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Nota di contenuto	1. Performance of Rotating Detonation Engines for Air Breathing Applications -- 2. Development of Gasturbine with Detonation Chamber -- 3. Flow Structure in Rotating Detonation Engine with Separate Supply of Fuel and Oxidizer: Experiment and CFD -- 4. Application of Detonation Waves to Rocket Engine Chamber -- 5. Numerical Simulation on Rotating Detonation Engine: Effects of Higher-Order Scheme -- 6. Review on the Research Progresses in Rotating

Detonation Engine -- 7. Continuous Detonation Engine Researches at Peking University -- 8. Pulse Detonation Cycle at Kilohertz Frequency -- 9. On the Investigation of Detonation Re-initiation Mechanisms and the Influences of the Geometry Confinements and Mixture Properties.

Sommario/riassunto

This book focuses on the latest developments in detonation engines for aerospace propulsion, with a focus on the rotating detonation engine (RDE). State-of-the-art research contributions are collected from international leading researchers devoted to the pursuit of controllable detonations for practical detonation propulsion. A system-level design of novel detonation engines, performance analysis, and advanced experimental and numerical methods are covered. In addition, the world’s first successful sled demonstration of a rocket rotating detonation engine system and innovations in the development of a kilohertz pulse detonation engine (PDE) system are reported. Readers will obtain, in a straightforward manner, an understanding of the RDE & PDE design, operation and testing approaches, and further specific integration schemes for diverse applications such as rockets for space propulsion and turbojet/ramjet engines for air-breathing propulsion. Detonation Control for Propulsion: Pulse Detonation and Rotating Detonation Engines provides, with its comprehensive coverage from fundamental detonation science to practical research engineering techniques, a wealth of information for scientists in the field of combustion and propulsion. The volume can also serve as a reference text for faculty and graduate students and interested in shock waves, combustion and propulsion.