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UNLEASHING THE POTENTIAL OF CERAMIC MATRIX COMPOSITES FOR HYPERSONIC FLIGHT

Abstract

Hypersonic flight presents an exciting opportunity for the aerospace industry, but traditional materials struggle to withstand the extreme temperatures and stresses encountered during the flight. Ceramic matrix composites (CMCs) offer a promising solution to these challenges, with their ability to maintain strength at high temperatures. We will discuss the unique challenges associated with developing CMCs for hypersonic flight, including the design and fabrication of them specifically tailored to this application. Additionally, we will highlight some of the ongoing research and development efforts in this area, as well as the potential for future breakthroughs in CMC technology that could unlock new possibilities for hypersonic flight. Ultimately, this paper aims to inspire the aerospace community to explore the potential of CMCs for hypersonic flight and push the boundaries of what is possible in the field of aerospace materials.