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Nota di contenuto	Section 1 Modeling and simulation analysis of the operation of a space propulsion system -- Chapter 1: Introduction -- Chapter 2: Mathematical model of the operation of the space propulsion system -- Chapter 3: Analysis of the response characteristics of the tank pressurization system and a single thruste -- Chapter 4: Analysis of the response characteristics of coupled multiple thrusters during the working process -- Section 2: Modeling and simulation analysis of the operation of the gel propulsion system -- Chapter 5: Mathematical model of the operation of the gel propulsion system -- Chapter 6: Simulation analysis of the operation of the gel propulsion system -- Section 3: Modeling and Simulation Analysis of the Working Process of the Pumped Liquid Rocket Engine -- Chapter 7: Mathematical model of the operation of a pump-fed liquid rocket engine -- Chapter 8: Simulation analysis of the starting process of the pump-fed liquid rocket engine.
Sommario/riassunto	This open access book takes space propulsion system, gel propulsion

system, and pumped liquid rocket engine as research objects and establishes and describes the theory, dynamic model, and numerical calculation method of working process of liquid/gel rocket engine. The first part of this book establishes a mathematical model for the working process of the space propulsion system, including a mathematical model for gas cylinders, an electric explosion valve, a pressure reducing valve, a storage tank, a liquid pipeline, an orifice and filter, an electromagnetic valve, a filling pipeline, and a thrust chamber. The simulation analyzes the characteristics of the start-up, steady-state, and shutdown processes of the space propulsion system. In the second part, the mathematical model of the working process of gel propulsion system is established, and the flow distribution law, water hammer characteristics, and thrust regulation characteristics of gel propulsion system are simulated and analyzed. The third part establishes a mathematical model for the working process of a pumped liquid rocket engine and simulates and analyzes the starting process characteristics of the pumped liquid rocket engine. The above theory or dynamic model reflects the latest research results of the working process of liquid/gel rocket engine. This book is used as a teaching material or reference book for teachers, students, and scientific and technological personnel engaged in the simulation analysis of the working process of liquid/gel rocket engines in the fields of aerospace, aviation, power, etc.