Abstract Submitted
for the MAR15 Meeting of
The American Physical Society

Thermophysical and thermomagnetic properties of Heusler compound $Ni_{45}Co_5Mn_{37}In_{13}$[1] JOSEPH P. HEREMANS, Department of Physics and Department of Mechanical and Aerospace Engineering, Ohio State University - Columbus, Ohio 43210, USA, SARAH J. WATZMAN, Department of Mechanical and Aerospace Engineering, Ohio State University - Columbus, Ohio 43210, USA, AJAYA K. NAYAK, CLAUDIA FELSER, Max Planck Institute for Chemical Physics of Solids, Nöthnitzer Strasse 40, D-01187 Dresden, Germany — $Ni_{45}Co_5Mn_{37}In_{13}$ is a Heusler compound that develops a predominant ferromagnetic magnetic moment at temperatures in excess of 270 K, similar to Mn_2PtGa. Upon cooling Mn_2PtGa undergoes a paramagnetic-to-ferrimagnetic transition at 230 K, followed by a sharp drop in magnetization at 150 K due to a first-order ferrimagnet-to-antiferromagnetic transition. By analogy, the moment change observed in $Ni_{45}Co_5Mn_{37}In_{13}$ at 270 K is due to a first-order magneto-structural transition, where the sample undergoes a predominant ferromagnetic to an antiferromagnetic phase transition, accompanied by a structural phase transition. Experimental data will be given for the heat capacity and heat of magnetization of $Ni_{45}Co_5Mn_{37}In_{13}$, as a function of temperature and magnetic field. Thermomagnetic tensor elements will also be reported though the phase transition, i.e. thermal conductivity, thermopower, longitudinal and transverse magnetothermopower or Nernst effect, as a function of magnetic field and temperature.

[1] A. K. Nayak & al., Phys. Rev. Lett. **110**, 127204 (2013)

[1]This work is supported by NSF MRSEC Grant No. DMR 1420451.

Joseph P. Heremans
Ohio State Univ - Columbus

Date submitted: 14 Nov 2014 Electronic form version 1.4