

ANNOUNCEMENTS

SHORT COURSES

on

MULTIPHASE FLOW AND HEAT TRANSFER: BASES, MODELING AND APPLICATIONS IN (A) THE NUCLEAR POWER INDUSTRY AND (B) THE PROCESS INDUSTRIES

Hosted by

Swiss Federal Institute of Technology (ETH), Zurich, Switzerland

22-26 March 1993

The modular courses feature coordinated, comprehensive series of lectures by experts and are of interest to practising engineers and to researchers who wish to obtain a condensed and critical view of present basic knowledge, modeling and numerical techniques (Part I) or information on the state-of-the-art regarding applications in specialized industries (Parts IIA and IIB).

The courses aim at an interdisciplinary transfer of knowledge. Applications this year cover nuclear and chemical plant safety (with an emphasis on severe accidents), steam generators, oil-gas transport etc.

The lecturers

Sanjoy Banerjee, Professor at the Department of Chemical and Nuclear Engineering, University of California, Santa Barbara, U.S.A.

Michael L. Corradini, Professor of Nuclear Engineering and Engineering Physics at the University of Wisconsin, Madison, U.S.A.

Gad Hetsroni, Danciger Professor of Engineering at Technion—Israel Institute of Technology, Haifa, Israel.

Geoffrey F. Hewitt, Professor of Chemical Engineering at Imperial College, London, England.

Stephen M. Richardson, Reader in Chemical Engineering at Imperial College, London, England.

George Yadigaroglu, Professor of Nuclear Engineering at the Swiss Federal Institute of Technology in Zurich (ETHZ) and Head of the Thermal-Hydraulics Laboratory at the Paul-Scherrer Institute, Switzerland.

Contents of lectures

Part I. Bases (3 days)

1. Introduction and basics
2. Basic equations
3. Flow regimes, pressure drop and void fraction
4. Phenomenological modeling: continuous flow
5. Phenomenological modeling: intermittent flow
6. Closure relationships
7. Two-phase heat transfer
8. Post-dryout heat transfer
9. Numerical methods
10. Multidimensional modeling
11. Computer codes
12. Instabilities in two-phase flow

Part IIA. Water Reactor Applications (1½ days)

- 13A. LOCA phenomena
- 14A. Severe accidents
- 15A. Codes for transient and accident analysis

- 16A. Severe accident codes
- 17A. Steam generators
- 18A. Vapor explosions

Part IIB. Process and Petroleum Industry Applications (1½ days)

- 13B. Two-phase flow in pipelines
- 14B. Emergency relief system vent sizing
- 15B. Oil/water/gas flows: characteristics and measurement
- 16B. Dense gas and mist dispersions
- 17B. Transient multiphase multicomponent releases
- 18B. Fires and explosions

For further information contact:

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ENGINEERING FOUNDATION WORKSHOP: FLUID-PARTICLE INTERACTIONS III

Davos, Switzerland
 9-14 May 1993

Chairmen

H. Kytömaa, MIT, Cambridge, MA [Tel. (617) 253-0006; Fax (617) 258-8559; e-mail Kytomaa @ eagle. edu].
P. Foscolo, l'Aquila, Italy [Tel. 862-43-2604; Fax 862-43-2533]

Organizing Committee

H. Bieber (Engineering Foundation), **C. Crowe** (University of Washington), **G. Hetsroni** (Technion), **J. Jenkins** (Cornell University), **S. Kim** (University of Wisconsin), **S. Savage** (McGill University), **G. Wallis** (Dartmouth College). *U.S. Industry:* **A. Weimer** (Dow Chemical), **R. Contractor** (DuPont), **R. Davies** (DuPont). *Europe:* **A. d'Alessio** (Naples), **L. Gibilaro** (UCL), **J. Gregory** (UCL), **P. Rowe** (UCL), **J. Wether** (Technical University Hamburg).

Purpose of This Workshop

The principal goal of this workshop is to provide an informal forum for open discussion of novel ideas and findings on fluid-particle interactions. The meeting will be held remote from the distractions of daily business, in the congenial surroundings of the Swiss Alps.

Particulate flows continue to challenge industry and are central to numerous natural processes. As the subject is inherently multidisciplinary, the meeting will draw from numerous disciplines that deal with particulate processes: physics, mechanical, chemical, civil engineering, geophysics; only to mention the most obvious. In addition, the success of this meeting will also depend on our ability to attract a strong representation from people who practise the use of fluid-particle systems in their daily business, namely the petroleum, mining, materials processing and manufacturing industries. The solicitation of this workshop is aimed at representatives of the above disciplines and applications, and their participation is viewed as essential.

It is hoped that this workshop will extend the frontiers of the subject by fostering a free and informal exchange of ideas among persons actively interested in the subject. To this end, participants will be encouraged to present up-to-date information on the latest developments, to provoke suggestions concerning underlying theories and suggest possible methods of achieving progress.

Document Preparation

Participants of this meeting who wish to have their work published will have the opportunity to do so in the *International Journal of Multiphase Flow*. Professor Gad Hetsroni has agreed to serve on the Organizing