ANNOUNCEMENTS

THE INSTITUTE OF MATHEMATICS AND ITS APPLICATIONS

NUMERICAL METHODS IN FLUID DYNAMICS
University of Reading: 29–31 March 1982

The IMA is holding a conference from 29–31 March 1982 at the University of Reading on Numerical Methods in Fluid Dynamics. The theme of the conference will be key methods and new applications.

The following have agreed to speak: Professor K. W. Morton, FIMA (University of Reading, U.K.) will give the introductory talk; Professor H. O. Kreiss (Caltech, U.S.A.) 'Finite difference methods: two time scales'; Dr. T. J. Weare (Hydraulics Research Station, Wallingford, U.K.) 'Finite difference methods applied to tidal and estuarial flows'; Professor D. C. Leslie (QMC London, U.K.) 'Finite difference methods applied to turbulent flow'; Dr. J. Rae (AERE Harwell, U.K.) 'Finite element solutions for Navier Stokes equations'; Professor T. J. R. Hughes (Stanford University, California) 'Finite element methods applied to fluid/structure interactions'; Professor A. Brandt (The Weizmann Institute of Science, Israel) 'Multigrid techniques applied to finite element and finite difference

methods': Dr. B. J. Hoskins (University of Reading, U.K.) 'Spectral methods in meteorology'; Professor P. Concus (University of California, U.S.A.) 'Calculation of shocks in oil reservoir modelling and porous media'; Professor S. Osher (University of California, U.S.A.), Dr. P. Roe (RAE, Bedford, U.K.) and Dr. N. Hoskins (AWRE, Reading, U.K.) 'Shock modelling in aeronautics'.

In addition contributed papers of 20 minutes presentation time are invited. Papers for presentation at the conference will be accepted on the basis of an abstract of 300 to 500 words. The final date for receipt of abstracts is 30 September 1981 and authors will be notified of the organizing committee's decision by the end of October. Abstracts should be sent to the Deputy Secretary, The Institute of Mathematics and its Applications, Maitland House, Warrior Square, Southend-on-Sea, Essex SS1 2JY. The conference proceedings will subsequently be published.

EIGHTH INTERNATIONAL CONFERENCE ON NUMERICAL METHODS IN FLUID DYNAMICS
28 June–2 July 1982

Preliminary announcement:

The Eighth International Conference on Numerical Methods in Fluid Dynamics will be held in West Germany, 28 June–2 July 1982. The Organizing Committee is pleased to invite all interested scientists and engineers to attend.

The Conference will be held at the Rheinisch-Westfälische Technische Hochschule Aachen. Advances in numerical methods applied to problems in fluid dynamics and solutions of new fluid flow problems established by numerical modelling will be discussed. Several distinguished experts will be invited to give review lectures. Approximately 60 contributed papers will be presented. The participation of young scientists is especially encouraged.

Contributed papers will be selected on the basis of a 1000-word abstract in English to be submitted before 15 December 1981. Authors will be informed of the decision of the Conference Committee by 15 February 1982.

Instructions for the preparation and submission of these abstracts can be obtained from the Conference chairman. Persons interested in receiving additional information on the conference should write to the Conference chairman

Professor Egon Krause, Ph.D.
Aerodynamisches Institut
Wüllnerstr. zw. 5 und 7
51 Aachen, West Germany
Tel.: (0241) 805410

INTERNATIONAL CONFERENCE ON COMPUTATIONAL METHODS AND EXPERIMENTAL MEASUREMENTS

Washington, 29 June–1 July 1982

Objectives:

In view of the increasing activity and the need for interaction between numerical and experimental approaches, an international conference on computational methods and experimental measurements in advanced scientific and engineering research is proposed.

The primary aim of this conference is to provide a forum for presentation and exchange of innovative approaches in the fields of numerical methods and experimental studies, with emphasis on their interaction and application to engineering problems.

Conference themes:

- Experimental versus analytical and numerical results
- Interaction of numerical and experimental models
- Material property characterization through numerical models and experimental prototypes
- Microprocessor implementation for data acquisition and processing phases
- Computer-assisted analysis and display of experimental data
- Interaction of computer codes with experimental systems
- Computer interaction and/or control of real time experiments. Interface with computational models and calibration of mathematical models

Call for papers:

Abstracts are invited on the topics outlined above, with applications to all areas of scientfic and engineering research. The purpose, results and conclusions of the work should be clearly stated, and three copies of the abstract, of no more than 500 words, should be submitted to Dr. C. A. Brebbia or Dr. G. A. Keramidas by 1 November 1981. Authors will be notified of tentative acceptance by December 1981. Final acceptance will be based upon review of the full length paper, which must be received by 1 March 1982.

