

Abstract Submitted  
for the HAW09 Meeting of  
The American Physical Society

**Properties of quadrupole-octupole coupled states in  $^{116}\text{Cd}$  from the  $(n, n'\gamma)$  reaction** C.S. SUMITHRARACHCHI, P.E. GARRETT, K.L. GREEN, Department of Physics, University of Guelph, M. KADI, Department of Chemistry and Physics & Astronomy, University of Kentucky, J. JOLIE, N. WARR, Institute of Nuclear Physics, University of Cologne, S.W. YATES, Department of Chemistry and Physics & Astronomy, University of Kentucky — Negative-parity levels in the 2.4 MeV region, arising from the coupling of the  $2_1^+$  quadrupole and  $3_1^-$  octupole states, have been investigated with the  $(n, n'\gamma)$  reaction. The measured  $\gamma$ -ray excitation functions,  $\gamma$ - $\gamma$  coincidences and angular distributions were utilized to characterize the decays of these states. The level lifetimes have been measured with the Doppler-shift attenuation method, and  $B(E1)$  and  $B(E2)$  values for the associated transitions have been determined. The enhanced  $B(E2)$  values for decay to the  $3^-$  octupole state from many of the candidate negative-parity states were observed to be consistent with the expected signature of quadrupole-octupole coupled states. The properties of these states will be compared with the systematics of quadrupole-octupole coupled states in Cd isotopes and IBM calculations.

Chandana Sumithrarachchi  
Department of Physics, University of Guelph

Date submitted: 30 Jun 2009

Electronic form version 1.4