ics/industry interface. The aim of the project is two-fold: on one side, to focus on "in house" industrial mathematics, i.e. on mathematicians working in industry and services; to gather information on their educational curricula, their recruitment and the possible need of continuing education, in particular, to question if the professional career of "technomathematician" does (or should) exist; on the other hand, to consider the cooperation between academic research and industry, to analyse the different forms of partnership between university and research centres on one side and industry and services on the other; and to stimulate a coordinate program of research.

The ESF has expressed a preliminary agreement to finance a Forward Look project "Maths & Industry" and has sponsored a "Scoping workshop" aimed to define its topics, the timetable and the prospected outputs of the project. The workshop took place in Pisa, Italia, on 20-21 December 2008, and was hosted by the Centro De Giorgi. With nineteen participants from ten European countries, the meeting contributed to the elaboration of the project that aims an ESF Forward Look Report, with three directions: academia-industry inter-face; training and careers and opportunities and challenges.

The activities that ESF may promote will take place during 2009 and 2010, and they should produce the state-of-the-art revue in the area, highlighting of the major advances in the last years, present the scientific challenges, including the identification of European strength and weakness, and present a vision with major goals that could provide directions for research in the medium and long term time frame and contribute to the implementation plan (in terms of infrastructure, institutional innovation, human resources, governance).

This is a timely and very important project. The situation differs from one European country to another and this should be properly taken into account. Such an initiative should enhance the European cooperation and activity in the area of mathematics in industry, in particular through a series of special Workshops. The European Mathematical Society, through its permanent special committee on Applied Mathematics, is the natural candidate to act as the reference institution for the project and the ERCOM centres the natural hosts of "Maths & Industry" events in Europe.

Coming Events

April, 17-19, 2009: 1st Porto Meeting on Mathematics for Industry,

Department of Mathematics, University of Porto.

ORGANIZERS

Pedro Freitas (UTL/GFM).

Diogo Pinheiro (CEMAPRE/CMUP).

Carla Pinto (ISEP/CMUP).

João Nuno Tavares (CMUP).

José Miguel Urbano (CMUC).

AIMS

The purpose of this meeting is to focus the attention on the many and varied opportunities to promote applications of mathematics to industrial problems. Its major objectives are:

- Development and encouragement of industrial and academic collaboration, facilitating contacts between academic, industrial, business and finance users of mathematics.

- Through "bridging the industrial/academic barrier" these meetings will provide opportunities to present successful collaborations and to elaborate elements such as technology transfer, differing vocabularies and goals, nurturing of contacts and resolution of issues.

- To attract undergraduate students to distinctive and relevant formation profiles, motivate them during their study, and advance their personal training in Mathematics and its Applications to Industry, Finance, etc.

The meeting will be focused on short courses, of three one-hour lectures each, given by invited distinguished researchers, which are supplemented by contributed short talks by other participants and posters of case studies.

Agostinho Agra (University of Aveiro, Portugal)
Discrete models applied to real industrial problems.

Alfredo Bermudez de Castro (University of Santiago de Compostela, Spain)
(*Title to be announced*).

Enrique ZuaZua Iriondo (Basque Center for Applied Mathematics, Bilbao, Spain)
Flow control in the presence of shocks: theory, numerics and applications.

Stanley R. Pliska (Department of Finance, University of Illinois at Chicago, USA)
Mathematical Methods for Portfolio Management.

For more information about the event, see

http://www.fc.up.pt/cmup/mathindustry/

April, 20-24, 2009: The 69th European Study Group with Industry 2009,

Department of Mathematics, University of Coimbra.

Organizers

Adérito Araújo (LCM/CMUC).

Carlota Simões (DMUC).

João Nuno Tavares (CMUP).

José Miguel Urbano (CMUC).

Pedro Freitas (FMH/UTL and GFM-UL).

Aims

The purpose of these meetings is to strengthen the links between Mathematics and Industry by using Mathematics to tackle industrial problems which are proposed by industrial partners.

This meeting is part of the series of European Study Groups and will count with the participation of several European experts with a large experience in this type of events.

More information on study groups and related aspects is available at the International Study Groups website (http://www.maths-in-industry.org), the Smith Institute (http://www.smithinst.ac.uk) and the European Consortium for Mathematics in Industry (http://www.ecmi-indmath.org/info/events.php).

