

# University of Maryland NSF-MRSEC Highlight:

## Giant Magneto-Elastic Coupling in hexagonal $Y(\text{Lu})\text{MnO}_3$

S. Lee, A. Pirogov, M. Kang, K. H. Jang, M. M. Yonemura, T. Kamiyama, S.-W. Cheong, F. Gozzo, N. Shin, H. Kimura, Y. Noda and J.-G. Park, Nature 451, 805 (2008).

Multiferroic  $Y(\text{Lu})\text{MnO}_3$  undergoes an isostructural transition at the magnetic Neel transition, producing giant atomic displacement for every atom in the unit cell. It appears that this happens without either soft-mode degrees of freedom or orbital degrees of freedom. This extremely large magneto-elastic coupling is unprecedented – larger by two orders of magnitude than in any magnetic materials.

