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Systematic study of excited 0^+ states in the Er isotopes populated in the (p,t) reaction P.E. GARRETT, A. FINLAY, D. KISLIUK, S. CHAGNON-LESSARD, A. DIAZ VARELA, R. DUNLOP, D.S. JAMIESON, K.G. LEACH, C.E. SVENSSON, University of Guelph, G.C. BALL, S. TRIAMBAK, Triumf, T. FAESTERMANN, Technische Universität München, R. HERTENBERGER, H.-F. WIRTH, Ludwig Maximilian Universität München — The nature of excited 0^+ states in well-deformed nuclei continue to pose a challenge in nuclear structure. Often, even the nature of the first excited 0^+ state, 0_2^+, is unclear and interpretations involving β vibrations, pairing excitations, two-phonon γ vibrations, etc., have been advanced with different degrees of success. A major issue historically has been lack of data on excited 0^+ states. In light of this, the study of the Er isotopes has been extended via the ^{162}Er and ^{164}Er (p,t) reactions. The experiments were performed at the Maier-Leibnitz Laboratory using 22 MeV proton beams on highly-enriched targets of ^{162,164}Er, and the reaction products were analyzed with the Q3D spectrograph. Strong populations of the 0_2^+ states have been observed. The systematics of the strong population of the 0^+ states in the Er(p,t) reactions sheds light on the underlying nature of these levels.

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