

## news

### NEW MEMBERS OF THE INSTITUT D'ESTUDIS CATALANS (IEC)

#### Section of Science and Technology

##### Josep Enric Llebot i Rabagliati

Born in Barcelona in June 1953. He was awarded a degree (1975) and later a doctorate (1981) in physical sciences by Barcelona's Autònoma University (UAB). He has been a tenured lecturer at the UAB, professor at the University of Girona and is currently a professor at the UAB. His current research concerns the application of physics to environmental science, in particular the study of climate change and the theory of radioactive transport.

He is the author of sixty articles published in international journals and has also contributed to edited books. He has supervised five doctoral theses and several undergraduate theses and has organised two international scientific congresses on environmental science. He has also published six books: *El canvi climàtic* (Climate change) (Rubes, Barcelona, 1998, also published in Spanish); *Els fluids de la vida* (The Fluids of Life) (awarded the Fundació Enciclopèdia Catalana prize in 1991; Proa, Barcelona, 1996) *Introducció a la termodinàmica de processos biològics* (An Introduction to the Thermodynamics of Biological Processes) (with D. Jou; Labor, Barcelona, 1989; in English: Prentice Hall, New York, 1990; in French: Lavoisier, Paris, 1991), *Física para la ciencia de la vida* (Physics for the Life Sciences) (with D. Jou and C. Pérez-García; Mc Graw Hill, Madrid,

1986, part of the Schaum collection, as a book of problems, and 1994, as a textbook), *Pràcticas de termología* (Experiments in Thermology) (with M. D. Baró, J. A. Ibáñez and S. Suriñach; UAB, Bellaterra, 1980, 1985) and *Pràcticas de física* (Experiments in Physics) (with F. Fernández, C. Baixeras, M. Casas and G. Orriols, UAB, Bellaterra, 1984). From 1985 until it ceased to be published he was a regular contributor to the 'Science and Technology' supplement of the newspaper *La Vanguardia*, and was co-director of the Masters in Scientific Communication.

Between 1991 and 1993 he was Dean of the School of Sciences of the UAB. During this time he actively promoted the degree course in environmental science and in 1992 the UAB became the first university in Spain to offer such a course, initially under its own accreditation. This experience led the Spanish Education Ministry to include the degree as part of science studies around Spain, and Dr. Llebot formed part of the commission appointed by the Council of Universities to draw up the technical guidelines for courses in environmental science across the whole of Spain. While at the University of Girona he was Dean of the School of Experimental Sciences for two years, 1994–1995, and also promoted studies in the field there, becoming the first Director of the university's Environmental Institute. He rejoined the UAB in 1997 and until the end of 2000 was in charge of the Centre for Environmental Studies.

He is on the management board of Copernicus, an association of European universities that promotes sustainable policy. He has led six scientific projects in the area of physical climatology and has taken part in several other projects. His most recent publications have appeared in the most

prestigious journals in his field (such as the *Journal of Climate*, *Journal of Geophysical Research*, *Quarterly Journal of the Royal Meteorological Society*, *Tellus*, and *Physical Review*)

He has extensive links with the IEC. Since October 1995 he has been the Scientific Secretary, a post in which he has worked hard to develop and promote conferences, research programmes and the publication of new collections, as well as co-ordinating the *Reports on Research in Catalonia*.

##### Pilar Bayer i Isant

Born in Barcelona on 12 February 1946. In 1967 she became music teacher at the Barcelona Conservatoire and then, in 1968, graduated in Mathematics from the University of Barcelona. In 1975 she completed her doctorate, supervised by Rafael Mallol i Balmaña, at the same university and became a Doctor in Mathematics.

Between 1977 and 1980 she was assistant lecturer at the University of Regensburg (Germany), where she received a solid training in number theory, the field which has always been the focus of her research. In 1980 she was chosen among candidates from the whole of Spain for the post of Reader at the University of Santander, and similarly, in 1981, for a professorship at the University of Barcelona. Since then she has led a busy academic life, setting up an important research group in number theory based at the University of Barcelona and two of the city's other universities, the *Autònoma* and the *Politécnica*; the group has since gained great prestige in the field.

