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**Effects of Strain and Buffer Layer on Interfacial Magnetization in $Sr_2CrReO_6$ Films**[1] YAOHUA LIU, S.G.E. TE VELTHUIS, Materials Science Division, Argonne National Laboratory, A. GLAVIC, H. AMBAYE, V. LAUTER, Quantum Condensed Matter Division, Oak Ridge National Laboratory, J.M. LUCY, F.Y. YANG, Department of Physics, The Ohio State University — Magnetic double-perovskite $Sr_2CrReO_6$ (SCRO) has several functional properties including a $T_C >$ 500 K, high spin polarization, large spin-orbit interaction, and semiconducting behavior in highly ordered films. However, fabrication of highly ordered films is still challenging, and progress toward device applications requires an in-depth understanding of the electronic and magnetic properties, especially at interfaces. We have investigated how the Cr/Re antisite disorder and strain affect the interfacial magnetization in SCRO films via x-ray and polarized neutron reflectometry [1]. We find that the magnetization of SCRO films is reduced near the interface with the substrate. The width of this interfacial layer weakly depends on the strain and decreases when a $SrCr_{0.5}Nb_{0.5}O_3$ (SCNO) buffer layer is used to reduce the antisite disorder. Interestingly, for the SCRO film deposited on a SCNO buffer layer, the region with reduced magnetization is wider than the antisite disorder region at the SCRO/SCNO interface, suggesting that antisite disorder is not the only mechanism reducing the magnetization. [1] Yaohua Liu *et al.*, Phys. Rev. B 90, 104416 (2014).

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