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Imaging Antiferromagnetic Domain Walls with the Hall Effect¹ RAFAEL JARAMILLO, T.F. ROSENBAUM, University of Chicago, E.D. ISAACS, O.G. SHPYRKO, Argonne Nat'l. Lab, P.G. EVANS, University of Wisconsin, G. AEPPLI, University College, London, Z. CAI, Advanced Photon Source, Argonne Nat'l. Lab — We find that the Hall effect in the spin-density-wave state of elemental chromium is sensitive to the underlying magnetic domain structure. A modest hysteresis in the linear Hall coefficient emerges as a function of temperature in the antiferromagnetic phase. By measuring all three components of the resistivity tensor in the plane of the sample we are able to separately consider the effects of domain rearrangement on carrier mobility and density. We also present direct images of hysteretic domain rearrangement, acquired via spatially resolved X-ray charge and magnetic scattering, and we show that these images can be correlated to the transport measurements.

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