Her curriculum vitae includes 73 publications and the quality of her research has won her several awards. In 1998 she was awarded the Narcís Monturiol Medal for scientific and techno-

logical merit. Dr. Bayer is a member of the Catalan Royal Academy of Arts and Science in Barcelona and the Spanish Royal Academy of Natural, Physical and Exact Sciences in Madrid.

She has been linked to the IEC for many years. She has given talks as part of conferences organised by the Catalan Mathematics Society and has published articles in its *Bulletin*. She was in charge of translating C. F. Gauss' *Disquisitiones arithmeticae* into Catalan. For some time now she has been a member of the Scientific Advisory Committee of the Centre for Mathematical Research. She is currently a member of the international jury which each year awards the Ferran Sunyer i Balaguer prize, an award created and promoted by the IEC.

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## AWARDING OF THE NARCÍS MONTURIOL PLAQUE AND MEDAL

### Award-winning researchers and centers for 2001

#### Researchers

##### Ramon Agustí i Comes

Full professor in the Department of Signal and Communications Theory at the Polytechnic University Politècnica of Catalonia (UPC). For his pioneering research in the field of mobile communications in Catalonia and Spain; for his scientific contributions, which have had an impact at an international level in this field; and for his contribution to bringing the university and the business world closer together, which has resulted in many joint projects.

##### Francesc X. Avilés i Puigvert

Director of the Biotechnology and Biomedicine Institute (IBB) of the Autonomous University of Barcelona (UAB) and full professor of biochemistry and molecular biology at the same university. For his internationally recog-

nised scientific contributions in the field of protein engineering, particularly in the analysis of structure and function, and in the redesign of a range of proteases and protease inhibitors, some of which are highly significant in the area of biotechnology and biomedicine. Also, for his contribution to re-founding and developing the IBB.

##### Fàtima Bosch i Tubert

Full professor of biochemistry and molecular biology at the Autonomous University of Barcelona (UAB) and acting director of the UAB's Center for Animal Biotechnology and Gene Therapy. For her scientific contributions to the study of the physiopathology of diabetes mellitus in transgenic animal models and of gene therapy for this disease, and for her role in promoting research in the field of gene transfer.

##### Mercè Durfort i Coll

Full professor of cellular biology at the University of Barcelona (UB). For her contributions in the area of ultrastructural studies of the biology of reproduction in aquatic invertebrates and in studies of cell alterations due to parasitism in bivalve species of economic interest; as well as for her involvement in scientific instruction and the promotion of disciplines related to cellular biology.

##### Ramon Gomis de Barbarà

Endocrinologist. Senior consultant of the Endocrinology and Nutrition Service at the Barcelona Hospital Clínic. Professor at the University of Barcelona (UB). For his scientific contributions in the field of clinical and basic research on diabetes mellitus, particularly in the study of metabolic and molecular defects in pancreatic  $\beta$  cells.

##### Josep Guarro i Artigues

Full professor of microbiology at the Rovira i Virgili University. Thanks to Josep Guarro's ongoing research work in the field of medical mycology and his involvement in the training of Catalan mycologists, his laboratory at the Faculty of Medicine in Reus has emerged as an international point of reference in the study of pathogenic and environmental microscopic fungi.

##### Abel Mariné i Font

Full professor of nutrition and food science in the Faculty of Pharmacy of the University of Barcelona (UB). For his scientific contributions in the area of food and dietary sciences in the context of the Research Group on Biogenic Amines, Polyamines and Food Product Stability of the University of Barcelona's Department of Nutrition and Food Science, and for his involvement in research management and the communication of scientific developments.

##### Andreu Ripoll i Muntaner

Doctor of polytechnic engineering and specialist in space exploration. Founder and first director of the European Astronaut Centre (EAC) in Cologne, following his involvement in NASA's Apollo programme (which led to the first manned flight to the moon). Founder and first director of the European Space Agency's (ESA) Satellite Tracking Station. Recipient of the Ramon Llull Award for the Sciences. Member of the Engineering Sciences section of the International Academy of Astronautics.

