

Abstract Submitted
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Surface growth dependence in growth of half-metallic Sr₂FeMoO₆ epitaxial films fabricated by ultra-high vacuum sputtering¹ A.J. HAUSER, Department of Physics, The Ohio State University, R.A. RICCIARDO, P.M. WOODWARD, Department of Chemistry, The Ohio State University, A. GENC, R.E. WILLIAMS, H.L. FRASER, Department of Materials Science and Engineering, The Ohio State University, F.Y. YANG, Department of Physics, The Ohio State University — Sr₂FeMoO₆, a double-perovskite half-metallic ferromagnet, has attracted much attention because of its high T_c of 420 K. However, simultaneously balancing the stoichiometry and ordering of a quaternary oxide is no trivial matter. Despite nearly a decade of research, the growth of a half-metallic thin film remains an open question. We have deposited pure-phase Sr₂FeMoO₆ epitaxial films on SrTiO₃ substrates by ultrahigh vacuum off-axis magnetron sputtering, and found double perovskite ordering in excess of 90%. We will discuss the effect of stoichiometry, oxygen content, growth pressure, and ordering in the initial stages of growth on the properties of the sample, by performing a variety of characterizations (HAADF TEM, XRD, XPS, RBS) on both 2-5 unit cell and 100 nm thick films.

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