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Direct measurement of antiferromagnetic domain fluctuations OLEG SHPYRKO, ERIC ISAACS, Center for Nanoscale Materials, Argonne National Lab, JONATHAN LOGAN, HYEKYUNG KIM, YEJUN FENG, RAFAEL JARAMILLO, THOMAS ROSENBAUM, University of Chicago, GABRIEL AEP-PLI, University College London, PAUL ZSCHACK, MICHAEL SPRUNG, SURESH NARAYANAN, ALEC SANDY, Advanced Photon Source, Argonne National Lab — We present coherent x-ray speckle measurements of slow nanoscale dynamics of domain walls separating microscopic regions with different orientations of the spin-(charge-) density waves in Cr bulk samples. Between 150K and 30K domain wall fluctuations slow down as the sample temperature is lowered, consistent with classical thermal activation model. Below 30K, however, the characteristic domain fluctuation timescale remains constant, possibly due to the cross-over between thermally activated and quantum tunneling mechanisms of domain wall relaxation.

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