Abstract Submitted
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Thermomagnetic and Galvanomagnetic properties of Tl doped PbTe-PbS[1] CHRISTOPHER JAWORSKI, Department of Mechanical Engineering, Ohio State University, STEVEN GIRARD, MERCOURI KANATZIDIS, Department of Chemistry, Northwestern University, JOSEPH HEREMANS, Department of Mechanical Engineering and Department of Physics, Ohio State University — It was recently shown that p-type PbTe-Tl has a significant increase in zT over that PbTe:Na[2] due to an increase in power factor. Also, a large increase in zT in n-type PbTe was reported when alloyed with PbS due to the reduction in thermal conductivity.[3] This work is an attempt at combining those two effects to further increase zT. We synthesis $Pb_{0.98}Tl_{0.02}Te_{1-x}S_x$ with 4%<x<16% and report here on measurements of thermopower, electrical resistivity, thermal conductivity, Hall and Nernst coefficients from 80-600K, and report zT. Initial thermopower and carrier density measurements indicate that Tl remains resonant in PbTe-PbS.

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[2]*Science* 25 July 2008:Vol. 321. pp. 554 - 557
[3]*J. Am. Chem. Soc.*, 2007, 129 (31), pp 9780–9788

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