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Spectroscopy inside the “Island of Inversion”: ^{30}Na ¹ VANDANA TRIPATHI, S.L. TABOR, Dept. of Physics, FSU, Tallahassee, PAUL MANTICA, NSCL & Dept. of Chemistry, MSU, East Lansing, P. BENDER, FSU, J. COOK, NSCL, C.R. HOFFMAN, SANGJIN LEE, FSU, J. PEREIRA, NSCL, M. PERRY, K. PEPPER, FSU, J. PINTER, J. STOKER, MSU, D. WEISSHAAR, NSCL — Nuclei with large excess of one type of nucleons are expected to have properties which are far different from their stable counterparts. The neutron rich $N=20$ isotones for Ne, Na and Mg show large deformation unexpected for closed shell nuclei, suggesting that the shell gap may be weakened for large isospin. These nuclei thus exhibit co-existence of spherical and intruder configurations at low excitation energy. However in most cases, it is difficult to experimentally classify the excited states into members of these two configurations, due to lack of precise data. In this paper we report on the spectroscopy of the $N=19$, ^{30}Na , supposed to belong to the “island of inversion”. Three 1^+ states have been identified, two of which have dominant intruder configurations. Details of the level scheme obtained from the β decay of ^{30}Ne and a comparison with Monte Carlo Shell Model calculations which include the sd and partial fp shells as the valence space will be discussed.

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