

Abstract Submitted  
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**Lifetime spectroscopy of  $^{112}\text{Cd}$  via the  $(n, n'\gamma)$  reaction** P.E. GARRETT, K.L. GREEN, University of Guelph, H. LEHMANN, University of Fribourg, J. JOLIE, University of Koeln, C.A. MCGRATH, MINFANG YEH, S.W. YATES, University of Kentucky — Lifetimes of many levels up to 4 MeV in  $^{112}\text{Cd}$  have been measured using the Doppler shift attenuation technique following neutron inelastic scattering with monoenergetic neutrons. Using these lifetimes, reduced transition matrix elements are determined. The electromagnetic properties of  $^{112}\text{Cd}$  are outlined, and together with results from previous studies, levels are interpreted in terms of single-particle configurations and collective excitations. The separate roles of proton and neutron excitations in a subset of excited states are determined by combining the ground state electromagnetic transition rates with the hadronic transition rates. The collective states and their  $\gamma$ -ray decays are compared with IBM-2 model calculations that allow for the mixing between the normal phonon states and intruder configurations.

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