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Descrizione fisica	1 online resource (360 pages)
Collana	Mechanical Engineering Series, , 0941-5122
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Soggetti	Manufactures Materials science Mechanical engineering Manufacturing, Machines, Tools, Processes Characterization and Evaluation of Materials Mechanical Engineering
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Nota di contenuto	Chapter 1: Introduction -- Chapter 2: Mathematical modeling of manufacturing processes -- Chapter 3: Numerical modeling and experimentation -- Chapter 4: Manufacturing processes with phase change -- Chapter 5: Continuous materials processing -- Chapter 6: Polymer processing -- Chapter 7: Thin film deposition: micro/nanoscale fabrication -- Chapter 8: Manufacture of optical fibers: drawing and coating processes -- Chapter 9: Other manufacturing processes -- Chapter 10: Simulation, design and optimization of manufacturing systems.
Sommario/riassunto	This book focuses on advanced processing of new and emerging materials, and advanced manufacturing systems based on thermal transport and fluid flow. It examines recent areas of considerable growth in new and emerging manufacturing techniques and materials, such as fiber optics, manufacture of electronic components, polymeric and composite materials, alloys, microscale components, and new devices and applications. The book includes analysis, mathematical modeling, numerical simulation and experimental study of processes

for prediction, design and optimization. It discusses the link between the characteristics of the final product and the basic transport mechanisms and provides a foundation for the study of a wide range of manufacturing processes. Focuses on new and advanced methods of manufacturing and materials processing with traditional methods described in light of the new approaches; Maximizes reader understanding of the fundamentals of how materials change, what transport processes are involved, and how these can be simulated and optimized - concepts not covered elsewhere; Introduces new materials and applications in manufacturing and summarizes traditional processing methods, such as heat treatment, extrusion, casting, injection molding, and bonding, to show how they have evolved and how they could be used for meeting the challenges that we face today.