For more information about the event, see

http://www.mat.uc.pt/esgi69

July, 2009: Kinetics and statistical methods for complex particle systems,

Complexo Interdisciplinar da Universidade de Lisboa

An initiative of the UTAustin-Portugal program in Mathematics in co-operation with CIM.

Summer school: July 13-18, 2009

Workshop: July 20-24, 2009.

Organizers

Irene Gamba (University of Austin).

M. C. Carvalho (University of Lisbon).

Rui Vilela Mendes (University of Lisbon).

Diogo Gomes (Technical University of Lisbon).

Fabio Chalub (New University of Lisbon).

Aims

This two weeks event will consist of a summer school of 5 lectures of 4-hour mini courses during the first week, and a follow up with a second week holding a conference featuring talks at a more advanced level. The initiative will focus on analytical and numerical issues related to dynamical properties associated to non conservative interactive particle systems where non-equilibrium statistical asymptotic states are a signature of their complexity. This area of research have been emerging in the last decade as a follow up of recent studies to kinetic systems that models the evolutions of probabilities distributions into non-classical states where classical macroscopic models fail. New simulations that incorporate stochasticity, multi-scale and approximations to nontrivial diffusion limits will be addressed. The meetings will discuss connections to probability and stochastic theory in connection to natural and social sciences. Examples of such systems have been recently studied and reported in the statistical modeling of rapid granular flows, coalescence-breakage models for jet-bubble flows, mixtures under chemical reactions, as well as in social science areas such as modeling systems of particles swarms in species social behavior, traffic networks (such as vehicular traffic on highways, TCP traffic on internet, traffic of goods on supply chains), and economics models related information sharing in large populations, as well as applications to climate modeling via stochastic methods.

Summer school lecturers

Eric Carlen (Rutgers University, USA).

Pierre Degond, (University P. Sabatier, Toulouse, France).

Irene M. Gamba (University of Texas, Austin, USA).

Markos Katsoulakis (University of Massachusetts, Amherst, USA)

Robert Pego (Carnegie Mellon University, USA).

October 1-4, 2009: Didactics of Mathematics as a Mathematical Discipline (a XXIst century Felix Klein's follow up),

University of Madeira, Funchal.

ORGANIZING COMMITTEE

Elfrida Ralha (University of Minho).

Jaime Carvalho e Silva (University of Coimbra).

Suzana Nápoles (University of Lisbon).

José Manuel Castanheira (University of Madeira).

LOCAL ORGANIZERS

Elsa Fernandes (University of Madeira).

Sandra Mendonça (University of Madeira).

AIMS

A century ago Felix Klein's lectures on mathematics for secondary teachers were first published: "Elementarmathematik vom höheren Standpunkte aus" (1908). This comprehensive view challenged both teachers and mathematicians to consider the relationship between mathematics as a school subject, and mathematics as a scientific discipline. As Klein wrote: "we first raise the question as to how these things are handled in the schools; then we shall proceed to the question as to what they imply when viewed from an advanced standpoint." To this we must add "another point in this instruction which is usually neglected in university teaching. It is the application of numbers to practical life."

This last 100 years have witnessed many changes in mathematics that provoked major changes and challenges for school mathematics. The role of mathematics in the education of scientists, economists and engineers seems to have achieved unprecedented societal unanimity. While Klein's writing remains a valuable source insight, it seems timely to revisit this theme by linking the topics and approaches of upper secondary with the field of mathematics. This is an important challenge for Mathematics Education.

Can we analyse the new challenges for mathematics in the XXIst century? Can we devise a XXIst century book that will be "read with pleasure and profit alike by the scholar, the student, and the teacher" (AMS Book Reviews 1940) taking into account all the dimensions Klein stressed: intuitive, genetic, applications?

This workshop aims at discussing this subject, contemplating the following strands:

a) Which special characteristics can be found in mathematics as a school subject for the XXIst century?

b) Which kind of relationships between mathematics as a school subject and mathematics as a scientific discipline must be developed/implemented?

c) Which challenges are national and which are international? Which are individual and which are societal?

d) Which new mathematics should be included (apart from arithmetic, algebra, analysis and geometry), why and from which "advanced standpoint"?

e) What should be the methodology of such a book in order to be read by "the scholar, the student, and the teacher"?

f) Which forms should this book have? Paper, multimedia, web-updated encyclopædia. Are these forms changing content structure?

g) How to integrate "elementary" recent applications in such a book?

For updated information on these events, see

http://www.cim.pt/?q=events