BOOK REVIEW

Turbulent Flows in Gas Suspensions
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A. A. Dolinsky, Editor
Hemisphere Publishing Corp.

Turbulent flows in gas suspensions has been an area of enduring interest in the technical literature for many years. Research in this area has reached sufficient maturity to enable the writing of a more comprehensive work that develops the theory of turbulent flows of two phase mixtures. This is the objective of the Soviet authors of this text. For the most part, they are successful in this task.

The authors use the turbulent two-phase jet as their vehicle for developing the theory of gas suspension flow. This is a commonly used vehicle; however, the authors are not reluctant to go beyond the point where most work in the technical literature stops. In particular, they take on the subjects of heavily laden flows (in which there is substantial particle-particle, as well as particle-fluid, interaction) and the development of a theory of turbulent particle fluctuations. The governing transport equations for two-phase flows are derived rigorously using classical Reynolds averaging techniques. The authors make an additional contribution by insisting throughout to continue developing these equations until numerically tractable forms are obtained that may be used for predicting two-phase flows. Consequently, this text is of interest to the numerical modeller and practitioner.

Unfortunately, there are a few features that detract from the text's effectiveness. First, the type and font used to express the mathematical equations is somewhat difficult to read and in many places is light and spotty. Second, the work may be difficult to use as a reference source. Some references attribute western texts to Russian publishers (i.e., Shlihting (sic), G., *Theory of boundary layer*, Moscow, Nauka, 1974, 712 pp.). However, western journal references are accurately presented. A frustrating consequence of the large number of Soviet references is that many of these references appear to be so interesting that one is disappointed that they are not readily available. However, the parts of the text that cite these Soviet works are sources of interesting insights and perspectives. Finally, there is a description of measurement techniques and two-phase equipment that is so brief and out-of-context that it would have best been omitted.

For the most part, the positive aspects of *Turbulent Flows in Gas Suspensions* outweigh the negative. Although this text is probably inappropriate as a reference source or primer for the uninitiated, it will provide a valuable source of new ideas, perspectives, and theoretical development for the experienced researcher in this area.

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Books Received But Not Reviewed

Heat Transfer in LNG Engineering, by A. S. Adorjan (Hemisphere Publishing Corp.)

Computational Techniques and Applications: CTAC-89, edited by W. L. Hogarth and B. J. Noye (Hemisphere Publishing Corp.)

Applied Numerical Methods with Software, by S. Nakamura (Prentice Hall)

Incinerating Municipal and Industrial Waste, edited by R. W. Bryers (Hemisphere Publishing Corp.)

ASME Symposium Volumes:

Advances in Gas-Liquid Flows, 1990, edited by J. H. Kim, V. S. Rohatgi and A. Hashemi (FED - vol. 99; HTD - vol. 155)

Industrial Applications of Fluid Mechanics, edited by S. A. Sherif, L. R. Marshall, T. B. Morrow and C. Dalton (FED - vol. 100)

Fluid Machinery Components, edited by D. L. Rhode and J. Tuzson (FED - vol. 101)

Recent Advances and Applications in Computational Fluid Dynamics, edited by O. Baysal (FED - vol. 103)

Power Plant Transients, 1990, edited by R. R. Schultz, M. J. Braun and C. D. Ponce-Campos (FED - vol. 104)