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Inherent anisotropy in transition metal diborides and microstructure/property tailoring in ultra-high temperature ceramics - a review

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Abstract:

This is the first comprehensive review on inherent anisotropic features of transition metal diboride (MB_2) and their implementation for tailoring the microstructure and properties of MB_2 -based Ultra-high temperature Ceramics (UHTCs). The emphasis is on the processing approaches, microstructures, and properties of self-reinforced and/or textured MB_2 -based composites with elongated MB_2 grains. The crystal structure characteristics and grain growth behaviour of MB_2 are also critically reviewed. Benefiting from the tailored microstructure, the

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