

VII SCHOOL ON ENERGY AND MASS TRANSFER, FREE BOUNDARY PROBLEMS, AND APPLICATIONS

Rosario (Argentina), November 28th - December 3rd, 2005

WORKSHOP ON MATHEMATICAL MODELLING OF ENERGY AND MASS TRANSFER PROCESSES, AND APPLICATIONS

Rosario (Argentina), December 5th – 8th, 2005

FIRST ANNOUNCEMENT

Within the frame of activities planned for the Project PAV2003-00120: Applications and Interdisciplinary Integration of Mathematics, Subproject # 5: Mathematics and Physics: "Modelization and Mathematical Analysis of the Heat and Mass Transfer and its Applications", financed by the National Agency of Scientific and Technological Promotion of Argentina (ANPCyT), the VII School on Energy and Mass Transfer, Free Boundary Problems and Applications and the Workshop on Mathematical Modeling of Energy and Mass Transfer Processes and Applications will be made in Rosario, Argentina, from November 28th to December 8th, 2005.

In Sciences (mainly Applied Mathematics, Physics, Chemistry, Geophysics/Geology and Meteorology) and in different Engineering areas, numerous energy and mass transfer problems appear, particularly those denominated free boundary problems. For example:

- 1.- In drying of biological materials, when water changes from a liquid phase to steam in the interior of grains or fruits;
- 2.- In food freezing when water changes from liquid to ice in its interior;
- 3.- In heat energy transfer by conduction, convection and radiation, particularly in solar energy and in evaluation of solar resources;
- 4.- In solidification of materials;
- 5.- In ground freezing;
- 6.- In food cooking;
- 7.- In solid combustion and dissolution.

These problems demand the development of diverse subjects of the general theory of: Partial Differential Equations (Parabolic and Elliptical), Variational Inequalities, Integral Equations, Numerical Analysis, Energy and Mass Transfer.

The considerable advance in the theoretical development of these subjects at national and international level and its potential applications to different areas of Applied Sciences and Technology compel the achievement of this School and this Workshop.

EVENT SITE:

-Depto. de Matemática, FCE, Univ. Austral, Paraguay 1950, (S2000FZF) Rosario, Argentina.
Tel: (0341) 481- 4990, Fax: (0341) 481-0505.
E-Mail: tem@fce.austral.edu.ar

-Observatorio Astronómico Municipal de Rosario
Parque Urquiza, Rosario, Argentina.

GOALS

- * Physical-chemical treatment and mathematical modelization of energy and mass transfer problems related to diverse applications.
- * Theoretical and numerical study of parabolic and elliptical differential equations with constant and temperature variable thermal coefficients, and Volterra integral equations, and also of variational inequalities involved in these processes.
- * Entailment and accomplishment of agreements with research groups and/or other Argentine and foreign basic and applied research institutions of international level, in which analogous problems to those proposed in the Project are studied in order to induce a useful scientific interaction.
- * Formation of Doctors and young investigators in the energy and mass transfer applied mathematical techniques, of fundamental importance in a great number of practical applications.

RESEARCHERS/STUDENTS/ PROFESSIONALS

- Researchers and Graduates in Mathematics, Physics (Energy and Mass), Chemistry, Engineering professionals and students (and compatible branches), with basic knowledge on differential equations.

ACTIVITIES

* *VII School on Energy and Mass Transfer, Free Boundary Problems and Applications* (Rosario, November 28th - December 3rd, 2005):

Advanced mini-courses on the following subjects: Heat Differential Equation and Numerical Analysis, Physical Foundations in Energy and Mass Transfer in Foods, Metallurgy, Energy Production, Solar Radiation, Chemical Processes.

* *Workshop on Mathematical Modeling of Energy and Mass Transfer Processes and Applications* (Rosario, December 5th – 8th, 2005):

Lectures delivered by specialists in the subject.
Communications of scientific works.

WORKS PRESENTATION

Authors who are interested to expose his works on compatible subjects will have to submit the corresponding extended summaries in English or Spanish (A4 page, with typography bold Arial 11) and in pdf format, no later than September 15th, 2005. These summaries must have a brief review about the present state of the subject and a description of the obtained results giving the *most concrete possible* information on these results. Accepted works will be notified no later than October 15th, 2005.

PUBLICATIONS

The courses, conferences and communications will be published in the Acts of the meeting. Those authors that are interested to publish the complete work of its communications will have the chance to have them evaluated in "Latin American Applied Research" or "MAT - Series A" journals.

ECONOMIC AID

Financial aid is expected to be granted to Advanced undergraduate students, Doctoral students and recent Doctors from Latin America. Those who wish to ask for these scholarships will have to complete the attached form and to send it by email (tem@fce.austral.edu.ar) accompanied by a brief Curriculum Vitae and a reference note before September 15th, 2005. Answers will be sent during the month of October.

SCIENTIFIC COMMITTEE

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REGISTRATION FORM AND CORRESPONDENCE

By email: tem@fce.austral.edu.ar

By mail:

Comité Organizador
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Departamento de Matemática,
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Paraguay 1950
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Tel: (0341) 481- 4990
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Remark: Students from related disciplines, advanced graduate and undergraduate students working on Sciences (Mathematics, Physics, Chemistry, Geophysics/Geology and Meteorology or related) and in different Engineering areas, will have to enclose with the Registration Form (sent by Fax or email by means of scanning process) a Reference Note signed by a professor or authority of their career.

REGISTRATION FORM

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BOUNDARY PROBLEMS, AND APPLICATIONS**

Rosario, Argentina

November 28th - December 3rd , 2005

**WORKSHOP ON MATHEMATICAL MODELLING OF ENERGY AND MASS
TRANSFER PROCESSES AND APPLICATIONS**

Rosario, Argentina

December 5th – 8th , 2005

Name:

Graduated: yes / no

Status (Professor, Doctor, PhD Student, etc):

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Student: yes / no (*career level:*

University or Organization:.....

Address:

City: C.P.:

Country / Region:.....

Telephone number: Fax Number:

Email Address:

I ask for financial aid:

Travel: yes/no

Hotel: yes/no (from to

Professor / Researcher that send the Reference Note (in case
of graduate or undergraduate students):

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