Abstract Submitted
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Anisotropic magnetoresistance in thin films of the Mott metal $CaVO_3$[1] JIWEI LU, MAN GU, University of Virginia — Bulk $CaVO_3$ (CVO) is a Pauli paramagnetic metal with a singe 3d electron. Some unusual drastic changes in the magneto-resistance, magnetic susceptibility and the Hall effect have been reported in single crystal CVO. We have simultaneously synthesized epitaxial CVO films grown on three differently oriented $SrTiO_3$ substrates. Colossal magneto-resistance (MR) as well as large crystalline anisotropic was observed at low temperatures. The maximum MR, defined as (R(7 T)-R(0 T))/R(0 T)*100 %, was over 1,0000 % at 2 K and 35 Tesla (parallel magnetic field) on the CVO films deposited on a (110) SrTiO3 single crystal substrate, and didn't show any sign of saturation. When the magnetic field was perpendicular, MR was dropped to 6,000%. The MR ratio was much larger than that of single crystal CVO. We have also investigated the magneto-transport behaviors of CVO films deposited on (111) and (100) STO and will discussed the dependence of MR in CVO on the crystal orientation as well as the orientation of external magnetic field.

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