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**Single particle gap in $Li_{0.9}$ $Mo_6$ $O_{17}$ below 26K?**[1] L. DUDY, J. PARK, B.J. KIM, C. KURDAK, J.W. ALLEN, Univ. of Michigan, J. HE, Clemson Univ., R. JIN, D. MANDRUS, Oak Ridge National Lab., S. SUGA, A. SEKIYAMA, Osaka Univ., H. HOECHST, SRC/Univ, of Wisconsin — The high temperature (T) behavior of $Li_{0.9}Mo_6O_{17}$ is that of a one dimensional (1D) metal so that low T charge density wave (CDW) formation could be expected. Below 26K the resistance shows an upturn, but x-ray diffraction, spectroscopic and most transport studies find no evidence for a CDW or its associated single particle gap. Angle integrated photoemission spectroscopy (PES) down to 30K and scanning tunneling microscopy down to 5K both show a power law density of states at the Fermi energy, evidence that the 1D metal survives until superconductivity sets in at 1.9K. However recent magnetotransport studies [1] motivated the proposal of an electronically stabilized CDW with a small gap (1 meV) undetected in previous work. We address this general issue with high resolution (4meV) PES down to 4K, low T transport, and higher T angle resolved PES.

[1] Xu et al, PRL 102, 206602 (2009)

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