

## Enhanced thermal conductivity of thermal interfacial materials by vertically assembled microparticles

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Demands from power -electric and micro -electric devices have brought that polymer/inorganic hybrid film widely developed to enhance their thermal conductivity containing micrometer -sized ceramic particles. Such hybrid films or sheets exhibiting high thermal conductivity become increasingly important for electronic packaging and semiconductor chips because of their heat dissipation ability limits. Here, we report on a fabrication method for vertical -assembling aluminum oxide microparticles in a polymer film, which significantly enhanced out -of -plane thermal diffusivity. This approach for material design could be a promising way to improve the thermal conductivity of thermal interfacial materials for various electronic applications.