

NEUTRON INDUCED FISSION CROSS SECTION MEASUREMENT OF ^{241}Am AT THE NTOF FACILITY

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High accuracy cross section data of neutron-induced reactions of minor actinides are needed over a wide energy range for the feasibility, design and sensitivity studies on innovative nuclear reactors (Accelerator Driven Systems-ADS and Generation IV fast neutron reactors). The concept of these systems is to incinerate/transmute the existing actinides found in high-level nuclear waste. Representing almost 1.8% of the minor actinide mass in spent PWR UOx fuel, the ^{241}Am isotope ($T_{1/2}=433$ y) is considered one of the possible candidates for incineration/transmutation. On top of that, its production rate increases within the spent fuel through the β -decay of ^{241}Pu ($T_{1/2}=14.3$ y). Consequently, the accurate determination of the fission reaction rate of ^{241}Am over an extended energy range is of prime importance.

In the present work, the $^{241}\text{Am}(n,f)$ reaction cross section was measured with micromegas detectors at the vertical experimental area of the n_TOF facility at CERN using the time-of-flight technique. For the measurement 6 samples of ^{241}Am were used along with 2 samples of ^{235}U and 2 samples of ^{238}U that were used as a reference. In this contribution, an overview of the experimental set-up is given. Preliminary results will also be presented and compared with previous data and nuclear data evaluations.