions and/or limitations, amongst which can be included: the possible covering of the markers by the mobile parts of the body, the need to establish matching between the surface where the signals are found and the articulation whose movement is trying to be analysed, the limitation of the range of applicability of the system interfering in the individual to be evaluated, etc. Nowadays, it is still a challenge to carry out a completely automatic system of computerised movement recognition of a person.

In the project we propose to carry out an integrated system which has the capacity to carry out this activity although obviously, given the difficulty of the problem, reducing as far as possible some requirements. The fundamental basis of the system is the use of a biomechanical, graphic model built from a hierarchical structure and articulated in order to establish matching between each of the structural elements of the model (parts of the person) with the analytical characteristics of the images (regions) obtained from the different conveniently calibrated, synchronized viewpoints.

By means of different algorithms and digital image processing techniques at different levels, a set of analytical entities (points, segments, regions, etc) will be obtained which in combination with the biomechanical restrictions will enable us to track. Identify and match the parts of the *synthetic model* with the positions of the body captured by the different viewpoints. With the experience one has new methods based on high level models are proposed (Markov chains, diffuse logic, relational graphs, etc...) which make it possible to control, and recover in the case of errors, the tracking physical models applied (cinematics, dynamics and in tracking, Kalman's filter).

From the synthetic point of view, the base system already allows the visualization of 3D models in the standard H-anim format (VRML) so its portability is guaranteed. The new system will improve edition and scene generation and will make it possible to define different levels of precision according to the application. Special emphasis is made on the definition of advanced deformable models, the analysis and synthesis of mechanisms applied to the human body, and the adaptation of these models to virtual reality. New aims are faced: modelization and analysis of hands, feet and face with the idea of obtaining an integral humanoid. The graphic environment and programming methodology will be perfectly defined in such a way that it will be possible to reproduce interactively -through control mechanisms and high level specification- a sequence of movements or simulations both of a real and synthetic nature. Integration must be a fundamental aim. An anthropometric database will be amplified and improved and Principal Components Analysis (PCA) will be applied in a systematic way to the data captured. At the same time it is desired that the routines and/or libraries generated be portable and highly reusable according to object orientated programming. Thus, a sub-section of reusable software development is considered using tools appropriate for this, both at a development and methodological level. The standard UML will be widely used in the project.

Finally, it is worth highlighting the great quantity of possible applications that the benefits of this project can provide. In the current environment of the Internet, the interactive visualization of humanoids makes it possible to use these virtual characters for practically any purpose or application where images and video are involved.

Referència: DPI2001-2311-C03-02. Ministeri de Ciència i Tecnologia.

Modalitat: Programa nacional de disseny i producció industrial.

Títol: *Plataformas de experimentación en robótica submarina.*

Acrònim: PERSUB.

Classificació UNESCO: 331913, 220990, 331102, 530603, 120304.

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

Investigador responsable: OLIVER CODINA, Gabriel.

Categoria: TU (àrea de coneixement: Arquitectura i Tecnologia de Computadors).

Inici: 2001. **Fi:** 2004.

Membres de l'equip	Categoria	Dedicació (EDP)
Oliver Codina, Gabriel	TU	1
Garí Ruiz, Rut	Aj. EU	1
González Cid, Yolanda	TEU int.	0.5
Llamosí Casas, Albert	CU	1
Ortiz Rodríguez, Alberto	TEU	0.5
Proenza Arenas, Julián	TEU	0.5
Rigo Vadell, Joan	As.	0.33
Rocha Cárdenas, Jairo	TEU int.	0.5
Valverde Garcia, Llorenç	CU	0.5

Investigadors d'altres entitats

Bernat Nicolau, Guillem

University of York

EDP del grup investigador de l'entitat sol·licitant: 5.83.

Summary

The current project is basically oriented towards the know-how transfer, as well as basic research aspects and to define the future technological transfer in the field of underwater robotics, as a natural result of the last year's research financed through the CICYT program. The main objectives can be summarised in two blocks:

1. The first block tackles the aspects related to scientific research and know-how transfer. Our proposal consists on putting at the disposal of the scientific community the underwater facilities funded by the CICYT, including the water pool and the underwater vehicles that have been developed by our university. All these resources would be available through Internet to any other university, research centre or private company working on artificial intelligence, automatic control, autonomous navigation, underwater robotics, etc. This part of the project involves research in the fields of artificial intelligence oriented towards autonomous navigation. This approach is based on advanced sensors such as computer vision or inertial navigation systems. Teleoperatio-based communication aspects through Internet will also be tackled.

2. Along with the objectives described above, the present underwater vehicles should be adapted to the requirements of these new objectives, allowing the development of the culture medium to allow the Spanish technology on this field to shortly be on the market. In particular, the main objectives are:

2.1. To improve the URIS teleoperated vehicle, either scientific and technologically. This vehicle is especially useful for the observation of the bed of the sea and lakes, thanks to its excellent manoeuvrability, easy of use and low cost. Within its multiple future applications

stand out the observation of dams and collectors, the aid in rescues, the observation of the bottom of the sea in commercial ports, vessel structures, etc. In the near future this prototype should be transferable to industry.

2.2. To progress in the development of RAU, improving its proficiency in autonomous navigation tasks. In this sense, the idea is to obtain an underwater vehicle that be able of tracking underwater infrastructures such as cables, pipes, etc, in a first phase. Moreover, this prototype should be able to travel long distances with minimal power consumption. The added value of the project stems from the bet on the placement of the first Spanish underwater vehicles on the European market in a near future, and guaranteeing its success.

2.3. To adapt the first GARBI prototype, since it incorporates two teleoperated arms, to be used as a primordial prototype for research in the field of teleoperation and in the aspects of underwater robots cooperation. The report describes in depth the modifications to be accomplished, either from the technologic and scientific viewpoint.

Referència: TIC2001-0287. Ministeri de Ciència i Tecnologia.

Modalitat: Programa nacional de tecnologies de la informació i les comunicacions.

Títol: *Demostrador adaptativo reconfigurable de un WLAN para entornos interiores.*

Acrònim: DARWIN.

Classificació UNESCO: 332505.

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

Investigador responsable: FEMENIES NADAL, Guillem.

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

Inici: 2001. **Fi:** 2004.

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

EDP del grup investigador de l'entitat sol·licitant: 6.

Keywords: WLAN, UMTS, smart antennas, OFDM, MAC, DLC, handover, security.

Summary

The primary goal of DARWIN is the definition, analysis, simulation and demonstration of a high performance adaptative WLAN (Wireless LAN) providing wireless access to packet switching networks (IP, ATM, UMTS,...). All the subsystems of an equalization, decoding approach, etc., will be jointly optimized. The system will not be optimized in advance but it will adapt itself as a function of the user needs and the changing characteristics of the environment. This is a step towards a software radio, which is presently too far in the future due to technological problems, and goes beyond the state-of-the-art of current mobile communication systems. The project will concentrate on following issues: physical (PHY) and medium access control (MAC) layers, data link control (DLC) protocols, mobility management and security aspects. Another goal of DARWIN will be to go deeply into the theoretical analysis of space-time signal processing schemes, both in base stations and mobile terminals, beamforming techniques for SDMA, coding/decoding schemes including turbo coding, turbo-TCM, space-time codes, multidimensional rotations, MAC protocols, etc. that could be applied to third and fourth generation mobile communications systems (3G/4G). The simulation platform will be based on the use of software tools to perform high-level simulations. Once debugged, these simulation programs will be translated to the VHDL language. Having the VHDL description of the system, an integrated design of programmable logic will be used to implement the system demonstrator. The DARWIN demonstrator will contain six subsystems, namely two mobile terminals (TM), two base stations (EB), ATM switch and control station. This architecture allows for the implementation of two radio cells and, therefore, allows for the evaluation of handover protocols. The radio links and, thus, the integration of physical (PHY), media access control (MAC), data link control (DLC) and network control sublayers with the DARWIN protocol stack, will be simulated using standard DSP, FPGA and/or ASIC boards controlled by using either PCs or a workstation.

Referència: TIC2001-1374-C03-01. Ministeri de Ciència i Tecnologia.

Modalitat: Programa nacional de tecnologies de la informació i les comunicacions.

Títol: *Análisis de las prestaciones de los entornos web.*

Classificació UNESCO: 120318.

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

Investigador principal: PUIGJANER TREPAT, Ramon.

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

Inici: 2001. **Fi:** 2004.

Membres de l'equip	Categoria	Dedicació (EDP)
Puigjaner Trepas, Ramon	CU	0.5
Serra Cifre, Bartomeu Jaume	CU	0.5
Galmés Obrador, Sebastià	TEU	0.5
Vidal Rodríguez, Damià	TEU int.	0.5
Juiz García, Carlos	TEU int.	0.5
Santamaría Pérez, M. Luisa	TEU	0.5
Servera Rullan, Guillem	As.	1
Lladó Matas, Catalina	Aj. EU	0.5
Erice Ruiz, M. Carmen	TEU	0.5
Sola Venteo, Antonio	As.	1
Mañas Florit, Josep	As.	1

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

Keywords: performance analysis, workload characterisation, benchmarking, web environments.

Summary

The growing of internet has led to the development of new services and applications, a e-commerce and multimedia application all of them characterised by a high degree of complexity, heterogeneity and interactivity. Web servers are faced to the increasing number of fast, secure, reliable and highly available service requirements. For giving an answer to these requirements, web servers' design and management should be based on a precise knowledge of their workload. However, workload characterisation requires the existence of real traces of request generated by the different Internet services. After the characterisation of the workload, different predictive performance evaluation techniques can be used. In this case we will use benchmarking and modelling. The Transaction Processing Performance Council (TPC) has defined the TPC-W, the first benchmark oriented to web environments (servers), that simulate e-commerce activities. The goal of the TPC benchmarks is to provide the industry with relevant and objective performance data. The benchmark results are very dependent on the workload, on the specific requirements, design and implementation of the application. So, the TPC-W should not replace an application specific benchmark if important decisions should be based on its measurements. This is the reason for developing a configurable and parametrised benchmark for evaluating the web server's performance when they are processing workloads different to those defined by the TPC-W. as for e-learning, e-work, e-mail, etc. From the statistical workload characterisation it is intended to develop a workload generator to be used as input to a generic model of a web server. This model will be used in the study of alternative web and proxy architectures.

Participacions a altres projectes

Referència: BFF2000-0841. Ministeri de Ciència i Tecnologia.

Modalitat: Programa nacional de promoció general del coneixement.

Títol: *Textos especializados y terminología: selección y recuperación automática de la información.*

Acrònim: TEXTERM.

Investigadora responsable: CABRÉ CASTELLVÍ, M. Teresa.

Centre: Universitat Pompeu Fabra.

Investigadora de la UIB: DELGADO DOMÍNGUEZ, Adelaida.

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

Inici: 2001. **Fi:** 2003.

Referència: TIC2000-1191. Ministeri de Ciència i Tecnologia.

Modalitat: Programa nacional de tecnologies de la informació i de les comunicacions.

Títol: *Sistema de recuperación de información con control terminológico y discursivo.*

Acrònim: RICOTERM.

Investigadora principal: LORENTE CASAFont, Mercè.

Centre: Universitat Pompeu Fabra.

Investigadora de la UIB: DELGADO DOMÍNGUEZ, Adelaida.

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

Inici: 2001. **Fi:** 2003.

Referència: VII.19. CYTED.

Títol: *Recuperación de información y bibliotecas digitales.*

Acrònim: RIBIDI.

Investigador principal: BAEZA-YATE, Ricardo.

Centre: Universitat de Xile.

Investigadora de la UIB: DELGADO DOMÍNGUEZ, Adelaida.

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

Inici: 2001. **Fi:** 2003.



DEPARTAMENT DE DRET PRIVAT

- Aspectos jurídicos de la seguridad en el comercio electrónico; en particular, estudio de la firma electrónica y las autoridades de certificación.

MARTÍNEZ NADAL, Apol·lònia

- Derecho concursal español. Situación actual y reforma.

ALCOVER GARAU, Guillem

- La reforma de la justicia civil. Incidencia en los procesos de otros órdenes jurisdiccionales. Estudios preparatorios para su aplicación.

TAPIA FERNÁNDEZ, Isabel.

- La protección de los consumidores en los contratos de alojamiento turístico.

COCA PAYERAS, Miquel

- La adaptación del derecho de familia propio de las islas Baleares a la nueva realidad social.

FERRER VANRELL, M. Pilar

- La protección del turista como consumidor.

TORRES LANA, José Ángel



Endarrere



Endavant

Referència: PB98-0169. Programa sectorial de promoció general del coneixement.

Títol: *Aspectos jurídicos de la seguridad en el comercio electrónico; en particular, estudio de la firma electrónica y las autoridades de certificación.*

Classificació UNESCO: 5699.

Centre: Departament de Dret Privat. Edifici Anslem Turmeda.

Investigadora responsable: MARTÍNEZ NADAL, Apol·lònia

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

Inici: 1999. **Fi:** 2002.

Membres de l'equip	Categoria	Dedicació (h/setm.)
Martínez Nadal, Apol·lònia	TU	16
Alcover Garau, Guillem	CU	16
Huguet Rotger, Llorenç	CU	16
Ferrer Gomila, Josep Lluís	TEU	16
Blas Guasp, Javier	As.	16

Nombre total d'investigadors de la UIB: 5.

Total EJC/setmana: 2.

Keywords: electronic commerce, electronic signature, certification authorities, certificates.

Summary

Study of security in electronic commerce because of the problems of authentication, integrity, confidentiality and repudation in electronic communications developed through open and insecure channels. Electronic signature in general, and digital signature in particular, as instrument of security. Necessity of certificates and certification authorities as complement of electronic signature in order to obtain a secure electronic commerce; objective aspects: the cycle of life of certificates; subjective aspects: certification entity, subscriber and relying party. Study of juridic and technical aspects about these new concepts.

Referència: PB97-0139-C02-01. Programa sectorial de promoció general del coneixement.

Títol: *Derecho concursal español. Situación actual y reforma.*

Classificació UNESCO: 5605.

Centre: Departament de Dret Privat. Edifici Anselm Turmeda.

Investigador responsable: [ALCOVER GARAU, Guillem](#).

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

Inici: 1998. **Fi:** 2001.

Membres de l'equip	Categoria	Dedicació (h/setm.)
Alcover Garau, Guillem	CU	16
Alonso Espinosa, Francisco		16
Martínez Nadal, Apol·lònia	TU	16
Oliver Barceló, Santiago	As.	16
Farias Batlle, Mercedes		16
Sánchez Ruiz, Mercedes		16
Grimaldos García, Isabel		32
Martínez Cañellas, Anselm M.	TEU int.	32

Nombre total d'investigadors de la UIB: 4.

Total EJC/setmana: 2.

Referència: PB98-1468-C02-02. Programa sectorial de promoció general del coneixement.

Títol: *La reforma de la justicia civil. Incidencia en los procesos de otros órdenes jurisdiccionales. Estudios preparatorios para su aplicación.*

Classificació UNESCO: 520402.

Centre: Departament de Dret Privat. Edifici Anselm Turmeda.

Investigadora responsable: [TAPIA FERNÁNDEZ, Isabel](#).

Categoria: CU (àrea de coneixement: Dret Processal).

Inici: 1999. **Fi:** 2002.

Membres de l'equip	Categoria	Dedicació (h/setm.)
Tapia Fernández, Isabel	CU	32
López Simó, Francisco	TU	16
Nadal Gómez, Irene	Aj. U	16

Nombre total d'investigadors de la UIB: 3.

Total EJC/setmana: 1,6.

Referència: BJU2000-0280. Ministeri de Ciència i Tecnologia.

Modalitat: P1. Projecte d'investigació bàsica no orientada.

Títol: *La protección de los consumidores en los contratos de alojamiento turístico.*

Acrònim: PC CAT.

Classificació UNESCO: 560502.

Centre: Departament de Dret Privat. Edifici Anselm Turmeda.

Investigador responsable: COCA PAYERAS, Miquel.

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

Inici: 2000. **Fi:** 2003.

Membres de l'equip	Categoria	Dedicació
Coca Payeras, Miquel	CU	Única
Munar Bernat, Pedro A.	TU	Única
Llodrà Grimalt, Francesca	Aj. EU	Compartida
Verdera Izquierdo, Beatriz	Aj. EU	Compartida

Nombre total d'investigadors de la UIB: 4.

Keywords: protection of the consumers, turistic accommodation.

Summary

The project aims to study some of the most legal aspects to protect the consumers in the turistic accommodation contracts. The first field of research analyse the protection system of the spanish normative. The second field of research refers to the European Community normative and to try to harmonize the contract of this sector. Finally, the third aspect that is going to be developed is a concret study of the last legal spanish normative (Act 42/1998, of 15 december, about time-sharing and Act 7/1998, of 13 April, of contract terms and others acts that will be promulgate, RD 515/1989, of information in the contract of letting.

Referència: BJU2000-0974. Ministeri de Ciència i Tecnologia.

Modalitat: P1. Projecte d'investigació bàsica no orientada.

Títol: *La adaptación del derecho de familia propio de las islas Baleares a la nueva realidad social.*

Acrònim: ADF IB.

Classificació UNESCO: 560502.

Centre: Departament de Dret Privat. Edifici Anselm Turmeda.

Investigadora responsable: FERRER VANRELL, M. Pilar.

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

Inici: 2000. **Fi:** 2003.

Membres de l'equip	Categoria	Dedicació
Ferrer Vanrell, M. Pilar	TU	Única
Vila Ribas, M. del Carme	TU	Compartida
Llodrà Grimalt, Francesca	Aj. EU	Compartida
Verdera Izquierdo, Beatriz	Aj. EU	Compartida

Nombre total d'investigadors de la UIB: 4.

Keywords: economic matrimonial rules, living more uxorio, single family.

Summary

This project deals with the analysis of the regulation of the family law and it has the objective of studying the adaptation of the family law of the Balearic Islands to the new reality in this issues. In this project we begin the study of the sentence of the *Tribunal Superior de Justicia de las islas Baleares*, of the 3th September of 1998, where the Court studies the article 1320 of the Spanish Civil Code.

Ajudes a projectes d'investigació del Centre d'Investigació i Tecnologies Turístiques de les Illes Balears (CITTIB)

Títol: *La protección del turista como consumidor.*

Centre: Departament de Dret Privat. Edifici Anselm Turmeda.

Investigador responsable: TORRES LANA, José Ángel.

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

Inici: 2000. **Fi:** 2002.

Membres de l'equip	Categoria	Dedicació (h/setm.)
Torres Lana, José Ángel	CU	24
Blasco Esteve, Avel·lí	CU	8
Huesa Vinaixa, M. Rosario	CU	8
Tur Faúndez, María Nélida	TU	24
Socias Camacho, Joana Maria	TU int.	8
Janer Torrens, Joan David	Aj. U	8

Nombre total d'investigadors de la UIB: 6.

Total EJC/setmana: 2.

Summary

The project tries to design what is the legal and judicial system of tourist protection as a consumers in European ground, from three different territorial levels and two institutional basis. Those three levles are those of EU legal system, the spanish one and the concerning to autonomical communities. This institutional basis deal about the analysis of the several Acts on the topic, and the study of judicial decissions and sentences on the matter.



DEPARTAMENT DE DRET PÚBLIC

- Propiedad intelectual, propiedad industrial y nuevas tecnologías en el ámbito jurídico penal.

QUINTERO OLIVARES, Gonzalo

- Los intereses de España, y los desarrollos recientes y pendientes en el derecho internacional del mar

HUESA VINAIXA, M. Rosario



Endarrere



Endavant

Referència: PB98-0165-C02-01. Programa sectorial de promoció general del coneixement.

Títol: *Propiedad intelectual, propiedad industrial y nuevas tecnologías en el ámbito jurídico penal.*

Classificació UNESCO: 5699.

Centre: Departament de Dret Públic. Edifici Anselm Turmeda.

Investigador responsable: [QUINTERO OLIVARES, Gonzalo](#).

Categoria: CU (àrea de coneixement: Dret Penal).

Inici: 1999. **Fi:** 2002.

Membres de l'equip	Categoria	Dedicació (h/setm.)
Quintero Olivares, Gonzalo	CU	32
Garcia Solé, Marc		32

Nombre total d'investigadors de la UIB: 1.

Total EJC/setmana: 0,8.

Keywords: intellectual property, industrial propriety, new technologies, penal project leader.

Summary

Our research project is aimed at studying the limits to the criminal and civil action upon the intellectual and industrial property rights exploited by telematic means and specially over the Internet. In order to do so, we need first to focus on the means through which this exploitation is conducted, which presents in itself several juridical problems due to a generalized *anomia* and the usage developed by web-operators. This study also includes the structure of the service providers as well as their responsibility regime. Once this first step is concluded, we will study the different domestic laws on the protection of industrial and intellectual property as well as on the protection of data and intimacy. Afterwards, we will focus on the several infringing conducts developed and the civil and criminal responsibility regimes applicable to them.

Participacions a altres projectes

Referència: PB98-1027. Programa sectorial de promoció general del coneixement.

Títol: *Los intereses de España, y los desarrollos recientes y pendientes en el derecho internacional del mar.*

Investigador responsable: CASADO RAIGON, Rafael.

Centre: Universitat de Córdoba.

Investigadora de la UIB: HUESA VINAIXA, M. Rosario.

Categoria: CU (àrea de coneixement: Dret Internacional Públic i Relacions Internacionals).

Total EJC/setmana: 0,4.

Inici: 1999. **Fi:** 2002.



DEPARTAMENT D'ECONOMIA I EMPRESA

- El gobierno de la empresa. Implicaciones para la competitividad de la empresa española.
LOZANO ARNICA, Gonzalo
 - La estimación del valor económico de los atributos ambientales, a partir del mercado inmobiliario, para la correcta definición de indicadores de sostenibilidad de una área turística.
AGUILÓ PÉREZ, Eugeni.
 - Estructura organizativa y gobierno de la empresa española.
CRESPÍ CLADERA, Rafael.
 - Liquidez, microestructura y gestión de riesgos.
PASCUAL GASCÓ, Robert
 - Estructura contractual i qualitat de gestió mediambiental. Implicacions per a la competitivitat de la indústria hotelera balear
CRESPÍ CLADERA, Rafael
 - Aplicació dels sistemes de gestió i de comptabilitat medi ambientals al sector turístic.
SOCIAS SALVÀ, Antoni.
 - Estimació de la demanda dels atributs ambientals que sustenten les activitats turístiques d'allotjament.
AGUILÓ PÉREZ, Eugeni.
 - Models de creixement sostenible i problemes de transició a l'economia de les illes Balears.
REY-MAQUIEIRA PALMER, Javier
- Participacions a altres projectes



Referència: PB97-0185-C03-03. Programa sectorial de promoció general del coneixement.

Títol: *El gobierno de la empresa. Implicaciones para la competitividad de la empresa española.*

Centre: Departament d'Economia i Empresa. Edifici Mateu Orfila i Rotger.

Investigador responsable: LOZANO ARNICA, Gonzalo.

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

Inici: 1998. **Fi:** 2001.

Membres de l'equip	Categoria	Dedicació (h/setm.)
Lozano Arnica, Gonzalo	TU	32
Rivas Yarza, Pedro Antonio	TEU	32
Alemaný Hormaeche, Margalida	TEU	32
Calveras Maristany, Aleix	TEU int.	32
Crespí Cladera, Rafael	TU	
Solà Belda, Carles	TEU int.	

Nombre total d'investigadors de la UIB: 6.

Total EJC/setmana: 3,2.

Summary

To identify the determinant of the competitiveness of the enterprises is a difficult task, besides other reasons because of the strong interrelations among them. The structure of ownership and the governance organisation, the role of the capital markets, the investment in intangible capital are aspects which have been insufficiently studied in the spanish case. The proposed project has an objective the improvement of its knowledge. In that sense, it has a theoretical component to build a frame of reference - and an empirical one, to amass data and information following a more accurate diagnose.

Referència: SEC99-0267. Pla nacional d'estudis socials i econòmics.

Títol: *La estimación del valor económico de los atributos ambientales, a partir del mercado inmobiliario, para la correcta definición de indicadores de sostenibilidad de una área turística.*

Classificació UNESCO: 5307.

Centre: Departament d'Economia i Empresa. Edifici Mateu Orfila i Rotger.

Investigador responsable: AGUILÓ PÉREZ, Eugeni.

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

Inici: 1999. **Fi:** 2001.

Membres de l'equip	Categoria	Dedicació (h/setm.)
Aguiló Pérez, Eugeni	CU	32
Juaneda Sampol, C. Nativitat	CU	16
Socias Salvà, Antoni	CU	16
Riera Font, Antoni	TU	32
Aguiló Segura, Paula Maria	TEU	32
Llull Gilet, Antoni	TEU	32

Nombre total d'investigadors de la UIB: 6.

Total EJC/setmana: 4.

Keywords: environmental valuation, hedonic prices, sustainable index.

Summary

The hedonic hypothesis tells us that goods are valued for their utility-bearing attributes or characteristics. From this hypothesis we can accept that the choice of a house depend on structural characteristics of the house, characteristics of the neighbourhood and the location-specific environmental amenities. Therefore, it would be correct to use metodologic instruments to the development of aspects of overall planning (territorial, urban and environmental) with the hedonic prices valuation technique. Then we will be able to value the significance of the environmental attributes, to specify the demand of these attributes to be able to value individual walfare changes when these environmental characteristics change and to rationalise the public policies and private strategies design with the help of sustainable index. To show the applicability of this methodology we will make a study of a tourist area of the Balearic Islands of residential tourism.

Referència: BEC2001-2552-C03-03. Ministeri de Ciència i Tecnologia.

Modalitat: Programa nacional de promoció general del coneixement.

Títol: *Estructura organizativa y gobierno de la empresa española.*

Classificació UNESCO: 531103.

Centre: Departament d'Economia i Empresa. Edifici Mateu Orfila i Rotger.

Investigador responsable: [CRESPÍ CLADERA, Rafael](#).

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

Inici: 2001. **Fi:** 2004.

Membres de l'equip	Categoria	Dedicació (EDP)
Crespí Cladera, Rafael	TU	1
Lozano Arnica, Gonzalo	TU	1
Munar Muntaner, Esperança	CEU	1
Calveras Maristany, Aleix	TEU int.	1
Solà Belda, Carles	TEU int.	1
Pascual Fuster, Bartomeu	TEU int.	1
Alemaný Hormaeche, Margalida	TEU	1
Deyà Tortella, Bartomeu	Aj. EU	1
Orfila Sintés, Francesca M.	Aj. EU	1
Rivas Yarza, Pedro Antonio	TEU	1
Massot Perelló, M. Magdalena	TEU	1

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

Keywords: organizational design, property issues, financing, corporate governance, competitiveness.

