

Abstract Submitted
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Studies of $N \approx 40$ Ni isotopes via neutron-knockout (nKO) and deep-inelastic (DI) reactions¹ C.J. CHIARA, U. of Maryland/ANL, F. RECHIA, A. GADE, NSCL/MSU, R.V.F. JANSSENS, ANL, W.B. WALTERS, U. of Maryland — V. BADER, T. BAUGHER, D. BAZIN, J.S. BERRYMAN, B.A. BROWN, C. LANGER, N. LARSON, S.N. LIDDICK, E. LUNDERBERG, S. NOJI, C. PROKOP, S.R. STROBERG, S. SUCHYTA, D. WEISSHAAR, S. WILLIAMS, NSCL/MSU, M. ALBERS, M. ALCORTA, P.F. BERTONE, M.P. CARPENTER, J. CHEN, C.R. HOFFMAN, F.G. KONDEV, T. LAURITSEN, A.M. ROGERS, D. SEWERYNIAK, S. ZHU, ANL, C.M. CAMPBELL, LBNL, H.M. DAVID, D.T. DOHERTY, U. of Edinburgh/ANL, A. KORICHI, CSNSM-IN2P3/ANL, C.J. LISTER, U. of Mass.-Lowell, K. WIMMER, Central Mich. U. — Excited states in ^{68}Ni were populated in 2nKO reactions at NSCL. Prompt γ rays were detected with the GRETINA array located in front of the S800 separator. A hodoscope at the S800 focal plane captured the ^{68}Ni ions, where isomeric decays could be correlated with prompt γ rays. Decay of the first excited state, a 0^+ isomer, was observed, confirming that its energy substantially differs from the literature value. Comparing the decay patterns of excited states with shell-model calculations provides insight into their underlying structure. Data from $^{70}\text{Zn} + ^{208}\text{Pb}$ DI reactions studied with Gammasphere provide results consistent with the 2nKO. Single-particle strengths are also under investigation in the odd- A Ni isotopes via 1nKO reactions.

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