

Abstract Submitted
for the MAR05 Meeting of
The American Physical Society

Terahertz Spectroscopy of Ultrafast Demagnetization in iron
DAVID HILTON, RICHARD AVERITT, CHAD MESEROLE, GREG FISHER,
DAVID FUNK, ANTOINETTE TAYLOR, Los Alamos National Laboratory —
We use ultrafast terahertz transmission and emission spectroscopy to study ultrafast demagnetization in ferromagnetic iron. We show that the emitted THz pulse results from both the demagnetization process and the time-dependent induced conductivity of the sample. Using the experimentally determined time-dependent optical conductivity, we determine that ultrafast demagnetization proceeds with a $1.7 \text{ ps} \pm 0.5 \text{ ps}$ lifetime in single crystal ferromagnetic films at room temperature.

David Hilton
Los Alamos National Laboratory

Date submitted: 07 Dec 2004

Electronic form version 1.4