

Quadrupole collectivity in ^{20}Mg

Thursday, 3 April 2008 19:20 (10 minutes)

The Coulomb excitation of the very proton-rich nucleus ^{20}Mg was studied using a radioactive ^{20}Mg beam at 58 A MeV impinging on a lead target.

The reduced transition probability $B(E2; 0_{gs}^+ \rightarrow 2_1^+)$ was extracted.

The ratio of the neutron-to-proton multipole matrix elements M_n/M_p was deduced by comparing the $B(E2)$ with that for the mirror nucleus ^{20}O assuming the isospin symmetry.

The results confirm the large M_n/M_p in ^{20}O , leading to a large isovector component for the transition.

Primary author: Prof. IWASA, Naohito (Department of Physics, Tohoku University)

Co-authors: Dr SAITO, Akito (Center of Nuclear Study (CNS), University of Tokyo); Dr TAKESHITA, Eri (RIKEN); Dr IWASAKI, Hironori (Department of Physics, University of Tokyo); Mr SUZUKI, Hiroshi (Department of Physics, University of Tokyo); Prof. SAKURAI, Hiroyoshi (RIKEN); Dr MORIKAWA, Hitoshi (Department of Physics, Rikkyo University); Prof. TANIHATA, Isao (RCNP, Osaka University); Dr GIBELIN, Julien (Institut de Physique Nucléaire, IN2P3-CNRS); Mr ISHIKAWA, Kazuhiro (TIT); Dr YAMADA, Kazunari (RIKEN); Prof. IEKI, Kazuo (Department of Physics, Rikkyo University); Prof. KURITA, Kazuyoshi (Department of Physics, Rikkyo University); Mr YAMAGUCHI, Koji (Department of Physics, Rikkyo University); Mr SUGAWARA, Kosuke (Department of Physics, Saitama University); Dr NOTANI, Masahiro (Physics Division, Argonne National Laboratory); Dr NIIKURA, Megumi (Center of Nuclear Study (CNS), University of Tokyo); Dr KUROKAWA, Meiko (RIKEN); Mr HOSOI, Motooki (Department of Physics, Saitama University); Mr MATSUI, Nobuyuki (Department of Physics, Tokyo Institute of Technology); Dr BISHOP, Shawn (RIKEN); Dr OTA, Shinsuke (Center of Nuclear Study (CNS), University of Tokyo); Ms KAWAI, Shoko (Department of Physics, Rikkyo University); Prof. KUBONO, Sigeru (Center of Nuclear Study (CNS), University of Tokyo); Prof. SHIMOURA, Susumu (Center of Nuclear Study (CNS), University of Tokyo); Prof. NAKAMURA, Takashi (Department of Physics, Tokyo Institute of Technology); Dr SUGIMOTO, Takashi (Department of Physics, Tokyo Institute of Technology); Prof. TERANISHI, Takashi (Department of Physics, Kyushu University); Prof. SUZUKI, Takeshi (Department of Physics, Saitama University); Prof. MOTOBAYASHI, Tohru (RIKEN); Dr MINEMURA, Toshiyuki (RIKEN); Dr TOGANO, Yasuhiro (Department of Physics, Rikkyo University); Dr YANAGISAWA, Yoshiyuki (RIKEN); Dr ELEKES, Zoltan (Institute of Nuclear Research of the Hungarian Academy of Sciences)

Presenter: Prof. IWASA, Naohito (Department of Physics, Tohoku University)

Session Classification: Poster

Track Classification: Collectivities and shell effects in neutron/proton-rich nuclei