

Weekly Seminar

Electron and phonon Engineering in thermoelectrics

 Time:
 4:00 pm, May.14, 2014 (Wednesday)

 2014
 5
 14
 4:00

 Venue:
 Conference Room A (607), No. 5 Science Building

 607

Thermoelectric generators which directly convert heat into electricity have long been relegated to use in space or other niche applications, but are now actively considered for a variety of waste heat recovery systems (such the conversion of automobile exhaust heat into electricity) to combat the global energy dilemma. Although the devices are supremely reliable and compact, the thermoelectric materials themselves are relatively inefficient requiring advancing the thermoelectric figure of merit, zT above 1.5 for widespread application. In this talk, several strategies to achieve high zT, regarding band structure^[1] and phonon engineering^[2], are proposed and demonstrated experimentally. The achieved extraordinary high peak zT of 1.8 and high average zT support the possibility of further development of existing materials. With any luck,