

Abstract Submitted  
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**Short range magnetic correlations and the possible role of frustration in the heavy-fermion  $\text{CeCu}_4\text{Ga}$**  B.G. UELAND, C.F. MICLEA, K. GOFRYK, Los Alamos National Laboratory, J.S. GARDNER, Indiana Univeristy / NIST Center for Neutron Research, F. RONNING, R. MOVSHOVICH, E.D. BAUER, J.D. THOMPSON, Los Alamos National Laboratory — Neutron scattering, longitudinal and transverse resistivity, heat capacity, ac susceptibility, and magnetization measurements on single and polycrystalline samples of the heavy-fermion compound  $\text{CeCu}_4\text{Ga}$  suggest that its hexagonal lattice and disorder due to Ga substitution may frustrate formation of the long-range magnetic order found in its parent  $\text{CeCu}_5$ . The absence of magnetic Bragg peaks in neutron diffraction data, field-dependent specific heat data, a Weiss temperature of  $\sim 10$  K, and diffuse scattering below  $\sim 1$  K which can be fit to an isotropic model describing spin-spin correlations between third through fifth nearest neighbors support this suggestion. Kondo behavior also plays a role in determining the physical properties of  $\text{CeCu}_4\text{Ga}$ .

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