



ANNOUNCEMENTS

EUROTHERM Seminar No. 53: Advanced Concepts and Techniques in Thermal Modelling

8–10 October 1997, Thermique et Emploi des Combustibles, Faculté Polytechnique de Mons, Mons, Belgium

EUROTHERM 53

This is the second Eurotherm seminar devoted to the topic “Advanced concepts and techniques in thermal modelling”. It is a wish of the participants to the first seminar, in 1994, that a review be made—periodically—of the **progress achieved in the field of thermal modelling**. It is also an opportunity to establish a **contact with scientists who practice modelling in other disciplines and use concepts and methods**—less familiar to the thermal scientists—that could be applied, with some advantage, in thermal modelling.

SCOPE OF THE SEMINAR

The **scope of the seminar** will then be best specified by developing the content of the term “modelling”. Four headings may be distinguished: motivation, mathematical formulation, equation transformation, and (numerical) solution. Numerous variations exist under these different headings:

- **motivation**: beside mere *simulation*, there may be *stability investigation*, *identification of boundary conditions*, *parameter identification* (physical property or empirical coefficient), *data reconciliation*, *sensitivity analysis*, *optimization*, *monitoring and/or control*, *safety study*, ...
- **mathematical formulation** (model building): most commonly, it is based on the application of the *conservation principles to a volume element of continuous medium*; variety may result from the diversity of the *phenomena or effects taken into account*; but one may derive equations

from the application of *variational principles* or use “universal” stereotypes like state equations, bondgraphs, neural networks, ... On the other hand, namely for non-continuous medium, the “principles” are to be expressed for a population of individuals: e.g. *Monte Carlo*, *molecular dynamics*, ... and some particular features like *fractality* may occur.

- **equation transformation** may consist of *discretization* (*spatial*, *spectral*, *modal*, ...) *preconditioning*, *mathematical transformation* (*body-fitted coordinates*, *Laplace transforms*, ...), *Lagrangian recasting*, *order reduction*, *filtering*, ...
- finally, numerous variations still exist at the **solution level**: those corresponding to the peculiarities of the equations to be solved (*non-linearities*, *matrix structure*, *stiffness*, *ill-conditioning*, ...), but also those related to computational efficiency (*adaptive meshing*, *adaptive time steps*, *multigrid*, ...) or the structure of the computer (*parallel computation*, ...).

SEMINAR SECRETARIAT

For further information please contact:

Dr P. Lybaert
 Thermique et Emploi des Combustibles
 Faculté Polytechnique de Mons
 Rue de l'Épargne 56
 B-7000 Mons
 Belgium
 Phone: +32 (65) 37 44 59
 Fax: +32 (65) 37 44 00
 e-mail: euro53@stecsgl.fpm.ac.be

The Tenth International Symposium on Transport Phenomena (ISTP-10) in Thermal Science and Process Engineering

30 November–3 December 1997, Kyoto Research Park, Kyoto, Japan

BACKGROUND

This multidisciplinary, international conference will provide a forum for researchers and practitioners to exchange information, present new developments, and discuss the future directions and priorities in the areas of transport phenomena. The conference theme for ISTP-10 is **Thermal Science and Process Engineering** in the 21st century. Previous ISTP symposia were Honolulu 1985 (Rotating Machinery), Tokyo 1987 (Turbulent Flows), Taipei 1988 (Thermal Control), Sydney 1991 (Heat and Mass Transfer), Beijing 1992 (Heat

Transfer), Seoul 1993 (Thermal Engineering), Acapulco 1994 (Transport Phenomena in Manufacturing Processes), San Francisco 1995 (Combustion) and Singapore 1996 (Thermal Fluids Engineering).

SCOPE

Papers which deal with any aspects of transport phenomena ranging from fundamental sciences to applied tech-