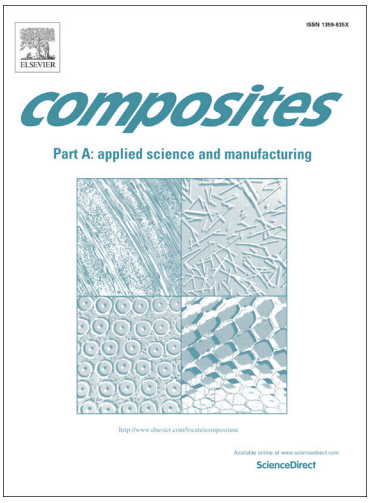

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Abstract:

The potential prospect of hexagonal boron nitride (h-BN) in the fields of polymer composites is severely limited by undesirable exfoliation efficiency and chemical inertness. Herein, bio-based dopamine was employed toward exfoliating bulk h-BN with hydrogen bond action and imparting a highly-active surface. With assistance of polypodamine, SnO_2 nanoparticles were in-situ synthesized and strengthened the interfacial interaction between h-BN and epoxy (EP) matrix. The integrated function of metal oxide/h-BN toward flame retardant and smoke suppression of polymer