31st International Seminar on Interaction of Neutrons with Nuclei: Fundamental Interactions & Neutrons, Nuclear Structure, Ultracold Neutrons, Related Topics (ISINN-31)



Contribution ID: 43

Type: not specified

Light lons Accompanied Break-Up of the Medium Heavy Fission Isomers

In series of the photo-fission reactions, namely, $\langle \sup \rangle 235$, $238 \langle \sup \rangle U(\gamma, f)$, $\langle \sup \rangle 232 \langle \sup \rangle Th(\gamma, f)$, $\langle \sup \rangle 242 \langle \sup \rangle Pu(\gamma, f)$ we have found that some part of the fission fragments (FFs) are presumably born in the state of the fission isomer with the yield Y \approx 10 $\langle \sup \rangle -3 \langle \sup \rangle /binary$ fission and with the lifetime $\tau \langle \sup \rangle isom \langle u u u \rangle \rangle > 400$ nsec [1, 2]. A binary break-up of such fragments was observed when they pass through a solid-state foil. The effect takes place also for the FFs from $\langle \sup \rangle 252 \langle \sup \rangle Cf(sf)$. In the proposed presentation we discuss the mode of the break-up with forming light ions in the mass range (3-20) u as one of the resultant decay products. The link of such events with known polar emission of the light charged particles is analyzed.

References

1. D.V. Kamanin et al., Bulletin of the Russian Academy of Sciences: Physics, V. 87 (2023), p. 1238.

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Session Classification: Poster Session

Track Classification: Poster session