

Special Issue

Molecular Research of Nanocomposites: Design, Properties and Application

Message from the Guest Editor

With the rapid development of energy, electrical and electronic technologies, the rapid accumulation of heat in related equipment and components will inevitably result in a serious threat to their stabilities and reliabilities. Thermally conductive polymer nanocomposites offer new possibilities for replacing metal parts in several applications, including power electronics, electric motors, heat exchangers, etc., thanks to the advantages of polymer such as light weight, corrosion resistance and ease of processing. Current interest in improving the thermal conductivity of polymers is focused on the selective addition of nanofillers with high thermal conductivity. The thermal conductivity of the composite material can be efficiently improved through the structural design of the thermal conductivity filler and the molecular structure design of the polymer substrate. Meanwhile, computational simulation (such as molecular dynamics simulation) is used to further analyze and verify the influence of structural design on the heat transfer mechanism. Synthesis, property characterization and application of materials should focus on biological or molecular research.

Guest Editor

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