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Altri autori (Persone)	BritoManuel E LinHua-Tay PlucknettKevin
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Carbide High-Temperature Deformation of Silicon Nitride and its Composites; Improved Properties; SiAlON Ceramics: Processing, Microstructure and Properties; Fracture Behavior of Porous Si₃N₄ Ceramics with Random and Aligned Microstructure; Liquid Phase Sintering of SiC with AlN and Rare-Earth Oxide Additives; Effect of Additives on Microstructural Development and Mechanical Properties of Liquid-Phase-Sintered Silicon Carbide during Annealing Corrosion of Silicon Nitride Materials in Acidic and Basic Solutions and under Hydrothermal conditions Applications; Development of High-Temperature Heat Exchangers Using SiC Microchannels; Characterization of Ceramic Components Exposed in Industrial Gas Turbines; Gelcasting SiAlON Radomes; Effect of Long-Term Oil Immersion Test on Mechanical Reliability of Candidate Silicon Nitride Ceramics for Diesel Engine Applications; Index

Sommario/riassunto

This volume focuses on recent scientific and technological developments in silicon-based (i.e., silicon nitride, SiAlONs, silicon carbide, silicon oxynitride) structural ceramics. Authors from academia and industry assess the current state of the art in silicon-based structural ceramics. Industrial case studies are advocated to highlight the development and application of these materials in real engineering environments.