Summary

This research programme focuses on the study on the study of Spanish enterprises and it deals, from a microeconomic perspective, with different organizational factors that might favor their competitiveness. We combine empirical analysis with theoretical models already contrasted in economic analysis. The efficiency and competitiveness of our enterprises are conditioned, among other factors, by the organizational solutions which the enterprises themselves adopt for their internal configuration, the legal norms in use where the enterprises carry out their activity and, specially, the regulations related to the financial and labour markets. This complexity has been in the past the main reason for developing various lines of complementary research in these fields, which we intend to continue in this project and extend to the analysis of some related topics. Specifically, we propose to continue the analysis in depth of the consequences that different financial and corporate governance structures have on firm's efficiency, human resource management or the protection that legal norms offer to the creditors. Furthermore, we pretend to extend our analysis to include also topics such as the organization of R&D activities, or the implementation of organizational changes that allow the enterprise to better adapt to the important technological changes it has to face nowadays.

Participacions a altres projectes

Referència: PB98-0030. Programa sectorial de promoció general del coneixement.

Títol: *Liquidez, microestructura y gestión de riesgos.*

Investigador responsable: PEÑA SÁNCHEZ DE RIVERA, Juan I.

Centre: Universitat Carlos III de Madrid.

Investigador de la UIB: PASCUAL GASCÓ, Robert.

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

Total EJC/setmana: 0,4.

Inici: 1999. **Fi:** 2002.

Ajudes a projectes d'investigació del Centre d'Investigació i Tecnologies Turístiques de les Illes Balears (CITTIB)

Títol: *Estructura contractual i qualitat de gestió mediambiental. Implicacions per a la competitivitat de la indústria hotelera balear.*

Centre: Departament d'Economia i Empresa. Edifici Mateu Orfila i Rotger.

Investigador responsable: CRESPI CLADERA, Rafael.

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

Inici: 2000. **Fi:** 2002.

Membres de l'equip	Categoria	Dedicació (h/setm.)
Crespí Cladera, Rafael	TU	32
Rivas Yarza, Pedro Antonio	TEU	32
Calveras Maristany, Aleix	TEU int.	32
Solà Belda, Carles	TEU int.	32
Orfila Sintès, Francesca M.	Aj. EU	32

Nombre total d'investigadors de la UIB: 5.

Total EJC/setmana: 4.

Keywords: quality management, ownership structure, environmental sustainability.

Summary

The present research project (which enjoys partial financing through DGES projects) proposes to undertake a detailed analysis of two complementary issues of great importance for the Balearic hotel (and tourist) industry. The project will analyze, from an empirical and theoretical perspective, the ownership structure and, more specifically, the contractual form and structure existing in the Balearic hotel industry. We propose to start doing an empirical analysis of the ownership structures and its contractual forms. To do so we pretend to use the infrastructure and resources (data, contacts,...) of CITTIB, doing also a detailed analysis of these contractual forms (including existing contract clauses) in the Balearic hotel industry. Next, we will undertake a theoretical analysis identifying the determinants (economic, legal,...) of the contractual structures, and its implications, both for hotel management and for the design of regulation and promotion of the Balearic hotel sector. The second research issue of this project lies within this context of analysis of hotel management and design of regulation: the study of environmental management systems (SGM). A crucial factor in the development and competitiveness in the medium and long term of the tourist industry (and the hotel sector) lies in the consideration by industry managers of environmental aspects, and SGM are part of it. Thus, the project aims at studying (from the double theoretical and empirical perspective) in line with Govern Balear projects such as ECOTOUR, the application of SGM undertaken until today by the Balearic hotel (and tourist) industry. This analysis includes considering the incentives (via product differentiation or cost reduction) which have hotel managers to undertake this application. This will allow providing specific policy recommendations with the goal of promoting an internalization by hotel managers of environmental issues. Both objectives are related to the extent that the design of competitive strategies based in the implementation of SGM are conditioned to the contractual form which relates ownership and management.

Títol: *Aplicació dels sistemes de gestió i de comptabilitat medi ambientals al sector turístic.*

Centre: Departament d'Economia i Empresa. Edifici Mateu Orfila i Rotger.

Investigador responsable: SOCIAS SALVÀ, Antoni.

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

Inici: 2000. **Fi:** 2002.

Membres de l'equip	Categoria	Dedicació (h/setm.)
Socias Salvà, Antoni	CU	32
Llull Gilet, Antoni	TEU	32
Perelló Julià, Miquel	TEU int.	32
Aleñar Rebassa, Margalida	Aj. EU	32
Horrach Rosselló, Patrícia	Aj. EU	32
Larrinaga González, Carlos		32

Nombre total d'investigadors de la UIB: 6.

Total EJC/setmana: 4.

Keywords: environmental accounting, environmental management, tourism, sustainability.

Summary

The economy of the Balearic islands depends in a fundamental way on the tourist trade. The protection of the environment and the achievement of a model of sustainable growth constitute real survival challenges for the tourist industry, as the quality of the environment of a tourist destination is a key factor in choosing among competing holiday destinations. This project intends to diagnose what the situation of our tourist enterprises is -in terms of facts and attitudes- with regards to environmental management, the incorporation of environmental variables into their accounting systems and their release of relevant information to the public.

The main aims of the project are:

- to find out about our tourist enterprises perceptions with respect to their relationship with the environment and the position they adopt as organisations;
- to research their attitudes with regards to the implementation of environment management procedures and the release of relevant accounting information, as well as to assess the degree of their actual implementation;
- to analyse the environmental content of the external information made public by the enterprises;
- to apply the case study method to a concrete tourist municipality as a means to allow the study of environmental problems that go beyond the microeconomic level.

The study will enable us to detect the advantages and disadvantages taken into account by the enterprises, their resistance to change and the main difficulties. We will conclude with a realistic proposal that contributes to improve the implementation of standard systems of environmental management and accounting, with special reference to the European Union's EMAS System and the Decree of the Government of the Balearics which applies it to the tourist industry.

Títol: *Estimació de la demanda dels atributs ambientals que sustenten les activitats turístiques d'allotjament.*

Centre: Departament d'Economia i Empresa. Edifici Mateu Orfila i Rotger.

Investigador responsable: AGUILÓ PÉREZ, Eugeni.

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

Inici: 2000. **Fi:** 2002.

Membres de l'equip	Categoria	Dedicació (h/setm.)
Aguiló Pérez, Eugeni	CU	16
Riera Font, Antoni	TU	16
Aguiló Segura, Paula Maria	TEU	32
Monfar Palou, Carles	TEU	32
Alcover Casasnovas, Antoni L.	TEU int.	32

Nombre total d'investigadors de la UIB: 5.

Total EJC/setmana: 3,2.

Keywords: environmental valuation, hedonic prices.

Summary

The hedonic hypothesis tells us that goods and services are valued for their utility bearing attributes or characteristics. From this hypothesis we can accept that the choice of an individual depend on structural characteristics of the services and on the quality of the environment which they take place. Therefore, it would be correct to use the hedonic prices valuation technique to approach us to the economic valuation that tourists suggest for the environmental attributes, which are relevant for the tourist activities of lodging. Then we will be able to value the significance of the environmental attributes in the choice of lodging establishments (hotel, apartment,...) to specify the demand of these attributes and to rationalise the public policies and private strategies in the tourists lodging sector. To show the applicability of this methodology we will make a study of a tourist area of the Balearic Islands.

Títol: *Models de creixement sostenible i problemes de transició a l'economia de les illes Balears.*

Centre: Departament d'Economia i Empresa. Edifici Mateu Orfila i Rotger.

Investigador responsable: REY-MAQUIEIRA PALMER, Javier.

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

Inici: 2000. **Fi:** 2002.

Membres de l'equip	Categoria	Dedicació (h/setm.)
Rey-Maqueira Palmer, Javier	TU	32
Lozano Ibáñez, Fco Javier	TEU	32
Matas Mir, Antoni	TEU int.	32
Spadaro, Amedeo	TU int.	32
Ramos Mir, Vicenç	Aj. EU	32

Nombre total d'investigadors de la UIB: 5.

Total EJC/setmana: 4.

Summary

Our research project aims to clarify and give analytical soundness to the current debate over the proper tourist development strategy for the Balearic Islands. We believe that this aim requires, as a first step, to analyse the sustainability of different tourist development strategies from a long-run perspective. In order to do this, we should consider the close dependence of the tourist sector on competitiveness factors other than the price, specially its dependence on the environmental quality. Our aim would demand several targets. Firstly, the concept of sustainability should be clarity. Thirdly, the previous findings ought to be used in order to evaluate different public intervention alternatives aimed at sustainability. As a second step, our purpose is to shed light on the possible transition and readjustment costs of a change in the tourist development strategy. We would focus on the short-run effects on the labour market coming from changes in the size and composition of the tourist offer, such as changes in wages and unemployment, mismatch between labour skills and labour demand and so on.

Participacions a altres projectes

Referència: PB98-0866. Programa sectorial de promoció general del coneixement.

Títol: *Análisis económico y política pública: fundamentos, diseños y evaluación.*

Investigador responsable: LÓPEZ GARCÍA, Miguel A.

Centre: Universitat Autònoma de Barcelona.

Investigador de la UIB: SPADARO, Amedeo.

Categoria: TU int. (àrea de coneixement: Economia Aplicada).

Total EJC/setmana: 0,4.



DEPARTAMENT DE FILOGIA CATALANA I LINGÜÍSTICA GENERAL

- Edición del Llibre de Déu, de Ramon Llull.
ROSSELLÓ BOVER, Pere
- Análisis y edición del Bolletí del Diccionari de la Llengua Catalana (1901-1936).
DOLS SALAS, Nicolau
- Projectes del Programa Mossèn Alcover



Referència: BFF2000-1268. Ministeri de Ciència i Tecnologia.

Modalitat: P1. Projecte d'investigació bàsica no orientada.

Títol: *Edición del Llibre de Déu, de Ramon Llull.*

Acrònim: ELDRL.

Classificació UNESCO: 6202, 7204, 5506.

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

Investigador responsable: [ROSSELLÓ BOVER, Pere](#).

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

Inici: 2000. **Fi:** 2003.

Membres de l'equip	Categoria	Dedicació
Rosselló Bover, Pere	TU	Única
Ensenyat Pujol, Gabriel	TU	Única
Bonner, Anthony		Compartida
Alomar Canyelles, Antoni Ignasi	As.	Única
Mesquida Cantallops, Joan Antoni	TEU	Compartida
Amengual Bunyola, Guillem Alexandre	As.	Única

Nombre total d'investigadors de la UIB: 5.

Keywords: lullism, edition of texts.

Summary

Preparation of a critical edition of the *Llibre de Déu*, by Ramon Llull, which consist of three works: *Llibre del és de Déu*, *Llibre de la coneixença de Déu* and *Llibre de Déu*.

Referència: BFF2001-0362. Ministeri de Ciència i Tecnologia.

Modalitat: Programa nacional de promoció general del coneixement.

Títol: *Análisis y edición del Bolletí del Diccionario de la Lengua Catalana (1901-1936).*

Acrònim: BDLC.

Classificació UNESCO: 570503.

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

Investigador responsable: DOLS SALAS, Nicolau.

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

Inici: 2001. **Fi:** 2004.

Membres de l'equip	Categoria	Dedicació (EDP)
Dols Salas, Nicolau	TEU	1
Miralles Monserrat, Joan	CU	0.33
Grimalt Gomila, Josep Antoni	TU	0.33

EDP del grup investigador de l'entitat sol·licitant: 1.66.

Keywords: linguistics, lexicography, romance languages.

Summary

First initiated by Antoni M. Alcover in 1901, the *Bolletí del Diccionari de la Llengua Catalana* was envisaged as a to circulate ideas between the editor and fieldworkers. The dictionary, finally published in 1962 as *Diccionari Català-Valencià-Balear* collected both vocabulary and aspects of folk culture from all over Catalan-speaking areas. Forms, meanings, sources, etymologies, pronunciation, sayings, dialects and cultural information intending to complete general understanding of words are included in this work. For its length (10 volumes with 9737 pages), conception and quality this dictionary is well known as one of the most outstanding works in romance lexicography. The *Bolletí del Diccionari de la Llengua Catalana* is especially interesting on two different grounds: (i) the information it provides on data collection and selection, and (ii) for the large amount of information it supplies on major trends in early century linguistics, mainly because of articles included for fieldworkers training and for theoretical discussion it can be worth taking into accounts that this first spanish journal on philology conveys a good number of contributions signed by foreign philologists like Bernard Schädel, Jean Joseph Saroïhandy, Wilhelm Meyer-Lübke, Alfred Morel-Fatio, among others. It is in this project to investigate methodological issues that led to the production of the *Diccionari Català-Valencià-Balear*, among with its theoretical foundations through a thorough analysis of the *Bolletí del Diccionari de la Llengua Catalana*. The aims and methodology that we propose below are expected to implement resources for the investigation of individuals involved either in fieldwork related to or the edition of the dictionary, as well as to increase knowledge of it sources (both archives and literary sources investigated during fieldwork). Another benefit of this project will be a critical edition of theoretical articles appeared in the journal under investigation. An important advantage point for researchers in this project is the fact that the Alcover-Moll legacy (including the whole of dictionary files and the correspondence generated by the *Bolletí*) has recently been placed in their university.

Projectes del Programa Mossèn Alcover

Títol del projecte: *Antologia de textos de les illes Balears.*

Investigador responsable: MIRALLES MONSERRAT, Joan.

Títol del projecte: *Arxiu audiovisual de dialectes catalans de les illes Balears.*

Investigador responsable: CORBERA POU, Jaume.

Títol del projecte: *Atles ornitoniàmic.*

Investigador responsable: MIRALLES MONSERRAT, Joan.

Títol del projecte: *Buidatge dels mots usuals de les illes Balears del DCVB.*

Investigador responsable: MIRALLES MONSERRAT, Joan.

Títol del projecte: *Desenvolupament d'un sistema fonològic en infants catalanoparlants.*

Investigador responsable: DOLS SALAS, Nicolau.

Títol del projecte: *Diccionari de cultura material de les illes Balears.*

Investigador responsable: ALOMAR CANYELLES, Antoni Ignasi.

Títol del projecte: *Diccionari de locucions, modismes, refranys de l'Aplec de Rondalles Mallorquines.*

Investigador responsable: GRIMALT GOMILA, Josep Antoni.

Títol del projecte: *Nomenclàtor toponímic de les illes Balears.*

Investigador responsable: MIRALLES MONSERRAT, Joan.

Títol del projecte: *Glosari de definicions lul·lianes.*

Investigador responsable: ROSSELLÓ BOVER, Pere.

Títol del projecte: *Recursos lingüístics en textos científics.*

Investigador responsable: MESQUIDA CANTALLOPS, Joan Antoni.



DEPARTAMENT DE FILOLOGIA ESPANYOLA, MODERNA I LLATINA

- Los libros de emblemas de Francisco Garau (S.J.): investigación intertextual y creación de una aplicación en CD-ROM para su estudio analítico.

BERNAT VISTARINI, Antonio

- Estudio y edición crítica de las obras teatrales inéditas de Diego de Torres Villarroel (Salamanca, 1694-1770).

GARAU AMENGUAL, Jaume

- Los textos como fuente de información pragmática: estudio de la gestualidad en la antigüedad romana.

FORNÉS PALLICER, M. Antònia

- Participacions a altres projectes



Endarrere



Endavant

Referència: PB98-0134. Programa sectorial de promoció general del coneixement.

Títol: *Los libros de emblemas de Francisco Garau (S.J.): investigación intertextual y creación de una aplicación en CD-ROM para su estudio analítico.*

Classificació UNESCO: 550505.

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

Investigador responsable: BERNAT VISTARINI, Antonio.

Categoria: TU (àrea de coneixement: Literatura Espanyola).

Inici: 1999. **Fi:** 2001.

Membres de l'equip	Categoria	Dedicació (h/setm.)
Bernat Vistarini, Antonio	TU	16
Fernández Coca, Antonio	TEU	16

Nombre total d'investigadors de la UIB: 2.

Total EJC/setmana: 0,8.

Keywords: history of literature, emblems, iconography, religion, symbols, data bank, automatic documentation.

Summary

Creation of a textual and iconographic data bank of emblems by Francisco Garau (S.J.). Bibliographic research and textual establishment of the three books by Garau (*El sabio instruido de la naturaleza*, *El Olimpo del sabio instruido*, *Tercera parte del sabio instruido*). Analysis of the sources used by this author and the comparison with other emblem books produced in Spain. Creation of an application for the analytical consulting of this collection of emblems on CD-ROM.

Referència: BFF2000-1068. Ministeri de Ciència i Tecnologia.

Modalitat: P1. Projecte d'investigació bàsica no orientada.

Títol: *Estudio y edición crítica de las obras teatrales inéditas de Diego de Torres Villarroel (Salamanca, 1694-1770).*

Classificació UNESCO: 6202.

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

Investigador responsable: GARAU AMENGUAL, Jaume.

Categoria: TU (àrea de coneixement: Literatura Espanyola).

Inici: 2000. **Fi:** 2003.

Membres de l'equip	Categoria	Dedicació
Garau Amengual, Jaume	TU	Única
Madroñal Duran, Abraham	TU int.	Única
Monterrubio Prieto, Juan Miguel	TEU	Única
Servera Baño, Josep	CU	Única

Nombre total d'investigadors de la UIB: 4.

Keywords: critical edition, Diego de Torres Villarroel, plays.

Summary

The aim of this project is to carry out a study, catalogue and critical edition of the works by Diego Torres de Villarroel (Salamanca, 1694-1770), which remain unstudied, unpublished or practically unknown. An important part of this project will consist in the study of this author's short plays including short farces such as *El duende*, or *El médico sordo y el vecino gangoso* and the following one-act farces *El poeta*, *Los gitanos*, *La peregrina*, *El valentón*, *La tabernera de la puerta de Vilamayor* or *La ronda del uso*, in addition to other works such as *La zarzuela del juicio de París*, *El hospital en que Amo se cura*, *Juquetes de Talía* (Salamanca, 1738) and such curious predictions as *La casa del ensayo de las comedias* (Madrid, 1755).

Referència: BFF2001-0916. Ministeri de Ciència i Tecnologia.

Modalitat: Programa nacional de promoció general del coneixement.

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

Acrònim: TFIPEGAR.

Classificació UNESCO: 5705.

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

Investigador responsable: FORNÉS PALLICER, M. Antònia.

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

Inici: 2001. **Fi:** 2004.

Membres de l'equip	Categoria	Dedicació (EDP)
Fornés Pallicer, M. Antònia	TU	0.5

Investigadors d'altres entitats

Quetglas Nicolau, Pere J.	Universitat de Barcelona
Cabré Lunas, Laura	Universitat de Barcelona
Espinilla Buisán, Empar	Universitat de Barcelona
González Páez, Carmen	Universitat de Barcelona
Nofre Maíz, Montserrat	Universitat de Barcelona
Puig Rodríguez-Escalona, Mercè	Universitat de Barcelona
Iranzo Abellán, Salvador	Universitat de Barcelona

EDP del grup investigador de l'entitat sol·licitant: 0.5.

Keywords: linguistics, latin, pragmatics, gesture.

Summary

This project deals with pragmate positioning and, specifically, with gesture. It intends to analyze as completely as possible, gesture in the Roman world. This research aims to establish a corpus when includes the descriptive literary and the iconographic fields, which are well differentiated. Taking these data as starting point, it will be possible to reveal the existence of gesture, to define it and to classify it.

Participacions a altres projectes

Referència: PB97-0173. Programa sectorial de promoció general del coneixement.
Títol: *Materialización documental de la interacción de poblaciones en el mundo greco-romano. Paralelismo con el mundo moderno.*
Investigadora responsable: SANTIAGO ÁLVAREZ, Rosa A.
Centre: Universitat Autònoma de Barcelona.
Investigadora de la UIB: BOSCH JUAN, M. Carme.
Categoria: TU (àrea de coneixement: Filologia Llatina).
Total EJC/setmana: 0,4.
Inici: 1998. **Fi:** 2001.

Referència: PB98-1274. Programa sectorial de promoció general del coneixement.
Títol: *Corpus de poéticas en España (siglos XVIII-XIX-XX). Estudio y edición.*
Investigador responsable: SORIA OLMEDO, Andrés.
Centre: Universitat de Granada.
Investigadors de la UIB: DÍAZ DE CASTRO, Francisco J.
Categoria: CU (àrea de coneixement: Literatura Espanyola).
Total EJC/setmana: 0,4.
DEL OLMO ITURRIARTE, Almudena.
Categoria: TEU (àrea de coneixement: Literatura Espanyola).
Total EJC/setmana: 0,4.
Inici: 1999. **Fi:** 2002.

Referència: PB97-0887. Programa sectorial de promoció general del coneixement.
Títol: *Elaboración de un diccionario inglés/español-español/inglés para el área de Bioquímica.*
Investigadora responsable: VERDAGUER CLAVERA, Isabel.
Centre: Universitat de Barcelona.
Investigadora de la UIB: JUAN GARAU, Maria.
Categoria: TEU (àrea de coneixement: Filologia Anglesa).
Total EJC/setmana: 0,4.
Inici: 1998. **Fi:** 2001.

Referència: TEL99-0335-C04-01. Programa nacional d'aplicacions i serveis telemàtics.
Títol: *Biblioteca virtual de textos españoles del Siglo de Oro accesibles vía internet. Subproyecto 1: Edición digital y base de datos de las obras de emblemática traducidas al español.*
Investigadora responsable: LÓPEZ POZA, Sagrario.
Centro: Universitat de La Coruña.
Investigador de la UIB: BERNAT VISTARINI, Antonio.
Categoria: TU (àrea de coneixement: Literatura Espanyola).
Total EJC/setmana: 0,4.
Inici: 1999. **Fi:** 2002.

Referència: BFF2001-1593. Programa sectorial de promoció general del coneixement.

Títol: *Principales aspectos de la entonación del discurso en español. Estudio experimental de las unidades prosodicas del discurso y sus funciones.*

Investigadora responsable: ELORDIETA ALCIBAR, Gorka.

Centro: Universitat del País Basc.

Investigadora de la UIB: ROMERA CIRIA, Maria Magdalena.

Categoria: Aj. U (àrea de coneixement: Llengua Espanyola).

EDP: 1.

Inici: 2001. **Fi:** 2004.



DEPARTAMENT DE FILOSOFIA I TREBALL SOCIAL

- Estudio interdisciplinar de rasgos funcionales del grado humano. Aspectos sistemáticos.
CELA CONDE, Camilo José
- La justicia, las transformaciones sociales y los límites del Estado del Bienestar: políticas públicas, mercado de trabajo, exclusión social y sostenibilidad.
RIUTORT SERRA, Bernat.
- Ciencia reguladora y riesgos tecnológicos.
LUJÁN LÓPEZ, José Luis



Referència: BSO2000-1116-C04-01. Ministeri de Ciència i Tecnologia.

Modalitat: P1. Projecte d'investigació bàsica no orientada.

Títol: *Estudio interdisciplinar de rasgos funcionales del grado humano. Aspectos sistemáticos.*

Classificació UNESCO: 7205, 2416, 6107, 5101.

Centre: Departament de Filosofia i Treball Social. Edifici Ramon Llull.

Investigador responsable: CELA CONDE, Camilo José.

Categoria: CU (àrea de coneixement: Filosofia Moral).

Inici: 2000. **Fi:** 2003.

Membres de l'equip	Categoria	Dedicació
Cela Conde, Camilo José	CU	Única
Riutort Serra, Bernat	TU	Compartida
Miquel Novajra, Alexandre	TU int.	Compartida
Burges Cruz, Lucrecia	Aj. EU	Única
Valdivieso Navarro, Joaquín	Aj. EU	Compartida
Afonso Marrero, José A.	Aj. EU	Única
Ruiz Altaba, Cristian		Compartida
Castro Nogueira, Laureano		Única

Nombre total d'investigadors de la UIB: 8.

Summary

The study of evolution in terms of grades has been proposed as an alternative to cladistics limits existing to interpret ancestor-descendant relationships. However, "grades" are widely grounded on functional assumption, thus being difficult to quantify. The current project tries: Firstly, to establish an interdisciplinary evolutive scenario of the main functional traits of Homo sapiens (such as, language, aesthetics, and morals. Secondly, to perform experimental studies to obtain stimuli capable of activating brain areas of processing of these tasks. Thirdly, to localize brain areas functionally active during the mentioned tasks, to check the hypothesis of a prefrontal localization of moral judgement, aesthetic appreciation and metaphorical using of language -the development of which would have been responsible for the late hominization period. Fourthly, to built computer simulated models of the evolution of the capacity of analyzing and culturally transmitting evaluations. Fifthly, to analyse some turning point on the cultural evolution. Finally, to set up a model on the phylogeny of the already mentioned functional traits. How to identify grades and clades in the fossil record was mentioned in the Colloquium "Taxonomy and Systematics of the Human Clade" (Palma, February, 2000) as an area of particular interest of research in face of the V Congress of the IAHP (Barcelona 2003). The participants agreed in organising an International Group of research in human systematics to promote that kind of studies. To reach a tipification of the human grade is important in the systematics and paleontology fields, as well as in psychology, psychiatry, neurology, ethics, ethology, anthropology, biodiversity, and environmental studies.

Referència: SEC2000-1235. Ministeri de Ciència i Tecnologia.

Modalitat: P2. Projecte d'investigació bàsica orientada.

Títol: *La justicia, las transformaciones sociales y los límites del Estado del Bienestar: políticas públicas, mercado de trabajo, exclusión social y sostenibilidad.*

Classificació UNESCO: 6307.

Centre: Departament de Filosofia i Treball Social. Edifici Ramon Llull.

Investigador responsable: RIUTORT SERRA, Bernat.

Categoria: TU (àrea de coneixement: Filosofia Moral).

Inici: 2000. **Fi:** 2003.

Membres de l'equip	Categoria	Dedicació
Riutort Serra, Bernat	TU	16
Miquel Novajra, Alexandre	TU int.	16
Carbonero Gamundí, M. Antònia	TEU	16
Valdivieso Navarro, Joaquim	Aj. EU	16

Nombre total d'investigadors de la UIB: 4.

Keywords: justice, social changes, welfare state, public policies, labour market, social exclusion, globalization, modernization, recionality, sustainable development.

Summary

It tries to continue the research on social changes in developed countries, focused, first, on theoretical general analysis and, second, on application to spanish society as well as balearic context. This analysis approaches on equity perspective. The analysis places on impact produced by globalization and complex modernity on social structure and welfar state. The emphasis is on social changes and citizenship rights. The contrast between factual changes and contra-factual equity assumptions allows to evaluate public policies, labour market and social exclusion from the double view of facticity and validity. This theoretical analysis founds the quantitative and valorative evaluation of such changes in spanish and balearic context.

Referència: BFF2001-0377. Ministeri de Ciència i Tecnologia.

Modalitat: Programa nacional de promoció general del coneixement.

Títol: *Ciencia reguladora y riesgos tecnológicos.*

Acrònim: CRRT.

Classificació UNESCO: 720599, 720703.

Centre: Departament de Filosofia i Treball Social. Edifici Ramon Llull.

Investigador responsable: LUJÁN LÓPEZ, José Luis.

