

Developments in fiber-reinforced oxide composites

Frank W. Zok
Materials Department
University of California, Santa Barbara, CA 93106

ABSTRACT

Continuous fiber ceramic matrix composites (CMCs) represent a critical enabling element for future turbine-based power generation and aerospace propulsion systems. All-oxide CMCs are of particular interest for applications requiring long-term durability in oxidizing environments as well as affordability. The present paper will focus on recent developments and outstanding challenges in the design, fabrication and performance of oxide CMCs. Specific emphasis will be placed on strategies for control of fiber-matrix interfaces, processing methods for CMCs with complex 3D fiber architectures, and implications for property retention following extended high temperature exposure.