

Preparation of monodispersed polymer colloids for photonic crystal application

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Photonic crystals are dielectrics which have ordered structures of different refractive index materials. One of the key materials for the preparation of photonic crystals is monodispersed polymer particles. In this study various synthesis methods for the monodispersed polymer particles were presented including emulsifier-free emulsion polymerization, seeded emulsion polymerization, dispersion polymerization, and homogenized suspension polymerization. The well controlled monodispersed PS particles in diameter 100~500 nm were prepared using emulsifier-free emulsion polymerization and seeded emulsion polymerization.