

”Gamma and fast-timing spectroscopy of ^{85}Se isotopes populated in fission”

Wednesday, 17 April 2019 15:30 (15 minutes)

Nuclides in the vicinity of double magicity have simple structure, possible to explain with the shell model. Then, the nuclei is described as well bounded core (built with magic number of nucleons) and valence nucleons. The excitation-energy spectrum is dominated by single particle excitations. Understanding how single particle states evolve as a function of neutron (or proton) number is of the main importance. Thus, there is a great need of systematic investigation of the nuclear structure of the nuclei in the vicinity of the double magic nuclei.

In the double magic ^{78}Ni region it was observed that proton single particle states $2p_{3/2}$ and $1f_{5/2}$ evolve as a function of neutron number and reverse in ^{73}Cu and ^{75}Cu [1,2]. It is also crucial to observe neutron single particle states evolution as a function of proton number. Such investigations showed that the neutron gap between $3s_{1/2}$ and $2d_{5/2}$ orbitals reduce with decreasing Z for $N = 51$ isotones down to ^{83}Ga , but the gap seems to enlarge again for ^{81}Zn . Recognition of ^{85}Se nuclei structure is the next step in this investigations.

The experiment was performed in IPN, Orsay on LICORNE and NUBALL facility. Excited states in ^{85}Se were populated in fission $^{232}\text{Th}(n,f)$ for the first time.

This work was done in Nuball 2 collaboration.

Bibliography

[1] Phys. Rev. C 80, 054304 (2009)

[2] Phys. Rev. C 83, 014322 (2011)

Primary author: Ms ADAMSKA, Ewa (Faculty of Physics, University of Warsaw)

Co-author: Dr KORGUL, Agnieszka (University of Warsaw, Faculty of Physics)

Presenter: Ms ADAMSKA, Ewa (Faculty of Physics, University of Warsaw)

Session Classification: Nuclear Physics

Track Classification: Nuclear Physics