

# Book Announcements

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**AIAA Recommended Practice for Atmospheric and Space Flight Vehicle Coordinate Systems**, AIAA, Washington, DC, 1992, 65 pages, \$34.95 (Members), \$44.95 (Nonmembers).

**Purpose:** This document provides a means to describe mathematically the dynamics of flight vehicles, including axis systems, angles, velocities, forces, moments, energy, and their derivatives.

**Contents:** Coordinate systems; kinematics; forces and moments; force and moment coefficients; motivators; quantities related to energy.

**GRIFFIN, M. D. and FRENCH, J. R., *Space Vehicle Design***, Education Series, AIAA, Washington, DC, 1991, 465 pages, \$47.95 (Members), \$61.95 (Nonmembers).

**Purpose:** This book treats space vehicle design starting from an overall description of the mission. It is suitable for seniors as well as practicing engineers.

**Contents:** Mission design; environment; astrodynamics; propulsion; atmospheric entry; attitude determination and control; configuration and structural design; thermal control; power; telecommunications.

**MALYSHEV, V. V., KRASILSHIKOV, M. N., and KARLOV, V. I., *Optimization of Observation and Control Processes***, Education Series, AIAA, Washington, DC, 1992, 400 pages, \$45.95 (Members), \$65.95 (Nonmembers).

**Purpose:** This advanced text generalizes the classic theory of regression experiment design in case of Kalman-type filtering in controllable dynamic systems. The developed techniques are applied for enhancing efficiency of spacecraft navigation and control.

**Contents:** Probabilistic criterion in problems of observation and control; optimal design of the observation process (stochastic approach); optimal filtering and optimal design of the observation process (guaranteeing approach); optimization of active experiments; control-process optimization as a problem of design.

**ISAKOWITZ, S. J., *International Reference Guide to Space Launch Systems***, AIAA, Washington, DC, 1991, 295 pages, \$25 (Members), \$40 (Nonmembers).

**Purpose:** This reference summarizes the proliferation of the launch programs of various countries.

**Contents:** History; general description; vehicle; performance; operations; payloads accommodations; notes.

**UTKIN, V. I., *Sliding Modes in Control and Optimization***, Springer-Verlag, New York, 1991, 286 pages, \$119.

**Purpose:** This volume addresses mathematical, control, and technological aspects of discontinuous control systems.

**Contents:** Mathematical tools; design; applications.

**LEMEHAUTE, A., *Fractal Geometries: Theory and Applications***, translated by J. Howlett, CRC Press, Boca Raton, FL, 1991, 200 pages, \$39.95.

**Purpose:** This book is designed for researchers, engineers, and experimentalists faced with problems of measure and action in heterogeneous materials and environments.

**Contents:** The discovery of fractal geometry: measures of dimension, time in fractal geometry; derivatives of non-integral order; composition of fractal geometries; applications.