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Synthesis and thermoelectric properties of PbTe nanostructures[1]

KAMAL KADEL, LATHA KUMARI, WENZHI LI, Florida International University — Lead Telluride (PbTe) nanostructures were synthesized via the solvothermal/hydrothermal route. X-ray diffraction (XRD), scanning electron microscopy (SEM), and transmission emission microscopy (TEM) were used to characterize the as-prepared samples and indicated that the PbTe nanoparticles were cubical in shape and had face centered cubic structure. The effects of the addition of surfactants on the shapes and sizes of the nanocubes were investigated. PbTe nanocubes synthesized with the addition of surfactants showed uniform well-defined shapes. The effect of the synthesis temperature on the structure and morphology was also investigated; it was found that the particle size increased with the synthesis temperature. Thermoelectric property of the as-synthesized PbTe nanostructures was also investigated.

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