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Manifestation of the N=32, 34 subshell closures in the ternary decays of heavy nuclei.

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In our previous publications [1-4] we presented experimental evidences of rare ternary decay mode of low excited heavy nuclei. Essential feature of this process is that some of the fission fragments (FFs) born during binary fission undergo a break-up, while they pass a solid-state foil. This break-up is delayed and occurs after the binary fission of the mother system. It is reasonable to think of such specific FFs as formed in the shape-isomer states. The break-up is due to the FF inelastic scattering in the foil medium. Strong indication was obtained of clustering of the mother system at the stage of binary fission and clustering of the intermediate fragment which undergoes further break-up. Deformed magic and semi-magic nuclei play role of clusters. We especially discuss the manifestation of the N=32, 34 subshell closures in the light products of the break-up.

References

1. Yu.V. Pyatkov et al., Eur. Phys. J. A 45, 29 (2010).
2. Yu.V. Pyatkov et al., Eur. Phys. J. A 48, 94 (2012).
3. Yu.V. Pyatkov et al., Phys. Rev. C 96 (2017) 064606.
4. Yu. V. Pyatkov et al., Physics of Atomic Nuclei, 85, 763 (2022)

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