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Anti-ferromagnetically driven Mott transition in ultrathin NdNiO3 epitaxial films MIKHAIL KAREEV, D. MEYERS, Univ of Arkansas-Fayetteville, JIAN LIU, University of California-Berkeley, S. MIDDEY, Univ of Arkansas-Fayetteville, J.W. FREELAND, P. RYAN, Advanced Photon Source, J. CHAKHALIAN, Univ of Arkansas-Fayetteville — The independent roles of anti-ferromagnetism and charge ordering in the realization of the temperature induced Mott metal-to-insulator transition within heteroepitaxial nickelate films remain to be disentangled hindering true understanding of the nature of the hotly debated ground state. To this end, we have investigated ultra thin, fully epitaxial films of the strongly correlated electron system NdNiO3 with hard and soft resonant x-ray scattering. We find a robust E0-type antiferromagnetic transition, identical to the bulk ordering, occurs despite the ultra thin nature of the films. However, many discrepancies with the bulk like charge ordering are found.

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