

Supersymmetric fission mode of $^{248,250}\text{Cf}$, $^{254,256}\text{Fm}$ and ^{260}No

Thursday, October 15, 2020 4:00 PM (25 minutes)

This work devoted to the study the mass and energy distributions of fission fragments to investigate the role of closed proton and neutron shells in the fission of $^{248,250}\text{Cf}$, $^{254,256}\text{Fm}$, and ^{260}No nuclei [1,2,3,4] at excitation energies of 40–55 MeV. Experiments are performed on the U-400 cyclotron at the Flerov Laboratory of Nuclear Reactions (Dubna, Russia) using the CORSET double-arm time-of-flight spectrometer [5].

To study the role of the multimodal fission the mass and energy distributions of fission fragments formed in the reactions $^{16,18}\text{O}+^{232}\text{Th}$, ^{238}U , and $^{22}\text{Ne}+^{232}\text{Th}$, ^{238}U at energies around the Coulomb barrier have been measured. It was found that at these energies the mass and energy distributions of fragments exhibit the multimodal structure, which results in the larger variance of the mass distributions.

References:

- [1] D.J. Hinde, D.Y. Jeung, E. Prasad et al. // Phys. Rev. C. 2018. V. 97. 024616.
- [2] K. Banerjee, T.K. Ghosh, S. Bhattacharya et al. // Phys. Rev. C. 2011. V. 83. 024605.
- [3] K. Nishio, H. Ikezoe, Y. Nagame et al. // Phy. Lett. B. 2004. V. 93. 162701. P.909.
- [4] D.O. Eremenko, V.A. Drozdov, O.V. Fotina et al. // Phys. Rev. C. 2016. V. 94. 014602.
- [5] E.M. Kozulin, A.A. Bogachev, M.G. Itkis et al. // Instrum. Exp. Tech. 2008. V. 51.P. 44

Primary author: GIKAL, Kirill

Co-authors: Prof. KOZULIN, Eduard (FLNR); ITKIS, Mikhail (joint institute for nuclear research); Dr ITKIS, Iulia (FLNR, JINR); Mr KARPOV, Alexandr; Dr KNYAZHEVA, Galina (FLNR, JINR); Mr NOVIKOV, Kirill (FLNR, JINR); Mr DIATLOV, Ivan (FLNR, JINR); Mr PCHELINTSEV, Ivan (FLNR, JINR); Mr VOROBIEV, Igor (FLNR, JINR); Mr PAN, Andrey (Flerov Laboratory of Nuclear Reactions, Joint Institute for Nuclear Research, Dubna, 141980 Russia); Dr BANERJEE, Tathagatha (FLNR, JINR)

Presenter: GIKAL, Kirill

Session Classification: Section 2. Experimental and theoretical studies of nuclear reactions

Track Classification: Section 2. Experimental and theoretical studies of nuclear reactions.