Abstract Submitted
for the DNP13 Meeting of
The American Physical Society

Investigation of ^{110}Cd with the $(n, n'\gamma)$ reaction P.E. GARRETT, J. BANGAY, A. DIAZ VARELA, K.L. GREEN, B. JIGMEDDORJ, C. SUMITHRARACHCHI, University of Guelph, J. JOLIE, N. WARR, University of Cologne, C.D. HANNANT, N. ORCE, S.W. YATES, University of Kentucky —
Excited states in ^{110}Cd have been investigated with the $(n, n'\gamma)$ reaction using monoenergetic neutrons. Excitation functions, using neutron energies in the range of 2 MeV to 3.4 MeV were collected, and γ-ray angular distributions at neutron energies of 2.6, 2.9, and 3.4 MeV were performed. The $(n, n'\gamma)$ results were complemented with $\gamma\gamma$ coincidences from a ^{110}In β-decay experiment (see contribution by A. Diaz Varela) performed at TRIUMF. This has resulted in a comprehensive level scheme for ^{110}Cd below $\approx$ 3 MeV, including stringent limits on unobserved transitions. Level lifetimes were extracted using the Doppler shift attenuation technique. Comparison of the results with simplified model expectations suggests that the low-lying structure of ^{110}Cd is that of a deformed γ-soft rotor, rather than a spherical vibrator.

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Date submitted: 29 Jun 2013 Electronic form version 1.4