##### Xavier Vives i Torrents

Professor of economics and finance at INSEAD, Paris, and CSIC (Scientific Research Council) research professor (on leave of absence). For his internationally recognised scientific contributions in the fields of industrial economy, information economy and financial economy, and for his involvement in promoting economics research in Catalonia.

#### Centers

##### Supercomputing Center of Catalonia (CESCA)

This consortium was created in 1991 by the Generalitat de Catalunya through the Catalan Foundation for Research, and also involves all Catalan public universities and the CSIC. Its aim is to manage an extensive complex of calculation and communications systems as a support service for universities and research. There are three basic components of the service provided: supercomputing services, management of the Anella Científica («Scientific Ring»)

and of CATNIX (the Catalan Neutral Internet Exchange Point), and distribution of the benefits of these technologies to the development of the information society and to the progress of Catalonia.

### Computer Vision Center

For its scientific and technical contributions in the field of computer vision and for having created a pioneering model of R+D organisation that has become an international point of reference and that facilitates efficient transfer of technology to businesses and to society.

### TV3 Fundació La Marató

A foundation created in 1996 by the Catalan Broadcasting Corporation (CCRTV) with the aim of promoting outstanding scientific research and raising public awareness of the importance of medical research. This aim is achieved by collecting donations through the TV3 Marathon programme, which has been held annually for the last ten years. During this period, over 25.5 million euros (4,250 million pesetas) have been granted to a total of 301 research projects, which are carried out in 81 different hospital and/or university centres. More than 1,000 researchers have directly received funds that have made it possible for them to carry on with their studies.

## THE ECCAI FELLOWS PROGRAM

Since 1999, the European Artificial Intelligence Association (ECCAI) recognizes pioneering and outstanding achievements of its members in the field of Artificial Intelligence by means of selecting them to the «Fellow of ECCAI» status. This status is limited to at most 3% of the ECCAI membership (about 4000 members presently). Each year at most 6 new Fellows are elected among the 32 European countries that are part of ECCAI. In the last round (2000), 5 members were elected and among them Prof. **Ramon López de Mántaras**, Research Professor of the

Spanish Council for Scientific Research (CSIC) and Deputy Director of the Artificial Intelligence Research Institute of the CSIC (Barcelona). He is the first Spanish artificial intelligence scientist to become ECCAI Fellow.

The ECCAI Fellows Program was started to recognize individuals who have made significant, sustained contributions to the field of artificial intelligence (AI) in Europe. Fellows' accomplishments range from pioneering advances in the theory of AI, to unusual accomplishments in AI technology and applications. Usually only individuals who have made contributions to AI for a decade or more after receiving their Ph.D. (or are at an equivalent career stage) are selected.

## WINNERS OF THE DISTINCTION PRIZE AWARDED BY THE GENERALITAT OF CATALONIA IN ORDER TO ENCOURAGE UNIVERSITY RESEARCH

### Science & Technology

Second award (June 2001)

### Class of recognised researchers (over 40 years old)

#### Montserrat Agudé i Porres

(Barcelona, 1949). Professor of Genetics, University of Barcelona. PhD: University of Barcelona.

As a major researcher in the field of evolutionary genetics, she has pioneered the application of recombinant DNA technology to the study of the genetics of population groups. Her extremely important research into the choice of locus of the Adh enzyme in *Drosophila*, which is used in most text books, has become a model for studies of human disease-related genes.

#### Joaquim Bruna i Floris

(Barcelona, 1953). Professor of Mathematical Analysis, Autonomous University of Barcelona. PhD: Autonomous University of Barcelona.

He has contributed decisively to areas of functions with many complex variables and to harmonic analysis, particularly in multi-dimensional wavelets. His fundamental research into convex domains and zero sets of holomorphic functions is used by the most renowned analysts. He has helped introduce new fields of research, such as multivariate pluriharmonic interpolation.