Categoria: TU (àrea de coneixement: Lògica i Filosofia de la Ciència).

Membres de l'equip	Categoria	Dedicació (EDP)
Luján López, José Luis	TU	0.5
Ambrogi Álvarez, Adelaida	TU	0.5

Investigadors d'altres entitats

Rodríguez Alcázar, Francisco J.	Universitat de Granada
Blanco Merlo, José R.	Universitat Autònoma de Madrid
Sanmartín Esplugues, José	

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

Keywords: regulatory science, technological risks, uncertainly, methodology.

Summary

This research project deals with a particular kind of scientific activity: regulatory science. In fact, the regulatory science that studies technological risks and is the knowledge ground for the public policies that regulate technological applications. The objectives of the project are the following ones:

1. to study regulatory science in opposition to research science, and in what measure the objectives of regulatory science influence this kind of scientific activity.
2. to study the conflicts among different values in regulatory science, e. g., epistemic values and values related to the protection of environment and of public health.
3. to analyze the different strategies that in fact scientists use to save the uncertainty in their recommendations to public decision makers.

The research project will be developed in three phases: general analysis of regulatory science: two case studies (health technology assessment and Genetically Modified Organisms risk-analysis), both in Spain: and a comparative analysis (with studies on regulatory science carried out in other countries).



DEPARTAMENT DE FÍSICA

- **Métodos analítico-numéricos en relatividad computacional.**
BONA GARCIA, Carles
- **Desarrollo de técnicas avanzadas de verificación para circuitos digitales submicrónicos.**
SEGURA FUSTER, Jaume Agapit
- **Sistemas cuánticos de muchos cuerpos: fermiones y bosones.**
CASAS AMETLLER, Montserrat
- **Caracterización de aleaciones con memoria de forma producidas por solidificación rápida ('melt-spinning').**
CESARI ALIBERCH, Eduard
- **Herramientas para el desarrollo del test en circuitos integrados mixtos analógicos/digitales.**
GARCIA MORENO, Eugeni.
- **Frecuencia e intensidad de lluvias fuertes en un clima modificado en zona mediterránea española.**
RAMIS NOGUERA, Climent
- **Sismología de la corona solar y actividad solar.**
BALLESTER MORTES, Josep Lluís.
- **Desarrollo de nuevas aleaciones de memoria de forma con elevadas temperaturas de transformación. Mejora de procesos de obtención y procesado: prototipos industriales.**
PONS MORRO, Jaume
- **Radiación gravitatoria en sistemas relativistas axialmente simétricos. Un estudio analítico-numérico.**
CAROT GINER, Jaume Jesús
- **Sincronización en sistemas físicos y biológicos.**
TORAL GARCÉS, Raúl.



Referència: PB97-0134. Programa sectorial de promoció general del coneixement.

Títol: *Métodos analítico-numéricos en relatividad computacional.*

Classificació UNESCO: 210105.

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

Investigador responsable: BONA GARCIA, Carles.

Categoria: CU (àrea de coneixement: Física Teòrica).

Inici: 1998. **Fi:** 2001.

Membres de l'equip	Categoria	Dedicació (h/setm.)
Bona Garcia, Carles	CU	32
Carot Giner, Jaume Jesús	TU	32
Mas Franch, Lluís	CU	32
Massó Bennàsar, Joan	TU	32
Stela Fiol, Joan	TU	32

Nombre total d'investigadors de la UIB: 5.

Total EJC/setmana: 4.

Keywords: general relativity, gravitational waves.

Summary

The application of analytical techniques to the study of initial, boundary and gauge conditions in Numerical Relativity is proposed. Using these conditions, the proposal is to build up tridimensional numerical codes to describe compact objects (black holes and/or neutron stars). Using these codes, the proposal is to compute the wave patterns needed to improve, by using the matched filtering technique, the sensibility of the laser interferometer gravitational waves detectors (LIGO, VIRGO) now under construction.

Referència: TIC98-0284. Progama nacional de tecnologies de la informació i de les comunicacions.

Títol: *Desarrollo de técnicas avanzadas de verificación para circuitos digitales submicrónicos.*

Classificació UNESCO: 3307.

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

Investigador responsable: [SEGURA FUSTER, Jaume Agapit](#).

Categoria: TU (àrea de coneixement: Tecnologia Electrònica).

Inici: 1998. **Fi:** 2001.

Membres de l'equip	Categoria	Dedicació (h/setm.)
Segura Fuster, Jaume Agapit	TU	16
Garcia Moreno, Eugeni	CU	16
Roca Adrover, Miquel Jesús	TEU	16
Isern Riutort, Eugeni Miquel	TEU	16
de Benito Crossetti, Carola	As.	32
Sainz Gómez, José A.		16

Nombre total d'investigadors de la UIB: 5.

Total EJC/setmana: 2,4.

Keywords: defect and fault modeling, integrated circuit testing, microelectronic design, sub-micron integrated circuits.

Summary

The state of the art of the microelectronic technologies has brought the capability of fabricating devices in the sub micron range. One of the characteristics of such as transistors is that they show leakage currents which are much higher than the levels drawn by devices in technologies beyond the micron. These currents may limit the effectivity of test techniques based on monitoring non logical parameters, which have been shown to provide higher coverage in CMOS technologies with respect to logic based methods. The research proposal presented is oriented to extend the capabilities of one of the parametric test techniques most used (IDDQ testing), to submicron circuits. The method consists in to consider both the static and dynamic parts of the current power supply, and use the charge driven into the circuit (the integral of the overall current) as the observable for test. Using the charge as the observable for test provides basically to advantages: it can be applied to circuits with a background leakage current, and may detect defects preventing current. These two main characteristics represent an extension of IDDQ testing because it allows the detection of defects where IDDQ effectivity is poor, and also it can be applied to submicron ICs. The main objectives of the research proposed include a sistematic characterization of the charge driven into non defective circuits to obtain a reference to distinguish between good and bad parts. Next, the effect of several faults on the charge behavior will be investigated, developing the required fault models. Of particular interest is the application of the technique at the circuit level, developing the heuristic required to obtain the input test vectors that sensitize the posible defects into the circuit. Additionally the desing of specific circuitry to sense the charge will be considered. Finally the technique will be applied to commercial circuits to evaluate its practical effectivity.

Referència: PB98-0124. Programa sectorial de promoció general del coneixement.

Títol: *Sistemas cuánticos de muchos cuerpos: fermiones y bosones.*

Classificació UNESCO: 2207.

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

Investigadora responsable: CASAS AMETLLER, Montserrat.

Categoria: CU (àrea de coneixement: Física Atòmica, Molecular i Nuclear).

Inici: 1999. **Fi:** 2002.

Membres de l'equip	Categoria	Dedicació (h/setm.)
Casas Ametller, Montserrat	CU	32
Garcias Gomila, Francesca	TU	32
Serra Crespí, Llorenç	TU	32
Puente Ferrà, Antoni	TU	32

Nombre total d'investigadors de la UIB: 4.

Total EJC/setmana: 3,2.

Keywords: electronic nanostructures, metal clusters, superconductivity, nuclear multifragmentation, halo nucle and quantum liquids.

Summary

The aim of this project is to analyse several quantal many body systems. In particular we are interested in the following items:

- Electronic nanostructures and clusters of transition metals: ground state and excitations, temporal processes.
- High Tc superconductivity as a Bose-Einstein Condensation (BEC). Determination of critical temperatures.
- Nuclear multifragmentation and halo nuclei. Molecular dynamics and Information theory.
- Large He clusters doped with alkaline and alkaline earth metals. Energy Density functional model.

Referència: PB98-0127. Programa sectorial de promoció general del coneixement.

Títol: *Caracterización de aleaciones con memoria de forma producidas por solidificación rápida ('melt-spinning').*

Classificació UNESCO: 331208.

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

Investigador responsable: [CESARI ALIBERCH, Eduard](#).

Categoria: CU (àrea de coneixement: Física Aplicada).

Inici: 1999. **Fi:** 2002.

Membres de l'equip	Categoria	Dedicació (h/setm.)
Cesari Aliberch, Eduard	CU	20
Picornell Alou, Catalina	CEU	32
Seguí Palmer, M. Concepció	TU	32
Pons Morro, Jaume	TU	16
Amengual Colom, Antoni	TU	16
Hierro Riu, Ferran	Tèc.	16
Font Ferrer, Joan	TU (UPC)	32
Muntasell Pla, Joaquim	TU (UPC)	32
Santamarta Martínez, Rubén	B	40

Nombre total d'investigadors de la UIB: 7.

Total EJC/setmana: 5,9.

Keywords: martensitic transformation, shape memory, rapid solidification, melt-spinning, microstructure.

Summary

The characterization of Cu- and Ni-Ti-based shape memory alloys (SMA) produced by means of rapid solidification (melt-spinning, MS) constitutes the objective of the present project. Finished (or almost finished) products can be obtained by means of the MS technique, although some microstructural features, like small grain size, high vacancy concentration and incomplete atomic order, which influence the martensitic transformation responsible of the particular properties of SMA, are also introduced. The major number of applications, already developed or potential, use the Cu- and Ni-Ti-based systems. A special focus of interest is constituted by the SMA with high transformation temperatures (above 100°C) and good stability at temperatures 200-300°C, which limits the selection to the Cu-Al-Ni (with additions like Mn, B, Ti) and Ni-Ti-X (X=Cu, Hf, Nb). The MS ribbons already produced (in the frame of an european INCO project) show a good macroscopic quality, although its extensive and systematic characterization is needed. The work plan is divided in four topics: (1) Reproducibility and stability of transformation temperatures; (2) Ageing effects; (3) Thermomechanical cycling and (4) Superelasticity and DMA. These topics are closely related with the applications requirements and the results will also give information on processes like ordering, precipitation and defects generation, whose basic interest extends beyond the SMA field.

Referència: TIC99-0277. Programa nacional de tecnologies de la informació i de les comunicacions.

Títol: *Herramientas para el desarrollo del test en circuitos integrados mixtos analógicos/digitales.*

Classificació UNESCO: 330703.

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

Investigador responsable: GARCIA MORENO, Eugeni.

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

Inici: 1999. **Fi:** 2002.

Membres de l'equip	Categoria	Dedicació (h/setm.)
Garcia Moreno, Eugeni	CU	16
Isern Riutort, Eugeni Miquel	TEU	16
Picos Gaya, Rodrigo		32
Roca Adrover, Miquel Jesús	TEU	16
Segura Fuster, Jaume Agapit	TU	16

Nombre total d'investigadors de la UIB: 4.

Total EJC/setmana: 1.

Keywords: fault modelling and simulation, text mixed A/D circuits, current consumption, sensors, stimuli generation, submicron technologies.

Summary

Testing is a crucial part in the design and production of integrated circuits. Its difficulty grows with the device dimension shrinking, the increase in the circuit complexity and with the coexistence of analog and digital parts in the same chip. In mixed analog/digital (A/D) circuits, testing analog blocks require more time effort, although the area of the analog blocks often smaller. The production of VLSI analog mixed A/D circuits has suffered a tremendous increase in the last years. But testing of the analog blocks is now the bottleneck in its future development. Therefore, test optimisation in mixed A/D circuits is a very active research field nowadays. Test optimisation requires better fault models than existing ones. The proposed work is oriented towards the creation of a realistic fault model dictionary in mixed A/D CMOS circuits, at high abstraction levels. These models will be incorporated in circuit simulators based on SPICE. The goal is to obtain fault simulation tools, easy to use and effective, oriented to test optimisation. These tools could be used by the teams devoted to test development in analog and mixed A/D circuits. The scope of the project includes experimental validation of the fault models developed, designing specific circuits for this task. Also the effectiveness of the input stimuli in revealing faulty circuits will be analysed.

Referència: CLI99-0269. Programa nacional d'I+D sobre el clima.

Títol: *Frecuencia e intensidad de lluvias fuertes en un clima modificado en zona mediterránea española.*

Acrònim: FIRME.

Classificació UNESCO: 2502.

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

Investigador responsable: RAMIS NOGUERA, Climent.

Categoria: TU (àrea de coneixement: Física de la Terra).

Inici: 2000. **Fi:** 2002.

Membres de l'equip	Categoria	Dedicació (h/setm.)
Ramis Noguera, Climent	TU	16
Alonso Oroza, Sergio	CU	16
Ruiz Pérez, Maurici	Tèc.	16
Homar Santaner, Víctor	B	16
García-Moya Zapata, José A.		16

Nombre total d'investigadors de la UIB: 4.

Total EJC/setmana: 1,6.

Keywords: heavy rain, western mediterranean, numerical situation, climate change, downscaling.

Summary

The main aim of the project is the determination of the frequency and intensity of heavy rains in a modified climate scenario (towards the half next century) in the spanish area that, at present, is more frequently affected by these hazardous phenomena, the mediterranean coastal zone. The methodology will use numerical simulations, with the HIRLAM model, of the 165 heavy rain events identified during the decade 1984-93. The model, which will have the same resolution in all the experiments, will be nested in ECMWF analysis data. Different resolution of the ECMWF data will be used to nest the HIRLAM, in order to relate the results obtained using coarse or finer resolution by means of downscaling techniques. Such results will be used to improve the rainfall predicted fields for future potentially hazardous meteorological situations given by a climate model for the decade 2051-60. Such situations can be identified by comparison with those observed during 1984-93 and from a control run of a climatic model. Applications are the knowledge of such hazardous phenomenon in the next future, with the same uncertainty that climate models simulate future atmospheric circulation. Results can be used for future hydrologic purposes and may be of interest for insurance and agriculture.

Referència: BFM2000-1329. Ministeri de Ciència i Tecnologia.

Modalitat: P1. Projecte d'investigació bàsica no orientada.

Títol: *Sismología de la corona solar y actividad solar.*

Acrònim: SICOAS.

Classificació UNESCO: 2106-02.

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

Investigador responsable: BALLESTER MORTES, Josep Lluís.

Categoria: CU (àrea de coneixement: Astronomia i Astrofísica).

Inici: 2000. **Fi:** 2003.

Membres de l'equip	Categoria	Dedicació
Ballester Mortes, Josep Lluís	CU	Única
Oliver Herrero, Ramón	TU	Única
Carbonell Huguet, Marc	CEU	Única

Nombre total d'investigadors de la UIB: 3.

Keywords: magnetohydrodynamics, magnetohydrodynamic waves, solar activity, solar cycle.

Summary

Our proposal is based on a feed-back between theory and observation, our general goals being: (1) to use observational data to improve theoretical models; (2) to use the predictions of these models for subsequent observational campaigns; (3) to use theoretical models to reproduce the behaviour of solar activity in the past and to forecast its future behavior.

Two topics are included in the proposal: on one hand, we plan to study wave propagation within magnetic coronal structures and, on the other hand, to forecast and analyze the behavior of solar activity.

In the first part of the proposal, the specific goals are: (1) to study the effects of magnetic shear in MHD wave propagation in coronal structures such as magnetic arcades and prominences; (2) by considering quiescent solar prominences as slabs of material or composed by fibril structures, to bring a theoretical explanation to the observations of damping and growing of oscillations within them.

In the second part, we plan to study the behavior of solar and geomagnetic activity with the following specific goals: (1) to set up a forecasting method based on genetic algorithms, of the future behavior of the solar cycle and geomagnetic activity, based on genetic algorithms; (2) to analyze, using solar magnetograms obtained by ground-based solar telescopes and the MDI instrument onboard SOHO, the magnetic flux emergence during the recent solar cycles in order to confirm, or not, a hypothesis about the cause of the periodicity near 160 days in high-energy solar flares.

Referència: MAT2000-0862-C03-02. Ministeri de Ciència i Tecnologia.

Modalitat: P3. Projecte d'investigació aplicada.

Títol: *Desarrollo de nuevas aleaciones de memoria de forma con elevadas temperaturas de transformación. Mejora de procesos de obtención y procesado: prototipos industriales.*

Acrònim: DEMEFOR.

Classificació UNESCO: 331507, 331208, 331212, 331614, 221129, 221101.

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

Investigador responsable: PONS MORRO, Jaume.

Categoria: TU (àrea de coneixement: Física Aplicada).

Inici: 2000. **Fi:** 2003.

Membres de l'equip	Categoria	Dedicació
Pons Morro, Jaume	TU	Compartida
Amengual Colom, Antoni	TU	Compartida
Cifre Bauzá, Joan	Tèc.	Compartida

Nombre total d'investigadors de la UIB: 3.

Keywords: shape memory alloys, smart materials, stabilisation, martensite, training, diffusion welding, microstructure, properties, guaranteed behaviour, rapid solidification, melt-spinning.

Summary

The main limitations of the shape memory alloys are the low transformation temperatures with the low stability of these temperatures and the structures involved in shape memory properties. To increase this transformation temperatures, a lot of people are working in complex Cu-Al-Ni-Ti-Mn alloys. The more complex the alloys, the higher the complexity of the degradations of the alloy at high temperatures. The aim of the project is to get shape memory alloys. It is also the scope of the project to get alloys with high stability of the transformation temperatures and phases. Hence the shape memory alloys can be guaranteed for industrial applications once improved the attainment and the processing to get, at the end, prototypes of industrial interest.

Referència: BFM2001-0988. Ministeri de Ciència i Tecnologia.

Modalitat: Programa nacional de promoció general del coneixement.

Títol: *Radiación gravitatoria en sistemas relativistas axialmente simétricos. Un estudio analítico-numérico.*

Acrònim: GRASS.

Classificació UNESCO: 221205.

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

Investigador responsable: CAROT GINER, Jaume Jesús.

Categoria: TU (àrea de coneixement: Física Teòrica).

Inici: 2001. **Fi:** 2004

Membres de l'equip	Categoria	Dedicació (EDP)
Carot Giner, Jaume Jesús	TU	1
Mas Franch, Lluís	CU	1
Stela Fiol, Joan	TU	1
Palenzuela Luque, Carlos	Aj. EU	1
Sintes Olives, Alícia Magdalena	Aj. U	1

Investigadors d'altres entitats

Collinge March, Maria M.	IES Guillem Sagrera
Lázkoz Sáez, Ruth	Universitat de Deusto

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

Keywords: general relativity, gravitational radiation, axial symmetry.

Summary

Within the framework of the theory of General Relativity, we propose to carry out a rigorous and thorough study of axially symmetric spacetimes (regular and singular cases); with special attention to the production, propagation and detection of gravitational radiation: wave pattern elucidation and theoretical studies on the detectability of those wave patterns by means of the interfometric detectors currently under construction. Also, we intend to develop numerical codes adapted to the particular geometry of the above systems, with an emphasis on the introduction of coordinates with a precise geometrical meaning which allow for an adequate treatment of the numerical divergences occurring in a neighbourhood of the axis, and such that allow to carry out simulations in situations of physical interest.

Referència: BFM2001-0341-C02-01. Ministeri de Ciència i Tecnologia.

Modalitat: Programa nacional de promoció general del coneixement.

Títol: *Sincronización en sistemas físicos y biológicos.*

Acrònim: SINFIBIO.

Classificació UNESCO: 220510.

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

Investigador responsable: [TORAL GARCÉS, Raúl](#).

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

Inici: 2001. **Fi:** 2004.

Membres de l'equip	Categoria	Dedicació (EDP)
Toral Garcés, Raúl	CU	0.5
Mirasso Santos, Claudio	TU	0.33
Sintes Olives, Tomàs Miquel	Aj. U	0.5
Scire, Alessandro	B	0.5
Calvo Ibáñez, Óscar	Visitant	0.5
Gomes da Siva, Iacyel	B	1
Matias Muriel, Manuel A.	Científic titular CSIC	0.5
Colet Rafecas, Pere	Científic titular CSIC	0.33
Gomila Villalonga, Damià	B	1

Investigadors d'altres entitats

Chialvo, Dante Renato

The Rockefeller University

EDP del grup investigador de l'entitat sol·licitant 5.16.

Keywords: synchronization, non-linear and statistical physics, non-linear oscillators, cooperative effects, disorder, semiconductor lasers, intracellular calcium, analogic simulations in electronic circuits.

Summary

Synchronization processes, besides appearing in many natural phenomena, are very important both from the theoretical point of view as well as for the many technological applications. In the last years, attention has shifted from the classical studies of non-linear, limit cycle-type, oscillators to the synchronization in chaotic systems and that induced by noise and people have explored its use in encoding systems for communications. In this project we aim to study several aspects related to synchronization in some physical and biological systems. Our objectives in this vast field will focus on three main topics: (a) general studies, (b) semiconductor lasers, (c) biological systems. Concerning topic (a) we plan to contribute towards our understanding of synchronization whenever there is dispersion in the elements to be synchronized, as well as the influence of noise terms which, surprisingly, can trigger synchronization. In topic (b) we plan to study semiconductor lasers arrays with different couplings and the possible applications of chaotic synchronization for communications. Finally, in (c) biological systems, we will study the synchronization of intracellular calcium spikes, designing specific models and analyze them using Monte Carlo techniques, and the synchronization phenomena that are known to occur in large areas of brain during pain periods. In all the cases, we will be using analytical and numerical techniques as well as analogic simulations in electronic circuits.



DEPARTAMENT DE PSICOLOGIA

- Anàlisis de las características psicosociales que diferencian a maltratadores (en los casos de violencia doméstica) de no maltratadores.
BOSCH FIOL, Esperança.
- Variables predictoras de la eficacia de un tratamiento de exposición asistida por ordenador en el tratamiento del miedo a volar.
BORNAS AGUSTÍ, F. Xavier
- Anàlisis del trabajo emocional y su influencia sobre el burnout de los empleados y las evaluaciones de los usuarios.
MANASSERO MAS, M. Antònia
- Estudio interdisciplinar de rasgos funcionales del grado humano. Estudio experimental de los correlatos cerebrales de los rasgos funcionales de conducta moral, capacidad estética y lenguaje metafórico.
MARTY BROQUET, Gisèle
- Estudio de la prevalencia de la hiperactividad en edad escolar.
SERVERA BARCELÓ, Mateu.
- Factores cognitivos y aptitudinales con el consumo de alimentos en la población infantil de 10 a 14 años.
PICH SOLÉ, Jordi.
- Redes neuronales artificiales aplicadas al análisis transversal y longitudinal en el campo de las conductas adictivas.
PALMER POL, Alfons Lluís
- Evaluación psicofisiológica de la sensibilización central en el dolor crónico y su influencia sobre el procesamiento emocional y cognitivo.
MONTOYA JIMÉNEZ, Pedro
- Evaluación de los factores psicosociales y su influencia sobre las mujeres sometidas a tratamientos de infertilidad. Construcción y validación de programas de intervención para la reducción de su impacto en dichas mujeres y en sus parejas.
PÉREZ PAREJA, F. Javier
- Participacions a altres projectes



Endarrere



Endavant

Referència: PB98-0122. Programa sectorial de promoció general del coneixement.

Títol: *Análisis de las características psicosociales que diferencian a maltratadores (en los casos de violencia doméstica) de no maltratadores.*

Classificació UNESCO: 611200.

Centre: Departament de Psicologia. Edifici Guillem Cifre de Colonya.

Investigadora responsable: BOSCH FIOL, Esperança.

Categoria: TEU (àrea de coneixement: Psicologia Bàsica).

Inici: 1999. **Fi:** 2001.

Membres de l'equip	Categoria	Dedicació (h/setm.)
Bosch Fiol, Esperança	TEU	32
Ferrer Pérez, Victòria	TU	16
Manassero Mas, M. Antònia	TU	16
Gili Planas, Margalida	TEU	16
Garcia Buades, M. Esther	TEU int.	16

Nombre total d'investigadors de la UIB: 5.

Total EJC/setmana: 2,4.

Keywords: domestic violence, male batterers, perpetrator profile.

Summary

Domestic violence have been regarded an important social problem during last years. National and international institutions as well as scientist have been increased their concern about solutions of this issue. The perpetrator profile is one of the questions that have generated more interest, that means the sociodemographic and psychosocial features that differentiate male batterers from male non batterers. From this concern have been raised an amount of literature that have only give us provisional conclusions. The objective of the present study is analysing comparatively the perpetrator profile form a double view: on the one hand, a revision of investigations up to the date and, on the other hand, a comparative analysis (between male batterers and non-batterers) on their believes about women and women condition.

Referència: PB98-0167. Programa sectorial de promoció general del coneixement.

Títol: *Variables predictoras de la eficacia de un tratamiento de exposición asistida por ordenador en el tratamiento del miedo a volar.*

Classificació UNESCO: 610301.

Centre: Departament de Psicologia. Edifici Guillem Cifre de Colonya.

Investigador responsable: BORNAS AGUSTÍ, F. Xavier.

Categoria: TU (àrea de coneixement: Personalitat, Avaluació i Tractament Psicològics).

Inici: 1999. **Fi:** 2002.

Membres de l'equip	Categoria	Dedicació (h/setm.)
Bornas Agustí, F. Xavier	TU	32
Tortella Feliu, Miquel Rafael	TEU	32
Llabrés Bordoy, Jordi	Aj. EU	16
García de la Banda García, Gloria	TEU	16
Miró Martínez, Jordi		16
Martínez-Abascal García, Ángeles	TEU int.	16

Nombre total d'investigadors de la UIB: 5.

Total EJC/setmana: 2,8.

Keywords: specific phobia, fear or flying, computer-assisted exposure.

Summary

The research project has two main goals. The first aim is to know the characteristics of the patients with fear of flying that are the most relevant ones in order to predict the effectiveness of a computer-assisted exposure (CAE) treatment. The focus of the patient's fear, his or her before-flight anxiety level, and the intensity of his or her fear are the target variables of this research project. The second goal is to make available a self-administered version of the CAE treatment. Any company dealing with air passenger transportation (airlines, tour operators, travel agencies, tourism institutions, etc) could use the CAE treatment with those of their clients who show the personal characteristics found relevant by the research.

Referència: PB98-1499-C03-02. Programa sectorial de promoció general del coneixement.

Títol: *Análisis del trabajo emocional y su influencia sobre el burnout de los empleados y las evaluaciones de los usuarios.*

Centre: Departament de Psicologia. Edifici Guillem Cifre de Colonya.

Investigadora responsable: MANASSERO MAS, M. Antònia.

Categoria: TU (àrea de coneixement: Psicologia Social).

Inici: 1999. **Fi:** 2001.

Membres de l'equip	Categoria	Dedicació (h/setm.)
Manassero Mas, M. Antònia	TU	16
Garcia Buades, M. Esther	TEU int.	16
Gili Planas, Margalida	TEU	16
Ferrer Pérez, Victòria	TU	16

Nombre total d'investigadors de la UIB: 4.

Total EJC/setmana: 1,6.

