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Thermoelectric properties of indium-doped PbSe¹ ERIC EVOLA, The Ohio State University, MICHELE NIELSEN, PhD Student Mentor (OSU), JOSEPH HEREMANS, Advisor (OSU) — P-type [1,2] and n-type [3] PbSe have recently exhibited good thermoelectric properties without using the relatively uncommon element Tellurium. Here we report thermal conductivity, galvanomagnetic and thermomagnetic properties of bulk samples of n-type PbSe doped with indium at varying concentrations within the solid solution solubility range. A figure of merit zT value well in excess of 1 has been achieved. Resonant level effect and changes in the dimensionless figure of merit will be discussed although data indicate that the thermoelectric properties do not lie above the Pisarenko relation.

[1] D.J. Parker et al, Phys. Rev. B 82, 035204 (2010)

[2] H. Wang et al, Adv. Mater. 23 1366-1370 (2011)

[3] J. Androulakis et al, Phys. Rev. B 83, 195209 (2011)

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