#### Eudald Carbonell i Roura

(Ribes de Freser, 1953). Professor of Prehistory, Rovira i Virgili University. PhD: Université Pierre et Marie Curie, Paris VI.

He has revolutionised palaeoanthropology through his excavation and investigation at the Atapuerca site. This research has totally transformed our understanding of the origins of humanity. His work and that of his colleagues in this ambitious venture mark a major landmark in the history of science. His research at Puig d'en Roca and the entire middle valley of the Ter and at the *Abric Romaní* at Capellades is also outstanding.

#### Ernest Giralt i Lledó

(Viladecans, 1948). Professor of Organic Chemistry, University of Barcelona. PhD: University of Barcelona.

Professor Ernest Giralt is undoubtedly a world leader in the synthesis and structural elucidation of peptides. His work combines conceptual elegance with a highly practical focus on the construction of biomolecules. Professor Giralt has introduced many new techniques for the construction and interpretation of new peptides. His work in setting up and directing an excellent Nuclear Magnetic Resonance Service should not be overlooked, either. This Service has won great prestige within Catalonia and further afield.

#### Francesc Illas i Riera

(Barcelona, 1954). Professor of Physical Chemistry, University of Barcelona. PhD: University of Barcelona.

He has created an internationally

recognised research group working on the quantum chemistry of materials. He has made a decisive contribution to the development of methods of analysis of the linkage in chemisorption of molecules on catalysts supported both by cluster methodology and by periodic models, always seeking to combine theoretical and experimental research. His recent work on magnetic interactions in broad-gap alloys is also outstanding.

#### **Josep Antoni Planell i Estany**

(Barcelona, 1951). Professor of the Science of Materials and Metallurgic Engineering, Polytechnic University of Catalonia. PhD: London University.

His work has focused on the study and development of calcium phosphate bone cements with mechanical properties suitable for application by injection. He has also developed biodegradable compound materials which have had a considerable impact on health service costs. His research into modelling of implants in finite elements is essential to our understanding of how these materials work and of their mechanical properties.

#### **Robert Rodríguez i Roisín**

(Barcelona, 1945). Professor of Medicine, University of Barcelona. PhD: University of Barcelona.

He is conducting important clinical research into two very common chronic diseases: bronchial asthma and obstructive pulmonary disease. His studies focusing on the physiopathology of gaseous exchange in patients led to major advances in treatment of these illnesses. His group has combined a high standard of medical care with top-quality research.

#### **Javier Tejada Palacios**

(Castejón, 1948). Professor of Condensed Matter Physics, University of Barcelona.

Professor Tejada is a well-known specialist in the magnetic properties of matter. He has made major breakthroughs in the study of the phenomenon of quantum tunnelling in nanometric metal aggregates, especially the discovery of resonant tunnelling in high-spin molecules. The scientific ex-

perience of the group formed by him has led to joint work with major companies such as the Xerox Corporation.

#### **Antonio Zorzano Olarte**

(Barcelona, 1956). Professor of Biochemistry and Molecular Biology, University of Barcelona. PhD: University of Barcelona.

Professor Zorzano is a world authority in the field of muscle physiology, especially glucose transport. He has made very important contributions in three areas: 1) The discovery of the genetic basis of aminoaciduria; 2) The regulation of the gene expression of glucose transport; 3) The regulation by insulin of glucose transport in muscle.

### **Class of young researchers (under 40)**

#### **Joan X. Comella i Carnicé**

(Lleida, 1963). Lecturer with tenure in Cell Biology, University of Lleida. PhD: University of Barcelona.

He is conducting studies into the factors that control the neuronal function and the development of the nervous system of chickens, in particular the apoptotic response to matrix factors and the cell factors that apoptosis sets off. He is working on models to study neurodegenerative diseases in humans.

#### **Anna Maria Gómez i Foix**

(Barcelona, 1961). Lecturer with tenure in Biochemistry and Molecular Biology, University of Barcelona. PhD: University of Barcelona.

