

Abstract Submitted
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Imaging antiferromagnetic domains of GdNi₂Ge₂ by x-ray resonant magnetic scattering J.W. KIM, A. KREYSSIG, L. TAN, B. SIEVE, P.C. CANFIELD, S.L. BUD'KO, S. LAW, D. WERMEILLE, A.I. GOLDMAN, Ames laboratory USDOE and Iowa State University — The body-centered tetragonal compound GdNi₂Ge₂ orders antiferromagnetically below $T_N = 27.5$ K. By using x-ray resonant magnetic scattering we have determined that the magnetic phase transforms from a collinear structure to a cycloidal structure below $T_t = 16$ K. Both magnetic structures lower the symmetry and result in magnetic domains. The excellent quality of our single crystal and the resulting high intensity allowed us to image these domains using the x-ray resonant magnetic scattering technique. By reducing the illuminated area to $100 \times 100 \mu\text{m}^2$ we succeeded in investigating a single magnetic domain. The plane in which the magnetic moments lie is determined to have tilt about 10 degrees away from the **a** direction for both magnetic structures.

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