Abstract Submitted
for the DNP10 Meeting of
The American Physical Society

**Electric and Magnetic Dipole States in $^{238}$U**[1] S.L. HAMMOND, A. ADEKOLA[2], C.T. ANGELL[3], H.J. KARWOWSKI, UNC-Chapel Hill & TUNL, C.R. HOWELL, E. KWAN[4], G. RUSEV, A.P. TONCHEV, W. TORNOW, Duke University & TUNL, J.H. KELLEY, NCSU & TUNL — An investigation of dipole states in $^{238}$U is important for the fundamental understanding of its structure. Precise experimental information on the distribution of $M1$ and $E1$ transitions in $^{238}$U has been obtained using the nuclear resonance fluorescence technique at the High-Intensity $\gamma$-ray Source at the Triangle Universities Nuclear Laboratory. Using 100% linearly-polarized, monoenergetic $\gamma$-ray beams between incident energies of 2.0 - 5.5 MeV, the spin, parity, width, and $\gamma$-strength of the ground-state deexcitations were determined. These measurements will form a unique data set that can be used for comparison with theoretical models of collective excitations in heavy, deformed nuclei. The data can also provide isotope-specific signatures to search for special nuclear materials.

[1]This work was supported in part by USDOE Grant No. DE-FG52-06NA26155, NSF/DHS Grant No. CBET-0736123, and NSF/DHS Grant No. CBET-0736155.
[2]present affiliation: ORNL
[3]present affiliation: UC-Berkeley
[4]present affiliation: LLNL

Samantha L. Hammond
UNC-Chapel Hill & TUNL

Date submitted: 02 Jul 2010 Electronic form version 1.4