

Synthesis of highly monodispersed quartz nanoparticles from amorphous silica nanoparticles (ASNs) by hydrothermal method and the factors for determining size and morphology

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Quartz nanoparticles having high monodispersity and size distribution were synthesized from amorphous silica nanoparticles (SNPs) using hydrothermal method. For high monodispersity and better size distribution of the quartz nanoparticles, we changed some parameters of the reactions such as concentration of reactants, temperature. The Quartz nanoparticles will be important bases of research materials for electronic and optical properties and devices.

To identify their physical properties and nanostructures, these quartz nanoparticles were characterized by various analysis methods such as transmission electron microscope (TEM), power X-ray diffraction (XRD). These instrumental analysis methods could be useful research bases on relation between amorphous and crystalline nanostructures of the silica nanoparticles.