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Disciplina	629.1
Soggetti	Airplanes - Materials Space vehicles - Material Aerospace Technology and Astronautics Structural Materials Manufacturing, Machines, Tools, Processes
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Nota di bibliografia	Includes bibliographical references at the end of each chapters.
Nota di contenuto	Part – I: PROCESSING TECHNOLOGIES -- Chapter 1: Processing of Aerospace Metals & Alloys: Part A - Special Melting Technologies -- Chapter 2: Processing of Aerospace Metals & Alloys: Part B - Secondary Processing -- Chapter 3: Superplastic Forming of Aerospace Materials -- Chapter 4: Welding Technologies in Aerospace Applications -- Chapter 5: Nano Manufacturing for Aerospace Applications -- Part – II: CHARACTERISATION AND TESTING -- Chapter 6: Microstructure: An Introduction -- Chapter 7: Texture Effects in Important Aerospace Materials -- Chapter 8: Physical Property Significances for Aerospace Structural Materials. Chapter 9: Structural Alloy Testing: Part A – Ambient Temperature Properties -- Chapter 10: Structural Alloy Testing: Part B - Creep Deformation and Other High Temperature Properties -- Chapter 11: Non – Destructive Testing and Damage Detection -- Part – III: STRUCTURAL DESIGN -- Chapter 12: Design of Aircraft Structures: An Overview -- Chapter 13: Aircraft Mechanical Systems -- Chapter 14: Design and Structures of Aircraft Engines -- Chapter 15: Missile Propulsion Systems -- Chapter 16: Fatigue Requirements for Aircraft Structures -- Chapter 17: Full-Scale Fatigue Testing -- Chapter 18: Residual Strength Requirements for Aircraft

Structures -- Chapter 19: Stress Corrosion Cracking in Aircraft Structures -- Part – IV: SPECIAL TECHNOLOGIES -- Chapter 20: Aero Stores (Materials) Inspection and Quality Assurance -- Chapter 21: Fatigue Life Enhancement for Metallic Airframe Materials -- Chapter 22: Structural Health Monitoring -- Chapter 23: Failure Analysis and Prevention -- Chapter 24: Airworthiness Certification of Metallic and Non-Metallic Materials: The Indian Approach and Methodologies -- Chapter 25: Lightweight Ballistic Armours for Aero Vehicle Protection. .

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Sommario/riassunto

This book serves as a comprehensive resource on various traditional, advanced and futuristic material technologies for aerospace applications encompassing nearly 20 major areas. Each of the chapters addresses scientific principles behind processing and production, production details, equipment and facilities for industrial production, and finally aerospace application areas of these material technologies. The chapters are authored by pioneers of industrial aerospace material technologies. This book has a well-planned layout in 4 parts. The first part deals with primary metal and material processing, including nano manufacturing. The second part deals with materials characterization and testing methodologies and technologies. The third part addresses structural design. Finally, several advanced material technologies are covered in the fourth part. Some key advanced topics such as “Structural Design by ASIP”, “Damage Mechanics-Based Life Prediction and Extension” and “Principles of Structural Health Monitoring” are dealt with at equal length as the traditional aerospace materials technology topics. This book will be useful to students, researchers and professionals working in the domain of aerospace materials.

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