

Synthesis of Lens-shaped carbon nanorod superstructure

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For the first time, Lens-shaped mesoporous carbon nanorod superstructure was synthesized utilizing spinodal decomposition of polymer blends. By combining mesoscale block copolymer directed inorganic materials self-assembly and macroscale spinodal decomposition, it is possible to control the particle shape with controlled mesostructure phase. Homopolymer PMMA was used as a polymer matrix to induce macrophase separation and PEO-b-PS was used to generate mesostructures. Due to the particle shape, the materials can have higher packing density than bulk materials. The BET surface area of this material is 707 m²/g and the pore volume is 0.61 cm³/g.