

## NEWS

### THE CENTRE DE RECERCA MATEMÀTICA

In 1984, the *Institut d'Estudis Catalans* created the *Centre de Recerca Matemàtica (CRM)*, with the main goal to provide Catalan mathematicians with a research institute which would stimulate the improvement of mathematical research in Catalonia, both qualitatively and quantitatively. To achieve this aim, the *CRM* invites outstanding mathematicians for research visits, facilitates scientific contacts between these visitors and our young local researchers, carries out research programmes, organizes talks, conferences and other scientific meetings and makes available research results through its preprints series

The *CRM* carries on organizing specialized semesters devoted to a single research area but invites also researchers in other fields working in contact with Catalan mathematicians. Each year in December a number of post-doctoral fellowships and visiting positions are announced.

The *CRM* can welcome up to 15 guests. The *CRM* is sponsored by the *Comissionat per a Universitats i Recerca* (Department for Universities and Research) and the *Comissió Interdepartamental per a la Recerca i la Innovació Tecnològica, CIRIT* (Interdepartmental Committee for Research and Technological Innovation) of the *Generalitat de Catalunya* (Autonomous Government of Catalonia), by the *Ministerio de Educación y Cultura* (Ministry of Culture and Education) of the Spanish Government, and by different Programmes of the European Union.

#### Programme for the academic year 1999-2000:

*Advanced course on integral geometry*

#### Dates

September 15 – September 23, 1999

#### Place

Centre de Recerca Matemàtica, Campus of the Universitat Autònoma de Barcelona, Catalonia.

#### Speakers

Remi Langevin (Université de Bourgogne, Dijon)

*Introduction to integral geometry*

We will start from old results like Buffon's needle statistics and Cauchy-Crofton formula. Then we shall discuss the set of subspaces involved: Grassmann manifolds and affine

Grassmann manifolds, and the fact that they may admit an essentially unique measure invariant by the action of isometries. The main part of the course will be about theorems of the form: «topology implies geometry», that is, sufficiently complicated (from the topological viewpoint) submanifolds or foliations should have a minimal amount of curvature, in a sense we will define. The minimal cases (tight cases) will be discussed. A prototype is the Fary-Fenchel-Milnor theorem on knots: the total curvature of a knot is larger than  $4\pi$ . There are on sets of circles and spheres (in  $S^n$  or in the euclidean space) measures which are invariant by the action of the Möbius (conformal) group. We will consider a few new results and many questions in that context.

Rolf Schneider (Albert-Ludwigs-Universität, Freiburg)

*Integral Geometry-measure theoretic approach and stochastic applications*

Integral geometry, as it is understood here, is concerned with the computation and application of mean values arising from the interaction of fixed and moving geometric objects. We develop the local integral geometry of convex bodies and polyconvex sets for the Euclidean motion group, including the principal kinematic formula and the Crofton formulas for curvature measures, and describe applications in Stochastic Geometry, in particular to random sets and particle processes.

Lectures will be held in the morning; afternoons will be devoted to complementary activities.

#### Coordinators

Eduard Gallego

Agustí Reventós

#### Further information

Email to [crm@crm.es](mailto:crm@crm.es)

#### The CRM address is:

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The CRM office timetable: Monday to Friday 9:00h to 17:00h.

## TROBADES CIENTÍFIQUES DE LA MEDITERRÀNIA

### CATALAN SOCIETY OF PHYSICS (IEC)

XV SCIENTIFIC MEETING OF THE MEDITERRANEAN  
RESEARCH IN BIOPHYSICS AND BIOENGINEERING  
WORKSHOP  
NEW TECHNOLOGIES IN MEDICINE  
Maó (Menorca), 20-22 September 1999

#### Organizing committee:

Josep Anton Planell (Universitat Politècnica de Catalunya)  
Domènec Ros (Universitat de Barcelona)  
Pere Caminal (Xarxa temàtica en Enginyeria Biomèdica)  
Eduard Cesari (Universitat Internacional de Barcelona)  
Ioanis Katakis (Universitat Rovira i Virgili)  
Antonio José Sainz (Universitat de Lleida)  
Ferran Sanz (Universitat Pompeu Fabra)  
Manuel Valiente (Universitat Autònoma de Barcelona)

The Scientific Meeting of the Mediterranean is held each year on the island of Menorca and provides scientists from the universities and research centres of Catalonia with an opportunity to discuss their work.

Medicine is and has been one of the most dynamic of the sciences, and certainly the one with the most tradition and the one that has, for obvious reasons, generated most interest. It is the science that has, throughout the history of mankind, most rapidly incorporated new technologies. These new technologies have been incorporated in the three main areas of medical practise: diagnosis, clinical treatment and rehabilitation. In general, all these technologies have been included within what has traditionally been known as *bioengineering* and what is today referred to as *biomedical engineering*, since it no longer only covers the areas mentioned above but has extended into related areas, such as clinical and hospital engineering. This science is increasingly drawing closer to the fields of biophysics and cell biology.

The programme for this year's meeting seeks to bring together groups working in the same lines of research and, at the same time, analyse how teaching in this field is undertaken in neighbouring countries.

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## ABOUT IRTA

The Institute for Food and Agricultural Research and Technology (IRTA or Institut de Recerca i Tecnologia Agroalimentàries) is a Public at the Catalan Government (The Generalitat of Catalonia). IRTA was created by the Catalan Parliament on November 28, 1985 (decree number 23/1985). The activities of IRTA are centred on scientific research and the transfer of technology to the agro-food sector. It operates under private sector law.

IRTA was created as an expression of the desire to forge an efficient instrument for the promotion of technological innovation based on scientific advancement in Catalonia and to facilitate the application of this innovation on the part of the economic agents involved. This was done as an ineluctable way of contributing to the economic modernization and development of our food and agro-cultural sector and country region as a whole.

IRTA's general objectives are: to promote research and technological development in the agro-food sector to assess scientific advances and to facilitate their application, and to coordinate the efforts of the public and private sectors as efficiently as possible.

IRTA has promoted the establishment of permanent collaborative agreements with other public organisations working in the field of research and technological development in Catalonia. This policy has produced a network of associated centres with mixed funding (between IRTA, Universities, CSIC, Local Councils, etc.) which can be defined as a **R+D cooperative system**.

### What IRTA does?

#### Research and development (R+D)

IRTA has a portfolio of projects under way which are financed by the Institute itself regional institutions as CIRIT, state organisations as INIA and CICYT or international ones as the European Union and others. There are also projects financed by the private sector

#### Technological transfer

The scientific activity of IRTA is based on the applicability and assessment of new advances, applying the transfer mechanisms best suited to each individual case:

- publication of results in specialized scientific media.
- the supply of information about scientific advances in R+D projects.
- sale or transfer contracts, or agreements for the use of patents.

Within this process of technological transfer IRTA may create and/or participate in companies involved in the assessment / commercialization of know how, goods or services derived from its activities.

## **Research under contract**

IRTA offers to companies, associations and other groups its scientific capability to evaluate, countercheck or develop products, services or procedures. A research contract establishes the objectives, the methodology to be employed, the agreed deadlines as well as the technological, economical and juridical obligations for all parties involved. Confidentiality is guaranteed by the contract when justified by the type of cooperation involved.

## **Technical assistance and specialized training**

For those areas in which it works, IRTA may offer both groups and companies working in the sector its technical assistance and specialist consultancy services, under the terms of agreements which establish the goals and purpose of the contractual relationship, the technical and economic terms, the schedule and duration. It may also offer specialist training; organizing courses and symposiums and allowing technicians and graduates into its centers and laboratories.

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