Summary

Research on service quality had pointed out the importance that user-provider interaction plays on users' quality perceptions, as well as the emotional aspects of that relationship. Moreover, for service organizations, and orientation towards service quality appears as a key aspect for providing good service and achieve users' satisfaction. Our previous research clarified some antecedents of service quality (expectancies, expectancies-perception discrepancy, equity). The present project tries to deep study some interesting questions opened by previous research. First, we will study the relationships that service orientation' climate (as perceived by employees), and burnout experienced by staff members has on users' perceptions of service received and equity in interaction with service providers. Second, the project analyses two different antecedents on service orientation' climate and burnout: the role that organizational climate as perceived by employees (measured as the FOCUS international research group had proposed: support, orientation toward goals, respect for rules and innovation) plays on service orientation' climate and burnout, on the one hand, and the role of different technological and organizative aspects (as training, computer support, remuneration, human resources policies), on the other hand. Finally, the project takes into account the emotional work performed by contact staff, a key element in tourism organizations where contact personnel determines in high degree the service provided. The study analyzes the emotional work of contact employees (specially the degree of dissonance between the emotions that the job demand and the emotions that person would apply), and the reciprocity they perceive and their relationships with burnout, service orientation' climate and users' perceptions of service received. The sample consists of 60 hotels and 60 restaurants from Comunidad Valenciana and Islas Baleares (Spain), including sun and beach and cultural and city tourist organizations. The survey includes interviews with different employees for each hotel and restaurant and ten users interviewed during the service provision.

Referència: BSO2000-1116-C04-02. Ministeri de Ciència i Tecnologia.

Modalitat: P1. Projecte d'investigació bàsica no orientada.

Títol: *Estudio interdisciplinar de rasgos funcionales del grado humano. Estudio experimental de los correlatos cerebrales de los rasgos funcionales de conducta moral, capacidad estética y lenguaje metafórico.*

Centre: Departament de Psicologia. Edifici Guillem Cifre de Colonya.

Investigadora responsable: MARTY BROQUET, Gisèle.

Categoria: CU (àrea de coneixement: Psicologia Bàsica).

Inici: 2000. **Fi:** 2003.

Membres de l'equip	Categoria	Dedicació
Marty Broquet, Gisèle	CU	Única
Roca Bennàsar, Miquel	TU	Compartida
Escudero López, Juan Tomás	Aj. EU	Única
Munar Roca, Enric	TEU	Única
Rosselló Mir, Jaume	TEU	Única
Espino Ibáñez, Ana María	As.	Compartida

Nombre total d'investigadors de la UIB: 6.

Summary

The study of evolution in terms of grades has been proposed as an alternative to cladistics limits existing to interpret ancestor-descendant relationships. However, "grades" are widely grounded on functional assumption, thus being difficult to quantify. The current project tries: Firstly, to stablish an interdisciplinary evolutive scenario of the main functional traits of Homo sapiens (such as, language, aesthetics, and morals. Secondly, to perform experimental studies to obtain stimuli capable of activating brain areas of processing of these tasks. Thirdly, to localize brain areas functionally active during the mentioned tasks, to check the hypothesis of a prefrontal localization of moral judgement, aesthetic appreciation and metaphorical using of language -the development of which would have been responsible for the late hominization period. Fourthly, to built computer simulated models of the evolution of the capacity af analyzing and cultullay transmitting evaluations. Fifthly, to analyse some turning point on the cultural evolution. Finally, to set up a model on the phylogeny of the already mentioned functional traits. How to identify grades and clades in the fossil record was mentioned in the Colloquium "Taxonomy and Systematics of the Human Clade" (Palma, February, 2000) as an area of particular interest of research in face of the V Congress of the IAHP (Barcelona 2003). The participants agreed in organising an International Group of research in human systematics to promote that kind of studies. To reach a tipification of the human grade is important in the systematics and paleontology fields, as well as in psychology, psychiatry, neurology, ethics, ethology, anthropology, biodiversity, and environmental studies.

Referència: BSO2000-1200. Ministeri de Ciència i Tecnologia.

Modalitat: P1. Projecte d'investigació bàsica no orientada.

Títol: *Estudio de la prevalencia de la hiperactividad en edad escolar.*

Acrònim: EPHEE.

Classificació UNESCO: 320105.

Centre: Departament de Psicologia. Edifici Guillem Cifre de Colonya.

Investigador responsable: [SERVERA BARCELÓ, Mateu](#).

Categoria: TU (àrea de coneixement: Personalitat, Avaluació i Tractament Psicològics).

Inici: 2000. **Fi:** 2003.

Membres de l'equip	Categoria	Dedicació
Servera Barceló, Mateu	TU	Única
Cardo Jalón, Esther		Única
Villalonga Ramis, Maria M.		Única
Llobera Cànaves, Joan		Compartida
Ripoll Amengual, Joana		Compartida

Nombre total d'investigadors de la UIB: 1.

Total EJC/setmana: 0,8.

Keywords: prevalence, hyperactivity.

Summary

Attention Deficit Hyperactivity Disorder (ADHD) is a common dysfunction in childhood, with a genetic basis and neuroanatomic and psicologic factors that produce attention deficit, impulsiveness and motor hyperactivity in children. In anglosajons countries the prevalence is of 5%, but they exist few study in our country. Our objective is to obtain the prevalence of the different subtypes of the ADHD in the school population between 6 and 10 years of the Island of Mallorca. We will use a neuropsychologic protocol of evaluation that includes questionnaires for parents and teachers, evaluation of the cognitive profile, evaluation of attention and impulsiveness through computers program (own versions) and full neurological evaluation of "soft neurological signs". The analysis of data will allow, to establish the prevalence, but also to compare the different evaluation methods used and to detect good screening tools for early detection.

Referència: BSO2000-0956. Ministeri de Ciència i Tecnologia.

Modalitat: P1. Projecte d'investigació bàsica no orientada.

Títol: *Factores cognitivos y aptitudinales con el consumo de alimentos en la población infantil de 10 a 14 años.*

Classificació UNESCO: 610201.

Centre: Departament de Psicologia. Edifici Guillem Cifre de Colonya.

Investigador responsable: [PICH SOLÉ, Jordi](#).

Categoria: TU (àrea de coneixement: Psicologia Bàsica).

Inici: 2000. **Fi:** 2003.

Membres de l'equip	Categoria	Dedicació
Pich Solé, Jordi	TU	Única
Domingo Palomares, Herminio	CEU	Única
Canals Casas, Ramon		Única

Nombre total d'investigadors de la UIB: 2.

Keywords: food behavior, food preferences, implicit theories.

Summary

Leaving of the supposition that the feeding is not only a nutritional act but a behavior psychological as well as culturally determined, we intend the elaboration of a questionnaire and its application to a population of 400 subjects of 10 to 14 years of age dedicated to investigate the main factors implied in the appreciation or the infantile rejection of a list of basic foods in our culinary tradition. Later on another questionnaire dedicated to the parents will explore their implicit theories about the infantile feeding including its dietary beliefs, its valuation of the alimentary behavior of their children as well as the strategies before problematic alimentary behavior.

In the methodological order, the infantile subjects will value by means of scales from 1 of 5 for each food diverse parameters: consumption frequency, longing degree or aversion, healthfulness, consumption observed in parents and friends and existence of publicity. A global analysis of these answers will establish the influence of the growth and the sex of the children on the consumption of the diverse foods. Subsequently a multiple lineal regression will allow us to determine to what extent the consumption frequency can be dear starting from the qualities that the child attributes to the food (pleasantness and healthfulness) as well as of the models and social values (observation of the consumption on the part of his parents and friends and impact of the alimentary publicity).

Finally, the crossing between the questionnaires of the parents and their children will try to determine if the theories and more correct paternal alimentary attitudes belong together with the most varied and healthy diets on the part of the children.

Projecte: BSO2001-0369. Ministeri de Ciència i Tecnologia.

Modalitat: Programa nacional de promoció general del coneixement.

Títol: *Redes neuronales artificiales aplicadas al análisis transversal y longitudinal en el campo de las conductas adictivas.*

Acrònim: RNA-CA.

Classificació UNESCO: 006106.

Centre: Departament de Psicologia. Edifici Guillem Cifre de Colonya.

Investigador responsable: PALMER POL, Alfons Lluís.

Categoria: TU (àrea de coneixement: Metodologia de les Ciències del Comportament).

Inici: 2001. **Fi:** 2004.

Membres de l'equip	Categoria	Dedicació (EDP)
Palmer Pol, Alfons Lluís	TU	1
Cajal Blasco, Berta	TU	0.5
Sesé Abad, Albert	TEU int.	0.5
Montaño Moreno, Juan José	Aj. U	1
Sospedra Baeza, M. José	Aj. EU	1
Jiménez López, Rafael	Aj. EU	1

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

Summary

The aim of this research is to apply Artificial Neural Networks (ANN) in the field of the addictive behaviors. Two different approaches will be applied: traverse and longitudinal. ANN is an information processing system based on biological neural networks. Parallel, distributed and adaptative systems characterize ANN. Traverse approach tries to indentify bio-psycho-social risk factors associated whit european young people drug use. Longitudinal approach tries to indentify bio-psycho-social risk factors associated whit drug addict relapse under treatment.

Referència: BSO2001-0693. Ministeri de Ciència i Tecnologia.

Modalitat: Programa nacional de promoció general del coneixement.

Títol: *Evaluación psicofisiológica de la sensibilización central en el dolor crónico y su influencia sobre el procesamiento emocional y cognitivo.*

Acrònim: DOLOBRAIN.

Classificació UNESCO: 610601.

Centre: Departament de Psicologia. Edifici Guillem Cifre de Colonya.

Investigador responsable: MONTROYA JIMÉNEZ, Pedro.

Categoria: TU (àrea de coneixement: Psicobiologia).

Inici: 2001. **Fi:** 2004.

Membres de l'equip	Categoria	Dedicació (EDP)
Montoya Jiménez, Pedro	TU	1
Barceló Galindo, Francesc	TU int.	0.5
Escudero López, Juan Tomás	Aj. EU	0.5
Revert Vidal, Xavier	B	1

Investigadors d'altres entitats

García Herrera, Manuel	Institut Nacional de la Seguretat Social
Izquierdo Rodríguez, Raúl	Institut Nacional de la Seguretat Social

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

Keywords: somatosensory and visual evoked-potentials, hyperalgesia, stress, Wisconsin sorting card test, pain memory, emotions.

Summary

The research project aims to examine how can affect the central sensitization, characteristic of chronic pain states, on the cognitive processing and its cerebral correlates. Basically, it will analyze the brain electrical activity in patients with fibromyalgia, rheumatoid arthritis and healthy volunteers during three experimental tasks: non nociceptive somatosensory information processing, Wisconsin sorting card test, and encoding/retrieval of pain-related information. Standardized protocols will be used for psychophysiological evaluation of somatosensory perception, voluntary attention, and pain memory, based on parameters of brain electric activity (evoked potentials and localization of brain electric source generators). In addition of establishing differences between chronic pain patients and healthy subjects on cognitive performance and brain functioning, the modulating role of continuous non-nociceptive somatosensory stimulation and stress on cognitive functioning of chronic pain patients will be also assessed.

Projecte: 83/00.

Modalitat: Acció estratègica per al foment de la igualtat d'oportunitats entre dones i homes. Ministeri de Treball i Assumptes Socials.

Títol: *Evaluación de los factores psicosociales y su influencia sobre las mujeres sometidas a tratamientos de infertilidad. Construcción y validación de programas de intervención para la reducción de su impacto en dichas mujeres y en sus parejas.*

Classificació UNESCO: 610501.

Centre: Departament de Psicologia. Edifici Guillem Cifre de Colonya.

Investigador responsable: PÉREZ PAREJA, F. Javier.

Categoria: TU (àrea de coneixement: Personalitat, Avaluació i Tractament Psicològics).

Inici: 2000. **Fi:** 2003.

Membres de l'equip	Categoria	Dedicació (h/setm.)
Pérez Pareja, F. Javier	TU	32
Borràs Sansaloni, Carme	As.	32
Palmer Pol, Alfons Lluís	TU	16
Cajal Blasco, Berta	TU	16
Sesé Abad, Albert	TEU int.	32
Castro Iglesias, M. del Carmen	As.	32
Roses, A.		32
Marqueta Sobrino, L. N.		32

Nombre total d'investigadors de la UIB: 6.

Total EJC/setmana: 4.

Participacions a altres projectes

Referència: 1FD97-0558. Fons FEDER.

Títol: *Implantación de un sistema de calidad en la enseñanza superior basado en el modelo europeo de gestión para la mejora de la calidad.*

Classificació UNESCO: 6114.

Investigador responsable: RODRÍGUEZ MARÍN, Jesús.

Centre: Universitat Miguel Hernández.

Investigadores de la UIB:

MANASSERO MAS, M. Antònia.

Categoria: TU (àrea de coneixement: Psicologia Social).

FERRER PÉREZ, Victòria.

Categoria: TU (àrea de coneixement. Psicologia Social).

Inici: 1999. **Fi:** 2001.



DEPARTAMENT DE QUÍMICA

- Preparación y caracterización de óxidos metálicos de porosidad controlada.
OTERO AREAN, Carlos
- Estudios sobre litiasis renal: mecanismos de formación de cálculos.
GRASES FREIXEDAS, Felicià
- Estudios en química supramolecular: reconocimiento molecular, quimiosensores y autoensamblaje.
BALLESTER BALAGUER, Pau
- Complejos de metales de transición con moléculas que presentan actividad biológica y/o farmacológica.
TERRON HOMAR, Àngel
- Desarrollo y mejora de nuevos métodos automáticos robustos y sensibles para el control de parámetros de interés ambiental.
ESTELA RIPOLL, Josep Manuel
- Estudio químico-físico de la inactivación de serin-enzimas por antibióticos beta-lactámicos.
MUÑOZ IZQUIERDO, Francisco
- Estudio químico-físico de las reacciones de condensación de piridoxamina (piridorina) con cetoácidos y azúcares, su aplicación al estudio de enzimas PMP-dependientes y a la inhibición de la glicación no enzimática de proteínas.
DONOSO PARDO, Josefa
- Desarrollo del análisis por inyección en flujo multijeringa. Aplicación a la determinación de parámetros ambientales.
CERDÀ MARTÍN, Víctor.
- Contribución a la valorización de productos resultantes de la incineración de residuos sólidos urbanos.
FORTEZA COLL, Rafael A.
- Catalizadores enantioselectivos de base lantanida para síntesis orgánica.
SAÁ RODRÍGUEZ, José Manuel
- Estimació de l'aromaticitat en derivats d'àcids oxocarbònics.
DEYÀ SERRA, Pere M





- Estudi relatiu al risc per a la salut humana de l'aplicació de PVC a obres de construcció de vivendes.
COSTA TORRES, Antoni.
- Incorporació de les noves tecnologies de la comunicació a l'ensenyament universitari de la química orgànica assistida amb tècniques multimèdia.
BALLESTER BALAGUER, Pau
- Participacions a altres projectes



Referència: PB97-0147. Programa sectorial de promoció general del coneixement.

Títol: *Preparación y caracterización de óxidos metálicos de porosidad controlada.*

Classificació UNESCO: 221001.

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

Investigador responsable: OTERO AREAN, Carlos.

Categoria: TU (àrea de coneixement: Química Inorgànica).

Inici: 1998. **Fi:** 2001.

Membres de l'equip	Categoria	Dedicació (h/setm.)
Otero Arean, Carlos	CU	32
Peñarroya Mentrut, Margarita	Aj. EU	32

Nombre total d'investigadors de la UIB: 2.

Total EJC/setmana: 1,6.

Keywords: metal oxides, porosity, sol-gel, liposomes, nanostructures.

Summary

Methods for preparing monodispersed sub-micron spheres of metal oxides (ZrO_2 , Al_2O_3 , spinels, etc.) will be studied: particle size should be variable according to the specific preparation. Procedures will involve controlled hydrolysis and polymerization of metal alkaloïdes, and preparation inside liposomes. Obtained and characterized these materials, optimum conditions for incipient sintering will be studied. This sintering process should lead to formation of porous materials where pore size and topology can be conveniently controlled.

Referència: PM97-0040. Programa sectorial de promoció general del coneixement.

Títol: *Estudios sobre litiasis renal: mecanismos de formación de cálculos.*

Classificació UNESCO: 230132.

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

Investigador responsable: GRASES FREIXEDAS, Felicià.

Categoria: CU (àrea de coneixement: Química Analítica).

Inici: 1998. **Fi:** 2001.

Membres de l'equip	Categoria	Dedicació (h/setm.)
Grases Freixedas, Felicià	CU	32
March Isern, Joan Gabriel	TU	32
Costa Bauzà, Antònia	TEU	32
Bassa Malondra, Antoni	As.	16
Conte Visus, Antoni		16
Ramis Barceló, Margalida		16
García González, Ramón		16
Payeras Cifre, Antoni		16

Nombre total d'investigadors de la UIB: 4.

Total EJC/setmana: 2,8.

Keywords: crystallization, urolithogenesis.

Summary

A main objective of the present project is the study of the early stages of stone formation. For this purpose, new *in vitro* methodologies with use of alive renal animal tissues will be developed. With such studies it could be obtained important data about the cell action in the renal calculi development. The experience of the Group permits to pursue the obtention of effective therapeutic solutions for treatment and prevention of this disease. This, the actual studies performed by the Group have clearly demonstrated the exceptional inhibitory capacity that phytic acid exert on calcium oxalate and calcium phosphates crystallization, being such inhibitory capacity increased by the presence of Zn(II), and acting Vitamin A as inhibitor of the enzymes that metabolizes the phytic acid. For this reason we expect to deep into the study of the *in vivo* effects of mixtures phytic acid/Vitamin A/Zn(II), specially the relation between the Vitamin A consumption and the phytic acid excretion. Other objectives of this Project are the development of new analytical procedures in the "kit" form, to apply to the evaluation of important lithogenic parameters such as the urinary crystallization inhibitory capacity of urinary phytic acid concentration. Finally, a study of the calculogenesis induced by Indinavir (drug used in the pharmacological treatment of AIDS) will be performed, with the aim to find possible solutions of this problem.

Referència: PB98-0129. Programa sectorial de promoció general del coneixement.

Títol: *Estudios en química supramolecular: reconocimiento molecular, quimiosensores y autoensamblaje.*

Classificació UNESCO: 23061.

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

Investigador responsable: BALLESTER BALAGUER, Pau.

Categoria: TU (àrea de coneixement: Química Orgànica).

Inici: 1999. **Fi:** 2002.

Membres de l'equip	Categoria	Dedicació (h/setm.)
Ballester Balaguer, Pau	TU	32
Costa Torres, Antoni	TU	32
Morey Salvà, Jeroni	TU	32
Deyà Serra, Pere M.	CU	32
Quiñonero Santiago, David	B	40
Prohens López, Rafael	B	40

Nombre total d'investigadors de la UIB: 6.

Total EJC/setmana: 5,2.

Keywords: molecular recognition, host-guest chemistry, guanidinium salts, squaramides, receptors, self-assembly, porphyrins, anion recognition.

Summary

In this research project we propose the synthesis and the study of abiotic receptors active in highly competitive solvents. The receptors will be prepared following a modular strategy and using charged interactions centers (guanidinium salts and squaramides) which will allow to establish simultaneously electrostatic and hydrogen bonding interactions with the substrate in order to compete with the solvating power of the solvent. These and other receptors developed by us will be used in conjunction with a signaling group (fluorescent) as the critical components in the development of new chemosensors. The utility of these chemosensors in the signaling and quantification of organic substrates and biologically relevant molecules will also be studied. We also propose the synthesis of giant acrobicyclic hosts, soluble in polar and non-polar solvents, having "box" like structures and featuring an enormous interior cavity, and the study of its complexation processes with organic guests. The self-assembly process of suitable tris-porphyrins leading to box "like" supramolecular assemblies will be investigated, as well as, its structures and functionality as an alternative to the previous covalent approach.

Referència: PB98-0123. Programa sectorial de promoció general del coneixement.

Títol: *Complejos de metales de transición con moléculas que presentan actividad biológica y/o farmacológica.*

Classificació UNESCO: 230307.

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

Investigador responsable: TERRON HOMAR, Àngel.

Categoria: TU (àrea de coneixement: Química Inorgànica).

Inici: 1999. **Fi:** 2002.

Membres de l'equip	Categoria	Dedicació (h/setm.)
Terron Homar, Àngel	TU	32
Fiol Arbós, Joan Jesús	TU	32
García Raso, Àngel	TU	32
Herrero Aísa, Luis Àngel	As.	16
Adrover Fiol, Bartomeu		16

Nombre total d'investigadors de la UIB: 4.

Total EJC/setmana: 2,8.

Keywords: antiviral, schiff bases, nucleosides, nitrogen bases, peptides, metal coordination complexes.

Summary

The main purpose of this project is the synthesis of new transition metal complexes with molecules that are known having biological and/or pharmacological activity. The research will be focused in derivatives of oligopeptides, nucleosides or nitrogen bases; in binary or ternary complexes of Schiff bases obtained from salicylidene aldehyde with peptides or amino acids, and in the obtention and study of binary complexes from bases with antiviral activity (acyclovir and others), or antineoplastic properties (thiopurines and others). The pharmacological and mutagenic activity of the complexes obtained will be also studied.

Referència: AMB99-0263. Programa nacional d'I+D en medi ambient.

Títol: *Desarrollo y mejora de nuevos métodos automáticos robustos y sensibles para el control de parámetros de interés ambiental.*

Classificació UNESCO: 2301.

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

Investigador responsable: ESTELA RIPOLL, Josep Manuel.

Categoria: TU (àrea de coneixement: Química Analítica).

Inici: 2000. **Fi:** 2001.

Membres de l'equip	Categoria	Dedicació (h/setm.)
Estela Ripoll, Josep Manuel	TU	32
Forteza Coll, Rafael A.	TU	32
Caro Fernández, Arturo	TEU	32
Serra Aragó, Josep M.		32

Nombre total d'investigadors de la UIB: 3.

Total EJC/setmana: 2,4.

Summary

The general goal of this project is contributing to evaluation and control of environmental contaminants and the development of simple, sensitive and robust automatic methods and techniques of analysis. It is sought to reach this objective using sequential flow injection analysis (SIA), multisyringe flow injection analysis (MSFIA) and SIA-MSFIA techniques, in combination, if its is necessary, with pre-concentration flow techniques on liquied or solid support. The environmental parameters of interest are: phenols (EPA's priority), PAH's (EPA's priority), pesticides (warfarin, fuberidazole, thiabendazole, carbaryl,...), metals (Al, Ca, Mg, Fe, Hg, As, Pb, Cu, Cd, Cr, Zn), and inorganic anions (phosphate, nitrate, nitrite, silicate, chloride and sulphate). The samples will be atmospheric aerosols and different kinds of waters (mainly public consumption and waste waters). This project is concordant with the work of our group of investigation during the last years which is reflected in the results fulfilled through previous projects: wastewaters, quality monitor (measuring and testing of european union MAT-CT93-008) and development of new automatic methods for the evaluation of environmental degradation processes through sequential injection analysis (CICYT, AMB94-0534).

Referència: BQU2000-0242. Ministeri de Ciència i Tecnologia.

Modalitat: P1. Projecte d'investigació bàsica no orientada.

Títol: *Estudio químico-físico de la inactivación de serin-enzimas por antibióticos beta-lactámicos.*

Classificació UNESCO: 2307.

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

Investigador responsable: MUÑOZ IZQUIERDO, Francisco.

Categoria: TU (àrea de coneixement: Química Física).

Inici: 2000. **Fi:** 2003.

Membres de l'equip	Categoria	Dedicació
Muñoz Izquierdo, Francisco	TU	Compartida
Donoso Pardo, Josefa	TU	Compartida
Frau Munar, Joan	TU	Compartida
Vilanova Canet, Bartomeu	TU int.	Compartida
Llinás Martí, Antoni	Aj. U.	Compartida
Coll Parets, Miquel	As.	Única

Nombre total d'investigadors de la UIB: 6.

Keywords: beta-lactam antibiotics, beta-lactamases, elastases, HCMV proteases, serine enzymes, chemical kinetic, computational chemistry.

Summary

In the present investigation Project we wish to determine the inactivation mechanism of three different serine enzymes (beta-lactamases, elastases and HCMV proteases) by beta-lactam antibiotics, classic monobactams and the new bridged monobactams which recently have been proposed as strong beta-lactamase inhibitors.

The choice of these three enzymes is due to their therapeutic relevance. Beta-lactamases are the main cause of diseases such as emphysema, arteriosclerosis and rheumatoid arthritis. HCMV proteases is essential for mature of patients and organ transplant recipients.

By Stopped Flow, FTIR, HPLC, RMN and UV measurements we will study the enzymatic. Theoretical calculation will be done for the modeling of the active site. Later we will propose the inhibition mechanisms. These mechanisms must perfectly explain the experimental results.

Once established the mechanism we will be able to postulate new inhibition structures.

Referència: BQU2000-0214. Ministeri de Ciència i Tecnologia.

Modalitat: P1. Projecte d'investigació bàsica no orientada.

Títol: *Estudio químico-físico de las reacciones de condensación de piridoxamina (piridorina) con cetoácidos y azúcares, su aplicación al estudio de enzimas PMP-dependientes y a la inhibición de la glicación no enzimática de proteínas.*

Classificació UNESCO: 2307.

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

Investigadora responsable: DONOSO PARDO, Josefa.

Categoria: TU (àrea de coneixement: Química Física).

Inici: 2000. **Fi:** 2003.

Membres de l'equip	Categoria	Dedicació
Donoso Pardo, Josefa	TU	Compartida
Muñoz Izquierdo, Francisco	TU	Compartida
Frau Munar, Joan	TU	Compartida
Vilanova Canet, Bartomeu	TU int.	Compartida
Llinás Martí, Antoni	Aj. U.	Compartida
Salvà Salvà, Antoni	As.	Única

Nombre total d'investigadors de la UIB: 6.

Keywords: pyridoxamine, pyridorine, vitamin B6, schiff bases, carbohydrates, PMP-dependent enzymes, advanced glycation process, amadorins.

Summary

Pyridoxamine and Pyridoxamine 5' phosphate are two forms of the Vitamin B6. Its function as coenzyme in Vitamin B6 dependent enzymes involves the formation of a Schiff base between its amino group and a carbonyl group and a carbonyl group of an alfa-ketoacid in the transamination processes and the formation of the Schiff base with the 4-keto group of a cyclic hexose in the catalytic process of formation of 3, 6-dideoxysugars. Pyridoxamine has been recently proposed as an inhibitor of the advanced glycation process of proteins due to its capability of formation of a Schiff base with the carbonyl group of glucose.

In this work we will study from a kinetic point of view the formation and later evolution of the Schiff bases between PMP and alfa-ketoacids, as well as with sugars (aldoses and other cyclic sugars). We will pay special attention to the reactions with aldoses and we will investigate the role of pyridoxamine as reactive of the post-Amadori products generated in the glycation of amino acids. We will study the influence of the medium, the reactive ionization state and the reactive nature in general on these reactions.

Referència: PPQ2001-0474. Ministeri de Ciència i Tecnologia.

Modalitat: Programa nacional de processos i productes químics.

Títol: *Desarrollo del análisis por inyección en flujo multijeringa. Aplicación a la determinación de parámetros ambientales.*

Acrònim: MSFIA.

