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Composition Dependence of the Anomalous Hall Effect in L10 FePt Thin Films¹ M. ALLISON, T. GEORGE, P. KHAREL, D. SELLMYER, Y. HUH, Department of Physics, South Dakota State University — FePt multi-layered thin film systems were investigated as to its composition effect on the anomalous hall effect. Thin bilayers of FePt were sputter-deposited in series of variable thicknesses on to a thermally oxidized substrate of SiO₂. The total thickness of samples was controlled to be 12 nm. XRD and SEM were used to confirm structure and composition of thin films for systematic characterization. Resistivity and Magnetization measurements were studied at room temperature and low temperature using SQUID magnetometer. The minimal resistivity exists near 54% of Fe concentration. The anomalous hall effect dominates as Fe concentration increases. Hall angles drop rapidly at the both high and low Fe concentration while it exhibits a plateau-like dip near 54% of Fe concentration.

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