

Book Review

Fundamental Principles of Heat Transfer. Stephen Whittaker May 1977. Pergamon Press Inc New York. 556 pp 265 fig 61 tables \$ 50.00

The author states in the preface that this book is intended to provide a comprehensive treatment of the fundamental aspects of conduction, convection and radiation. However, the majority of people involved in using thermal methods of analysis are likely to find Professor Whittaker's book rather far removed from their sphere of interest. Nevertheless, physicists, engineers and theoreticians practising thermal analysis should find the contents of value although it must be pointed out that most of the systems considered are macroscopic.

The book has been designed as a learning course to guide both lecturers and students of engineering. As such it is a complete and thorough mathematical treatment, the understanding of which requires familiarity with thermodynamics and fluid mechanics, differential equations and vector analysis. The book has been carefully thought out, is well written and presented; each chapter contains

worked problems and many more for which no answer is given. It is unfortunate that fps and not SI units have been used.

Separate chapters deal with Steady One and Two Dimensional Heat Conduction; Transient Heat Conduction; Momentum and Energy Transport; Turbulent Flow (The objective of this chapter is to derive the time-averaged transport equations and present qualitative description of turbulent transport processes); Macroscopic Balances; Thermal Radiation; Radiant Energy Exchange; Heat Transfer with Boiling and Condensation and Design of Heat Exchanges.

"Fundamental Principles of Heat Transfer" is strictly an educational book of necessity such a book cannot be easily read and although a worthwhile contribution to the literature of heat transfer the reviewer feels it has little direct application to the field of thermal analysis because of the examples treated, nevertheless, since the principles of heat transfer are often neglected by the practising thermal analyst and do merit serious consideration it seems appropriate to review it.

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