Frontiers in Gamma Ray Spectroscopy FIG18

Contribution ID : 37

Prediction of heavy mass fission fragments in thermal neutron induced fission

Content :

The experimental data for the heavy mass fission fragments in thermal neutron induced fission is very scarce because of experimental limitations. Invoking the idea of isospin conservation in heavy mass neutron-rich systems [1, 2], we predict the fission fragment mass distribution for thermal neutron induced reaction ^{245}Cm(nth, f). We have already reported similar kind of calculations for heavy ion induced fission, ^{208}Pb(^{18}O, f) and ^{238}U (^{18}O, f) [3, 4]. We compare the results with the experimental data given by Rochman et al. [5]. In the experiment, we have data only for light mass fragments and these data match with our results quite reasonably. Although, our calculations are simple and we are not considering shell effects or the presence of isomers which influence the yields of fragments, still the fragment mass distribution prediction may be useful for the experimentalists.

References:

[1] A. M. Lane and J. M. Soper, Nucl. Phys. 37, 663 (1962).
[2] N. Auerbach, Phys. Rep. 98, 273 (1983).
[3] A. K. Jain, D. Choudhary and B. Maheshwari, Nuclear Data Sheets 120, 123 (2014).
[4] S. Garg and A. K. Jain, Phys. Scr. 92, 094001 (2017).
[5] D. Rochman et al., Nucl. Phys. A 710, 3-28 (2002).

Primary authors : Ms. GARG, Swati (Indian Institute of Technology Roorkee)

Co-authors : Prof. JAIN, Ashok Kumar (Department of Physics, Indian Institute of Technology Roorkee)

Presenter : Ms. GARG, Swati (Indian Institute of Technology Roorkee)

Session classification : --not yet classified--

Track classification : --not yet classified--

Type : Poster