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Nota di contenuto	Introduction to Microwave Heating and Its Applications in the Composite Industry -- Application of microwave heating in polymer composite manucturing -- Chronological Development in Microwave Heating Technology: Design and Applications -- Recycling of Thermoset Composite Waste: End of Life Solution -- Drilling of Ceramics using Microwave Energy at 2.45 GHz -- Casting of Materials using Microwave Energy -- Application of microwave-metal discharge for metallic material removal -- Joining of metals through microwave hybrid heating -- Development and Characterization of Microwave Sintered SiC Reinforced 3003 Aluminium Alloy -- Application of microwaves in development of Metal Matrix Composites -- Focus on carbon fiber reinforced composites manufacturing and properties --

Application of microwave processing in orthopedic implants.

Sommario/riassunto

This book covers all aspects of composite materials processing and manufacturing using microwave heating technology and their applications in various industrial processes. Depending in the processing and material used, the composites are divided into three major segments: Metal matrix composites (MMCS), ceramics composites (CMCS), and polymer matrix composites (PMCS), respectively. During the manufacturing process of these composite materials, conventional heating technologies are used in which the heat is transferred from the electrical resistance coils to the material via conventional modes of heat transfer. Issues like non-uniform temperature distribution, poor curing efficiency, generation of the in-process scarp, long process cycle, high energy consumption and cost make traditional manufacturing route a difficult choice to select. Recently, microwave-assisted heating has emerged as a promising route for the fabrication of composites as a cost-effective environmentally sustainablemanufacturing process that yields improved mechanical properties which is the main topic of this book. It looks into the mechanism, salient features, and important aspects of microwave heating and their interaction with different composites materials. It also presents other manufacturing processes of various composites using microwave heating during casting, drilling, recycling, sintering, material joining, surface engineering. This book will appeal to students, researchers and scientists working in the area of composite materials processing and manufacturing.