Electrical, Thermal, and Magnetic Properties of Single Crystal CaMn$_2$O$_4$ Marokite$^1$ B.D. WHITE, J.J. NEUMEIER, J.A. SOUZA, Montana State University, C. CHIORESCU, J.L. COHN, University of Miami — CaMn$_2$O$_4$ was first described [1] in 1963 as a natural mineral called Marokite. Since its discovery, it has been studied as a minor structural impurity phase in CMR-related CaMnO$_3$ and for its structural similarities to high-pressure phases of spinel-oxide compounds. However, little attention has previously been paid to physical properties beyond its temperature-dependent magnetization. We will present a detailed physical properties study of CaMn$_2$O$_4$ single crystals grown by the optical floating zone method. [2] These measurements, several of which display anisotropy as a result of an orthorhombic crystal structure, include electrical transport, thermal transport, thermal expansion, heat capacity, and magnetization.


$^1$This material is based upon work supported by the NSF (Grant No. DMR-0504769 at MSU and DMR-0072276 at U. Miami), the Research Corporation and the U.S. DOE Office of Basic Energy Sciences (Grant No. DE-FG-06ER46269).

John J. Neumeier
Montana State University

Date submitted: 22 Nov 2007