

Abstract Submitted
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Transport and magnetoresistance response of EuO_{1-x} films fabricated by two different methods¹ B. GOODGE, L. HELLWIG, M. EBLEN-ZAYAS, Carleton College — EuO_{1-x} thin films are of interest both for potential spintronic applications and for their similarities to the colossal magnetoresistive (CMR) perovskite manganites. EuO_{1-x} displays a semiconductor to metal transition associated with the onset of ferromagnetism and an associated large negative magnetoresistive response. Some reports suggest evidence of phase inhomogeneity in this material. We have fabricated EuO_{1-x} films by deposition of metallic Eu and subsequent oxidation (sequential growth) and by deposition of Eu in an oxygen atmosphere (co-deposition). With XRD, transport, and magnetization measurements, we compare the properties of films grown by these two methods. Both growth methods produce samples with the expected semiconductor to metal transition and large negative magnetoresistance, but we don't see evidence of phase inhomogeneity in any of the samples.

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Melissa Eblen-Zayas
Carleton College

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