

on Fundamental Flame Processes; Part 13) Colloquium on Chemical Reactions and Phase Changes in Supersonic Flow; Part 14) Colloquium on Modeling Principles; Part 15) Colloquium on Reciprocating Engine Combustion Research.

This symposium, organized by the Combustion Institute, was held at Cornell University, Ithaca, N. Y., August 27-September 1, 1962. The volume represents a collection of the most recent research results obtained during the past two years in the United States, Europe, and the Far East.

Random Vibration, edited by Stephen H. Crandall, *Professor of Mechanical Engineering, Massachusetts Institute of Technology* (MIT Press, Cambridge, Mass., 1963), Vol. 2, 319 pp. \$7.50.

Contents: 10 chapters contributed by different authors. 1) Basic Theory of Random Vibration; 2) Measurement of Stationary Random Processes; 3) Non-stationary Random Inputs and Responses; 4) Random Excitation of Nonlinear Systems; 5) Failure Resulting from Vibration; 6) Noise of High-Speed Missiles; 7) Response of Space Vehicle Structures to Rocket Engine Noise; 8) Field Measurements, Specifications, and Testing; 9) Vibration Generation; 10) Applications to the Development of Structure and Equipment for Space Missions.

The contents of this book reflect the significant theoretical advances and accumulated practical experience in vibration technology gained in the past five years. The principle applications of the theory are to vehicles, with particular emphasis on missiles, satellites, and space vehicles.

Introduction to the Utilization of Solar Energy, edited by A. M. Zarem, *President, Electro-Optical Systems Inc.*, and Duane D. Erdway, *Electro-Optical Systems Inc.* (McGraw-Hill Book Company Inc., New York, 1963), 398 pp. \$13.50.

Contents: 14 chapters contributed by

different authors. 1) Introduction to the Utilization of Solar Energy; 2) Energy Sources of the Future; 3) Availability of Solar Energy; 4) Diathermanous Materials and Properties of Surfaces; 5) Collection of Solar Energy; 6) Concentration of Solar Energy; 7) Conversion of Solar to Mechanical Energy; 8) Direct Conversion of Solar Energy to Electrical Energy; 9) Photochemical Processes for Utilization of Solar Energy; 10) Economics of Solar Energy; 11) Heating and Cooling of Buildings with Solar Energy; 12) Distillation of Sea Water and Other Low-Temperature Applications of Solar Energy; 13) High-Temperature Applications of Solar Energy; 14) Space Applications of Solar Energy.

This text and reference book is based on a course in solar energy utilization given at the University of California, Los Angeles, and has been designed to supply a thorough treatment of the fundamentals of the subject. It is intended to be used as a text, a supplement, and a reference for the graduate student or the practicing engineer.

Proceedings of the First International Symposium on Rocket and Satellite Meteorology, edited by H. Wexler and J. E. Caskey Jr. (Interscience Division, John Wiley and Sons Inc., New York, 1963), 440 pp. \$15.50.

Contents: 38 papers contributed by different authors and divided into 4 major parts. Part 1) Meteorological Rockets; Part 2) Meteorological Satellites—Radiation Studies; Part 3) Meteorological Satellites—Cloud Studies; Part 4) Meteorological Satellites—Special Studies.

This symposium was held in Washington, D. C., April 23-25, 1962. It was sponsored by the Committee on Space Research, the World Meteorological Organization, and the International Union of Geodesy and Geophysics. These papers are designed to contribute to better understanding of atmospheric phenomena and to wider employment of the powerful new tools made possible by the new age of space.

Error Propagation for Difference Methods, Peter Henrici, *Lehrstuhl für höhere Mathematik, Eidgenössische Technische Hochschule, Zürich* (John Wiley and Sons Inc., New York, 1963), 73 pp. \$4.95.

Chapters: 1) Introduction; 2) Basic Concepts; 3) Stability, Consistency, and Convergence; 4) Asymptotic Behavior of Discretization Error; 5) Asymptotic Behavior of Round-Off Error. *Appendix:* Application to Two Problems of Circular Motion.

This volume, a sequel to the author's *Discrete Variable Methods in Ordinary Differential Equations*, concentrates on the analogous results for the integration of systems by multistep methods. The results contained here were presented, in part, at the Annual Meeting of the Association for Computing Machinery in 1961 and, by invitation, at the Annual Meeting of the Mathematical Association of America in 1961 and at the International Congress of Mathematicians in Stockholm in 1962.

Mechanical Vibrations, Austin H. Church, *Professor of Mechanical Engineering, New York University* (John Wiley and Sons Inc., New York, 1963), 2nd ed., 432 pp. \$12.00.

Chapters: 1) Introduction; 2) Undamped Free and Transient Vibrations—Single Degree of Freedom; 3) Damped Free and Transient Vibrations—Single Degree of Freedom; 4) Steady-State Forced Vibrations—Single Degree of Freedom; 5) Introduction to Laplace Transformations; 6) Electrical Analogies and Mobility; 7) Two Degrees of Freedom; 8) Multimass Lumped Systems; 9) Distributed Systems. *Appendices:* 1) Mathematical Relationships; 2) Characteristic Functions of Beams.

This revised text covers the basic principles needed to analyze the response of dynamic systems to transient or steady-state excitation. Because the book is intended for use in a senior undergraduate or introductory graduate course, topics are developed with a minimum mathematical background (differential equations).

Technical Literature Digest

M. H. Smith, Associate Editor

The James Forrestal Research Center, Princeton University

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EDITOR'S NOTE: Contributions from Professors E. R. G. Eckert, E. M. Sparrow, and W. E. Ibele of the Heat Transfer Laboratory, University of Minnesota, are gratefully acknowledged.

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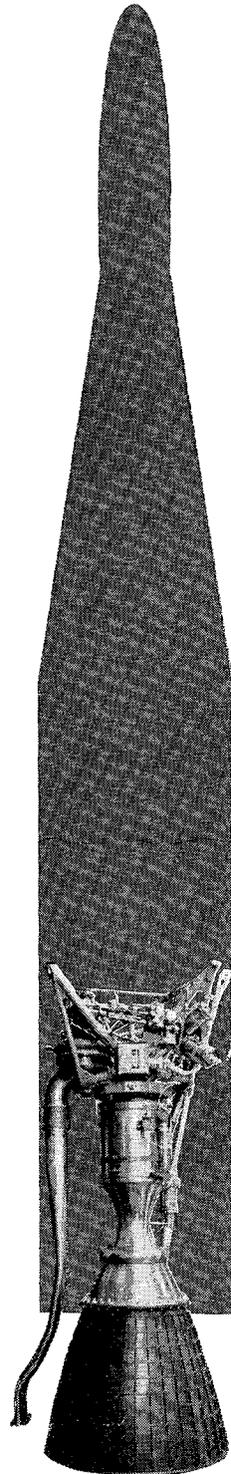
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