



独立行政法人理化学研究所 仁科加速器研究センター
第100回RIBF核物理セミナー
RIKEN Nishina Center for Accelerator Based Science
The 100th RIBF Nuclear Physics Seminar

Low-lying states in ^{32}Mg studied by proton inelastic scattering

Dr. Satoshi Takeuchi (Radioactive Isotope Physics Laboratory)

Low-lying excited states in the neutron-rich nucleus ^{32}Mg were studied by proton inelastic scattering in inverse kinematics via an in-beam γ -ray spectroscopy technique. Populated states were identified by measuring de-excitation γ rays, in which five new states were found by γ - γ coincidence analyses. The differential cross sections were analyzed by using coupled-channel calculations to determine the transferred angular momenta and the amplitudes of individual transitions. The spin and parity of the 2321-keV state was assigned as 4^+ . The ratio between the energies of the 2^+ and 4^+ states indicates that ^{32}Mg is a transitional nucleus rather than an axially deformed rigid rotor. A candidate for the 3^- state was found at an excitation energy of 3115 keV, which is lower than the 3^- energies in other $N = 20$ isotones. A small $B(E3)$ value of 0.6 W.u. suggests a single-particle nature. The collectivities in the nucleus ^{32}Mg with $N = 20$ are discussed based on the results obtained in the present experiment.

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The seminar will be given in English.

Contact: RIBF Nuclear Physics Seminar Organizer
seminar@ribf.riken.jp
<http://ribf.riken.jp/~seminar>