Low Energy Fission of Heavy Exotic Nuclei *

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Results of investigation of shell effects in heavy ion induced low energy fission of transitional, Ac-Th, and super heavy compound nuclei will be discussed. Mass, energy distributions of fission fragments, pre- and post-fission neutron and gamma ray multiplicities from fission fragments will be presented.

Performed analysis of the experimental data for ^{226}Th with the use of a new multicomponent method [1] has shown that alongside the well-known modes, i.e., the symmetric (S) and two asymmetric modes standard-one (S1) and standard-two (S2) [2], a high-energy mode standard-three has manifested itself (S3). The last named mode appears due to the influence of the close-to-sphere neutron shell with N≈50 in the light fission fragment group [3].

In detailed measurements of mean gamma-ray multiplicities from fission fragments of ^{226}Th two components in $M_\gamma(M)$ distribution were established. They were associated with different conditions during formation of fission fragments and it was shown that M_γ is very sensitive to symmetric and asymmetric modes and proprieties of the scission point. Theoretical calculations of the pre-scission shapes of the fissioning nuclei ^{224,226}Th confirm our conclusions.

Future experiments with exotic beams on study of shell effects in low energy fission with will be discussed.

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[2] U. Brosa et al., Phys. Rep. **197**, 167 (1990); P. Siegler et al., Nucl, Phys. **A594**, 45 (1995).
[3] I.V. Pokrovsky et al., Phys. Rev. C **62**, 014615 (2000).

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