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Investigation of 0^+ states in Rare Earth Region Nuclei D.A. MEYER, WNSL, Yale Univ., G. GRAW, R. HERTENBERGER, LMU München, H.-F. WIRTH, TU München , R.F. CASTEN, WNSL, Yale Univ., P. VON BRENTANO, IKP Köln , D. BUCURESCU, NIPNE, Romania, C.R. FITZPATRICK, WNSL, Yale Univ., Univ. of Surrey, S. HEINZE, IKP Köln , J.L. JERKE, WNSL, Yale Univ., J. JOLIE, IKP Köln , R. KRÜCKEN, M. MAHGOUB, TU München , O. MÖLLER, D. MÜCHER, P. PEJOVIC, C. SCHOLL, IKP Köln , V. WOOD, WNSL, Yale Univ. — The nature of 0^+ excitations, especially in transitional and deformed nuclei, has recently attracted new attention with experiment studying ^{158}Gd [1]. 15 additional nuclei in the rare earth region were studied via the (p, t) pickup reaction using the Q3D magnetic spectrograph at the University of Munich MP tandem accelerator laboratory. Outgoing tritons were recorded at three lab angles, and their relative cross sections are compared to those calculated using the distorted wave Born approximation (DWBA). Using the unique shape of the L = 0 angular distribution, more than double the number of 0^+ states than were previously known are identified. The distribution of 0^+ energies and cross sections is discussed. This work supported by the U.S. DOE under Grant No. DE-FG02-91ER-40609, MLL, and DFG (C4-Gr894/2-3, Jo391/2-1). [1] S. R. Lesher, et al., Phys. Rev. C 66, 051305(R) (2002).

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