

Abstract Submitted
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Magnetotransport Properties of Thin C-Fe Films JOSEPH PRESTIGIACOMO, Louisiana State University Department of Physics and Astronomy, KATHIE LUSKER, Louisiana State University Department of Chemistry, YIMIN XIONG, SHANE STADLER, AMAR KARKI, DAVID YOUNG, Louisiana State University Department of Physics and Astronomy, JAYNE GARNO, Louisiana State University Department of Chemistry, PHILIP ADAMS, Louisiana State University Department of Physics and Astronomy — The magnetotransport properties of C-Fe films formed by e-beam vapor deposition onto glass substrates are presented in the temperature region of 2 K to 300 K. Hall effect measurements exhibit a significant anomalous Hall voltage whose magnitude increases with increasing temperature. Measurements of the ordinary Hall coefficient in 10 nm-thick films give a charge carrier density ranging from $n \sim 3.0 \times 10^{29} \text{ m}^{-3}$ at 2 K to approximately half that value at 290 K. A comparison between anomalous Hall effect and parallel field magneto-optic Kerr effect measurements reveal a highly anisotropic coercive field with the easy direction lying in the plane of the film. The films have an isotropic linear positive magnetoresistance (LPMR) beyond their saturation magnetization.

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