

Status of research on fissioning isomers in the fragments of binary fission of heavy nuclei

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The report is dedicated to summarizing the experimental activities of the FOBOS group in FLNR (JINR) on studying of the fissioning isomers in fission fragments [1], [2]. The results of a series of experiments performed in the frame of different experimental approaches indicate the presence of long-lived fissioning isomers in the fragments of binary fission of low excited heavy nuclei. In this context, inelastic scattering of such fragments in solid foils acts as a specific detector of these states. As a result of the scattering, a fragment undergoes binary break-up. The discussed results are completely novel: induced fission of a cold medium-heavy nucleus from a shape isomer state has never been observed experimentally before, and there are no theoretical predictions for the observed effect.

References

1. Yu. V. Pyatkov [et al.], Proc. 27th Int. Seminar on Interaction of Neutrons with Nuclei (ISINN-27), Dubna, Russia, 2019.
2. D. V. Kamanin [et al.], Phys. Part. Nucl. Lett. **22**, 272 (2025).