Her research into the mechanisms controlling the assimilation of glucose by rat muscle, especially the role of insulin, is internationally recognised. The use of the most up-to-date molecular technology in these studies has enabled her to create transgenic animals hosting modified exogenous genes. Her research results have been published in the top journals in her field.

#### **Àngel Jorba i Monte**

(Olesa de Montserrat, 1963). Professor of Applied Mathematics, University of Barcelona. PhD: University of Barcelona

He works on differential equations and celestial mechanics, combining efficiently theory, effective calculation and their applications. On the more theoretical side, he has done important work on the reduction of linear equations to equations with constant coefficients. On the applied side, his work on effective stability in the solar system is also notable. He and some of his doctoral students are part of a major Celestial Mechanics group.

#### **Josep Nogués i Sanmiquel**

(Sabadell, 1963). Assistant Lecturer in Condensed Matter Physics, Autonomous University of Barcelona. PhD: Royal Institute of Technology (Stockholm).

His outstanding research has studied the electrical properties of high-temperature super-conductors and the magnetic properties of materials with consideration of their dimensions. This reduction in the number of dimensions of a system means that in many cases its mechanical, physical or chemical properties can be modified and even, to some degree, designed, so improving the behaviour of the materials.

#### **Francesc Pérez i Murano**

(Barcelona, 1966). Lecturer with tenure in Electronic Technology, Autonomous University of Barcelona. PhD: Autonomous University of Barcelona.

His current concern is the suitability of traditional microelectronics technology for the new dimensions required by nanotechnology and its use in various environments, such as biosensors. He has focused, *inter al.*, on electron beam lithoprinting, nano-oxidation of surfaces and lithographic nano-printing. These techniques have been linked to techniques in processes for integrated circuit manufacture.

#### **Alejandro Pomarol i Clotet**

(Barcelona, 1964). Lecturer with tenure in Theoretical Physics, Autonomous University of Barcelona. PhD: Autonomous University of Barcelona.

He has made a considerable contribution to fundamental particle theory beyond the standard model, particularly on the origin of the boundaries that break supersymmetry, and has applied some

of his findings to cosmological problems. His current research in the field of multi-dimensional theories, especially compactification at the TeV scale, is important.

### **Francesc Posas i Garriga**

(San Feliu de Codines, 1968). Acting lecturer with tenure in Biochemistry and Molecular Biology, Pompeu Fabra University. PhD: Autonomous University of Barcelona.

He has conducted important research into osmotic shock response, especially the phosphorylation cascade mediated by MAP kinases in yeasts and the transition factors regulated by MAP kinases. These studies have been published in prestigious international journals, such as *Science* and the *EMJO Journal*.

### **Àngels Ramos i Gómez**

(Barcelona, 1961). Associate professor of Atomic, Molecular and Nuclear Physics, University of Barcelona. PhD: University of Barcelona.

Dr. Ramos has done significant work on the nuclear physics of neutral strange particles. Particularly noteworthy are his studies of the weak decay of hypernuclei. He has been invited to give lectures on this topic at major international conferences. In recent years, he has also done important work on chiral theories of nucleus-meson interaction.

### **Jordi Rello i Condomines**

(Barcelona, 1961). Medical Researcher, Rovira i Virgili University. PhD: University of Barcelona.

Dr. Rello's research focuses on nosocomial pneumonia. He has identified some of the key risk factors for infection with specific pathogens, as well as other pathogenic factors related to this disease. He is currently regarded as a leading international authority on the treatment and prevention of nosocomial pneumonia.

### **Fèlix Ritort i Farran**

(Barcelona, 1965). Associate professor of Condensed Material Physics, University of Barcelona. PhD: University of Barcelona.

Dr. Ritort has done significant work on chaos and phase transitions in com-

plex systems, particularly spin-glasses, an area in which he has developed an original structural model that has served as a reference for subsequent work carried out by different groups in the scientific community. His work involves complex analytical calculations and numerical simulations.

### **Joan Manel Rius i Casals**

(Barcelona, 1963). Associate professor of Signal and Communications Theory, Polytechnic University of Catalonia. PhD: Polytechnic University of Catalonia.

