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Study of the ^{28}Mg(t,^{30}Mg)p reaction to investigate nuclear shell evolution at the boundary of the N=20 Island of Inversion TAMMY ZIDAR, University of Guelph — Some nuclei far from the valley of stability have been found to have ground state properties that are different than those naively expected from the nuclear shell model. The term island of inversion is used to refer to regions of the nuclear landscape in which deformed intruder configurations dominate nuclear ground, e.g. centered on neutron-rich ^{32}Mg. The ratio of ^{30}Mg on the border of this region can be used to determine the amount of mixing that occurs moving into the island of inversion. ^{28}Mg was delivered by the high-intensity and energy accelerator at the isotope mass separator on-line (HIE-ISOLDE) facility at CERN. The high-purity beam of ˜1.8x10^{6} pps was impinged on a radioactive tritium target resulting in the desired reaction of ^{28}Mg(t, ^{30}Mg)p. In terms of the experimental setup to study the reaction, two complimentary systems were used: the silicon detector array T-REX, in order to detect and identify the transfer particles, and the MINIBALL -ray spectrometer [2]. The data from these two detectors were used to determine the ratio of the cross-sections of the excited to the ground 0^{+} states. Preliminary results and their interpretations will be presented. 1] K. Wimmer et al., Phys. Rev. Lett. 105, 252501 (2010)\pard[2] N. Warr et al., Eur. Phys. J. A 49, 40 (2013)

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