

## Quantitative Characteristics on the Dispersion of Inorganic Nanocrystals within Polymer Matrices

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Dispersion of inorganic nanocrystals within polymer matrices is regarded as the most important for full realization of their interesting properties typically originating from the Quantum Confinement Effect (in the case for quantum dots) and the surface modification of inorganic nanocrystals with relevant organic polymers is one way to realize well-dispersed inorganic nanoparticle/polymer hybrid system. We examined three different shapes of inorganic nanocrystals; dots(0d), rods(1d) and tetrapods(3d) whose surfaces were modified with block copolymers containing polystyrene brushes along with short anchoring segments were dispersed within polystyrene homopolymer matrices of different molecular weights. The dispersion characteristics were evaluated through scattering experiments on top of conventional microscope method for qualitative analysis. We found that the dispersion characteristics of inorganic nanocrystals within polymer matrices was determined by the ratio of the degrees of polymerization of both brush polymers and matrix polymers as well as the areal chain density and those dispersion criteria were also altered by the shape of inorganic crystals.