Classificació UNESCO: 230199.

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

Investigador responsable: CERDÀ MARTÍN, Víctor.

Categoria: CU (àrea de coneixement: Química Analítica).

Inici: 2001. **Fi:** 2004.

Membres de l'equip	Categoria	Dedicació (EDP)
Cerdà Martín, Víctor	CU	0.5
Gómez Benito de Valle, Enrique	As.	0.5
Estela Ripoll, Josep Manuel	TU	0.5
Rumori, Paolo	B	1
Leal Quezada, Luz Olivia	B	1
Becerra Hernández, Eduardo	B	1
Miró Lladó, Manuel	B	1

Investigadors d'altres entitats

Elsholz, Olaf	Fachhochschule Hamburg
F. C. Lima, José Luis	Universidade do Porto
Lapa, Rui	Universidade do Porto
Lario García, Javier	Crison Instruments, SA
Sitjà Rius, Pere	Crison Instruments, SA

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

Summary

In a former project AMB97-0537 we proposed a new analytical technique which we entitled **MultiSyringe Flow Injection Analysis (MSFIA)**, having the advantages of other already existing flow techniques, like the high sample throughput of FIA, robustness and versatility of SIA, simplicity of MCFA, etc. The construction of the first prototype and its application to the development of analytical methods to the determination different environmental parameters allowed us to see some clear advantages of this new analytical technique. The aim of this project is to develop this methodology with the firm CRISON INSTRUMENTS, SA, which has already participated with us in former funded projects. In this way, the firm could take advantage of the project, both in the sense to increase the commercial interest of their product by widening their application fields, as well as introducing new analytical instrumentation with MSFIA methodology of interest to their customers.

Our purpose in this new project is to continue in the development of MSFIA, specially considering the following milestones: Development of a new prototype with better performances and which could be commercialized. To develop new kind of excitation sources and development of new analytical procedures, mainly for the determination of

environmental parameters and specially for water quality control and monitoring. This project has been catalogued the point 4.4 of the 'National Program of Chemicals and Chemical Processes': 'instrumental development for environmental control. Development of methodologies, tests and tools allowing the prediction of the behaviour and effect of pollutants and recycled or discarded materials'. It is also well adapted to other points of other 'National Programs Nacionales', as point 3.5 of the 'Application of the new technologies to the quality and quantity control', of the point 3 in 'Water resources' from the 'National Program of Natural Resources'. Point 1.1 of the 'National Program of Biotechnology' on the 'Development of biosensors: biosensors for the environmental pollutants detection', through the development of the Ecotox automatic bioluminescent method applied to the toxicity evaluation of environmental samples.

Referència: PPQ2001-0347. Ministeri de Ciència i Tecnologia.

Modalitat: Programa nacional de processos i productes químics.

Títol: *Contribución a la valorización de productos resultantes de la incineración de residuos sólidos urbanos.*

Acrònim: VALRSU.

Classificació UNESCO: 230199.

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

Investigador responsable: FORTEZA COLL, Rafael A.

Categoria: TU (àrea de coneixement: Química Analítica).

Inici: 2001. **Fi:** 2004.

Membres de l'equip	Categoria	Dedicació (EDP)
Forteza Coll, Rafael A.	TU	0.5
Cerdà Martín, Víctor	CU	0.5
Mas Torres, Francesca	Aj. U	0.5
Gómez Benito de Valle, Enrique	As.	0.5
Far Sánchez, María Micaela	B	1

Investigadors d'altres entitats

Theraulaz, Frederic	University of Provence
Coulomb, Bruno	University of Provence
Oms Mollà, Maria Teresa	Incineradora RSU Son Reus
Cerdà Lacaci, Amàlia	TIRME
Bauzà de Mirabó Darder, Francesca	Conselleria de Medi Ambient

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

Keywords: incineration, municipal solid waste, ash, bottom ash, valorisation, leaching.

Summary

The aim of the project is to study several problems related with the activity of municipal solid waste incinerator (MSWI) plants with energy production. At first, and as continuation of previous studies, we want to evaluate physical, chemical and geotechnical characteristics of MSWI bottom ash for use in highway applications. One important point of view must be the environmental impact: for this reason we would study the leaching of trace inorganic elements and organic contaminants including polychlorinated dibenzo-p-dioxines (PCDDs), polychlorinated dibenzo-p-furans (PCDFs), as well as potential precursors for these compounds under certain reaction conditions. The potential precursor are chlorinated benzenes (CBs), chlorinated phenols (CPs) and polychlorinated biphenyls (PCBs). Also we would evaluate the efficiency of a stabilisation/solidification process of incinerator ashes with cement based on leaching results, using several leaching tests and as function of the proportion ash/cement/water. At last we would construct a quality monitor for water used in the plant of energy production (TIRME, Palma, Spain) to determine harmful specimen: pH, conductivity, acid conductivity, ammonium, hydrazine, heavy metals...).

Referència: BQU2001-0724-C02-02. Ministeri de Ciència i Tecnologia.

Modalitat: Programa nacional de processos i productes químics.

Títol: *Catalizadores enantioselectivos de base lantanida para síntesis orgánica.*

Acrònim: CASIOR.

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

Investigador responsable: SAÁ RODRÍGUEZ, José Manuel.

Categoria: CU (àrea de coneixement: Química Orgánica).

Inici: 2001. **Fi:** 2004.

Membres de l'equip	Categoria	Dedicació (EDP)
Saá Rodríguez, José Manuel	CU	1
Vega Reynés, Manuel	B	1

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

Summary

The CLAN ROMA Project (enantioselective, lanthanide-based catalysts for organic reactions in aqueous medium) aims at obtaining chiral catalysts capable of promoting enantioselective synthesis in aqueous media. The point of departure to this objective is the use of lanthanide triflates as the core of the catalyst, around which we plan to build appropriately designed chiral units. Lanthanide triflates are known to catalyze achiral organic reactions in aqueous media. The following stages have been planned accordingly: 1a) designing and synthesis of chiral, robust complexes having the somewhat schizophrenic ability of being stable to water and, at the same time, capable of promoting enantioselective organic reactions; To this end a number of variables will be modified in order to achieve the best material: metal and its counterion, the ligand and its denticity, the stoichiometry and the ionic or nonionic nature of the complexes; 1b) the analysis of reactivity and enantioselectivity will be examined upon a well-known Henry reaction (the condensation of a nitroalkane with an aldehyde). Iteration of stages 1a and 1b are expected to drive us to the best lead; 2) next stage will be the application to a number of common organic reactions known to be catalyzed by acids, in search for enantioselective catalysis in aqueous media.

Projecte finançat per la CICYT al Centre de Supercomputació de Catalunya (CESCA).

Títol: *Estimació de l'aromaticitat en derivats d'àcids oxocarbònics.*

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

Investigador responsable: DEYÀ SERRA, Pere M.

Categoria: CU (àrea de coneixement: Química Orgànica).

Membres de l'equip	Categoria
Deyà Serra, Pere M.	CU
Ballester Balaguer, Pau	TU
Costa Torres, Antoni	TU
Frontera Beccaria, Antoni	B (reinc.)
Quiñonero Santiago, David	B
Suñer Sabater, Guillem A.	

Període del projecte: 1999-2001.

Hores de càlcul: 14.000.

Keywords: oxocarbon acids, aromaticity, NMR, theoretical studies.

Summary

The main purpose of this project is the systematic estimation of aromaticity in oxocarbon acids and derivatives (dianions, amides, esters,...) by means of computational methods. *Ab initio* theoretical methodologies are required to analyse the electronic structures of the different compounds of the oxocarbon series. Energetic (aromatic stabilization energies), structural (nearly equal bond lengths in the ring) and magnetic (magnetic susceptibilities, NCIS: Nucleus-Independent-Chemical-Shift) criteria have to be used to explore the aromatic character of the proposed compounds.

Ajudes de la Comissió Interdepartamental de Ciència i Tecnologia. Conselleria d'Innovació i Energia. Govern Balear

Títol: *Estudi relatiu al risc per a la salut humana de l'aplicació de PVC a obres de construcció de vivendes.*

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

Investigador responsable: COSTA TORRES, Antoni.

Categoria: TU (àrea de coneixement: Química Orgànica).

Inici: 2000. **Fi:** 2001.

Membres de l'equip	Categoria	Dedicació (h/setm.)
Costa Torres, Antoni	TU	16
Cifre Bauzà, Joan	Tèc.	32
Martorell Crespí, Gabriel	Tèc.	32
Gil Cardona, M. Isabel	Tèc.	32
Saus Sarrià, Carles		16

Nombre total d'investigadors de la UIB: 4.

Total EJC/setmana: 3,2.

Keywords: PVC, DSC, TG, FT-IR, ftalates, molecular recognition, chemosensors.

Summary

The current use of PVC based polymers as building materials have a potential risk for the human health as well as for the environment due to the special features of these materials. The aim of this project is to develop an analytical protocol in a multidisciplinary approach, whose results will allow, as the first target, a straightforward identification of PVC materials. The analysis of substances that could present a toxic risk for the human health will be studies as part of a second stage. In that part PVC materials that are not in accordance with the UE regulations will be detected. The degradation and/or decomposition of these materials will be studied in the range of environmental conditions characteristi, and the presence of volatile organic compounds (VOC) will be evaluated. Finally, a line of new and specific chemosensors for ftalares will be synthesised and a new biotoxicity test based on hepatocytes will be explored. The expected results will allow the presence of PVC materials whose composition and properties are not in agreement with the UE and other regulations. The result will allow to go further in the environmental control of the PVC materials by using a multidisciplinary and integrated approach that will lead to the development of new analytical tools based on molecular recognition elements.

Títol: *Incorporació de les noves tecnologies de la comunicació a l'ensenyament universitari de la química orgànica assistida amb tècniques multimèdia.*

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

Investigador responsable: BALLESTER BALAGUER, Pau.

Categoria: TU (àrea de coneixement: Química Orgànica).

Inici: 2000. **Fi:** 2002.

Membres de l'equip	Categoria	Dedicació (h/setm.)
Ballester Balaguer, Pau	TU	32

Nombre total d'investigadors de la UIB: 1.

Total EJC/setmana: 0,8.

Keywords: information, communication, internet, multimedia, learning, organic chemistry, university, cal, web.

Summary

This is a project of technological development directed towards the production of interactive and multimedia education materials which could be used for the computer assisted teaching of Organic Chemistry. There are three clear objectives, educational materials which are interactive and are used for the resolution of Organic Chemistry exercises, animations of reactions mechanisms and short video clips of the basic technique used in an Organic Chemistry laboratory. All the educational material will be elaborated to be used in any computer hardware (PC, mac, Sgi, etc). Thus the educational materials should be accessible using any internet browser. All the material could be placed in an internet server or sold as a CD-ROM. The methodology generated during the development of the project could be used for producing other educational material just changing the contents and concepts.

Participacions a altres projectes

Referència: 1FD97-1246-CO3-01. Fons FEDER.

Títol: *Uso de ultrasonidos en los procesos de extracción con fluidos supercríticos: efectos sobre el proceso e implicaciones en las características, y percepción del producto.*

Investigador responsable: MULET PONS, Antoni.

Centre: Universitat Politècnica de València.

Investigadors de la UIB:

ROSSELLÓ MATAS, Carme.

Categoria: TU (àrea de coneixement: Enginyeria Química).

SIMAL FLORINDO, Susana.

Categoria: Aj. EU (àrea de coneixement: Enginyeria Química).

FEMENIA MARROIG, Antoni,

Categoria: Contracte de reincorporació.

SÁNCHEZ CLARK, Emma S.

Categoria. Becària.

Inici: 2000. **Fi:** 2001.



**INSTITUT MEDITERRANI D'ESTUDIS AVANÇATS
(IMEDEA)
INSTITUT MIXT CSIC-UIB**

- Variabilidad oceánica de alta frecuencia y sus implicaciones en el transporte de propiedades físicas biológicas.
HERNÁNDEZ GARCÍA, Emili.
- Factores ecológicos y fisiológicos que influyen en la distribución y abundancia de plantas endémicas amenazadas de las islas Baleares.
TRAVERSESET VILAGINÉS, Anna Maria
- Análisis de la evolución y extinción de *Myotragus balearicus* Bate 1909 (Artiodactyla: Caprinae).
ALCOVER TOMÀS, Josep Antoni.
- Dinámica no lineal y estocástica en sistemas extendidos.
TORAL GARCÉS, Raúl.
- Cooperación y fenómenos no lineales en sistemas complejos extendidos.
SAN MIGUEL RUIBAL, Maximino
- Estudio multidisciplinar y de la dinámica de un cañón submarino, y sus repercusiones sobre ecología del margen continental del mediterráneo noroccidental.
TINTORÉ SUBIRANA, Joaquim.
- Mejora de la tecnología de obtención, almacenamiento, germinación y uso de semillas de especies silvestres utilizadas en los planes de reforestación y revegetación de la Comunidad Valenciana.
MEDRANO GIL, Hipólito; TRAVERSESET VILAGINES, Anna.
- Riego de apoyo en vid para vinificación de tintos.
MEDRANO GIL, Hipólito.
- Estudio de la *Posidonia oceanica* y su interacción con la circulación costera y los procesos litorales en la costa valenciana.
TINTORÉ SUBIRANA, Joaquim.
- Adaptaciones fisiológicas de los peces de hielo (*Channichthyidae*) durante el desarrollo, con especial referencia a la expresión y actividad de la forma inducible de óxido nítrico sintasa.
MORALES NIN, Beatriu.



- Flujo de carbono en la región canaria: determinación de balances locales y estructura trófica.

AGUSTÍ REQUENA, Susana.

- Diodos láser con selección modal.

BALLE MONJO, Salvador.

- Aislamiento geográfico y exclusión competitiva en la filogenia, y la evolución de ciertos géneros de coleopteros.

PETITPIERRE VALL, Eduard.

- Flora micológica (hifomicetos) en ambientes naturales terrestres y acuáticos del área íbero-balear.

DESCALS CALLISEN, Enric.

- Investigaciones aplicadas al programa de conservación de la gaviota de Audouin: los efectos de los depredadores terrestres en la ecología y la dinámica de sus poblaciones.

ORO DE RIVAS, Daniel.

- Estímulo experimental de la producción antártica costera.

AGUSTÍ REQUENA, Susana.

- Métodos moleculares para la detección de fraudes en aditivos alimentarios.

BENEDÍ BENITO, Vicente Javier.

- Detección molecular de los aditivos alimentarios E410, E412 y E417 en alimentos.

BENEDÍ BENITO, Vicente Javier.

- Procesos de transporte, campos de velocidades y análisis de estructuras oceánicas mediante imágenes de satélite.

HERNÁNDEZ GARCÍA, Emilio.

- Caracterización de mecanismos de resistencia a antibióticos en *Klebsiella pneumoniae* debido a alteraciones en la permeabilidad.

BENEDÍ BENITO, Vicente J.

- Biodiversidad marina en ambientes costeros extremos: prospección faunística de las cuevas anquialinas de las Baleares, Canarias, y Levante Ibérico.

JAUME LLABRÉS, Damià.

- Sistema de monitorización y gestión de emisarios submarinos.

TINTORE SUBIRANA, Joaquim.



Endarrere



Endavant

Referència: MAR98-0840. Programa nacional de ciència i tecnologia marines.

Títol: *Variabilidad oceánica de alta frecuencia y sus implicaciones en el transporte de propiedades físicas biológicas.*

Classificació UNESCO: 2510.

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

Investigador responsable: [HERNÁNDEZ GARCÍA, Emili](#).

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

Inici: 1998. **Fi:** 2001.

Membres de l'equip	Categoria	Dedicació (h/setm.)
Hernández García, Emili	TU	16
Font Ferré, Jordi		16
García Ladona, Emilio		16
Piro, Oreste	TU	16
Parisi Baradad, Vicenç		16

Nombre total d'investigadors de la UIB: 2.

Total EJC/setmana: 0,8.

Keywords: variability, mesoscale, transport, teledetection, circulation models, stochastic forcings, langrangian measurements.

Summary

The main objective of this proposal is the analysis of the effects of high frequency atmospheric forcings on the emergence, persistence, and dynamics of mesoscale ocean structures, and of their consequences on transport phenomena. Special attention will be given to the transport of substances relevant to the dynamics of marine ecosystems such as nutrients or biomass and to the Mediterranean geographic area, Alboran and the Algerian basin in particular. Specifically we sought to apply three methodologies: numerical simulation of circulation models in the presence of several kinds of atmospheric forcing, analysis of lagrangian data obtained from float tracking, and the quantitative use of information obtained by teledetection. This objective is fully contained in the Programa nacional de ciencia y tecnología marianas, both because of the specific subjects considered and because of its applied and interdisciplinary character. Potential benefits include the improvement of modelling and prediction of physico-biological transport processes, and the development of novel techniques for processing and use of satellite data.

Referència: PB98-1174. Programa sectorial de promoció general del coneixement.

Títol: *Factores ecológicos y fisiológicos que influyen en la distribución y abundancia de plantas endémicas amenazadas de las islas Baleares.*

Classificació UNESCO: 241713-19-03.

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

Investigadora responsable: TRAVESET VILAGINÉS, Anna Maria.

Categoria: Investigadora científica del CSIC.

Inici: 1998. **Fi:** 2001.

Membres de l'equip

Traveset Vilaginés, Anna Maria

Medrano Gil, Hipólito

Rita Larrucea, Joan

Mus Amézquita, Maurici

Sven Evert Jonasson

Flexas Sans, Jaume

Keywords: endemic plants, threatened species, plant-animal interactions, photosynthesis, photoinhibition, drought, water stress, reproductive mechanisms, dispersal mechanisms, colonization mechanisms.

Summary

The project will examine both ecological and physiological factors that affect the distribution and abundance of a group of plants endemic to the Balearic Islands, and currently with a very restricted distribution (some considered as 'endangered' in the IUCN categories). The main goals of the study are: (1) to evaluate the population structure of the threatened plant species and (2) to determine the relative importance of biotic factors (interactions with animals in the different phases of the plant life cycle -pollination, herbivory and seed dispersal- or interactions with other plants) and of abiotic factors (such as plant responses to soil water deficit, a relevant trait in current mediterranean conditions) to be able to predict the risk of extinction of the threatened or endangered species in their natural habitat.

Referència: PB97-1173. Programa sectorial de promoció general del coneixement.

Títol: *Análisis de la evolución y extinción de Myotragus balearicus Bate 1909 (Artiodactyla: Caprinae).*

Classificació UNESCO: 241605.

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

Investigador responsable: [ALCOVER TOMÀS, Josep Antoni](#).

Inici: 1998. **Fi:** 2001.

Membres de l'equip

Alcover Tomàs, Josep Antoni

Guerrero Ayuso, Víctor

Moyà-Solà, Salvador

Keywords: *myotragus*, *artiodactyla*, *caprinae*, Balearic Islands, human-autochthonous fauna contact, insular evolution.

Summary

The first goal of the present project is the study of unknown aspects of the biology and evolution of *Myotragus balearicus* Bate 1909, a bizarre dwarf artiodactyle (45 cm height at the shoulders) vanished about 4.200 years ago. We will study its diet, its functional anatomy, the differences between Mallorcan and Menorcan populations, the sexual dimorphism, sex ratio, as well as the heterochronic processes involved on its evolution and the taphonomy of some selected cave deposits. Another question to be studied is the role of *Myotragus* in the insular ecosystems. On the other hand, we will depend on the study of the contact between the first human settlers and *Myotragus balearicus*.

Referència: PB97-0141-C02-01-02. Programa sectorial de promoció general del coneixement.

Títol: *Dinámica no lineal y estocástica en sistemas extendidos.*

Classificació UNESCO: 220510.

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

Coordinador: [TORAL GARCÉS, Raúl](#).

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

Subprojecte 01. Investigador responsable: [TORAL GARCÉS, Raúl](#).

Inici: 1998. **Fi:** 2001.

Membres de l'equip	Categoria	Dedicació (h/setm.)
Toral Garcés, Raúl	CU	20
Mirasso Santos, Claudio Rubén	TU	20
Cartwright, Julyan		40
Sintes Olives, Tomàs	Aj. U	32
Martínez Eguiluz, Víctor	B	40
Mayol Serra, Catalina	B	40

Nombre total d'investigadors de la UIB: 6.

Total EJC/setmana: 4,8.

Subprojecte 02. Investigador responsable: [COLET RAFECAS, Pere](#).

Membres de l'equip	Categoria	Dedicació (h/setm.)
Colet Rafecas, Pere	CC (CSIC)	24
Zimmermann, Martin	B	40
Santagiustina, Marco	C	40

Nombre total d'investigadors de la UIB: 1.

Total EJC/setmana: 1.

Keywords: non linear dynamics, optical systems, extended systems, stochastic resonance.

Summary

The aim of this project is to contribute to the understanding of spatially dependent systems described by equations with nonlinear terms and, that can also contain stochastic terms. Among the many systems where this occurs, we will basically concentrate on the study of optically passive non linear media (kerr medium, optical parametric oscillator, second harmonic generation, etc), noise induced phase transitions (especially the influence of the spacial correlation lenght of the noise), lasers with transverse and polarization dependence of the electrical field, systems of coupled non linear electronic circuits, stochastic resonance in extended systems (Fitzhugh-Nagumo model of excitability), biological processes (ion transport through membranes), etc. The project uses basically analytical developments and numerical techniques, although we aim to make an effort in the modeling with electronic circuits, and intermediate line between numerical simulations and experiments.

Referència: BFM2000-1108. Ministeri de Ciència i Tecnologia.

Modalitat: P1. Projecte d'investigació bàsica no orientada.

Títol: *Cooperación y fenómenos no lineales en sistemas complejos extendidos.*

Acrònim: CONOCE.

Classificació UNESCO: 2299.

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

Investigador responsable: SAN MIGUEL RUIBAL, Maximino.

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

Inici: 2001. **Fi:** 2004.

Membres de l'equip	Categoria	Dedicació
San Miguel Ruibal, Maximino	CU	Compartida
Toral Garcés, Raúl	CU	Compartida
Balle Monjo, Salvador	TU	Compartida
Hernández García, Emili	TU	Compartida
Mirasso Santos, Claudio	TU	Compartida
Piro Perusin, Oreste	As. Estr.	Compartida
Salazar Tió, Rafael	Aj. U	Única
Colet Rafecas, Pere		Compartida
Matias Muriel, Manuel		Compartida

Nombre total d'investigadors de la UIB: 7.

Keywords: nonlinear, cooperative phenomena, localized structures, excitability, chaos, spatio-temporal complexity, fluctuations, dynamical systems, feedback, biooscillators, advection, reaction-diffusion, nonlinear optics, semiconductor lasers, VCSELs.

Summary

CONOCE is a nonlinear and 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 with external forcing and or non-local couplings. On the one hand the project intends to contribute to the development of methods, concepts and description of generic behavior in nonlinear physics in 6 aspects: fronts, growth phenomena and localized structures. Prediction in spatiotemporal chaos. Systems with feedback. Cooperative phenomena in networks with nonlocal coupling, fluctuations, and synchronization phenomena. On the other hand, it addresses the use of these methods and concepts in 5 exploratory lines of strategic research: mixing, transport and localized structures in fluids. Patterns in nonlinear optics, cooperative phenomena, synchronization and feedback in semiconductor lasers, biological oscillators in excitable media and competition, coordination and cooperation of agents. General phenomena considered in the different research lines of the project include excitability emergence of localized structures, synchronization and coherent response to fluctuations.

Referència: MAR99-1060-C03-03. Programa nacional de ciència i tecnologia marines.

Títol: *Estudio multidisciplinar y de la dinámica de un cañón submarino, y sus repercusiones sobre ecología del margen continental del mediterráneo noroccidental.*

Classificació UNESCO: 251001.

Centre: Institut de Ciències del Mar.

Investigador responsable: PALANQUES MONTEYS, Albert.

Investigador de l'IMEDEA: TINTORÉ SUBIRANA, Joaquim.

Categoria: Professor d'investigació del CSIC.

Inici: 2000 **Fi:** 2002.

Membres de l'equip

Categoria

Tintoré Subirana, Joaquim

Professor d'investigació

Gomis Bosch, Damià

TU

Monserrat Tomàs, Sebastià

TU

Duarte Quesada, Carlos

Professor d'investigació

Agustí Requena, Susana

Professor d'investigació

Keywords: biodiversity, fluxes of matter and energy, biological production, tridimensional circulation, shelf-slope transfer, particulated matter, sediment, carbon.

Summary

The northwestern mediterranean canyons are morphological structures with high hydrodynamics activity and transfer of matter. The circulation inside of the canyons is highly heterogenic and its variability is controlled by several forcing mechanisms. The catalan sea is an excellent candidate area to study such processes in detail due to its characteristics. Similarly, the transfer of matter and energy in the canyons is also very complex, and the balance among the vertical and lateral supplies from the shelf and the slope is not known very accurately. The preferent transport of matter from shallow to deep environments through canyons generates a high biomass and production, with a possible exportation of dissolved organic/inorganic matter, which indicates that the deep sea can be more productive than what is was known up to now. In addition the external supply creates bioaccumulation zones in the canyon floor and that they are important reservoirs of biodiversity. The canyons could be one of the environments with a higher diversity and production in the Mediterranean sea. The changes of the circulation induced by the canyons can produce slope water intrusions and canyon biomass towards the shelf. Both situations have important repercussions in the marine system. This project results from the necessity of knowing the dynamics of the canyons in detail, to understand the delivery and concentration processes of continental material and export of the products from the endemic fauna living in this habitat.

Referència: 1FD97-551. Fons FEDER.

Títol: *Mejora de la tecnología de obtención, almacenamiento, germinación y uso de semillas de especies silvestres utilizadas en los planes de reforestación y revegetación de la Comunidad Valenciana.*

Investigador responsable: GARCÍA FAYOS, P. (Centre d'Investigacions sobre Desertificació (València).

Centre: Institut Mediterrani d'Estudis Avançats (IMEDEA)

Investigadors del IMEDEA: MEDRANO GIL, Hipólito; TRAVESET VILAGINES, Anna.

Inici: 1999.

Fi: 2001.

Membres del equip	Categoria
Medrano Gil, Hipolito	CU
Traveset Vilagines, Anna	Investigador Científic CSIC
García-Fayos Poveda, Patricio	Científic Titular CSIC
Molina Donate, M ^a José	Científic Titular CSIC
Ingelmo Sánchez, Florencio	Científic Titular CSIC
Castro Martínez, Elena	CSIC

Keywords polinization, masting, seed predation, germination, recalcitrant seeds, forestal species, afforestation, revegetation, seed losses by erosion, plant colonization.

Summary

The new conception of vegetal restoration plans that started in the 90s in the Valencia Community have run against the lack of information about the reproductive ability of the species to be used. The local government and the companies in charge of providing these species have a limited capacity to produce enough amounts of seeds and seedlings to carry out the mentioned plans. On regarding the vegetal restoration of anthropic steep slopes, the so far obtained results have not been successful. The traditional successful techniques of the rest of Europe have not given good results when applied in the environmental regional conditions of unpredictable long droughts and short intense rain events. When complements are added to the seeds in order to avoid those problems, the economic cost per unit area becomes much higher.

