Record Nr. UNINA9910811466303321 **Titolo** Liquid rocket thrust chambers [[electronic resource]]: aspects of modeling, analysis, and design / / edited by Vigor Yang ... [et al.] Pubbl/distr/stampa Reston, Va., : American Institute of Aeronautics and Astronautics, Inc., c2004 **ISBN** 1-60086-676-X 1-60086-457-0 1-61583-080-4 Descrizione fisica 1 online resource (760 p.) Progress in astronautics and aeronautics: v. 200 Collana Altri autori (Persone) YangVigor Disciplina 662.6/66 Soggetti Liquid propellants Lingua di pubblicazione Inglese **Formato** Materiale a stampa Livello bibliografico Monografia Note generali Description based upon print version of record. Nota di bibliografia Includes bibliographical references and indexes. ""Cover""; ""Title""; ""Copyright""; ""Table of Contents""; ""Preface""; Nota di contenuto ""Acknowledgments""; ""Chapter 1 Propellant Injection Systems and Processes""; ""Introduction""; ""Rocket Application Design Requirements""; ""Thrust Level and Operating Pressure""; ""Propellant Type"": ""Engine Cycle or Feed System"": ""Common Combustion Device Development Risks""; ""Combustion Instability""; ""Combustion Chamber Overheating and Burnout""; ""Injector Face Erosion""; ""Low Thrust Chamber Assembly Performance""; ""Unsafe Transients""; ""Injection System Design Considerations"" ""Engine Pressure Schedule"""Nozzle Expansion Ratio""; ""Contraction Ratio""; ""Chamber Length""; ""Injection Element and Pattern""; ""Critical Combustion Processes""; ""Injector Manifold Distribution""; ""Injector Spray Atomization""; ""Propellant Droplet Vaporization""; ""Bipropellant Mixing""; ""Candidate Injectors for Liquid Rocket Applications""; ""Coaxial Jet Injectors""; ""Impinging Jet Injectors""; ""Parallel Jet (Showerhead) Injectors""; ""Injector Design Synthesis""; ""Conclusions and R e commendations""; ""References""; ""Chapter 2 Design and Dynamics of Jet and Swirl Injectors"" ""Nomenclature""""Introduction""; ""Classification of Injectors and Methods of Mixture Formation""; ""Liquid Injectors""; ""Gas-Liquid Injectors""; ""Intensification of Propellant Atomization and Mixing in

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""Theory and Design of Gas-Liquid Jet Injectors"""Theory and Design of Liquid Monopropellant Swirl Injectors""; ""Flow Characteristics of Ideal Swirl Injectors"; ""Flow Characteristics of Real Swirl Injectors"; ""Effect of Viscosity on Injector Operation""; ""Design Procedure""; ""Theory and Design of Liquid Bipropellant Swirl Injectors""; ""Injectors with External Mixing""; ""Injectors with Internal Mixing""; ""Modulation of Liquid Spray Characteristics of Swirl Injectors""; ""Design of Gas Swirl Injectors""; ""Design Procedure""; ""Selection of Geometric Dimensions and Flow Parameters""

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