

Abstract Submitted
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New results on the excited states in ^{32}Mg A.J. MCGAULEY, University of Notre Dame, H. MACH, Uppsala U., L.M. FRAILE, U. of Complutense Madrid, O. TENGBLAD, R. BOUTAMI, CSIC Madrid, C. JOULIET, IRes Strasbourg, W. PLOCIENNIK, ASINS Swierk, D.Z. YORDANOV, U. of Leuven, M. STANOIU, IPNO Orsay, FOR THE IS441 COLLABORATION — ^{32}Mg is located at the center of a region known as the “island of inversion,” a region in which the classic picture of stable shell structure was shattered when the energy of the 2^+ state in ^{32}Mg was found to be only 885 keV, much lower than expected for a nucleus with a closed neutron shell. The collapse of the $N = 20$ shell closure has been extensively studied, yet very little information exists on the excited states in ^{32}Mg , which is the critical nucleus. We have studied the levels in ^{32}Mg populated from the beta-decay of ^{32}Na at the ISOLDE facility at CERN. We have established a new level scheme which includes 9 excited states and 18 transitions based on the gamma-gamma coincidences. The statistics exceeded by about 2 orders of magnitude statistics collected in previous measurements of ^{32}Mg [1]. We do not confirm two levels previously proposed, while two new levels and five new transitions are included in the level scheme. [1] G. Klotz *et al.*, Phys. Rev. C**47**, 2502 (1993), C.M. Mattoon *et al.*, Phys. Rev. C**75**, 017302 (2007), and V. Tripathi *et al.*, Phys. Rev C**77**, 034310 (2008).

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