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The colossal magnetoresistance response of EuO_{1-x} thin films¹ L. HELLWIG, C. BECKNER, M. EBLEN-ZAYAS, Carleton College — Phase inhomogeneity is one of the fundamental features of CMR physics in the perovskite manganites. In addition to direct imaging of phase inhomogeneity, indirect manifestations of phase inhomogeneity in the manganites include slow dynamics and persistent memory of low magnetic fields. We are investigating whether phase inhomogeneity is also a relevant model for thin films of europium-rich europium oxide (EuO_{1-x}) . EuO_{1-x} thin films display typical CMR behavior, including a semiconductor to metal transition associated with the onset of ferromagnetism. We have fabricated CMR EuO_{1-x} films by deposition of metallic Eu on fused silica substrates and subsequent oxidation of these Eu films. However, initial characterization of the EuO_{1-x} films indicate that these samples do not show the indirect evidence of phase-inhomogeneous behavior that is typical of CMR manganite films.

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