On the one hand, to find a solution to the problems of seed production and germination and to divulge the improved techniques among the sectors in charge of collecting seeds, are important social and economic benefits for the private and public companies implied in the reforestation and revegetation plans since they may contribute to reduce costs and increase efficiency. Also the ultimate beneficiary, which is our Environment, takes advantage since the proportion of degraded areas may decrease but also a reduction of the environmental impact is expected since the indiscriminate collection of seeds in wild populations might be reduced considerably. Respect to the anthropic slopes, the evaluation of the seed resistance to erosion of the current species used along with the selection of new species based on their tolerance to run-off and their ability to expand their populations under contrasted climatic conditions, will improve the efficiency of the restoration plans to minimise the environmental impact after building motorways, railways, gas piping, and other building sites object of big public works.

Referència: 1FD97-1276. Fons FEDER.

Títol: *Riego de apoyo en vid para vinificación de tintos.*

Investigador responsable: CASTEL SÁNCHEZ, Juan R.

Centre: Institut Valencià d'Investigacions Agràries.

Investigador de l'IMEDEA: MEDRANO GIL, Hipólito.

Categoria: CU (àrea de coneixement: Biologia Vegetal).

Inici: 2000. **Fi:** 2001.

Membres de l'equip

Categoria

Medrano Gil, Hipólito
Tortosa Martorell, Enric
Cebolla Rosell, Vicente
Haba Ejarque, Manuel
Chirivella Romero, Camilo
Catalán García, Francisco

CU
Investigador científic

Keywords: drip irrigation, red wine, yield, quality.

Summary

The global objective of this project is the study of deficit irrigation strategies in grapevine for red wine production with the aims of improving yield and maintaining or improving wine quality. For this purpose field experiments and physiological studies will be carried out in cv. Tempranillo in two contrasting climatic locations (Requena, Valencia and Consell, Mallorca) in comparison to the varieties of major local importance (Bobal and Manto Negro, respectively). The main aspects of this study will be:

1. Relationships between soil water availability, transpiration (sap flow) and photosynthesis at plant level.
2. Vegetative and productive grapevine responses to moderate amounts of irrigation applied in different phenological phases.
3. Fruit and wine quality parameters for production of red and rose wines.

The information obtained through these experiments should constitute an important basis to evaluate the economical impact of moderate irrigation in grapevines for red wine production, thus providing objective criteria for the respective ADC councils.

Referència: 1FD97-1654. Fons FEDER.

Títol: *Estudio de la Posidonia oceanica y su interacción con la circulación costera y los procesos litorales en la costa valenciana.*

Classificació UNESCO: 251010, 251001, 251007.

Investigador responsable: MEDINA FOLGADO, Josep R.

Centre: Universitat Politècnica de València.

Investigador de l'IMEDEA: TINTORÉ SUBIRANA, Joaquim.

Categoria: Professor d'investigació del CSIC.

Inici: 2000. **Fi:** 2001.

Membres de l'equip

Categoria

Medina Folgado, Josep R.

Tintoré Subirana, Joaquim

Duarte Quesada, Carlos

Morales Nin, Beatriu

Gomis Bosch, Damià

Montserrat Tomàs, Sebastià

Lalucat Jo, Jordi

Professor d'investigació

Professor d'investigació

Investigador científic

TU

TU

CU

Keywords: coastal circulation, *Posidonia oceanica*, wave propagation, beach nourishment, beach monitoring.

Summary

The *Posidonia oceanica* areas key elements protecting the diversity of the Spanish Mediterranean marine ecosystem. Although seagrass significantly modify both the sedimentary processes and the wave propagation conditions on the continental shelf, and is the basis of a Mediterranean marine ecosystem, the extension and evolution of the *Posidonia oceanica* areas are not well defined and therefore not correctly considered in the shore protection and beach management programs. POSICOST will define an appropriate methodology to define: (1) extension (superior limit) of the *Posidonia oceanica* areas in the valencian coastline, (2) short time estimation of evolution, (3) selected monitoring indicators for a long-time monitoring to be integrated in the coastal GIS of the Generalitat Valenciana. The ocean circulation on the Mediterranean continental shelf is conditioned by the wind, its interaction with longshore currents generated by wind waves and the internal circulation associated to density fronts on the continental shelf. This coastal circulation is conditioning important processes as: (1) evolution of quality of coastal waters in time and space, (2) dispersion of contaminants along the coastline and (3) advance, retreat or death of the *Posidonia oceanica* areas. However, our 3-D model, to predict currents on the continental shelf, is able to provide reliable enough information to be used efficiently in shore protection, planning and management. Specially for this zones where the interaction of the dynamic and littoral processes and the *Posidonia oceanica* is significant, POSICOST will analyze those interactions. The sedimentary processes and currents interacts with the *Posidonia oceanica* (from 3 to 40 meters depth) and will be considered in a new 3-D currents model to be applicable to the valencian coastal waters. Along the spanish littoral, the beaches are the critical production factor of the tourism industry. The beach stability has direct impact on both the regional economy and the local terrestrial and marine ecosystem. The beach nourishment is a key tool of

modern shore protection and may positively or negatively affect the growth of the *Posidonia oceanica*. POSICOST will analyze nourished beaches and marine desimentary deposits with may affect *Posidona oceanica*, and will define efficient methods to estimate the positive and negative impact of the coastal engineering works on the seagrass. Several pilot areas in the Valencian and SW Mallorca coastline are selected to be analyzed and monitorized during two years: (1) erosive beaches, (2) stable beaches, (3) accreted beaches, (4) nourished beaches and (5) marine sedimentary deposits useful for beach nourishment projects in the Valencian and the Balearic islands.

Referència: ANT99-1216. Programa nacional d'investigació a l'Antàrtida.

Títol: *Adaptaciones fisiológicas de los peces de hielo (Channichthyidae) durante el desarrollo, con especial referencia a la expresión y actividad de la forma inducible de óxido nítrico sintasa.*

Acrònim: NIOS.

Classificació UNESCO: 251005, 240105.

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

Investigadora responsable: **MORALES NIN, Beatriu.**

Categoria: Investigadora científica CSIC.

Inici: 2000 **Fi:** 2001.

Membres de l'equip	Categoria
Morales Nin, Beatriu	Investigadora científica
Palomera Laforga, Isabel	Titulada superior
Busquets Xaubet, Xavier	Investigador INSALUD
Agustí Garcia-Navarro, Àlvar	Investigador INSALUD

Keywords: hyperosia, hyposia, nitric oxide synthase, iNOS, nitrogen reactive species, antioxidants, catalase, superoxide dismutase, SOD, icefish, larvae, juveniles, *Channichthyidae*, antartica.

Summary

In this project we will study icefish development and measure the expression (mRNA and protein) of the three main isoforms of nitric oxide synthase as an indicator of tissue hyperoxia in icefish larvae. This study will be complemented with the measurement of oxidate stress markers as catalase and superoxide dismutase and nitrotyrosine modification of proteins as an index of peroxynitrite activity. The development stage of the icefish larvae will be determined by analysis of otholits and by the ratio of ARN/AND concentration. The oxygen consumption by the icefish larvae will also be analysed experimentally. The results of these studies will be compared with the performed in adult icefishes.

Referència: REN2000-1471-C02-01. Ministeri de Ciència i Tecnologia.

Modalitat: P2. Projecte d'investigació bàsica orientada.

Títol: *Flujo de carbono en la región canaria: determinación de balances locales y estructura trófica.*

Classificació UNESCO: 241001, 251002, 251007.

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

Investigadora responsable: AGUSTÍ REQUENA, Susana.

Categoria: Científica titular del CSIC.

Inici: 2000. **Fi:** 2003.

Membres de l'equip

Agustí Requena, Susana

Duarte Quesada, Carlos

Vaqué Vidal, Dolors

Latasa Arcalis, Mikel

Summary

The increasing evidence that community respiration tends to exceed planktonic production at the oligotrophic areas of the ocean has important consequences for the global carbon budget, for it implies that the biota of the oligotrophic areas of the ocean are net sources of CO₂ to the atmosphere. The origin of the organic carbon needed to support the excess carbon consumed in the oligotrophic areas of the ocean is unclear, but probably is imported from coastal areas, specially from coastal upwelling areas where primary production exceeds carbon consumption. The COCA (Canary Organic Carbon Assessment) project is an interdisciplinary effort to test this hypothesis at the Atlantic Canary Region, located at the transition zone between the high productive NW African upwelling and the oligotrophic waters of the North Atlantic Subtropical Gyre. During COCA, we will determine the carbon balance of planktonic communities at the Canary Region, and the cause of their variation along the high productive coastal zone of the NW African upwelling, and the low productivity area of the NA subtropical, as well as the interchange of organic carbon between the two systems.

Referència: TIC99-0645-C05-02. Programa nacional de tecnologies de la informació i de les comunicacions.

Títol: *Diodos láser con selección modal.*

Classificació UNESCO: 330707.

Centre: Instituto de Física de Cantabria.

Investigador responsable: PESQUERA, Luis.

Investigador de l'IMEDEA: BALLE MONJO, Salvador.

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

Inici: 1999. **Fi:** 2002.

Membres de l'equip	Categoria
Balle Monjo, Salvador	TU
Mirasso Santos, Claudio	TU
Giudici, Massimo	
Tredicce, Jorge R.	

Keywords Laser Diodes, modal selection, modal perturbation, etched slots, postprocessing, optical fiber communications, nonguided communications, power lasers, pumping, VCSELs

Summary

The proposal aims to develop modal perturbation techniques in laser diodes in order to obtain better performances by means of relatively simple processes, that can be competitive. The proposal includes three groups of studies. Two of them include modelization, fabrication and experimental characterization of laser diodes with modal perturbation by etching slots parallel to the laser facets. On one hand Fabry-Perot lasers for optical fiber communications will be developed with high side mode suppression ratio. The performance of these lasers in transmission systems will be measured. On the other hand the proposal addresses the development of power lasers with wavelength close to 1 micron with lateral and longitudinal mode selection by means of angle slots. Applications to optical fiber amplifiers and nonguided optical communications are considered. The third part includes the theoretical and experimental study of transverse and polarization mode selection of vertical cavity surface emitting lasers (VCSELs).

Referència: BOS2000-0822. Ministeri de Ciència i Tecnologia.

Modalitat: P1. Projecte d'investigació bàsica no orientada.

Títol: *Aislamiento geográfico y exclusión competitiva en la filogenia, y la evolución de ciertos géneros de coleopteros.*

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

Investigador responsable: PETITPIERRE VALL, Eduard.

Categoria: CU (àrea de coneixement: Genètica).

Inici: 2000. **Fi:** 2003.

Membres de l'equip	Categoria	Dedicació
Petitpierre Vall, Eduard	CU	Compartida
Juan Clar, Carles	TEU	Compartida
Sacarés Mas, Antoni		Compartida

Nombre total d'investigadors de la UIB: 2.

Keywords: DNA sequences, molecular phylogenies, chromosomes, endemics, allopatric, evolution, competitive exclusion, *Chrysomelidae coleopterans*.

Summary

The apterous leaf beetle *Cyrtonus* are a suitable model for the high number of endemics to assess the effects of geographic isolation in Iberian and Balearic mountain ranges, by DNA analysis, cytogenetic studies and morphometric measurements. Two mitochondrial gene fragments and another of nuclear ribosomal DNA will be amplified by PCR and then sequenced, to construct cladograms of phylogenetic interrelationships among populations and species of *Cyrtonus*, whose congruence with their karyotypes and geographic distributions would be also evaluated. Particular attention will be paid to the differences in the previous traits between species in allopatry and sympatry, to ascertain possible influences of character displacement and competitive exclusion. Moreover, in the large genus *Chrysolina*, the same two mitochondrial gene fragments plus karyotypes and host-plant affiliations will be examined in 10-15 further species, to obtain more supported cladograms than the previous ones based on 30 species, as well as giving a major emphasis on the complex taxonomy and evolutionary patterns displayed in the Central European subgenus *Colaphoptera sensu lato*. The species of *Colaphoptera sensu lato* feed as a whole on plants of three distinct families, *Lamiaceae*, *Asteraceae* and *Apiaceae*, and might be a right group to investigate the shifts in host-plant affiliations from genetic standpoints.

Referència: REN2000-1521/GLO. Ministeri de Ciència i Tecnologia.

Títol: *Flora micològica (hifomicetos) en ambientes naturales terrestres y acuáticos del área ibero-balear.*

Classificació UNESCO: 241706.

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

Investigador responsable: DESCALS CALLISEN, Enric.

Categoria: Científic titular del CSIC.

Inici: 2000. **Fi:** 2002.

Membres de l'equip

Descals Callisen, Enric
Gené Díaz, Josepa
Mercado Sierra, Ángel

Categoria

Científic titular
TEU
Investigador

Keywords: natural sources, biodiversity, hyphomycetes, fungi, taxonomy, pure culture.

Summary

Two coordinated objectives, using a similar methodology, are proposed, with the aim of acquiring a deeper knowledge of the mycota of aquatic and terrestrial *Hypomycetes* in the ibero-balearic region. Both tasks are designed within the framework of the long term project 'Flora micològica balear'. The leader of the project will attempt to carry survey and pure culture description of aquatic (freshwater) Hyphomycetes in selected habitats, and to complete a checklist of such fungi. It is expected that the pertinent Flora will be at an advanced stage of completion by the end of the project. The rest of the team will attempt to carry out similar work on soil *Hyphomycetes* from terrestrial and aquatic habitats and on terrestrial plant litter *Hyphomycetes*, with the intention of eventually preparing a checklist, and at a later stage, a Flora on the pertinent organisms.

Referència: BOS2000-0569-C02-02. Ministeri de Ciència i Tecnologia.

Títol: *Investigaciones aplicadas al programa de conservación de la gaviota de Audouin: los efectos de los depredadores terrestres en la ecología y la dinámica de sus poblaciones.*

Classificació UNESCO: 240123.

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

Investigador responsable: [ORO DE RIVAS, Daniel](#).

Categoria: Científic titular del CSIC.

Inici: 2000. **Fi:** 2003.

Membres de l'equip

Oro de Rivas, Daniel
Jiménez Pérez, Juan
Mínguez Díaz, Eduardo

Categoria

Científic titular
Generalitat Valenciana
Generalitat Valenciana

Keywords: migration, predation, dispersal, wintering, fisheries discards, pollution, mercury, laying costs, protracted clutches, food supplementation, yolk characteristics, Ebro delta, Chafarinas, Columbrete.

Summary

The presence of terrestrial carnivores is analysed at the world's largest breeding colony of Audouin's gulls, a threatened species. This was used as a natural experiment to assess the effects of predation at the level of both population ecology (changes in demographic parameters, population growth rate, dispersal and immigration, coloniality and conspecific attraction, source-sink dynamics) and conservation biology (extinction probabilities, culling of predators).

Referència: ANT97-0273. Programa nacional d'investigació a l'Antàrtida.

Títol: *Estímulo experimental de la producción antártica costera.*

Acrònim: ESEPAC.

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

Investigadora responsable: AGUSTÍ REQUENA, Susana.

Categoria: Científica titular del CSIC.

Inici: 1998. **Fi:** 2001.

Membres de l'equip

Categoria

Agustí Requena, Susana

Científica titular

Duarte Quesada, Carlos

Professor d'Investigació

Vaqué Vidal, Dolors

Científica titular

Keywords: antartic ocean, planktonik production, mesocosms, temporal variability, trophics networks.

Summary

Antartic coastal ecosystems are characterized by a substantial planktonic production, which have an import contribution to the carbon flow in the Southern Ocean and, therefore, its role in the carbon budget of the golbal ocean. Present knowledge point to the control of coastal planktonik production in Antarctica by biological and physical factors. However, our present knowledge on the these control mechanisms is still poor, and we are, as yet, unable to predict the magnitude and fate of Antarctic planktonik production. The different hypothesis on the regulation of the planktonic production in the Antarctic coast must, therefore, be subject to experimental manipulation at a relevant scale, allowing the observation of the entire system. The goal of this project is to conduct the experimental world with mesocosms needed to test the importance of different control mechanisms of Antarctic coastal production, to produce a predictive model, which will be tested against a detailed time series and oceanographic surveys. The model will then be used to estimate the role of Abntarctic coastal communities in the flow of carbon the Antarctic Ocean.

Referència: PTR95-0461-OP. Projectes d'estímul a la transferència de resultats d'investigació.

Títol: *Métodos moleculares para la detección de fraudes en aditivos alimentarios.*

Classificació UNESCO: 330912, 330923.

Centre: Departament de Biologia-IMEDEA. Edifici Guillem Colom Casasnovas.

Investigador responsable: BENEDÍ BENITO, Vicente Javier.

Categoria: TU (àrea de coneixement: Microbiologia).

Inici: 2000. **Final:** 2002.

Membres de l'equip	Categoria	Dedicació (h/setm.)
Benedí Benito, Vicente Javier	TU	20
Albertí Serrano, Sebastià	As.	20
Doménech Sánchez, Antonio	B	40
Rosselló Picornell, Josep Antoni		20

Nombre total d'investigadors de la UIB: 3.

Total EDP/semana: 2,5

Keywords: food additives, identification, molecular methods, DNA.

Summary

Current EU directives laying down specific purity criteria on food additives other than colours and sweeteners presents an important gap in the technical description of the methods to distinguish between food additives locust bean gum and guar gum (E 410 and E 412, respectively). This makes possible the accidental (unadverted) or intentional (fraudulent) addition of E 412 to E 410 by producers and/or blenders. The consequences are: (1) locust bean gum producers (European companies) are subjected to unfair competition by their Asian counterparts (guar gum producers), and (2) end user companies using these additives in their processed foods may be incorrectly labeling their products due to the undeclared presence of gums mixtures instead of the labeled pure gum.

Our group has recently developed a DNA-based methods to identify and distinguish both additives. The methods are described in detail in a patent application jointly filed by our group (inventors) and UIB, CSIC, Universitat de València and Carob S.A. as applicants. This projects aims to transfer the cited methods to Carob SA, a locust bean gum producer.

Referència: AGL2000-1397-C02-01. Programa nacional de recursos i tecnologies agroalimentàries.

Modalitat: P3. Projectes d'investigació aplicada.

Títol: *Detección molecular de los aditivos alimentarios E410, E412 y E417 en alimentos.*

Centre: Departament de Biologia-IMEDEA. Edifici Guillem Colom Casasnovas.

Investigador responsable: BENEDÍ BENITO, Vicente Javier.

Categoria: TU (àrea de coneixement: Microbiologia).

Inici: 2000. **Fi:** 2003.

Membres de l'equip	Categoria	Dedicació (h/setm.)
Benedí Benito, Vicente Javier	TU	16
Albertí Serrano, Sebastià	As.	16
Doménech Sánchez, Antoni	B	

Nombre total d'investgadors de la UIB: 3.

Total EJC/setmana: 0,8.

Keywords: food additives, detection, differentiation, identification, molecular, DNA, PCR, E410, E412, E417.

Summary

For food additives E410 (locust bean gum) and E412 (guar gum), we have previously developed molecular methods for the extraction and PCR amplification of DNA of the plants from which they are extracted. This allowed the direct identification of these two additives on their commercial preparations (patent pending). These methods are based on the identified existence in the genomes of these and other plant species of highly repetitive sequences with a high degree of variation between species of the same genus. Following the same molecular strategy, we will here determine diagnostic DNA sequences for food additive E417 (tara gum) extracted from the plant *Caesalpinia spinosa*. They will be applied to the differentiation of this food additive from the other two in raw materials (i.e., commercial food additives and their mixtures) and to the identification in foods of additives E410, E412, and E417. These goals match with objectives 9.2 of the Programa Nacional de Recursos y Tecnologías del Plan Nacional of the Spanish Government and 6.2 of Methodologies for Measurements and Testing from competitive and sustainable growth programme of the European Commission. Both objectives aim to develop new molecular analytical tools to ensure the origin and authenticity of raw materials and food ingredients.

Referència: REN2001-0802-C02-01/MAR. Ministeri de Ciència i Tecnologia.

Modalitat: Programa nacional de recursos naturals.

Títol: *Procesos de transporte, campos de velocidades y análisis de estructuras oceánicas mediante imágenes de satélite.*

Acrònim: IMAGEN.

Classificació UNESCO: 2510.07.

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

Investigador responsable: HERNÁNDEZ GARCÍA, Emilio.

Categoria: Professor d'investigació del CSIC.

Inici: 2001. **Fi:** 2004.

Membres de l'equip	Categoria	Dedicació (EDP)
Hernández García, Emilio	Professor d'investigació	0.5
Colet Rafecas, Pere	Científic titular	0.33
Piro Perusín, Oreste	As. estr.	0.33
Fernández López, Vicente	B	0.5

Investigadors d'altres entitats

López Sánchez, Cristóbal	Università di Roma 'La Sapienza'
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EDP del grup investigador de l'entitat sol·licitant: 2.

Keywords: mesoscale structures, transport processes, teledetection, SST-SSH, SeaWIFS.

Summary

The main objective of this proposal is the development of quantitative methods to analyse satellite images (colour, temperature and dynamic height) of the sea surface to allow the identification of the existing structures and the evaluation of velocity fields, and their use to quantify transport processes of water masses and substances of interest in marine ecosystems (nutrients, biomass, etc). The methods will be based mainly in techniques of image multiresolution analysis, artificial intelligence (neural networks and genetic algorithms), dynamical systems theory, and computer models of ocean circulation which include ecosystems dynamics. The techniques will be applied in detail to the evaluation of fluxes in several zones of the Western Mediterranean and in the Canary Current area. The project, of multidisciplinary character addresses aspects fully contained as priority objectives in the Marine Resources, item of the 'Programa Nacional de Recursos Agrarios', namely the quantification biogeomechanical processes and fluxes in marine ecosystem, the development of predictive models, and the development of techniques to improve sea observation.

Referència: FIS01-0034-01. Fons d'Investigació Sanitària. Ministeri de Sanitat i Consum.
Títol: *Caracterización de mecanismos de resistencia a antibióticos en Klebsiella pneumoniae debido a alteraciones en la permeabilidad.*
Centre: Institut Mediterrani d'Estudis Avançats (IMEDEA).
Investigador responsable: BENEDÍ BENITO, Vicente J.
Categoria: TU (àrea de coneixement: Microbiologia).
Inici: 2001. **Fi:** 2003.

Membres de l'equip	Categoria
Benedí Benito, Vicente J.	TU
Gil Sánchez, José	As.
Martínez Martínez, Luis	
Hernández Allés, Santiago	Tèc.
Doménech Sánchez, Antonio	B
Ballesteros Martínez, Francisca	B

Nombre total d'investigadors de la UIB: 5.

Summary

K. pneumoniae is an important nosocomial pathogen and some mechanisms of resistance to antimicrobials have been described for this species. We have previously described the roles of some molecules (porins) in the influx of antimicrobials, their cooperations with other mechanisms (betalactamases), and the subsequent elevation in the resistance levels. In this project we will extend this knowledge by the characterization of mechanisms which affect the efflux of antimicrobials and by studying in further detail the roles of additional undescribed porins. These objectives will be approached by the following concurrent strategies. Efflux mechanisms will be identified by (1) cloning genes homologous to *acr* and *emr* described in *E. coli* as efflux components, (2) selective mutation of these genes by homologous recombination experiments, and (3) by identification of further efflux genes through random mutagenesis and selection of efflux-defective mutants. Further insights into the roles of porins in the influx of antimicrobials will be gained by (1) characterization of the OmpK35 porin of this bacterium and comparison of its pore functions with those of porins OmpK36 and OmpK37 previously described by us. We will also extend our current knowledge of the OmpK36 properties by studying the relationships between alterations in key residues of its tridimensional structure and altered antibiotic permeability. The role of these molecules in antimicrobial resistance will be evaluated *in vitro* by constructing strains with specific deficiencies in one or another of these molecules. In cooperation with the accompanying project, these strains will be used in an animal model of *pneumoniae* to evaluate *in vivo* the contribution of these mechanisms to antimicrobial resistance.

Referència: REN2001-0580/GLO. Ministeri de Ciència i Tecnologia.

Títol: *Biodiversidad marina en ambientes costeros extremos: prospección faunística de las cuevas anquialinas de las Baleares, Canarias, y Levante Ibérico.*

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

Investigador responsable: JAUME LLABRÉS, Damià.

Categoria: Investigador contractat CSIC.

Inici: 2001. **Fi:** 2004.

Membres de l'equip	Categoria	Dedicació (EDP)
Jaume Llabrés, Damià	Investigador contractat	1

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

Keywords: coastal biodiversity, extreme environments, fauna, conservation.

Summary

Anchialine habitats are flooded inland marine caves that lack any direct connection with the open sea. They are inhabited by remarkable animals, long term survivors of ancient lineages, which are threatened by changes in their fragile habitat. In recent years numerous new species, genera, families and even a new class of crustaceans have been described from anchialine caves, particularly on islands. This degree of novelty makes anchialine habitats iniquely important but it is the restricted distribution and isolation of such species often to a single cave system on a single island, which renders them so vulnerable. Unsustainable levels of development for tourism are threatening these coastal habitats. This proposal will collate and make available data on all Spanish anchialine sites and species. The information will be used 1): to answer topical scientific questions such as where did the ancestors of cave faunas live and how were their disjunct distribution patterns generated, 2): to increase our knowledge of the Spanish animal biodiversity, 3): to promote the inclusion of anchialine habitats in coastal management plans, by emphasizing to policy makers and conservationists the unique attributes of their endemic inhabitants.

Referència: FIT-140100-2000-499. PROFIT. Programa nacional de medi Ambient.

Títol: *Sistema de monitorización y gestión de emisarios submarinos.*

Acrònim: SIMGES.

Investigador responsable: TINTORE SUBIRANA, Joaquim.

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

Inici: 2001. **Fi:** 2001.

Membres del equip

Categoria

Tintore Subirana, Joaquín

Professor d'investigació del CSIC

Basterrechea Oyarzaba, Gotzon

Investigador contractat CSIC

Orfila Förster, Alejandro

Titulat superior contractat CSIC

Keywords: ocean currents, Sea sewer, monitoring, water quality, environmental management, waste impact prediction, mathematical models, meteorological data, oceanographic data, data acquisition.

Summary

The objective of SIMGES is to develop a monitoring system of certain marine parameters (temperature, salinity, turbidity, dissolved oxygen, etc.) that once assimilated into a numerical model would permit to evaluate the evolution and the possible impacts of a marine outfall on coastal areas .



ACCIONS INTEGRADES

- Los reinos de Mallorca y Cerdeña en la monarquía hispánica de los Austrias (siglos XVI-XVII).

JUAN VIDAL, Josep.

- Inestabilidades en la emisión de un láser de semiconductor sujeto a realimentación óptica y sus aplicaciones.