Dr. Rius has developed new modeling techniques that apply fractal concepts to the design of miniature radar antennae. He has also proposed technologies for ship identification using airborne synthetic aperture radar systems of this type. One of the key problems involved in this new development is that electric current tends to concentrate in small regions of the antenna and lead to significant losses. New developments will need to balance the reduction of antenna dimensions against the resulting gain loss.

### **Daniel Sempere i Torres**

(Màlaga, 1963). Associate professor of Hydraulic Engineering, Polytechnic University of Catalonia. PhD: Institut National Polytechnique de Grenoble.

Dr. Sempere has developed meteorological radar applications that integrate meteorological processes in hydrometeorological models. He has also worked on the management of such models and their application in hydrological forecasts. The use of radar systems of this kind is fundamental in describing rain fields in space and time, with a temporal resolution of between five and ten minutes (far greater than that obtained with conventional techniques). The method has been applied in Catalonia.

### **Mariona Sodupe i Roure**

(Barcelona, 1962). Associate Professor of Physical Chemistry, Autonomous University of Barcelona. PhD: Autonomous University of Barcelona.

Dr. Sodupe's brilliant career and impressive achievements make her one of the most promising researchers of

her generation in the field of theoretical chemistry. Her work on ligand-metal transition interactions is particularly noteworthy and highly significant in relation to problems in biochemistry and environmental science. Dr. Sodupe combines the energy of youth with maturity gained through experience.

### **Miquel Solà i Puig**

(Fonteta Forallach, 1964). Associate professor of Physical Chemistry, University of Girona. PhD: Autonomous University of Barcelona.

Dr. Solà emerged from the widely renowned group headed by Professor Joan Bertran and now leads a well-established working group that focuses on the chemistry of transition metals. In spite of his youth, Dr. Solà has made significant contributions to the theoretical understanding of the chemistry of bonding and mechanisms involving transition metals. His work on Fisher carbenes and the Dötz reaction is particularly noteworthy.

### **Enric Vallduví i Botet**

(Reus, 1962). Associate professor of General Linguistics, Pompeu Fabra University. PhD: University of Pennsylvania.

He was trained in the United States and is a leading specialist in computational linguistics. His multidisciplinary approach combines traditional linguistics, computation and psycholinguistics. His thesis, «The informational component», which has been published in book form in the United States, studies the function of information structure and its role in communication.

### **Manuel del Valle i Zafra**

(Terrassa, 1963). Associate professor of Analytical Chemistry, Autonomous University of Barcelona. PhD: Autonomous University of Barcelona.

He has done outstanding work in the field of sensors and biosensors. His research is specifically concerned with the use of arrays of non-selective sensors with multivariable analysis of the crossed response obtained by analysis in a liquid medium (electronic language). In his project, he intends to apply potentiometric sensors, with which

he has worked successfully up until now. Dr. Valle has published papers in prestigious chemistry journals.

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## PALAEOLOGY, COMMUNICATION AND THE PUBLIC

### Report on the 3rd European Palaeontological Congress 2001

Leiden, The Netherlands,  
November 21-24, 2001

Fifty-three scientists from 15 countries met at this Congress in which over half lectures concerned subjects directly relating to the title. However, as is normal in this kind of Congresses, some classical palaeontological subjects were dealt with during the four sessions.

As regards Catalan scientists and institutions the *Museu de la Ciència* was represented by Marta Solsona and Jorge Wagensberg and the *Museu de Geologia* by Jaume Gallemí, G. López, and J. Vidal. The titles of their lectures were, respectively: «Taphonomy, a discovery for museology», and «From shelves to field: Present changes for palaeontology». The poster presented by Salvador Reguant from the Universitat de Barcelona was entitled «Perspectives on the potential biostratigraphic value of some fossil groups for the Paleogene times, through the analysis of the family evolution».

Besides the contributions referring to classical palaeontologic subjects, two main fields were discussed: (1) Museology and (2) Situation and scope of palaeontology now and in the near future.

