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**Identification of  $0^+$  States in Transitional Nuclei** R. WINKLER, A. HEINZ, R.F. CASTEN, C. LAMBIE-HANSON, J. QIAN, Yale University, R. KRUKEN, T. FAESTERMANN, H.-F. WIRTH, R. GRAEGER, Technical University Munich, J. JOLIE, P. VON BRENTANO, C. SCHOLL, S. CHRISTEN, University of Cologne — The (p,t) pickup reaction was used to populate excited  $0^+$  levels in the transitional nucleus  $^{108}\text{Pd}$  at the MLL (Maier-Leibnitz Laboratory at LMU and TU Munich) MP tandem accelerator laboratory. The use of a Q3D spectrometer with a high-resolution focal plane detector was instrumental in the assignment of level energy, spin and parity of the nuclei of interest. Angular distribution and cross section measurements are compared to calculated values from the DWBA. The shape of the  $L = 0$  angular distribution is used to unambiguously identify any  $0^+$  state populated below an excitation energy of 3.5 MeV. These experiments are the continuation of the survey of transitional and well-deformed nuclei performed in the hope of providing information into the nature of the excited  $0^+$  states of nuclei in the vicinity of the rare earth region. First experimental results will be presented. This work has been supported by US DOE grant DE-FG02-91ER-40609.

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