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New Advances in SiC-Based Composite Materials

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Message from the Guest Editors

Silicon-based ceramics are well known, at both academic and industrial research levels, for their outstanding room temperature and high-temperature properties, such as their elevated strength, hardness, stiffness, corrosion and oxidation resistance. A new drive for these materials has emerged in recent years because of their incorporation in turbine engines for airplanes. The need for complex geometries that can be incorporated into such engines makes manufacturing techniques, such as reactive infiltration, topics of high-interest. Furthermore, Si-based ceramics, in particular silicon carbide (SiC), have been considered a leading candidate for use in certain parts of future fusion reactors. However, there are still technical and scientific difficulties that require further research and development, such as the inherent lack of toughness of these ceramics. Beyond its unique properties, SiC has been used to synthesize the most pristine graphene sheets through the sublimation of Si atoms from its surface. This kind of composite material represents one of the most promising candidates for next generation electronics.

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Message from the Editor-in-Chief

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