Contribution ID: **94** Type: **not specified**

Study of compression modes of 56Ni using an active target

Compression modes, i.e., Isoscalar Giant Monopole Resonance (ISGMR) and Isoscalar Giant Dipole Resonance (ISGDR) can be studied in exotic nuclei using inelastic scattering in inverse kinematics. Since the spin and isospin of an alpha particle are both equal to zero, the most favourable process to study the isoscalar L=0 (GMR) and L=1 (GDR) modes is the inelastic alpha particle scattering. However, performing experiments with exotic beam is still a challenge, as beams of exotic nuclei have relatively low intensities. Hence to get a reasonable yield, a thick target is needed which in turn degrades the energy resolution. Therefore, a good alternative is to use an active-target, such as time-charge-projection-chamber (TCPC) MAYA at GANIL, in which the target can itself be used for detection and its thickness can be increased without a severe loss of energy resolution. Very low energy (~sub MeV) particle detection is also possible because MAYA has a low detection threshold. In the present experiment, inelastic scattering of secondary 56Ni beam at energy of 50 MeV/u with the helium gas took place inside the target/detector volume. The tracks of the low-energy recoil alpha particles have been measured in the detector volume yielding their scattering angles, ranges and energies. Furthermore, we have measured the decay protons and alpha particles from the giant resonance region in 56Ni using the forward-angle Si/CsI telescope, in coincidence with inelastically scattered alpha particles in MAYA. In this way we can study the macroscopic as well as microscopic properties of the ISGMR and ISGDR of 56Ni. Results obtained so far for the elastic and inelastic scattering will be discussed in this poster.

Primary author: Mr BAGCHI, Soumya (KVI-CART Netherlands)

Co-authors: Dr RIGOLLET, Catherine (KVI-CART Netherlands); Dr GIBELIN, Julien (LPC Caen, ENSICAEN, France); Prof. HARAKEH, M. N. (KVI-CART Netherlands); Prof. NAYESTANAKI, N. Kalantar (KVI-CART Netherlands)

Presenter: Mr BAGCHI, Soumya (KVI-CART Netherlands)