

Neutron multiplicity of transplutonium nuclei

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The calculations of neutron multiplicity distributions were carried out with the improved scission point model (ISPM) [1] for ^{252}Cf , ^{248}Cm , and ^{246}Fm nuclei. Within the ISPM the probabilities of formation of different scission configurations as well as the available excitation energy at scission were found based on the calculation of the potential energy as a function of mass and charge numbers of the fragments and their deformation parameters. In order to account for pre-equilibrium effects, the energy distribution between fission fragments and evolution of the deformation of the fragments are taken into consideration. The necessity of account for pre-equilibrium processes for the considered nuclei is discussed. The results are compared with the experimental data provided in Ref. [2] and with other models [3]. The average number of neutrons per spontaneous fission process and the corresponding uncertainties are presented.

1. A. V. Andreev et al., EPJ A 30.3, 579 (2006).
2. A.V. Isaev et. al, arXiv:2203.11802 [nucl-ex] (2022).
3. K.-H. Schmidt, B. Jurado, C. Amouroux, C. Schmitt, Nuclear Data Sheets 131, 107 (2016).

The speaker is a student or young scientist

No

Section

1. Nuclear structure: theory and experiment

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