

Materials Science and Technology Division

“Theory of magnon-driven spin
Seebeck effect”

Prof. Jiang Xiao
Fudan University

August 13, 2010

11:00 a.m.

HTML/4515, Room 265

Abstract

We propose a mechanism for the recently discovered spin Seebeck effect in terms of a spin pumping-current driven through a ferromagnet/normal metal interface by a difference between the magnon temperature in the ferromagnet and the electron temperature in the normal metal. This spin current is proportional to this temperature difference, which is excited by an applied heat current through the ferromagnet, the spin-mixing conductance of the interface, and the inverse of a temperature-dependent magnetic coherence volume, and can generate an inverse spin Hall voltage (spin Seebeck signal) in a normal metal contact attached to the ferromagnet.

Host: Di Xiao (576-8619, xiaod@ornl.gov)