MIRASSO SANTOS, Claudio.

- Elaboración y caracterización de aleaciones con memoria de forma: preparación directa por el método 'in rotating water spinning'.

PONS MORRO, Jaume.

- Utilización de porfirinas para la generación de ensamblajes moleculares multi-componente.

BALLESTER BALAGUER, Pau.

- Development of automatic flow methods of analysis applied to the determination of environmental and pharmaceutical samples.

CERDÀ MARTÍN, Víctor.

- Aplicación de técnicas moleculares a la ecología microbiana marina: estudio comparativo de comunidades bacterianas marinas psicrófilas y mesófilas.

LALUCAT JO, Jordi

- Polarization patterns and fluctuations in nonlinear optical systems.

SAN MIGUEL RUIBAL, Maximino.

- Estructuras localizadas en cavidades ópticas no lineales.

SAN MIGUEL RUIBAL, Maximino.



Endarrere



Endavant

Referència: HI99-0022.

Acció: hispano-italiana.

Títol: *Los reinos de Mallorca y Cerdeña en la monarquía hispánica de los Austrias (siglos XVI-XVII).*

Investigador responsable: JUAN VIDAL, Josep.

Departament: Ciències Històriques i Teoria de les Arts.

Període: 2000-2001.

Referència: HA98-0029.

Acció: hispano-alemanya.

Títol: *Inestabilidades en la emisión de un láser de semiconductor sujeto a realimentación óptica y sus aplicaciones.*

Investigador responsable: MIRASSO SANTOS, Claudio.

Departament: Física.

Període: 1999-2001.

Referència: HF99-0056.

Acció: hispano-francesa.

Títol: *Elaboración y caracterización de aleaciones con memoria de forma: preparación directa por el método 'in rotating water spinning'.*

Investigador responsable: PONS MORRO, Jaume.

Departament: Física.

Període: 2000-2001.

Referència: HB99-0042.

Acció: hispano-britànica.

Títol: *Utilización de porfirinas para la generación de ensamblajes moleculares multi-componente.*

Investigador responsable: BALLESTER BALAGUER, Pau.

Departament: Química.

Període: 2000-2002.

Referència: HP2000-0003.

Acció: hispano-portuguesa.

Títol: *Development of automatic flow methods of analysis applied to the determination of environmental and pharmaceutical samples.*

Investigador responsable: CERDÀ MARTÍN, Víctor.

Departament: Química.

Període: 2001-2002.

Referència: HA99-0013.

Acció: hispano-alemanya.

Títol: *Aplicación de técnicas moleculares a la ecología microbiana marina: estudio comparativo de comunidades bacterianas marinas psicrófilas y mesófilas.*

Investigador responsable: LALUCAT JO, Jordi

Departament: IMEDEA.

Període: 2000-2001.

Referencia: HA2000-0012.

Acció: hispano-alemanya.

Títol: *Polarization patterns and fluctuations in nonlinear optical systems.*

Investigador responsable: SAN MIGUEL RUIBAL, Maximino.

Departament: IMEDEA.

Període: 2001-2002.

Referencia: HI2000-0027.

Acció: hispano-italiana.

Títol: *Estructuras localizadas en cavidades ópticas no lineales.*

Investigador Responsable: SAN MIGUEL RUIBAL, Maximino.

Departament: IMEDEA.

Període: 2001-2002.



ACCIONS ESPECIALS

- Sistema de diseño multipuesto cooperativo 3D para arquitectura (M3D).
LUO, Yuhua.
- Ayuda complementaria para el proyecto SUCSEDE.
PUIGJANER TREPAT, Ramon.
- Modelización y simulación del cuerpo humano.
MAS SANSÓ, Ramon.
- Congreso 1999 EUSFLAT-ESTYLF.
MAYOR FORTEZA, Gaspar.
- International workshop on articulated motion and deformable models.
GONZÁLEZ HIDALGO, Manuel.
- Symposium de filosofía política sobre 'La política frente a la globalización'.
RIUTORT SERRA, Bernat.
- Reunión internacional sobre emociones y cerebro (nuevos avances en investigación básica y aplicaciones clínicas).
MONTROYA JIMÉNEZ, Pedro.
- Workshop sobre ondas magnetohidrodinámicas en la corona solar (mhd waves in the solar corona).
BALLESTER MORTES, Josep L.
- III Escuela de Química Teórica de la Universitat de les Illes Balears.
MUÑOZ IZQUIERDO, Francisco
- Effects of anthropic seawater on rocky shore ecosystems studied in large littoral mesocosm.
DUARTE QUESADA, Carlos.
- Prediction of the resilience and recovery of disturbed coastal communities in the tropics.
DUARTE QUESADA, Carlos
- Recuperación de series temporales de temperatura en la franja costera del mediterráneo español.
TINTORÉ SUBIRANA, Joaquim





- Consolidación del Grupo de Oceanografía Interdisciplinari.
TINTORÉ SUBIRANA, Joaquim.
- Taller sobre aspectos de la biología reproductiva de plantas y su relevancia para la conservación.
TRAVERSESET VILAGINÉS, Anna.
- Cooperación hispano-australiana en la modelización de la colonización de praderas submarinas de Posidonia.
DUARTE QUESADA, Carlos.
- Ayuda para la continuación de la red temática sobre biología molecular de microorganismos de interés ambiental.
LALUCAT JO, Jordi.
- Acción complementaria del proyecto ICEFISH.
MORALES-NIN, Beatriz.
- Management and monitoring of seagrass beds (M&MS).
DUARTE QUESADA, Carlos.
- Nutrients cycling and the trophic status of coastal ecosystems (EUROTROPH).
DUARTE QUESADA, Carlos.
- Desarrollo y distribución de herramientas para el cálculo de variables hidro-dinámicas a partir de datos de campañas oceanográficas.
GOMIS BOSCH, Damià.
- Dinàmica de sistemes òptics actius i passius modulats o forçats.
SAN MIGUEL RUIBAL, Maximino.
- Necessitats tecnològiques per a la producció de planta d'espècies mediterrànies amb interès forestal.
MEDRANO GIL, Hipólito.
- Difusión de la investigación y recursos tecnológicos de la UIB.
RAMIS NOGUERA, Climent.



Referència: TIC98-1530-CE (CICYT). Programa nacional de tecnologies de la informació i de les comunicacions.

Títol: *Sistema de diseño multipuesto cooperativo 3D para arquitectura (M3D).*

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

Investigadora responsable: LUO, Yuhua.

Categoria: AS. ESTR. (àrea de coneixement: Ciències de la Computació i Intel·ligència Artificial).

Inici: 1998. **Fi:** 2001.

Referència: TIC98-1848-CE (CICYT). Programa nacional de tecnologies de la informació i de les comunicacions.

Títol: *Ayuda complementaria para el proyecto SUCSEDE.*

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

Investigador responsable: PUIGJANER TREPAT, Ramon.

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

Inici: 1999. **Fi:** 2001.

Referència: TIC99-1465-E. Programa nacional de tecnologies de la informació i de les comunicacions.

Títol: *Modelización y simulación del cuerpo humano.*

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

Investigador responsable: MAS SANSÓ, Ramon.

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

Inici: 2000. **Fi:** 2001.

Referència: TIC99-0392-E. Programa nacional de tecnologies de la informació i de les comunicacions.

Títol: *Congreso 1999 EUSFLAT-ESTYLF.*

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

Investigador responsable: MAYOR FORTEZA, Gaspar.

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

Inici: 2000. **Fi:** 2001.

Referència: TIC00-1957-E. Programa nacional de tecnologies de la informació i de les comunicacions.

Títol: *International workshop on articulated motion and deformable models.*

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

Investigador responsable: GONZÁLEZ HIDALGO, Manuel.

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

Inici: 2000. **Fi:** 2001.

Referència: PGC2000-2292-E.

Títol: *Symposium de filosofia política sobre 'La política frente a la globalización'.*

Centre: Departament de Filosofia i Treball Social. Edifici Ramon Llull.

Investigador responsable: RIUTORT SERRA, Bernat.

Categoria: TU (àrea de coneixement: Filosofia Moral).

Inici: 2000. **Fi:** 2001.

Referència: PGC2000-2515-E.

Títol: *Reunión internacional sobre emociones y cerebro (nuevos avances en investigación básica y aplicaciones clínicas).*

Centre: Departament de Psicologia. Edifici Guillem Cifre de Colonya.

Investigador responsable: MONTOYA JIMÉNEZ, Pedro.

Categoria: TU (àrea de coneixement: Psicobiologia).

Inici: 2000. **Fi:** 2001.

Referència: PGC2000-2516-E.

Títol: *Workshop sobre ondas magnetohidrodinámicas en la corona solar (mhd waves in the solar corona).*

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

Investigador responsable: BALLESTER MORTES, Josep L.

Categoria: CU (àrea de coneixement: Astronomia i Astrofísica).

Inici: 2000. **Fi:** 2001.

Referència: PPQ2000-1827-E.

Títol: *III Escuela de Química Teórica de la Universitat de les Illes Balears.*

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

Investigador responsable: MUÑOZ IZQUIERDO, Francisco.

Categoria: TU (àrea de coneixement: Química Física).

Inici: 2000. **Fi:** 2001.

Referència: MAR98-1591-CE. Programa nacional de ciència i tecnologia marines.

Títol: *Effects of anthropic seawater on rocky shore ecosystems studied in large littoral mesocosm.*

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

Investigador responsable: DUARTE QUESADA, Carlos.

Categoria: Professor d'investigació del CSIC.

Inici: 1999. **Fi:** 2001.

Referència: MAR98-1839-CE. Programa nacional de ciència i tecnologia marines.
Títol: *Prediction of the resilience and recovery of disturbed coastal communities in the tropics.*
Centre: Institut Mediterrani d'Estudis Avançats (IMEDEA).
Investigador responsable: DUARTE QUESADA, Carlos.
Categoria: Professor d'investigació del CSIC.
Inici: 1999. **Fi:** 2002.

Referència: MAR99-1283-E. Programa nacional de ciència i tecnologia marines.
Títol: *Recuperación de series temporales de temperatura en la franja costera del mediterráneo español.*
Centre: Institut Mediterrani d'Estudis Avançats (IMEDEA).
Investigador responsable: TINTORÉ SUBIRANA, Joaquim.
Categoria: Professor d'investigació del CSIC.
Inici: 2000. **Fi:** 2001.

Referència: AE00-0356.
Títol: *Consolidación del Grupo de Oceanografía Interdisciplinari.*
Centre: Institut Mediterrani d'Estudis Avançats (IMEDEA).
Investigador responsable: TINTORÉ SUBIRANA, Joaquim.
Categoria: Professor d'investigació del CSIC.
Inici: 2000. **Fi:** 2002.

Referència: REN2000-2811-E.
Títol: *Taller sobre aspectos de la biología reproductiva de plantas y su relevancia para la conservación.*
Centre: Institut Mediterrani d'Estudis Avançats (IMEDEA).
Investigadora responsable: TRAVESET VILAGINÉS, Anna.
Categoria: Investigadora científica del CSIC.
Inici: 2001. **Fi:** 2001.

Referència: REN2000-2123-E.
Títol: *Cooperación hispano-australiana en la modelización de la colonización de praderas submarinas de Posidonia.*
Centre: Institut Mediterrani d'Estudis Avançats (IMEDEA).
Investigador responsable: DUARTE QUESADA, Carlos.
Categoria: Professor d'investigació del CSIC.
Inici: 2001. **Fi:** 2003.

Referència: BIO2000-2127-E.

Títol: *Ayuda para la continuación de la red temática sobre biología molecular de microorganismos de interés ambiental.*

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

Investigador responsable: LALUCAT JO, Jordi.

Categoria: CU (àrea de coneixement: Microbiologia).

Inici: 2001. **Fi:** 2002.

Referència: REN2000-2987-E/ANT.

Títol: *Acción complementaria del proyecto ICEFISH.*

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

Investigador responsable: MORALES-NIN, Beatriz.

Categoria: Investigador científic CSIC.

Inici: 2001. **Fi:** 2002.

Referència: REN2000-3091-CE/MAR.

Títol: *Management and monitoring of seagrass beds (M&MS).*

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

Investigador responsable: DUARTE QUESADA, Carlos.

Categoria: Professor d'investigació del CSIC.

Inici: 2001. **Fi:** 2004.

Referència: REN2000-3116-CE/MAR.

Títol: *Nutrients cycling and the trophic status of coastal ecosystems (EUROTROPH).*

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

Investigador responsable: DUARTE QUESADA, Carlos.

Categoria: Professor d'investigació del CSIC.

Inici: 2001. **Fi:** 2004.

Referència: REN2000-2599-E.

Títol: *Desarrollo y distribución de herramientas para el cálculo de variables hidrodinámicas a partir de datos de campañas oceanográficas.*

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

Investigador responsable: GOMIS BOSCH, Damià.

Categoria: TU (àrea de coneixement: Física de la Terra).

Inici: 2001. **Fi:** 2002.

Referència: Govern Balear.

Títol: *Dinàmica de sistemes òptics actius i passius modulats o forçats.*

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

Investigador responsable: SAN MIGUEL RUIBAL, Maximino.

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

Inici: 2001. **Fi:** 2002.

Referència: Govern Balear.

Títol: *Necessitats tecnològiques per a la producció de planta d'espècies mediterrànies amb interès forestal.*

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

Investigador responsable: MEDRANO GIL, Hipólito.

Categoria: CU (àrea de coneixement: Biologia Vegetal).

Inici: 2001. **Fi:** 2001.

Referència: DIF2001-4394-E.

Títol: *Difusión de la investigación y recursos tecnológicos de la UIB.*

Centre: Oficina de Suport a la Recerca.

Investigador responsable: RAMIS NOGUERA, Climent.

Categoria: TU (àrea de coneixement: Física de la Terra).

Inici: 2001. **Fi:** 2001.



PROJECTES DE RECERCA APLICADA I DESENVOLUPAMENT

- Atlas de los hábitats naturales y seminaturales de España.
LLORENS GARCIA, Leonard.
- Determinación de técnicas para la purificación de plomo y el eutéctico plomo-bismuto fundidos, y diseño conceptual de sistemas de purificación en un amplificador de energía.
BERGUEIRO LÓPEZ, José R.
- Evaluación de información científica y en la preparación de informes de experto preclínico de diversos productos.
GARCÍA SEVILLA, Jesús A.
- Caracterització de la varietat vitícola malvasia de Banyalbufar, el seu fruit i els seus vins, i el sanejament d'apex caulinars mitjançant el seu cultiu in vitro.
MEDRANO GIL, Hipólito.
- Programa de vigilància radiològica ambiental.
CASAS AMETLLER, Montserrat.
- Obtenció d'un producte comercialitzable amb propietats antioxidants a partir del germen de garrofi.
LLOBERA BALLE, Antònia
- The effect of hydrophobic peptides on the lipid phase behaviour on model membranes.
BARCELÓ MAIRATA, Francesca M
- Fundació Universitat-Empresa
- Institut Mediterrani d'Estudis Avançats (IMEDEA)



Títol: *Atlas de los hábitats naturales y seminaturales de España.*
Investigador responsable: LLORENS GARCIA, Lleonard.
Departament: Biologia.
Empresa/Administració: TRAGSA.
Inici: 1999. **Fi:** 2002.

Títol: *Determinación de técnicas para la purificación de plomo y el eutéctico plomo-bismuto fundidos, y diseño conceptual de sistemas de purificación en un amplificador de energía.*
Investigador responsable: BERGUEIRO LÓPEZ, José R.
Departament: Química.
Empresa/Administració: LAESA.
Inici: 1999. **Fi:** 2001.

Títol: *Evaluación de información científica y en la preparación de informes de experto preclínico de diversos productos.*
Investigador responsable: GARCÍA SEVILLA, Jesús A.
Departament: Biologia.
Empresa/Administració: IPSEN PHARMA, S.A.
Inici: 2000. **Fi:** 2001.

Títol: *Caracterització de la varietat vitícola malvasia de Banyalbufar, el seu fruit i els seus vins, i el sanejament d'àpex caulinars mitjançant el seu cultiu in vitro.*
Investigador responsable: MEDRANO GIL, Hipólito.
Departament: Biologia.
Empresa/Administració: Conselleria d'Agricultura i Pesca.
Inici: 2000. **Fi:** 2002.

Títol: *Programa de vigilància radiològica ambiental.*
Investigador responsable: CASAS AMETLLER, Montserrat.
Departament: Física.
Empresa/Administració: Consejo de Seguridad Nuclear.
Inici: 2001. **Fi:** 2002.

Títol: *Obtenció d'un producte comercialitzable amb propietats antioxidants a partir del germen de garrofi.*
Investigadora responsable: LLOBERA BALLE, Antònia.
Departament: Química.
Empresa/Administració: Conselleria d'Agricultura i Pesca.
Inici: 2001. **Fi:** 2002.

Títol: *The effect of hydrophobic peptides on the lipid phase behaviour on model membranes.*

Investigadora responsable: BARCELÓ MAIRATA, Francesca M.

Departament: Biologia Fonamental i Ciències de la Salut.

Empresa/Administració: Deutches Elektronen-Synchrotron DESY.

Inici: 2001. **Fi:** 2002.

Fundació Universitat-Empresa

Títol: *Anàlisi de fitoplàncton a zones de producció de bivalves de Mallorca.*

Investigador responsable: MOYÀ NIELL, Gabriel.

Departament: Biologia.

Empresa/Administració: Conselleria d'Agricultura i Pesca.

Títol: *Anàlisi de fitoplàncton a zones de producció de bivalves de Menorca.*

Investigador responsable: MOYÀ NIELL, Gabriel.

Departament: Biologia.

Empresa/Administració: Consell Insular de Menorca.

Títol: *Double blind international cooperative study for the identification of Pseudomonas species.*

Investigador responsable: LALUCAT JO, Jordi.

Departament: Biologia.

Empresa/Administració: Ministeri de Salut. Regne Unit.

Títol: *Utilització dels líquens com a bioindicadors a l'entorn de la central tèrmica d'Es Murterar.*

Investigador responsable: MUS AMÉZQUITA, Maurici.

Departament: Biologia.

Empresa/Administració: GESA.

Títol: *Projecte europeu PATER sobre marjades construïdes amb la tècnica de pedra en sec.*

Investigador responsable: MUS AMEZQUITA, Maurici.

Departament: Biologia.

Empresa/Administració: Consell Insular de Mallorca.

Títol: *Avaluació mitjana del programa d'actuació de la iniciativa comunitària LEADER II.*

Investigador responsable: BENNÀSAR ROIG, Antoni.

Departament: Biologia.

Empresa/Administració: Universitat de les Illes Balears.

Títol: *Assessorament i instal·lació de col·lectors lixiviats EDAR a Algaida-Montuiri.*

Investigador responsable: VADELL ADROVER, Jaume.

Departament: Biologia.

Empresa/Administració: SEAR, SA.

Títol: *Estudi de la vegetació de finques públiques del Consell de Mallorca (Son Amer, Tossals, Santa Magdalena, Son Massip, Son Fortuny).*

Investigador responsable: LLORENS GARCIA, Lleonard.

Departament: Biologia.

Empresa/Administració: Consell de Mallorca.

Títol: *Estudi d'impacte ambiental a la finca de Son Claret.*

Investigador responsable: BENNÀSAR ROIG, Antoni.

Departament: Biologia.

Empresa/Administració: Son Claret, SL.

Títol: *Tipificació, cartografia i avaluació de les pastures de Balears.*

Investigador responsable: MEDRANO GIL, Hipólito.

Departament: Biologia.

Empresa/Administració: Govern Balear.

Títol: *Conversió d'un sistema agrari convencional a l'agricultura ecològica.*

Investigador responsable: VADELL ADROVER, Jaume.

Departament: Biologia.

Empresa/Administració: Caixa de Balears, 'Sa Nostra'.

Títol: *Assistència tècnica per al disseny i incorporació d'espècies endèmiques i protegides a l'herbari virtual de la UIB.*

Investigador responsable: RITA LARRUCEA, Joan.

Departament: Biologia.

Empresa/Administració: Govern Balear.

Títol: *Investigació en blanquejament dental.*

Investigador responsable: PONS BIESCAS, Antoni.

Departament: Biologia Fonamental i Ciències de la Salut.

Empresa/Administració: Laboratorios Kin, SA.

Títol: *Màster en Medicina Estètica.*

Investigador responsable: PALOU OLIVER, Andreu.

Departament: Biologia Fonamental i Ciències de la Salut.

Empresa/Administració: Ediciones Nueva Estética.

Títol: *III Congr s Nacional de la SENBA.*

Investigador responsable: PALOU OLIVER, Andreu.

Departament: Biologia Fonamental i Ci ncies de la Salut.

Empresa/Administraci : Gama Congresos, SA.

T t l: *Canvis nutricionals durant l'elaboraci  d'una beguda per a esportistes.*

Investigador responsable: PONS BIESCAS, Antoni.

Departament: Biologia Fonamental i Ci ncies de la Salut.

Empresa/Administraci : Productors Balears d'Ametlles i Garroves.

T t l: *Realitzaci  d'informes del son complet hospitalari.*

Investigador responsable: RIAL PLANAS, Rub n V.

Departament: Biologia Fonamental i Ci ncies de la Salut.

Empresa/Administraci : Servicios Integrales de Sanidad, SL.

T t l: *Projecte d'innovaci /reconversi  industrial 'Trazabilidad integral de componentes'.*

Investigador responsable: PALOU OLIVER, Andreu.

Departament: Biologia Fonamental i Ci ncies de la Salut.

Empresa/Administraci : Sociedad de Reconversi  Industrial.

T t l: *V Congreso de la Obesidad.*

Investigador responsable: PALOU OLIVER, Andreu.

Departament: Biologia Fonamental i Ci ncies de la Salut.

Empresa/Administraci : Gama Congresos, SA.

T t l: *Assessorament d'aspectes nutricionals i relacionats amb altres d'alimentaci .*

Investigador responsable: PALOU OLIVER, Andreu.

Departament: Biologia Fonamental i Ci ncies de la Salut.

Empresa/Administraci : Laboratorios Miret, SA.

Títol: *Pla estratègic de benestar social per persones amb discapacitat a la CAIB.*

Investigador responsable: MUNTANER GUASP, Joan Jordi.

Departament: Ciències de l'Educació.

Empresa/Administració: Grup d'Orientació Empresarial, SL.

Títol: *Estudi sobre la situació social i cultural dels joves del municipi de Santanyí.*

Investigador responsable: BALLESTER BRAGE, Lluís.

Departament: Ciències de l'Educació.

Empresa/Administració: Ajuntament de Santanyí.

Títol: *Conveni de cooperació educativa sobre becaris per a les visites escolars de l'aula interactiva de l'aire.*

Investigador responsable: OLIVER TROBAT, Miquel.

Departament: Ciències de l'Educació.

Empresa/Administració: AENA.

Títol: *Preparació dels exàmens per ingressar als borsins d'interins de la CCAA.*

Investigador responsable: SUREDA NEGRE, Jaume.

Departament: Ciències de l'Educació.

Empresa/Administració: Govern Balear.

Títol: *Avaluació externa del Pla Integral de Formació i Ocupació 2000-2001.*

Investigadora responsable: SALVÀ MUT, Francesca.

Departament: Ciències de l'Educació.

Empresa/Administració: Consell de Mallorca.

Títol: *Estudi sobre la inserció laboral dels joves de les illes Balears.*

Investigadora responsable: SALVÀ MUT, Francesca.

Departament: Ciències de l'Educació.

Empresa/Administració: Govern Balear.

Títol: *Informe sobre la situació físico-esportiva actual del municipi de Pollença.*

Investigador responsable: PALOU SAMPOL, Pere.

Departament: Ciències de l'Educació.

Empresa/Administració: Ajuntament de Pollença.

Títol: *Estudi sobre la situació social i cultural de les persones majors del municipi d'Artà.*
Investigador responsable: BALLESTER BRAGE, Lluís.
Departament: Ciències de l'Educació.
Empresa/Administració: Ajuntament d'Artà.

Títol: *Elaboració de l'estratègia balear d'educació ambiental (EBEA).*
Investigador responsable: SUREDA NEGRE, Jaume.
Departament: Ciències de l'Educació.
Empresa/Administració: Govern Balear.

Títol: *Actualització de la pàgina informàtica sobre educació ambiental.*
Investigador responsable: SUREDA NEGRE, Jaume.
Departament: Ciències de l'Educació.
Empresa/Administració: Govern Balear.

Títol: *Conveni d'assistència per a l'avaluació final (EX-POST) de la implantació de la iniciativa comunitària urbana el Temple als barris Gerreria i Calatrava.*
Investigador responsable: BALLESTER BRAGE, Lluís.
Departament: Ciències de l'Educació.
Empresa/Administració: Consorci Mirall Palma Centre.

Títol: *El medi físic de la Comunitat Autònoma de València.*
Investigador responsable: BLÁZQUEZ SALOM, Macià.
Departament: Ciències de la Terra.
Empresa/Administració: Gabinet d'Anàlisi Ambiental Territorial, SL.

Títol: *Sistema d'informació geogràfica dels sistema educatiu.*
Investigador responsable: BLÁZQUEZ SALOM, Macià.
Departament: Ciències de la Terra.
Empresa/Administració: Gabinet d'Anàlisi Ambiental Territorial, SL.

Títol: *Càlcul del turisme nacional arribat mitjançant el transport regular a les illes Balears.*
Investigador responsable: SEGUÍ LLINÀS, Miquel.
Departament: Ciències de la Terra.
Empresa/Administració: Institut Balear de Promoció del Turisme.

Títol: *L'evolució i la nova realitat familiar a Mallorca.*

Investigador responsable: SALVÀ TOMÀS, Pere A.

Departament: Ciències de la Terra.

Empresa/Administració: GADESO.

Títol: *Programa PATER.*

Investigador responsable: GRIMALT GELABERT, Miquel.

Departament: Ciències de la Terra.

Empresa/Administració: Consell de Mallorca.

Títol: *Elaboració d'un estudi de la planificació del transport ferroviari a les Balears.*

Investigador responsable: BRUNET ESTARELLAS, Pere Joan.

Departament: Ciències de la Terra.

Empresa/Administració: Govern Balear.

Títol: *Seminari sobre plataformes carbonatades miocenes a les illes Balears.*

Investigador responsable: POMAR GOMÀ, Lluís.

Departament: Ciències de la Terra.

Empresa/Administració: AGGEP.

Títol: *Inventari detallat del patrimoni ferroviari.*

Investigador responsable: BRUNET ESTARELLAS, Pere Joan.

Departament: Ciències de l'Educació.

Empresa/Administració: Serveis Ferroviaris de Mallorca.

Títol: *Anàlisi i diagnòstic de la demografia de Mallorca per el Pla Territorial de Mallorca.*

Investigador responsable: SALVÀ TOMÀS, Pere A.

Departament: Ciències de la Terra.

Empresa/Administració: IDOM Ingenieria y Sistemas, SA.

