

Abstract Submitted  
for the DNP06 Meeting of  
The American Physical Society

**Candidates for Quadrupole-Octupole Multi-phonon Excitations Observed in the Te Isotopes**<sup>1</sup> S.F. HICKS, University of Dallas, J.R. VAN-HOY, United States Naval Academy — Excited levels in the even-even isotopes <sup>120–130</sup>Te have been investigated to 3.3 MeV using  $\gamma$ -ray spectroscopy following inelastic neutron scattering. Level characteristics including spins, multipole-mixing and branching ratios, and lifetimes in the fs to ps regime have been deduced from  $\gamma$ -ray angular distributions, excitation functions, and Doppler-shift measurements, as well as  $\gamma$ - $\gamma$  coincidence measurements. This consistent set of measurements has enabled us to examine multi-phonon excitations across the isotopic chain. In particular, the quintet of negative-parity states ( $1^-$ - $5^-$ ) arising from the coupling of the lowest quadrupole- and octupole-phonon excitations have been examined and candidates have been identified. Results from these investigations across the Te isotopic chain will be presented.

<sup>1</sup>This work was supported in part by the National Science Foundation.

Sally Hicks  
University of Dallas

Date submitted: 05 Jul 2006

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