

Coulomb excitation of ^{31}Mg - at the shore of the island of inversion

Tuesday, 18 December 2007 10:25 (20 minutes)

The first safe Coulomb excitation measurements of ^{30}Mg and ^{32}Mg at safe energies with REX-ISOLDE and MINIBALL clearly confirms the transition in the neutron-rich magnesium isotopes from normal to intruder-dominated configurations between these two Mg isotopes by measuring the $B(E2; 0g_s^+ \rightarrow 21^+)$ values of the even-even nuclei. A recent Coulomb excitation experiment with a post-accelerated odd ^{31}Mg beam from REX-ISOLDE showed the transition from the 945 keV state into the first excited state at 50.5 keV. The ongoing analysis will concentrate on the quadrupole properties of the 945 keV state, the intriguing interpretation as a $5/2$ state of the positive yrast band of ^{31}Mg on top of the $1/2^+$ ground state and comparison with recent shell model calculations [1].

[1] F. Marechal, et al., Phys. Rev. C 72, 044314 (2005)

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Session Classification: Nuclear Physics I