Contribution ID: **39** Type: **not specified**

Investigation of the medium-spin level structure of 78Se with alpha beam

The excited states of 78Se have been investigated using alpha beam through the 76Ge(α, 2n) fusion evaporation reaction. The 30 MeV alpha beam was delivered by the K-130 Cyclotron at VECC, Kolkata. The target was prepared through centrifuge process of enriched metallic 76Ge powder on mylar backing. The target used in this experiment was 2mg/cm2 thick and two such targets staged together to increase the yield of the residual nuclei. The excited gamma rays emitted from the residual nuclei were detected by Indian National Gamma Array (INGA) at the Variable Energy Cyclotron Centre (VECC), Kolkata, India. The INGA array used in this experiment composed of seven Compton-suppressed HPGe Clover detectors and one Low Energy Photon Spectrometer (LEPS). Four Clover detectors were placed at 90°, two at 125° , and one Clover and the LEPS at 40° relative to the beam axis. The γ-γ symmetric and asymmetric matrices were sorted using the code "IUCPIX". DCO matrix have used to assigned the multipolarity of the gamma transitions and it's constructed by sorting the data from 90° detectors and 125° detectors along x and y axes correspondingly. Few newly observed transitions have been placed based on the coincidence relationship and intensity measurement in the decay scheme. The ongoing analysis of the data help us to extend the level scheme up to Ex ˜ 6.5 MeV and J ˜ 15ħ. The spins and parities of the excited levels have been assigned based on the results from the DCO and polarization measurements. Detail analysis of the in-beam data is in progress to understand the complex coupling mechanism between the octupole correlations and the gamma modes of vibration.

Primary authors: Mr MANDAL, K. (Chandidas Mahavidyalaya, Khujutipara, Birbhum, West Bengal 731 215, India and Department of Physics, Siksha Bhavana, Visva-Bharati, Santiniketan, 731 235, India); Mr MONDAL, A.K. (Department of Physics, Siksha Bhavana, Visva-Bharati, Santiniketan, 731 235, India); Dr CHAKRABORTY, A. (Department of Physics, Siksha Bhavana, Visva-Bharati, Santiniketan, 731 235, India); Mr ALI, S. (Saha Institute of Nuclear Physics, HBNI, Kolkata 700 064, India); Mr BANIK, R. (Variable Energy Cyclotron Centre, 1/AF, Bidhan Nagar, Kolkata 700 064, India); Dr BHATTACHARYYA, S. (Variable Energy Cyclotron Centre, 1/AF, Bidhan Nagar, Kolkata 700 064, India); Mr BHATTACHARYA, S. (Variable Energy Cyclotron Centre, 1/AF, Bidhan Nagar, Kolkata 700 064, India); Mr BISWAS, S. (Murshidabad College of Engineering & Technology, Berhampore, West Bengal 742 102, India); Prof. BISWAS, D.C. (Nuclear Physics Division, Bhabha Atomic Research Centre, Mumbai 400 085, India); Mr CHATTARJEE, S. (UGC-DAE-Consortium for Scientific Research, Kolkata 700 098, India); Mr DAS, S.K. (UGC-DAE-Consortium for Scientific Research, Kolkata 700 098, India); Mr GHOSH, U.S. (Department of Physics, Siksha Bhavana, Visva-Bharati, Santiniketan, 731 235, India); Prof. GHUGRE, S.S. (UGC-DAE-Consortium for Scientific Research, Kolkata 700 098, India); Dr ., Krishichayan (Triangle Universities Nuclear Laboratory, Durham, North Carolina, 27708, USA); Prof. GOSWAMI, A. (Saha Institute of Nuclear Physics, HBNI, Kolkata 700 064, India); Dr KUMAR, A. (Department of Physics, Banaras Hindu University, Varanasi-221 005, India); Mr KUMAR, V. (Department of Physics, Banaras Hindu University, Varanasi-221 005, India); Dr MUKHERJEE, B. (Department of Physics, Siksha Bhavana, Visva-Bharati, Santiniketan, 731 235, India); Dr MUKHERJEE, G. (Variable Energy Cyclotron Centre, 1/AF, Bidhan Nagar, Kolkata 700 064, India); Dr MUKHOPADHYAY, S. (Nuclear Physics Division, Bhabha Atomic Research Centre, Mumbai 400 085, India); Mr NANDI, S. (Variable Energy Cyclotron Centre, 1/AF, Bidhan Nagar, Kolkata 700 064, India); Dr RAUT, R. (UGC-DAE-Consortium for Scientific Research, Kolkata 700 098, India); Mr SAMANTA, S. (UGC-DAE-Consortium for Scientific Research, Kolkata 700 098, India)

Presenter: Mr MANDAL, K. (Chandidas Mahavidyalaya, Khujutipara, Birbhum, West Bengal 731 215, India and Department of Physics, Siksha Bhavana, Visva-Bharati, Santiniketan, 731 235, India)