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**Incommensurate Magnetic Structure of Rare Earth Compounds**

**RCuAs<sub>2</sub>** YANG ZHAO, Department of Materials Science and Engineering, University of Maryland, College Park, Maryland 20742, USA, J.W. LYNN, NIST Center for Neutron Research, Gaithersburg, Maryland, 20899, USA, GOHIL S. THAKUR, ZEBA HAQUE, L.C. GUPTA, A.K. GANGULI, Department of Chemistry, Indian Institute of Technology Delhi, India — The rare-earth intermetallic compounds have been actively studied during the last three decades due to their rich fundamental physical properties. Recently, a new class of compounds with the form of RCuAs<sub>2</sub> have been discovered [1]. We carried systematic neutron scattering studies to investigate the magnetic ground states and temperature evolution of the magnetic structures of these compounds. The neutron powder diffraction results unveil complicated incommensurate magnetic structures for the Ho and Tb samples. The inelastic neutron scattering shows a crystal electric field excitation at around 7 meV for both Ho and Tb compounds. We will continue the study of other rare-earth RCuAs<sub>2</sub> compounds in the near future.

[1] E. Sampathkumaran, K. Sengupta, S. Rayaprol, K. Iyer, T. Doert, and J. Jemietio, Physical Review Letters 91, 036603 (2003).

Yang Zhao  
Department of Materials Science and Engineering,  
University of Maryland, College Park, Maryland 20742, USA

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