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ANNOUNCEMENT

Short courses on multiphase flow and heat transfer: (I) bases, (IIA) water reactor applications, and (IIB) computational modelling

Hosted by the Swiss Federal Institute of Technology (ETH), Zurich, Switzerland, 20–24 March 1995

These modular courses feature coordinated, comprehensive series of lectures by experts in their fields. Part I is of interest to practicing engineers and to researchers who wish to obtain a condensed and critical view of the present fundamental knowledge, modelling and basic numerical techniques in multiphase flow.

Part IIA covers two-phase flow phenomena and applications of particular interest to the nuclear industry, with emphasis on severe accidents and on advanced light water reactors (LWRs).

Part IIB covers in depth computational modelling and computational fluid dynamics (CFD) techniques.

The courses aim at an interdisciplinary transfer of knowledge between the various industries for which two-phase flows are important (nuclear, process, cryogenics, petroleum, etc.).

THE LECTURERS

S. Banerjee, Professor at the Department of Chemical and Nuclear Engineering, *University of California—Santa Barbara.*

M. L. Corradini, Professor of Nuclear Engineering and Engineering Physics at the *University of Wisconsin, Madison.*

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R. T. Lahey, Jr., Edward E. Hood, Jr. Professor of Engineering at *Rensselaer*, U.S.A. and Director of the *Center for Multiphase Research.*

D. B. Spalding, FRS, FEng., Managing Director of *Concentration Heat & Momentum Ltd.* and Emeritus Professor of Heat Transfer at *Imperial College*, London.

G. Yadigaroglu, Professor of Nuclear Engineering at the *Swiss Federal Institute of Technology* in Zurich and Head of the Thermal-Hydraulics Laboratory at the *Paul Scherrer Institute.*

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 models: churn and annular flows
(5) Phenomenological models: slug flows
(6) Closure relationships
(7) Two-phase heat transfer
(8) Post-dryout heat transfer and rewetting
(9) Numerical methods
(10) Compuer codes
(11) Instabilities in two-phase flow
(12) Multicomponent systems

Part II*A. Water reactor applications* ($1\frac{1}{2}$ *days*)
(13A) LOCA phenomena
(14A) Severe accidents
(15A) Codes for transient and accident analysis
(16A) Multiphase containment phenomena in advanced LWRs
(17A) Steam generators
(18A) Vapor explosions

Part II*B. Computational modelling* ($1\frac{1}{2}$ *days*)
(13B) CFD modelling: bases
(14B) Computer simulation of turbulent systems: basic principles
(15B) CFD modelling: application in dispersed systems
(16B) CFD modelling applications: separated flows
(17B) CFD modelling of phase distributions and separation phenomena
(18B) Computer simulation of turbulent systems: applications

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