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Solvothermal synthesis and thermoelectric property of undoped and indium doped lead telluride nanoparticles[1] KAMAL KADEL, WENZHI LI, Florida International University — Undoped and indium (In) doped lead telluride (PbTe) nanostructures were synthesized via solvothermal/hydrothermal route. The crystallinity of the as-prepared un-doped and In-doped PbTe sample were examined by X-ray diffraction (XRD) which indicated the formation of face centered single phase cubic PbTe. Lattice constant calculation from XRD pattern revealed the formation of un-doped and In-doped PbTe crystals with almost similar size. Scanning electron microscopy (SEM) and transmission electron microscopy (TEM) examinations indicated that undoped and In-doped PbTe nanostructures were mostly cubically shaped and highly crystalline. The effect of the synthesis temperature on the structure and morphology of undoped PbTe was also investigated; it was found that the particle size increased with the synthesis temperature. Thermoelectric property of as-synthesized lead telluride sample was also investigated.

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