

Looking for one integral reference for the (n,f) reaction in actinides above 1 MeV

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Abstract:

The neutron-induced cross-section of actinides at energies above threshold (~ 1 MeV) is evaluated based on the experimental data obtained from different experimental setups, having so systematic uncertainties that are difficult to minimize. One of the most important source of systematic error in the measured cross section is the absolute normalization of every dataset which is often performed by measuring simultaneously other isotope used as reference. In other experiments the shape of the cross-section spectrum is normalized using as reference the corresponding datafile retrieved from an evaluated library. The choice of the energy interval used as reference has been left up to the experimentalist criteria, leading to a hardly assessable uncertainty.

In this work the experimental datasets of the (n,f) cross section of principal actinides are reviewed looking for the best suited energy interval to be recommended for renormalization purposes. Using standard integration intervals, wide enough to get very low statistical uncertainties, should lead to a better normalization of every experimental dataset, reducing so the associated total uncertainty of the evaluated datafiles.