Light ions accompanied break-up of the medium heavy fission isomers

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In series of the photo-fission reactions, namely, ^{235,238}U(γ, f), ^{232}Th(γ, f), ^{242}Pu(γ, 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 ≈ 10^{-3} binary fission and with the lifetime τ_{isom} > 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 ^{252}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

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2. D.V. Kamanin *et al.*, Journal of Physics: Conference Series, V. **2586**, 012043 (2023).