BOOK REVIEW

Computational Fluid Mechanics and Heat Transfer

D. A. Anderson, J. C. Tannehill and R. H. Pletcher

The book was written in a textbook format based on course notes used in an advance level and graduate course at Iowa State University. In an introductory section a brief review of the physical significance and the mathematical behaviour of the most common partial differential equations encountered in fluid mechanics and heat transfer is presented, followed by the introduction of the basic fundamentals of finite difference techniques. These techniques are then applied to obtain the solution of selected model equations (wave, conduction, Laplace and Burgers). The individual characteristics of the various schemes are illustrated and discussed.

The remainder of the book is devoted to specific applications. A detailed discussion of the appropriate differential equations including those associated with turbulent flows, is followed by a detailed study of the numerical solutions of the equations associated with invicid flow, boundary layer, 'parabolized' Navier Stokes and the complete Navier Stokes equations. The last topic discussed is grid generation.

The treatment of the fundamentals and the application of finite difference techniques in fluid mechanics and heat transfer is well organized and masterfully presented. No generalized programs are presented, but the reader is given all the information he needs to formulate his own program or gain a more complete understanding of an existing algorithm. This book will make a valuable addition to the library of those involved in CFD activities.

Frank W. Schmidt
Department of Mechanical Engineering,
Pennsylvania State University,
PA, USA

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Measurement Techniques in Heat and Mass Transfer

Ed. R. I. Soloukhin, Heat and Mass Transfer Institute, Minsk, USSR, N. H. Afgan, International Centre for Heat and Mass Transfer, Belgrade, Yugoslavia

The book consists of papers presented at the XV International Center for Heat and Mass Transfer Symposium devoted to heat and mass transfer measurement techniques. The book is divided into three parts.

The first deals with *optical methods*, in which a total of sixteen papers are presented. The topics covered included two phase flow measurements, optical sizing of particles, flow visualization, pyrometry, spectrophotometry, shadow graph, schlieren, interferometry, pyrometry and infrared techniques, and mass transfer.

The second deals with *recent development in heat and mass transfer measurement*, in which there are a total of twenty papers. Topics range over mass and heat transfer analogy; temperature, pressure, velocity, heat flux, turbulence, and wall friction measurements; sensor transient response studies; radiation and thermal physical property measurement techniques and coihcidence analysis.

The third deals with *power engineering measurement*. There is one survey paper on research and operational measurements on power station boilers and five papers related to nuclear reactor operation and safety studies.

As typical of conference proceedings, one should not expect an even coverage of each subject. However, there are enough interesting papers, especially some of the review papers, to make the book a worthwhile acquisition for any research group or technical library. This is not a book from which to learn measurement techniques. Aside from researchers and students that might have interest in an individual paper, it is useful as a source of reference for researchers in heat transfer. It is probably most useful as a source of ideas when one is faced with a measurement problem. For a reader interested in specific subjects, the extensive index should be very useful.

Tze Yao Chu
Geothermal Research Division,
Sandia National Laboratoratories,
USA

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