

Abstract Submitted  
for the MAR14 Meeting of  
The American Physical Society

**NMR studies of anisotropy and metal-insulator crossover in quasi-one-dimensional metal  $\text{Li}_{0.9}\text{Mo}_6\text{O}_{17}$** <sup>1</sup> GUOQING WU, College of Physics Science & Technology, Yangzhou University, W. GILBERT CLARK, STUART BROWN, Dept. of Phys. & Astron., UCLA, JOHN J. NEUMEIER, Phys. Dept., Montana State Uni., C.A.M. DOS SANTOS, Escola de Engenharia de Lorena - Universidade de São Paulo, J. MARCUS, Institut Néel, Grenoble, C. BERTHIER, M. HORVATIC, Grenoble High Magnetic Field Laboratory, Grenoble — The quasi-1D metal  $\text{Li}_{0.9}\text{Mo}_6\text{O}_{17}$  is thought to exhibit transport properties associated with a Luttinger liquid at high temperatures, and otherwise many of its properties have long been mysterious. Among these is an unusual increase in resistivity at low temperatures, for which a robust explanation remains elusive. We present the  $^7\text{Li}$ -NMR/ $^{95}\text{Mo}$ -NMR measurements over a wide range of temperature and angle of alignment of applied magnetic field ( $B_0$ ) from 6 T to 14.8 T on single crystal of  $\text{Li}_{0.9}\text{Mo}_6\text{O}_{17}$ . We find a Korringa relation at high temperatures which indicates electron correlations are unimportant for  $T > T_m$  (resistivity minimum temperature), and apparent deviations from Korringa for  $T \leq 24$  K. Further, in the single crystal studied, inequivalent magnetic environments are detected at the Li sites in the same low-temperature regime, but only for fields applied near to  $B_0 \parallel c$ . Only one  $^{95}\text{Mo}$  site (out of 6 different crystallographic sites) was detected, and  $1/(T_1T)$  at this site is decreasing at low temperatures. We discuss these observations in relation to possible mechanisms for the low temperature resistivity increase.

<sup>1</sup>Supported at UCLA by NSF Grants DMR-0520552 and DMR-0334869, and at MSU by NSF Grant DMR-0907036.

Guoqing Wu  
College of Physics Science & Technology, Yangzhou University

Date submitted: 16 Nov 2013

Electronic form version 1.4