

Book Announcements

WIGGINS, S., *Chaotic Transport in Dynamical Systems*, Springer-Verlag, New York, 1992, 301 pages.

Purpose: This is a graduate-level text on global phase space motion of nonlinear dynamical systems.

Contents: Transport in two-dimensional maps: general principles and results; convective mixing and transport problems in fluid mechanics; transport in quasiperiodically forced systems: dynamics generated by sequence of maps; Markov models; transport in k -degree-of-freedom Hamiltonian systems, $3 \leq k \leq \infty$; the generation of separatrices to higher dimensions and their geometrical structure.

HAUG, E. J., *Intermediate Dynamics*, Prentice-Hall, Englewood Cliffs, NJ, 1992, 417 pages.

Purpose: This book treats the basic theory and methods of mechanical system dynamics for seniors and first-year graduate students.

Contents: Newtonian dynamics, kinematics, and variational methods for systems modeled as particles; kinematics and dynamics of a rigid body; introduction to multibody dynamics.

STEVENS, B. L. and LEWIS, F. L., *Aircraft Control and Simulation*, Wiley Interscience, New York, 1992, 617 pages, \$69.95.

Purpose: This book presents a unified treatment of the dynamics and control of aircraft. It should be useful for seniors, first-year graduate students, and the practicing engineer.

Contents: Equations of motion; building the aircraft model; basic analytical and computational tools; aircraft dynamics and classical design techniques; modern design techniques; robustness and multivariable frequency-domain techniques.

CHIU, C. K., *An Introduction to Wavelets*, Academic Press, San Diego, CA, 1992, 264 pages.

Purpose: This book presents an introductory treatment of wavelet analysis with an emphasis on spline-wavelets and time-frequency analysis.

Contents: Overview; Fourier analysis; wavelet transforms and time-frequency analysis; cardinal spline analysis; scaling functions and wavelets; cardinal spline-wavelets; orthogonal wavelets and wavelet packets.

BASAR, T. and BERNHARD, P., *H^∞ -Optimal Control and Related Minimax Design Problems*, Birkhauser, Boston, 1991, 224 pages.

Purpose: This book treats the worst-case design problem in the dynamic game theory setting. It is useful as a text for a second-level graduate course in this area.

Contents: A general introduction to minimax (H^∞ -optimal) designs; basic elements of static and dynamic games; discrete-time minimax design problem with perfect and imperfect state measurements; continuous-time systems with perfect and imperfect state measurements; performance levels for minimax estimators.

BLAKELOCK, J. H., *Automatic Control of Aircraft and Missiles*, 2nd ed., Wiley Interscience, New York, 1991, 646 pages.

Purpose: This is an updated version of the earlier volume. It contains considerable new material and examples of current interest.

Contents: Longitudinal dynamics and autopilots; lateral dynamics and autopilots; inertial cross-coupling; self-adaptive autopilots; missile control systems; guidance systems; integrated flight/fire control systems; multivariable control systems; structural flexibility; application of statistical design principles; pilot modeling.