

Abstract Submitted
for the MAR11 Meeting of
The American Physical Society

Thermoelectric Properties of Granular Materials¹ ANDREAS GLATZ, Argonne National Laboratory, IGOR BELOBORODOV, California State University, Northridge — I will present our recent studies of thermoelectric properties of mono-phasic nanocrystalline semiconductors and metals in the weak coupling regime. The focus is in particular on the thermopower and figure of merit for temperatures less than the charging energy. I will show that the dimensionless figure of merit ZT , which is a measure for the performance of thermoelectric materials, has a maximum at certain temperatures and grain sizes which can be in the range of technological relevant values $ZT > 3$. The talk is based on: Phys. Rev. B **80**, 245440 (2009) and EuroPhys. Lett. **87**, 57009 (2009).

¹Work supported by the U.S. DOE, Office of Science, under Contract No. DE-AC02-06CH11357.

Andreas Glatz
Argonne National Laboratory

Date submitted: 03 Jan 2011

Electronic form version 1.4