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Nota di contenuto	Intro -- Composite Materials: Manufacturing, Properties and Applications -- Copyright -- Contents -- Contributors -- Preface -- Section I: Manufacturing -- Chapter 1: Futuristic synthesis strategies for aluminum-based metal-matrix composites -- 1.1. Introduction -- 1.2. Classifications of composite materials -- 1.3. Description of the process and working principle -- 1.3.1. Microwave-assisted processes -- 1.3.1.1. Microwave hybrid sintering process -- 1.3.1.2. Microwave casting -- 1.3.1.3. Microwave hot pressing -- 1.3.2. Spark plasma sintering process -- 1.3.3. Friction stir processing -- 1.3.4. Disintegrated melt deposition -- 1.3.5. Ultrasonic-assisted casting -- 1.4. Mechanical properties and industrial scalability of Al-MMCs -- 1.5. Futuristic development and applications -- 1.6. Summary and future prospects -- References -- Chapter 2: Geopolymer composites modified with nanomaterials -- 2.1. Introduction -- 2.2. Nano-silica (NS) -- 2.2.1. Physical properties -- 2.2.2. Chemical properties -- 2.2.3. Effect of nano-silica on the properties of geopolymer composites -- 2.2.3.1. Workability -- 2.2.3.2. Geopolymerization -- 2.2.3.3. Setting time -- 2.2.3.4. Strength properties -- 2.2.3.5. Durability properties -- 2.2.3.6. Conclusions -- 2.3. Nano-clay -- 2.3.1. Physical properties -- 2.3.2. Chemical properties -- 2.3.3. Effect of nanoclay on the properties of geopolymer composites -- 2.3.3.1. Workability --

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Sommario/riassunto

Composite materials have been well developed to meet the challenges of high-performing material properties targeting engineering and structural applications. The ability of composite materials to absorb stresses and dissipate strain energy is vastly superior to that of other materials such as polymers and ceramics, and thus they offer engineers many mechanical, thermal, chemical and damage-tolerance advantages with limited drawbacks such as brittleness. Composite Materials: Manufacturing, Properties and Applications presents a comprehensive review of current status and future directions, latest technologies and innovative work, challenges and opportunities for composite materials.

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