Contribution ID: **3** Type: **not specified**

Study of intruder states in ^{83}Se via lifetime measurements

Tuesday, 10 May 2022 10:30 (20 minutes)

Quadrupole interaction between protons and neutrons drives the nucleus into deformed configurations at low excitation energies. The ^{83}Se nucleus is at the mid of the proton fp-shell (Z=28-40), it is a good candidate to study the properties of particle-hole intruder states lowered in energy by large quadrupole correlations. Lifetime measurement of the low-lying intruder state with spin $1/2^+$, originating from $s_{1/2}$, will provide information on its wave function and allow one to estimate the degree of N = 50 core breaking in the ground state of Se isotopes.
The lifetime of the 500-keV $1/2^+$ level was measured using the Recoil Distance Method. A beam of 82Se, with intensity 0.02 pnA accelerated at 270 MeV from TANDEM accelerator at LNL-INFN, impinged into a deuterated polyethylene (C2D4) target which was evaporated on a 6 mg/cm2 thick gold layer. The GALILEO γ-array was coupled to the SPIDER silicon array, allowing one to obtain the needed channel selectivity through coincidence measurements between γ rays and protons coming from the (d,p) reaction.

Primary authors: GOTTARDO, Andrea (Istituto Nazionale di Fisica Nucleare); PELLUMAJ, Julgen (Istituto Nazionale di Fisica Nucleare)

Presenter: PELLUMAJ, Julgen (Istituto Nazionale di Fisica Nucleare)

Session Classification: Struttura nucleare e dinamica delle reazioni I