The topics concerning museology were mainly devoted to contributions of museum exhibitions and activities to (a) scientific literacy; (b) all-round education; and (c) cultural entertainment. Description of their functioning and problems related to their conservation and improvement were also discussed.

The presentation by Gallemí and coworkers present the solutions now and in the future to improve communication in Palaeontology through the activities and fossil display in the «Museu de Geologia» of Barcelona.

Solsona and Wagensberg analyze the museological potential of complex fossil pieces which allow us to tell stories related to describe fossilization processes. This material must be presented focusing on taphonomic analysis through a correct application of the modern scientific museology.

Some interesting ideas were presented on the present and future of palaeontology, mainly on the potential and relevance of modern palaeontology. The expansion of perspectives and subjects to be studied in palaeontology was emphasized. On the one hand the study of molecular and microbial palaeontology is an important field besides classic palaeontology. On the other hand, the contribution of palaeontology to the study of climates, biodiversity and to improve calculation of time (from days to billion of years as underlined Wolfgang Oschmann, from Frankfurt am Main) was greatly discussed.

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## 5TH WORLD CONGRESS OF PERINATAL MEDICINE

Barcelona, September 23-27, 2001

The V World Congress of Perinatal Medicine was held in Barcelona from 23-27 September 2001, organised by the Santiago Dexeus Font Foundation in collaboration with the Spanish Association of Neonatology and the Spanish Association of Obstetrics and Gynaecology; it was sponsored by the World Association of Perinatal Medicine.

3000 specialists in the field of perinatal medicine – representing 110 countries from all five continents – attended the congress, an event which surpassed the previous four congress-

es in Tokyo, Rome, San Francisco and Buenos Aires in terms of both attendance and quality.

There were several innovative aspects of this V congress which constituted a major step forward for perinatal medicine. One of the most important was that for the first time in such congresses developing countries were well represented, and this enabled proper recognition of the situation being faced by mothers and children in these countries. The presence of perinatology specialists from developing countries was possible thanks to a grant programme set up by the Organising Committee, in conjunction with institutions such as the Department of External Affairs of the *Generalitat* (Catalonia's autonomous regional government) and *Matres Mundi*. Consequently, the congress became an important forum in which the situation in these countries could be brought to light and new perspectives offered. Another new development was the attendance of certain professional groups, such as midwives or intensive care nurses, who had not been represented in previous congresses.

The congress included 200 meetings, several round tables, over 2,000 scientific presentations and a series of parallel scientific meetings, such as the XVIII Spanish Congress of Perinatal Medicine, the International Meeting of Midwives, the International Symposium of Neonatal Nursing and the III Iberoamerican Congress of Prenatal Diagnosis, which offered an extensive programme. The latter addressed the most up-to-date and relevant issues in perinatal medicine, including changes in birth rates across the world, prenatal diagnosis, AIDS in pregnancy, home births, foetal surgery, birth in the Third World, technical advances such as 4D ultrasound, health and social monitoring in birth, and the AIDS pandemic; controversial issues, such as the use of stem cells or embryo cloning, were also addressed. All the above contributed to what was a high-quality, stimulating event for this group of specialists.

The latest technological advances, such as 4D ultrasound (three dimen-

sions plus movement) or new analytic procedures based on the Doppler effect, were also presented during the congress. These techniques will soon lead to progress being made in the characterisation of foetal structures, and will also facilitate more accurate diagnoses and the detection of possible congenital defects.

To mark the V World Congress of Perinatal Medicine in Barcelona it was decided to draw up and distribute a document, based on reproductive health criteria, outlining the main rights of mothers and newborns. The initiative to develop this institutional declaration, entitled «Declaration of Barcelona on the Rights of Mothers and Newborns», was supported by the World Association of Perinatal Medicine, several national and international associations of perinatal medicine, obstetrics, paediatrics, neonatology and gynaecology, midwives, specialists in bioethics and numerous non-government, humanitarian associations and institutions. The aim of this document, based on reproductive health criteria, is that human reproduction throughout the world takes place in conditions which ensure the mental, physical and social well-being of mothers and children. The declaration has two parts: the first contains fourteen points concerning the social and reproductive health rights of women; the second covers another fourteen points describing the declaration of rights of newborns and states the need to offer the same health, social and emotional care to all the world's children. Once complete, the Declaration of Barcelona was sent to supranational political and health organisations, to governments and legislators the world over, and to public and private institutions in the area of reproductive health-care, the aim being to arrive at effective solutions.