Títol: *Estudi i evolució de la dinàmica litoral a la badia d'Alcúdia.*

Investigador responsable: SERVERA NICOLAU, Jaume.

Departament: Ciències de la Terra.

Empresa/Administració: Govern Balear.

Títol: *Indicadors de sostenibilitat turística.*

Investigador responsable: BLÀZQUEZ SALOM, Macià.

Departament: Ciències de la Terra.

Empresa/Administració: Centre d'Investigació i Tecnologies Turístiques.

Títol: *Estudi d'evacuació de les aigües pluvials de Son Ferrer (Calvià).*

Investigador responsable: SERVERA NICOLAU, Jaume.

Departament: Ciències de la Terra.

Empresa/Administració: Gabinet d'Anàlisi Ambiental Territorial, SL.

Títol: *Lecturing and guiding course E209 in Mallorca.*

Investigador responsable: POMAR GOMÀ, Lluís.

Departament: Ciències de la Terra.

Empresa/Administració: Shell International Exploration & Production.

Títol: *Evolució i nova realitat familiar a Menorca i Pitiüesses.*

Investigador responsable: SALVÀ TOMÀS, Pere A.

Departament: Ciències de la Terra.

Empresa/Administració: GADESO.

Títol: *Programa de catalogació de camins.*

Investigador responsable: GRIMALT GELABERT, Miquel.

Departament: Ciències de la Terra.

Empresa/Administració: Consell de Mallorca.

Títol: *Realització del projecte del Parc de Sa Morisca.*

Investigador responsable: CALVO TRIAS, Manuel A.

Departament: Ciències Històriques i Teoria de les Arts.

Empresa/Administració: Ajuntament de Calvià.

Títol: *Catalogació i base de dades dels molins en el municipi de Campos.*

Investigadora responsable: CANTARELLAS CAMPS, Catalina.

Departament: Ciències Històriques i Teoria de les Arts.

Empresa/Administració: Tecnologías y Servicios Agrarios, SA.

Títol: *Realització de projectes ICT.*

Investigador responsable: CARDONA JUANALS, Gabriel.

Departament: Ciències Matemàtiques i Informàtica.

Empresa/Administració: Bartomeu Martí Vidal.

Títol: *Planificació i desenvolupament d'eines web.*

Investigador responsable: PUIGJANER TREPAT, Ramon.

Departament: Ciències Matemàtiques i Informàtica.

Empresa/Administració: Transtools, SA.

Títol: *Elaboració d'un pla estratègic per a la incorporació de Mallorca a la societat de la informació.*

Investigador responsable: VALVERDE GARCIA, Llorenç.

Departament: Ciències Matemàtiques i Informàtica.

Empresa/Administració: Consell de Mallorca.

Títol: *Anàlisi de la situació actual dels sistemes d'informació i comunicació, i elaboració d'un pla director d'actualització i automatització dels serveis administratius i d'informació del CIM.*

Investigador responsable: VALVERDE GARCIA, Llorenç.

Departament: Ciències Matemàtiques i Informàtica.

Empresa/Administració: Consell de Mallorca.

Títol: *International Conference Modelling Technologies Tools Computer Evaluation.*

Investigador responsable: PUIGJANER TREPAT, Ramon.

Departament: Ciències Matemàtiques i Informàtica.

Empresa/Administració: Govern Balear.

Títol: *Material didàctic 'Jocs de Llengua'.*

Investigador responsable: BIBILONI COLL, Antoni.

Departament: Ciències Matemàtiques i Informàtica.

Empresa/Administració: Govern Balear.

Títol: *Tribuna parlamentària de la societat de la informació.*

Investigador responsable: VALVERDE GARCIA, Llorenç.

Departament: Ciències Matemàtiques i Informàtica.

Empresa/Administració: Parlament de les Illes Balears.

Títol: *Jornades de Seguretat Informàtica.*

Investigador responsable: VALVERDE GARCIA, Llorenç.

Departament: Ciències Matemàtiques i Informàtica.

Empresa/Administració: Serveis Telemàtics de Balears, SL.

Títol: *Estudi d'antecedents, preparació i redacció del dictamen raonat sobre la situació jurídica del lloc de Jornets.*

Investigador responsable: TORRES LANA, José Ángel.

Departament: Dret Privat.

Empresa/Administració: Ajuntament de Sencelles.

Títol: *Assessorament i emissió de dictàmens.*

Investigador responsable: GUTIÉRREZ GONZÁLEZ, Carlos.

Departament: Dret Privat.

Empresa/Administració: Productors Mallorquins de Fruits Secs, SAT.

Títol: *Elaboració d'informe jurídic.*

Investigadora responsable: TAPIA FERNÁNDEZ, Isabel.

Departament: Dret Privat.

Empresa/Administració: Raytur Caribe Hoteles.

Títol: *Assessorament jurídic.*

Investigador responsable: FLAQUER RIUTORT, Joan.

Departament: Dret Privat.

Empresa/Administració: Cuatrecasas Abogados, SRL.

Títol: *Jornada de formació sobre règim jurídic del transport aeri de persones.*

Investigador responsable: CAVANILLAS MÚGICA, Santiago.

Departament: Dret Privat.

Empresa/Administració: Spanair.

Títol: *Dictamen jurídic.*

Investigador responsable: TORRES LANA, José Ángel.

Departament: Dret Privat.

Empresa/Administració: Real Club Deportivo Mallorca, SAD.

Títol: *Assessorament jurídic.*

Investigadora responsable: RAMIS REBASSA, Lourdes.

Departament: Dret Públic.

Empresa/Administració: Federació d'Entitats Locals de les Illes Balears.

Títol: *Dictamen jurídic.*

Investigador responsable: BLASCO ESTEVE, Avel·lí.

Departament: Dret Públic.

Empresa/Administració: Ajuntament de Marratxí.

Títol: *Dictamen jurídic.*

Investigador responsable: BLASCO ESTEVE, Avel·lí.

Departament: Dret Públic.

Empresa/Administració: Ajuntament de Calvià.

Títol: *Dictamen jurídic.*

Investigador responsable: BLASCO ESTEVE, Avel·lí.

Departament: Dret Públic.

Empresa/Administració: GESA.

Títol: *Dictamen jurídic.*

Investigadora responsable: ROQUETA BUJ, M. Remedios.

Departament: Dret Públic.

Empresa/Administració: Ajuntament de Calvià.

Títol: *Informe jurídic.*

Investigador responsable: BLASCO ESTEVE, Avel·lí.

Departament: Dret Públic.

Empresa/Administració: Ajuntament de Calvià.

Títol: *Dictamen jurídic.*

Investigador responsable: BLASCO ESTEVE, Avel·lí.

Departament: Dret Públic.

Empresa/Administració: Ajuntament d'Eivissa.

Títol: *Elaboració de l'avantprojecte de llei de cooperació al desenvolupament.*

Investigador responsable: BLASCO ESTEVE, Avel·lí.

Departament: Dret Públic.

Empresa/Administració: Govern Balear.

Títol: *Projecte de decret de desenvolupament de la Llei 7/2001, de 23 d'abril.*

Investigadora responsable: FERNÁNDEZ GONZÁLEZ, M. Carmen.

Departament: Dret Públic.

Empresa/Administració: Govern Balear.

Títol: *Redacció del pla de formació superior contenciosa.*

Investigador responsable: QUINTERO OLIVARES, Gonzalo.

Departament: Dret Públic.

Empresa/Administració: Cuatrecases Abogados, SRL.

Títol: *Estudi sobre béns immobles de titularitat eclesiàstica com a base per a la seva protecció legal per tal de donar compliment a la Llei 12/1998, de 21 de desembre de Patrimoni Històric.*

Investigador responsable: CAPELLÀ GALMÉS, Miquel A.

Departament: Dret Públic.

Empresa/Administració: Consell de Mallorca.

Títol: *Anàlisi, diagnòstic i seguiment dels mercats turístics emissors.*

Investigador responsable: SERRA CANTALLOPS, Antoni.

Departament: Economia i Empresa.

Empresa/Administració: Centre d'Investigació i Tecnologies Turístiques.

Títol: *Forum Sa Nostra 2015.*

Investigador responsable: RIERA FONT, Antoni.

Departament: Economia i Empresa.

Empresa/Administració: Caixa de Balears, 'Sa Nostra'.

Títol: *Formació d'investigació turística.*

Investigadora responsable: JUANEDA SAMPOL, C. Nativitat.

Departament: Economia i Empresa.

Empresa/Administració: Centre d'Investigació i Tecnologies Turístiques.

Títol: *La història econòmica del calçat a les Balears.*
Investigador responsable: MANERA ERBINA, Carles.
Departament: Economia i Empresa.
Empresa/Administració: COFLUSA, SA.

Títol: *Informe d'avaluació de projectes d'inversió en el sector d'hidrocarburs de les illes Balears.*
Investigador responsable: CRESPI CLADERA, Rafel.
Departament: Economia i Empresa.
Empresa/Administració: Institut Balear de Desenvolupament Industrial.

Títol: *Estudi sobre l'índex de preus turístics al 2000.*
Investigador responsable: AGUILÓ PÉREZ, Eugeni.
Departament: Economia i Empresa.
Empresa/Administració: Institut Balear de Promoció del Turisme.

Títol: *Enquesta de la despesa turística corresponent a l'exercici del 2000.*
Investigador responsable: AGUILÓ PÉREZ, Eugeni.
Departament: Economia i Empresa.
Empresa/Administració: Govern Balear.

Títol: *Benchmarking for tourism in Europe.*
Investigador responsable: SASTRE ALBERTÍ, Francesc.
Departament: Economia i Empresa.
Empresa/Administració: Deutsches Institut für Wirtschaftsforschung.

Títol: *Realització d'un treball per analitzar i calcular el nombre de passatgers arribats a les illes Balears corresponent als anys 2000 i 2001, atés el seu motiu de vinguda.*
Investigador responsable: SASTRE ALBERTÍ, Antoni.
Departament: Economia i Empresa.
Empresa/Administració: Institut Balear de Promoció del Turisme.

Títol: *Màster en Gestió d'Activitats i Recursos Turístics.*
Investigador responsable: SASTRE ALBERTÍ, Francesc.
Departament: Economia i Empresa.
Empresa/Administració: Uniao de Negocios e Administraçao, LTDA.

Títol: *Assessorament i direcció en temes relacionats amb l'arxiu i la biblioteca de la Cambra de Comerç, Indústria i Navegació de Mallorca, Eivissa i Formentera.*

Investigador responsable: MANERA ERBINA, Carles.

Departament: Economia i Empresa.

Empresa/Administració: Cambra de Comerç, Indústria i Navegació de Mallorca, Eivissa i Formentera.

Títol: *Programa de cooperació educativa entre la Universitat de les Illes Balears i la Cambra de Comerç, Indústria i Navegació de Mallorca, Eivissa i Formentera.*

Investigador responsable: MANERA ERBINA, Carles.

Departament: Economia i Empresa.

Empresa/Administració: Cambra de Comerç, Indústria i Navegació de Mallorca, Eivissa i Formentera.

Títol: *Lucro cesante de la Joyeria Ponsanova.*

Investigador responsable: SASTRE ALBERTÍ, Francesc.

Departament: Economia i Empresa.

Empresa/Administració: Ponsamar 80, SL.

Títol: *Estudi de viabilitat del polígon industrial de Campanet.*

Investigador responsable: CRESPI CLADERA, Rafel.

Departament: Economia i Empresa.

Empresa/Administració: Institut Balear de Desenvolupament Industrial.

Títol: *Projecte Hispalink.*

Investigadora responsable: JUANEDA SAMPOL, C. Nativitat.

Departament: Economia i Empresa.

Empresa/Administració: Govern Balear.

Títol: *Estudi de viabilitat del polígon industrial de Santa Eugènia.*

Investigador responsable: CRESPI CLADERA, Rafel.

Departament: Economia i Empresa.

Empresa/Administració: Institut Balear de Desenvolupament Industrial.

Títol: *Estudi de viabilitat del polígon industrial de Manacor.*

Investigador responsable: CRESPI CLADERA, Rafel.

Departament: Economia i Empresa.

Empresa/Administració: Institut Balear de Desenvolupament Industrial.

Títol: *Estudi de viabilitat del polígon industrial de Porreres.*
Investigador responsable: CRESPI CLADERA, Rafel.
Departament: Economia i Empresa.
Empresa/Administració: Institut Balear de Desenvolupament Industrial.

Títol: *Estudi socioeconòmic de la Reserva Natural de s'Albufereta.*
Investigadora responsable: BORRÀS AMENGUAL, Catalina Maria.
Departament: Economia i Empresa.
Empresa/Administració: Govern Balear.

Títol: *Assistència tècnica per a l'estudi dels fluxos financers entre la Unió Europea i les Illes Balears.*
Investigador responsable: AGUILÓ PÉREZ, Eugeni.
Departament: Economia i Empresa.
Empresa/Administració: Parlament de les Illes Balears.

Títol: *Los grupos de empresas en España: aspectos fiscales y estadísticos.*
Investigadora responsable: TRUYOLS MARTÍ, Maria Antònia.
Departament: Economia i Empresa.
Empresa/Administració: Institut de Estudios Fiscales.

Títol: *Políticas familiares y oferta de trabajo.*
Investigadora responsable: PARERA NICOLAU, Maria Antònia.
Departament: Economia i Empresa.
Empresa/Administració: Instituto de Estudios Fiscales.

Títol: *Assessorament i elaboració d'informes tècnics en relació a la implementació del Pla Integral de la Immigració.*
Investigador responsable: MIQUEL NOVAJRA, Alexandre.
Departament: Filosofia.
Empresa/Administració: Govern Balear.

Títol: *Assistència tècnica per a l'elaboració d'un estudi sobre el canvi climàtic a les illes Balears.*
Investigador responsable: RAMIS NOGUERA, Climent.
Departament: Física.
Empresa/Administració: Govern Balear.

Títol: *Adaptació d'una cadira de rodes elèctrica per a minusvàlids.*

Investigador responsable: SEGURA FUSTER, Jaume Agapit.

Departament: Física.

Empresa/Administració: Govern Balear.

Títol: *Estudi de càlculs renals.*

Investigador responsable: GRASES FREIXEDAS, Felicià.

Departament: Química.

Empresa/Administració: Hospital Son Dureta.

Títol: *Treball de recerca i assistència tècnica per a la redacció del Pla Territorial Insular de Mallorca.*

Investigador responsable: RUIZ PÉREZ, Maurici.

Departament: Laboratori de Sistemes d'Informació Geogràfica.

Empresa/Administració: IDOM Ingeniería y Sistemas, SA.

Títol: *Avaluació d'impacte ambiental de les normes subsidiàries d'Alaró.*

Investigador responsable: RUIZ PÉREZ, Maurici.

Departament: Laboratori de Sistemes d'Informació Geogràfica.

Empresa/Administració: Ajuntament d'Alaró.

Títol: *Pla especial de Protecció de Lloc Històric de les possessions adquirides per l'Arxiduc Lluís Salvador d'Àustria a Mallorca, als termes municipals de Valldemossa i Deià.*

Investigador responsable: RUIZ PÉREZ, Maurici.

Departament: Laboratori de Sistemes d'Informació Geogràfica.

Empresa/Administració: Consell de Mallorca.

Títol: *Digitalització de les normes subsidiàries de planejament urbanístic.*

Investigador responsable: RUIZ PÉREZ, Maurici.

Departament: Laboratori de Sistemes d'Informació Geogràfica.

Empresa/Administració: Ajuntament d'Alaró.

Títol: *Desenvolupament del portal Universia.net.*

Investigadora responsable: COLOM MONTJO, María del Carmen.

Departament: Servei de Comunicació i Relacions Institucionals.

Empresa/Administració: Portal Universia, SA.

Títol: *Fòbia de volar en avió i proporció d'un tractament específic per resoldre l'anomenat trastorn.*

Investigador responsable: BORNAS AGUSTÍ, Francesc Xavier.

Departament: Psicologia.

Empresa/Administració: AENA.

Títol: *Estudi de consum, opinió i imatge de les cadenes de TV i perfils dels consumidors a les illes Balears.*

Investigadora responsable: GILI PLANAS, Margalida.

Departament: Psicologia.

Empresa/Administració: Televisió de Catalunya, SA.

Títol: *Caracterización y análisis de ácidos húmicos en aguas subterráneas salobres.*

Investigador responsable: COSTA TORRES, Antoni.

Departament: Química.

Empresa/Administració: Ondeo Nalco Española, SA.

Títol: *Estudi de la utilització d'antioxidants naturals en el procés d'elaboració de la sobrassada de tarrina.*

Investigadora responsable: ROSSELLÓ MATAS, Carme.

Departament: Química.

Empresa/Administració: PROCAM, SA.

Títol: *Estudi sobre la viabilitat i caracterització de les propietats antioxidants de la polpa de la garrova i dels productes elaborats de la mateixa: Carovit i Nulpro.*

Investigadora responsable: LLOBERA BALLE, Antònia.

Departament: Química.

Empresa/Administració: ALIMCARAT, SL.

Títol: *Aprofitament de la polpa de garrova. Obtenció de xarops amb elevada proporció glucosa/fructosa i de precipitats de sacarosa.*

Investigadora responsable: ROSSELLÓ MATAS, Carme.

Departament: Química.

Empresa/Administració: ALIMCARAT, SL.

Títol: *Adaptació d'un prototipus basat en tècniques US per el control de la qualitat de la sobrassada.*

Investigadora responsable: ROSSELLÓ MATAS, Carme.

Departament: Química.

Empresa/Administració: PROCAM, SA.

Títol: *Conservació d'albercoc sec de la varietat Canino mitjançant l'ús d'atmòsferes modificades.*

Investigadora responsable: ROSSELLÓ MATAS, Carme.

Departament: Química.

Empresa/Administració: Cooperativa Agrícola de Porreres.

Títol: *Col·laboració pel seguiment de les emissions de la planta incineradora de Son Reus i del control de la qualitat de l'aire en el seu entorn per a l'any 2001.*

Investigador responsable: CERDÀ MARTÍN, Víctor.

Departament: Química.

Empresa/Administració: Consell de Mallorca.

Títol: *Caracterització de mostres de prebe vermell.*

Investigadora responsable: ROSSELLÓ MATAS, Carme.

Departament: Química.

Empresa/Administració: Govern Balear.

Títol: *Caracterització colorimètrica de sobrassada.*

Investigadora responsable: ROSSELLÓ MATAS, Carme.

Departament: Química.

Empresa/Administració: Govern Balear.

Títol: *Control i altres estudis de lleixius i detergents.*

Investigador responsable: FORTEZA COLL, Rafael A.

Departament: Química.

Empresa/Administració: Associació de Fabricants de Productes Químics de Mallorca.

Títol: *Caracterització del pimentó, campanya 2001-2002.*

Investigadora responsable: ROSSELLÓ MATAS, Carme.

Departament: Química.

Empresa/Administració: Govern Balear.

Títol: *Qualitat sensorial de la sobrassada de Mallorca, en relació al seu contingut en colàgen.*

Investigadora responsable: ROSSELLÓ MATAS, Carme.

Departament: Química.

Empresa/Administració: Consell Regulador de Denominació Específica.

Títol: *Assessorament i assistència tècnica en informàtica i telecomunicacions.*

Investigador responsable: SERRA CIFRE, Bartomeu Jaume.

Departament: Servei de Càlcul i Informatització.

Empresa/Administració: Serveis Telemàtics de Balears, SL.

Títol: *Desenvolupament d'un prototip d'aprenentatge de la llengua catalana.*

Investigador responsable: SERRA CIFRE, Bartomeu Jaume.

Departament: Servei de Càlcul i Informatització.

Empresa/Administració: Consorci pel Foment de l'Ús de la Llengua Catalana.

Títol: *Requeriments tècnics, estudi, avaluació i assessorament a la infraestructura de comunicacions de la companyia Viajes Barceló.*

Investigador responsable: SERRA CIFRE, Bartomeu Jaume.

Departament: Servei de Càlcul i Informatització.

Empresa/Administració: Barceló División Central, SL.

Títol: *Consultoria i assessorament tecnològic a la Confederació d'Associacions Empresariales de Balears.*

Investigador responsable: SERRA CIFRE, Bartomeu Jaume.

Departament: Servei de Càlcul i Informatització.

Empresa/Administració: CAEB.

Títol: *Determinació quantitativa de difenacoum per HPLC de mostres sòlides.*

Investigador responsable: COSTA TORRES, Antoni.

Departament: Serveis Científicotècnics.

Empresa/Administració: Will Kill, SA.

Títol: *Anàlisi de la composició elemental i de l'estimació perceptual de peces de vidre.*

Investigador responsable: COSTA TORRES, Antoni.

Departament: Serveis Científicotècnics.

Empresa/Administració: Madre Perla, SA.

Títol: *Determinació de la composició de dues mostres.*
Investigador responsable: COSTA TORRES, Antoni.
Departament: Serveis Científicotècnics.
Empresa/Administració: Laboratori Balear de la Construcció.

Títol: *Anàlisi química qualitatiu.*
Investigador responsable: COSTA TORRES, Antoni.
Departament: Serveis Científicotècnics.
Empresa/Administració: Quimiotest, CB.

Títol: *Suport científicotècnic al Laboratori d'Anàlisi del MICOFB.*
Investigador responsable: COSTA TORRES, Antoni.
Departament: Serveis Científicotècnics.
Empresa/Administració: Col·legi Oficial de Farmacèutics.

Títol: *Estudi superficial d'una fractura per SEM i microanàlisi R-X EDS.*
Investigador responsable: COSTA TORRES, Antoni.
Departament: Serveis Científicotècnics.
Empresa/Administració: Institut Tecnològic Bijuteria.

Títol: *Anàlisi qualitatiu i estimació quantitativa mitjançant microanàlisi R-X EDS.*
Investigador responsable: COSTA TORRES, Antoni.
Departament: Serveis Científicotècnics.
Empresa/Administració: Nueva Gedisa, SL.

Títol: *Anàlisi de mostres.*
Investigador responsable: COSTA TORRES, Antoni.
Departament: Serveis Científicotècnics.
Empresa/Administració: Club Nàutic de S'Arenal.

Títol: *Producció del vídeo 'Accions sostenibles' per l'exposició 'Actuem pel medi ambient'.*
Investigador responsable: OLIVER RIBAS, Miquel.
Departament: Servei de Recursos Audiovisuals.
Empresa/Administració: Caixa de Balears, Sa Nostra.

Títol: *Realització del vídeo 'Mater Misericordiae'.*

Investigador responsable: OLIVER RIBAS, Miquel.

Departament: Servei de Recursos Audiovisuals.

Empresa/Administració: Mater Misericordiae.

Títol: *Gravació del vídeo dels actes del III Festival Internacional de Poesia de la Mediterrània.*

Investigador responsable: OLIVER RIBAS, Miquel.

Departament: Servei de Recursos Audiovisuals.

Empresa/Administració: Consell de Mallorca.

Títol: *Determinación de tendencias en el nivel del mar a partir de registros mareográficos. Tendencias a largo plazo de evolución del nivel del mar y sus impactos en la actividad portuaria.*

Investigador: GOMIS BOSCH, Damià.

Departament: IMEDEA.

Empresa/Administració: Universitat Politècnica de Madrid.

Institut Mediterrani d'Estudis Avançats (IMEDEA)

Títol: *Modificación de programa de análisis de imagen de otolitos.*

Investigadora: MORALES NIN, Beatriu.

Empresa/Administració: INFAIMON, SL.

Inici: 1996. **Fi:** 2001.

Títol: *Col·laboració en l'organització d'activitats relacionades amb la història natural.*

Investigador: ALCOVER TOMÀS, Josep A.

Empresa/Administració: Societat d'Història Natural de les Balears.

Inici: 1998. **Fi:** 2001.

Títol: *Estudio de poblaciones de aves marinas en las islas Columbretes y en los islotes de Benidorm.*

Investigador: ORO DE RIVAS, Daniel.

Empresa/Administració: Generalitat Valenciana.

Inici: 1999. **Fi:** 2001.

Títol: *Elaboració de fitxes per les LIC's (cavitats càrstiques de les Balears).*

Investigador: JAUME LLABRÉS, Damià.

Empresa/Administració: Conselleria de Medi Ambient.

Inici: 2000. **Fi:** 2001.

Títol: *El seguimiento del efecto reserva sobre la pesca y el rendimiento pesquero en las reservas marinas de las islas Baleares.*

Investigadora: MORALES NIN, Beatriz.

Empresa/Administració: Conselleria d'Agricultura i Pesca.

Inici: 2000. **Fi:** 2004.

Títol: *Excavació i estudi dels materials exhumats de la Cova des Moro (4a fase).*

Investigador: ALCOVER TOMÀS, Josep A.

Empresa/Administració: Consell de Mallorca.

Inici: 2000. **Fi:** 2001.

Títol: *Bases científicas para el desarrollo sostenible de la acuicultura costera en Filipinas.*

Investigador: DUARTE QUESADA, Carlos.

Empresa/Administració: Agencia Española de Cooperación Internacional.

Inici: 2000. **Fi:** 2001.

Títol: *Demografía, hábitat y ciclo vital de Margaritifera auricularia.*

Investigador: RUIZ ALTABA, Cristian.

Empresa/Administració: Ministeri de Medi Ambient.

Inici: 1999. **Fi:** 2001.

Títol: *Innovación en el sector turístico. Análisis prospectivo de tecnologías.*

Investigador: TINTORÉ SUBIRANA, Joaquim.

Empresa/Administració: Fundación Cotec para la Innovación Tecnológica.

Inici: 2001. **Fi:** 2002.

Títol: *Evaluación de algunos aspectos de la pesca recreativa en la isla de Mallorca.*

Investigadora: MORALES NIN, Beatriz.

Empresa/Administració: Conselleria d'Agricultura i Pesca.

Inici: 2001. **Fi:** 2002.

Títol: *Excavació i estudi dels materials exhumats de la Cova des Moro (5a fase).*

Investigador: ALCOVER TOMÀS, Josep A.

Empresa/Administració: Consell de Mallorca.

Inici: 2001. **Fi:** 2001.

Títol: *Seguiment de la colonia de gavina corsa a la reserva natural de la Punta de la Banya, al Parc Natural de l'Ebre.*

Investigador: ORO DE RIVAS, Daniel.

Departament: IMEDEA.

Empresa/Administració: Generalitat de Catalunya.

Títol: *Contracte 15507/01/NL/SF.*

Investigador responsable: GOMIS BOSCH, Damià.

Departament: IMEDEA.

Empresa/Administració: European Space Research and Technology Centre.



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ÍNDIX D'ABREVIACIONS



Endarrere



Endavant

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/da
B: Becari/ària
B (reinc.): Becari/ària postdoctoral de reincorporació
BIO: Programa nacional de biotecnologia
C: Col·laborador/a
CEU: Catedràtic/a d'Escola Universitària
CLI: Programa nacional d'I+D sobre el clima
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
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
PM: Programa de medicina
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

