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The anomalous Hall effect of Fe(001) in ultrathin film regime LIN WU, XIAOFENG JIN, Physics Department, Fudan University — The anomalous Hall effect (AHE) in ultrathin film regime is investigated in Fe(001)(1 nm-3 nm) epitaxial on MgO(001). We find the intrinsic anomalous Hall conductivity (AHC) is reducing when the thickness decreasing. The reduction of the intrinsic AHC is interpreted as modification of electronic band structure of iron through boundary confinement. We also observe localization correction to longitudinal resistivity, while the anomalous Hall resistivity of different temperature can be figured out by a set of variable skew scattering coefficients and a constant side-jump contribution. The analysis indicates that localization correction has a significant impact on skew scattering but little on side-jump.

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