

Isotopic Dependence of Giant Monopole Resonance in the even A, $^{106-116}\text{Cd}$ isotopes and the asymmetry term in nuclear incompressibility

D. Patel¹, U. Garg¹, M. Fujiwara², H. Akimune³, G.P.A. Berg³, M.N. Harakeh⁴, M. Itoh⁵, M. Ichikawa⁵, T. Kawabata⁶, K. Kawase², R. Matsui⁵, B.K. Nayak¹, S. Okumura², T. Terazono⁵, M. Uchida⁷, H.P. Yoshida⁵, and M. Yosoi²

1 Department of Physics, University of Notre Dame, Notre Dame, Indiana 46556, USA

2 Research Center for Nuclear Physics, Osaka University, Osaka 567-0017, Japan

3 Department of Physics, Konan University, Kobe 658-8501, Japan

4 Kernfysisch Versneller, Institute, University of Groningen, 917 A A Groningen, The Netherlands

5 Cyclotron and Radioisotope center, Tohoku University, Sendai 980-8578, Japan

6 Center for Nuclear Study, University of Tokyo, Tokyo 113-0033, Japan

7 Department of Physics, Tokyo Institute of Technology, Tokyo 152-8850, Japan

The nuclear equation of state (EOS) is important in describing various phenomena ranging from the collective excitation of nuclei to supernova explosion and the properties of neutron stars. The asymmetry term associated with the neutron excess ($N-Z$), K_{τ} , plays a very important role in the EOS for neutron matter. The giant monopole resonance (GMR) studied over a series of isotopes provides a direct way to measure this term. We have measured GMR strength distributions in even-even $^{106-116}\text{Cd}$ isotopes. This experiment was performed at Research Center for Nuclear Physics (RCNP), Osaka University, Japan. Measurements were taken at forward angles, including 0° , using a 400 MeV α beam. The results affirm the conclusions of a recent experiment with the Sn isotopes [1]. The constraints put by values of K_{τ} and K_{∞} , obtained from this experiment on the effective interaction currently in use in nuclear structure and EOS calculations, will be discussed.

1. T. Li, et al., Phys. Rev. Lett. 99, 162503 (2007).

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