

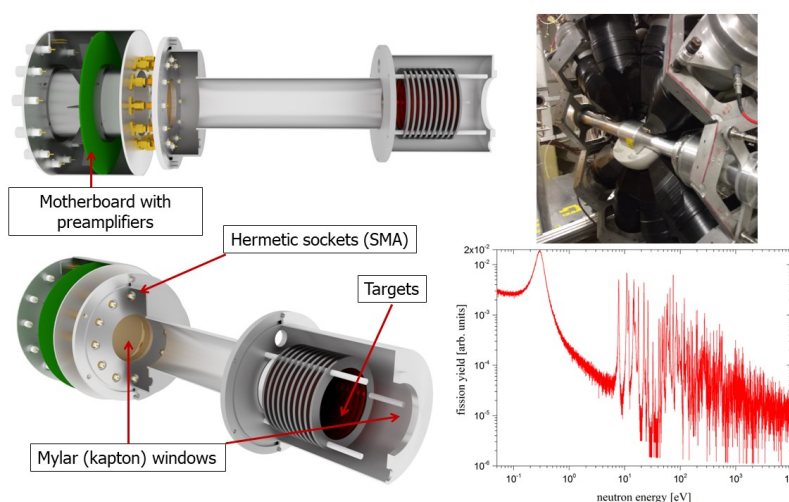
The new multi-section ionization fission chamber for measurements of reactions on ^{239}Pu isotope *

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The multi-section ionization fission chamber was constructed at University of Lodz and used for precise measurement of $^{239}\text{Pu}(n, \gamma)$ reaction cross section. The (n, f) reaction cross section is much higher compared to (n, γ) for this isotope, therefore, at such conditions, the signals from a fission detector should be used as a veto to the gammas emitted by fragments. In the past, this technics was successfully developed for measurements at the n_TOF facility at CERN [1]. This new multi-section ionisation chamber combined with the Total Absorption Calorimeter (TAC) of gamma quanta [1] were used in this experiment performed at n_TOF[2]. The schematic view and photos of multi-section ionization fission chamber inside of TAC detector is shown below. The yield of fission fragments from all channels of ionisation chamber in function of neutrons energy is also presented.



The constructed detector is characterized by high efficiency $> 90\%$, good energy resolution for distinguish alpha particles from fission fragments, short rise time of signals and resistance to the gamma flash signal appearing at the n_TOF facility what gives the possibility to measure signals from fission fragments to energy of almost 1 MeV. This project was supported by the SANDA grant in the frame of Horizon 2020.

[1] C. Guerrero *et al.*, Eur. Phys. J. A **48** (2012) 29.

[2] F. Gunsing *et al.*, Eur. Phys. J. Plus **131** (2016) 371.

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