Abstracts and inquiries regarding the conference should be addressed to one of the organisers:

Dr. C. A. Brebbia
(Conference Secretary) ISCME,
125 High Street,
Southampton SO1 0AA, U.K.
Telephone (0703) 21397

Dr. G. A. Keramidas
Naval Research Laboratory
(Code 5841),
Washington, DC 20375, U.S.A.

The Imperial College Centre for Computational Fluid Mechanics, Heat Transfer and Combustion

SHORT COURSE:—NUMERICAL COMPUTATION OF MULTI-PHASE FLOW

by Professor D. Brian Spalding and supporting staff
2–6 November 1981

For further information please contact:
Mrs. F. Oliver,
Room 440,
Mechanical Engineering Building,
Imperial College,
Exhibition Road,
London SW7.
Phone: 01–589–5111X2412.

INTERNATIONAL CONFERENCE ON CONSTITUTIVE LAWS FOR ENGINEERING MATERIALS: THEORY AND APPLICATION
University of Arizona, Tucson, Arizona 85721, U.S.A., 10–14 January 1983

Call for papers:

The importance for constitutive laws of engineering materials for reliable solutions from analytical and computational procedures has been recognized by the researcher and the practitioner. This growing recognition has resulted in significant recent efforts towards theoretical and experimental research, and implementation of the laws in the solution procedures. Constitutive laws already available in the literature as well as *some new concepts* have been investigated, and in some cases, laws from various fields such as continuum and plasticity theories are studied to seek common grounds.

The objective of this conference is to provide a forum for discussion, review and identification of the future needs for this important subject, for those engaged in theoretical developments and implementation. Specific aims of the meeting are

1. Consideration of major constitutive laws for a wide range of engineering materials and relevant to stress-deformation analysis. Particularly those laws possessing potential for successful applications will be emphasized; this can include laws as those based on elasticity, hypoelasticity, plasticity, viscoelasticity, viscoplasticity, endochronic theories, and rate type models.
2. Consideration of those aspects that pose difficulties in implementation such as
   (a) strong nonlinearity and rate dependence,
   (b) instability,
   (c) path and history dependence,
   (d) static and cyclic loading,
   (e) volume change under shear, and
   (f) frictional slip and debonding at interfaces and joints.
3. Identification of significant constitutive parameters and their determination from appropriate (advanced) laboratory tests.
4. Verification of constitutive models with respect to laboratory tests, and solution of boundary value problems such as metal structures, R. C. structures, soil-structures, interaction and geologic masses.
5. Computational schemes to handle special factors such as strong nonlinearity, large plastic strains, and frictional slip and debonding.
6. Identification of constitutive parameters from measurements of the behaviour of engineering problems.

An International Advisory Committee has been constituted with membership: M. L. Baron, A. Bazant, W. F. Chen, S. C. Cowin, R. O. Davis, C. S. Desai, D. C. Drucker, W. Herrmann, W. D. Liam Finn, R. Fosdik, R. H. Gallagher, T. Kawai, E. Krempl, H. Y. Ko, G. Maier, S. Nemat-Nasser, Z. Mroz, J. T. Oden, K. S. Pister, J. R. Rice, I. M. Smith, W. Wittke and O. C. Zienkiewicz.

The conference will include invited papers dealing with special themes and state-of-the-art, and also papers submitted through this announcement. Interested individuals should send a title and abstract before 30 November 1981. The completed manuscript of selected papers will be due around June 1982. Please send the abstract and title to:
Organizing Committee, Int. Conf. on Constitutive Laws for Engineering Materials, Dept. of Civil Engg. and Engg. Mech., Univ. of Arizona, Tucson, Arizona 85721, U.S.A.

4th International Conference on

FINITE ELEMENTS IN WATER RESOURCES

21–25 June 1982, University of Hannover, Fed. Rep. of Germany

Scope of conference:

The first, second and third international conferences on Finite Elements in Water Resources were held at Princeton University, U.S.A., in 1976, at Imperial College, London, U.K., in 1978, and at the University of Mississippi, Oxford, U.S.A., in 1980.

The principal objectives of the 4th conference at Hannover are to provide an exchange of experience in practical applications, and to establish a forum for discussions about accuracy, economy, and the improvement and limitations of the finite element method. Other related methods of discretization are also within the scope of the conference. New developments in numerical and computational techniques, basic mathematical formulations, and soft- and hardware aspects are also considered to be important topics for an exchange of ideas between theoretically and practically oriented researchers.

For further details contact:

Prof. Holz, Meissner, Zielke
Inst. f. Strömungsmechanik
Conference Finite Elements
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D–3000 Hannover 1
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