Abstract Submitted
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Anisotropic magnetic properties of the KMo_4O_6 M. ANDRADE, M. L. MAFFEI, C. A. M. DOS SANTOS, B. FERREIRA, A. F. SARTORI, Escola de Engenharia de Lorena - USP — Electrical resistivity measurements in the tetragonal KMo_4O_6 single crystals show a metal-insulator transition (MIT) near 100K. Magnetization measurements as a function of temperature show no evidence of magnetic ordering at this MIT [1]. Single crystals of KMo_4O_6 were obtained by electrolysis of a melt with a molar ratio of K_2MoO_4:MoO_3 = 6:1. The process were carried out at 930 $^\circ$C with a current of 20-25mA for 52h in argon atmosphere. After that, electrodes were removed from the melt alloying the crystals to cool down to room temperature rapidly. Scanning Electron Microscopy (SEM) showed that the black single crystals were grown on the platinum cathode. Typical dimensions of the single crystals are 1x0.2x0.2mm^3. X-ray diffractometry confirmed that the single crystals have KMo_4O_6 tetragonal crystalline structure with space group $P\overline{4}$. Magnetization measurements were performed parallel and perpendicular to the c-axis from 2 to 300K. The results show anisotropic behavior between both directions. Furthermore, the temperature independence of the magnetization at high temperature and the upturn at low temperature are observed in agreement with previous results [1]. MxH curves measured at several temperatures show nonlinear behavior and a small magnetic ordering. The magnetic ordering seems to be related to the MIT near 100K. This material is based upon support by FAPESP (2009/14524-6 and 2009/54001-6) and CNPq/NSF (490182/2009-7). M. Andrade is CAPES fellow and C.A.M. dos Santos is CNPq fellow.

[1] K. V. Ramanujachary et al., J. Sol. State Chem.102 (1993) 69.

C. A. M. dos Santos
Escola de Engenharia de Lorena - USP

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