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Layered magnetic dichalcogenide in the nanoscale thickness regime W.J. HARDY, H. JI, A. MARCINKOVA, E. MOROSAN, D. NATELSON, Department of Physics and Astronomy, Rice University — We report results of transport measurements on FexTaS2, with x approximately 0.1. This layered dichalcogenide material is a ferromagnet with a Curie temperature of about 80 K and very large magnetocrystalline anisotropy. Our study includes anisotropic magnetoresistance (AMR) and anomalous Hall effect (AHE) measurements on single crystals of nanoscale thickness, produced by tape exfoliation. We find an out-of-plane magnetoresistance effect considerably larger than was previously reported on bulk samples with x = 0.25, as well as a less pronounced change with temperature of the Hall resistance hysteresis loops. These marked differences may help further elucidate the material's transport mechanisms and the nature of the ferromagnetic state.

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