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Electric Propulsion Development

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The papers collected in this book deal with electrothermal (arcjet) propulsion; electrostatic (ion) propulsion; electromagnetic (plasma) propulsion; and colloid propulsion. In the first category, problems of heat transfer, energy and momentum transport, thermodynamic equilibrium, energy conversion, cooling corrosion, and systems design are treated; the second deals with problems of ion production, ion optics, beam neutralization, erosion, propellant feed systems, and test model design; the third contains studies of various types of plasma propulsion systems, and of the problems of field-to-plasma coupling, efficiency, thermodynamic equilibrium, heat losses, corrosion, and stability; in the fourth, some problems of colloid production and charging are treated. Further papers deal with test model design and operation, and with various missions for electric propulsion systems. The papers in this collection are the most up-to-date presently available, many of the original manuscripts having been revised for this printing.

Electrothermal Propulsion

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Electrostatic Propulsion

- L. W. SWANSON, R. W. STRAYER, F. M. CHARBONNIER, and E. C. COOPER, Field Emission Microscope Study of the Kinetics of Cesium Layers on a Tungsten Surface
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- CARL T. NORGREN, Onboard Colloidal Particle Generator for Electrostatic Engines
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Electromagnetic Propulsion

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Space Testing and Space Missions

- R. A. HUBACH, Limitations on the Space Test of a Cesium Ion Engine at Altitudes below 1500 km.
R. LODDENGGAARD, S. STRAUSS, and A. RIFKIN, Flight Test Concept for a Pulsed Plasma Pinch Engine
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