

Book Announcements

NASH, W., *The Mathematics of Nonlinear Mechanics*, CRC Press, Boca Raton, FL, 1993, 352 pages. \$72.00

Purpose: This text discusses geometric as well as material nonlinearities from an applications viewpoint.

Contents: Introduction to nonlinear ordinary differential equations; introduction to partial differential equations; stability of nonlinear systems; geometrically nonlinear steady-state behavior; transient oscillations of nonlinear systems; almost periodic oscillations of mechanical systems; nonlinear waves; applications in materials science.

BENDAT, J. S., and PIERSOL, A. G., *Engineering Applications of Correlation and Spectral Analysis* (2nd ed.), Wiley, New York, 1993, \$64.95.

Purpose: This reference gives a detailed account of how to apply data on the measurement and analysis of physical phenomena in the form of correlation and spectral density functions.

Contents: Nonlinear systems analysis techniques and applications; MIMO models with correlated input and output; measure of frequency response functions; random error criteria; bias errors; applications in aerospace dynamics.

MURTHY, T. K. S. (ed.), *Computational Methods in Hypersonic Aerodynamics*, Kluwer Academic, Norwell, MA, 1992, 400 pages, \$149.00.

Purpose: This book contains a collection of research monographs on computational methods in hypersonic aerodynamics, authored by some of the most eminent scholars in the field.

Contents: Viscous hypersonic flow; point-implicit strategies; flux-split algorithms; multigrid methods; laminar turbulent transition; real gas effects; design optimization; unstructured grid methods; upwind finite volume methods.

KLIMONTOVICH, Y. L., *Turbulent Motion and the Structure of Chaos*, Kluwer Academic, Norwell, MA, 1992, 412 pages, \$139.00

Purpose: This monograph gives a detailed theoretical analysis of the relationship between dynamic and statistical descriptions of system instabilities.

Contents: Evolution of entropy; entropy production in open systems; fluctuation dissipation relations; Brownian motion; Boltzmann-Gibbs-Shannon entropy measure of order in open systems; turbulent motion; structure of chaos.