

Abstract Submitted
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High Thermal Conductivity Aligned Polyethylene-Graphene Nanocomposites JIVTESH GARG, MORTAZA SAEIDIJAVASH, University of Oklahoma — We investigate enhancement of thermal conductivity in polyethylene-graphene nanocomposites. The effect of alignment of both the polymer chains and the dispersed graphene flakes on thermal conductivity enhancement will be reported. In this work nanocomposites are prepared through microextrusion of polyethylene pellets and graphene nanopowder. Alignment is achieved through mechanical stretching of the nanocomposites. Thermal conductivity is measured using both Angstrom method and Laser flash. Variables involved in the study are the draw ratio and the weight percentage of graphene nanopowder. Results will shed light on the role of alignment of graphene flakes on enhancing thermal transport and provide new avenues to achieve ultra-high thermal conductivity in polymeric materials.

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