

Abstract Submitted
for the MAR08 Meeting of
The American Physical Society

Thermal conductivity of layered $\text{La}_{1.2}\text{Sr}_{1.8}\text{Mn}_2\text{O}_7$ FILIP RONNING, Los Alamos National Lab, NAMJUNG HUR, NOBUYUKI KURITA, J.D. THOMPSON, ROMAN MOVSHOVICH — $\text{La}_{1.2}\text{Sr}_{1.8}\text{Mn}_2\text{O}_7$ has many similarities to underdoped cuprates: highly anisotropic transport, strong disorder in a charge reservoir layer, and even claims for Fermi arcs. Thus we measured the thermal and charge transport of this system to examine whether the Wiedemann-Franz law is violated in $\text{La}_{1.2}\text{Sr}_{1.8}\text{Mn}_2\text{O}_7$ as it is in several cuprate systems in the $T=0$ limit. One significant difference to cuprates, however, is that the low temperature state of $\text{La}_{1.2}\text{Sr}_{1.8}\text{Mn}_2\text{O}_7$ is a ferromagnet. A consequence of this is that magnons in addition to phonons and electrons can transport heat. By using an applied magnetic field to gap out the magnon spectrum, we have also found clear evidence for the transport of 2D ferromagnetic magnons.

Filip Ronning
Los Alamos National Lab

Date submitted: 27 Nov 2007

Electronic form version 1.4