BOOK REVIEW

Numerical Heat Transfer

T. M. Shih

The author has subdivided the book into four parts. In the first part he presents a preliminary discussion of the various methods including finite difference, Galerkin and variational methods with finite elements, collocation and perturbation methods. In part two these techniques are applied to the solution of conduction, convection and radiation problems. A brief description of the application of these techniques to free and mixed convection, turbulent flows and combustion is given in part three. The last part evaluates the errors introduced in the various methods.

The book is well written and the author offers numerous examples and problems. Extensive references and a nomenclature are given at the end of each chapter. The book is quite complete in its coverage, although perhaps a more descriptive title might be 'Computational Methods in Heat Transfer'.

The organization of the book is of some concern. The author is constantly jumping from one method to another. If a reader is interested in a specific method, ie finite difference, finite element etc, he starts with the identification of the section dealing with the method in the application section. He must then read one or two sections of a certain chapter(s) in part one. There is a danger that in skipping about from section to section and chapter to chapter he will miss some important concepts which prevent him from obtaining a complete understanding of the theory, implementation, evaluation of computational error and limitations of the method.

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Forthcoming articles

Heat transfer in tube assemblies under conditions of laminar axial, transverse and inclined flow
K. A. Antonopoulos

Mass and heat transfer by natural convection in a vertical cavity
A. Bejan

Pressure losses in transitions between square and rectangular ducts of the same cross-sectional area
E. I. Dekam and J. R. Calvert

The influence of oscillations on the natural convection in ship tanks
S. Doerffer and J. Mikielewicz

Local Nusselt number and temperature field in turbulent flow through a heated square-sectioned U-bend
R. W. Johnson and B. E. Launder

Heat transfer promotion with a cylinder array located near the wall
Y. Kawaguchi, K. Suzuki and T. Sato

Vortex amplifier internal geometry and its effect on performance
C. F. King

Performance of a small air-lift pump
D. A. Kouremenos and J. Staicos

Two-phase heat transfer correlation for multi-component mixtures in the saturated flow-boiling regime
M. A. Kusumowardhoyo and T. Hardianto

Turbulent heat transfer in a flat plate boundary layer disturbed by a cylinder
E. Marumo, K. Suzuki and T. Sato

Experimental results for nucleating steam flow in a two-dimensional supersonic duct and comparison with theory
M. Moheban and J. B. Young

'Pop' safety valves: a compressible flow analysis
G. J. Parker

Effects of free stream turbulence on the distribution of heat transfer around turbine blade sections
W. J. Priddy and F. J. Bayley

Calculation of the reflected wave from a pipe with a nozzle end by the Lax-Wendroff method
M. D. Warren

The friction factor of finite and infinite square arrays of roughened pins
D. Wilkie

These articles, listed in alphabetical order of first-named author, will appear in forthcoming issues of the *International Journal of Heat and Fluid Flow.*