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Nota di contenuto	Chapter 1. Introduction to Metal Additive Manufacturing -- Chapter 2. Digital Processing Workflow for AM -- Chapter 3. Metal Additive Manufacturing Processes – Laser and Electron Beam Powder Bed Fusion -- Chapter 4. Metal Additive Manufacturing Processes – Directed Energy Deposition Processes -- Chapter 5. Metal Additive Manufacturing Processes – Jetting and Extrusion Based Processes -- Chapter 6. Deformation based AM and Hybrid AM Processes -- Chapter 7. Design for Additive Manufacturing & Cost and Economics of AM --

Chapter 8. Energy sources & Propagation -- Chapter 9. Source Material Interactions -- Chapter 10. Feedstock delivery and dynamics -- Chapter 11. Mechanical response -- Chapter 12. Analytical models -- Chapter 13. Alloy Systems for Additive Manufacturing -- Chapter 14. Metallic Feedstock -- Chapter 15. Solidification During Additive Manufacturing -- Chapter 16. Solid State Transformations and Gas Reactions During the Additive Manufacturing Process -- Chapter 17. Modeling the Microstructure for Additive Manufacturing -- Chapter 18. Multiple Alloy Processing -- Chapter 19. Post Processing -- Chapter 20. Properties and Characteristics of Metallic Materials Produced Using Additive Manufacturing -- Chapter 21. Process Quality and Reliability.

Sommario/riassunto

This textbook and reference provides a comprehensive treatment of additive manufacturing (AM) for metals, including design and digital work flows, process science and reliability, metallic systems, quality assurance, and applications. The book is rooted in the fundamental science necessary to develop and understand AM technologies, as well as the application of engineering principles covering several disciplines to successfully exploit this important technology. As additive manufacturing of metals is the fastest growing subset of this transformative technology, with the potential to make the widest impact to industrial production, Metals Additive Manufacturing: Design, Processes, Materials, Quality Assurance, and Applications is ideal for students in a range of engineering disciplines and practitioners working in aerospace, automotive, medical device manufacturing industries. Adopts an integrated treatment of topics underscoring relationships across disciplines; Emphasizes the science of AM and the application of fundamental science to maximize understanding of the defining mechanisms; Structured to facilitate knowledge acquisition and retention.