The scientific and human achievements of the V World Congress of Perinatal Medicine represent a milestone for all the world's specialists in perinatal medicine, who will come together once again in Osaka (Japan) where the next congress is to be held in 2003.

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### **THIRD INTERNATIONAL CONFERENCE ON ECOSYSTEMS AND SUSTAINABLE DEVELOPMENT (ECOSUD-2001)**

Alacant, June 6 - 8, 2001

The Third International Conference on Ecosystems and Sustainable Development (ECOSUD 2001), organised by the Wessex Institute of Technology (UK) and the Jaume I University (Spain), was held from 6-8 June 2001 at the University of Alicante.

This third conference brought together a large number of the world's specialists, from over 40 countries, and benefited from the collaboration – as Honorary President – of Professor Ilya Prigogine, winner of the Nobel Prize for Chemistry in 1977 for his work on non-equilibrium thermodynamics, particularly in the field of dissipative structures. Unfortunately, he was unable to attend the actual conference due to health problems.

As in the two previous conferences – Peñíscola in 1997 and the Greek island of Lemnos in 1999 – the aim of the congress was to foster interdisciplinary communication between scientists, engineers, economists and professionals carrying out research into ecosystems and sustainable development. Thus, ECOSUD 2001 provided a forum for the presentation and discussion of the latest developments in engineering, ecosystems theory and sustainable development.

A wide variety of issues were addressed by the papers presented: sustainable development, international and industrial uses of the developing economy, conservation, management and recovery of endangered and degraded areas, modelling of natural and human ecosystems, the use of ecological modelling in environmental management, biodiversity, environmental

risk, public sustainable development, wetland ecosystems and Lakustrine issues, publications on forestation, computer modelling of natural and human ecosystems, environmental and ecological policy in the management of natural resources, erosion and soil management, soil and water treatment, publications on water resources, ecotoxicology models, and energy generation and conservation.

The conference also stressed the advantages of applying scientific methods to sustainable development, including the conservation of natural systems in both developed and developing countries.

Furthermore, ECOSUD 2001 included time set aside to discuss the constant changes affecting the landscape of the Alicante region, changes which are having an alarming impact on its ecological balance.

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### **II CONGRESS ON THE SOCIAL COMMUNICATION OF SCIENCE**

València, November 28-30, 2001

The main achievement of the II Congress on the Social Communication of Science, held in November 2001 at the Centre for Arts and Science, Valencia, was that it encouraged discussion and reflection on issues such as the increasingly important role of science in contemporary society, the speed with which key scientific and technological developments are taking place, and the response of society in the face of constant scientific change. The main aim of the conference organisers was to seek new strategies that ensure widespread public access to scientific culture, offering solutions, ideas and new initiatives which promote the idea that «without science there's no culture».

The event managed to bring together many diverse points of view, including

those of researchers, scientists, journalists, teachers, philosophers and artists, not to mention those of the universities, industry, the publishing world and the media, and government bodies.

Popular science publications have the duty to inform the public about the changes that are taking place and which, in one way or another, affect us all.

Therefore, it is essential to consider what role needs to be played by educational institutions, research centres, the media, companies involved in R+D, government bodies, museums and other science-related centres.

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## BOOKS

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### **Sensors and signal conditioning**

Ramon Pallas-Areny and John G. Webster.

New York: John Wiley and Sons, 2001  
2nd edition  
ISBN 0-471-33232-1

In this new edition of their successful book, renowned authorities Ramon Pallas-Areny and John Webster bring you

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