

Microscopic corrections at scission configurations when mass symmetry is broken

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It is clear that single-particle orbitals belonging to the different fission fragments are already well separated at large elongations of fissioning nucleus. This effect is not taken into account in majority microscopic-macroscopic models which are based on the Strutinsky shell correction method [1] and the BCS theory with the monopole pairing force [2].

We are going to show that neglecting of the single-particle orbital separation effects can lead to significant errors in the case of mass asymmetric fission. Some modifications of the Strutinsky and BCS methods which remove the above difficulties are proposed. In addition, using a method similar to that presented in Ref. [3], we have better implemented into the traditional Strutinsky method the coupling of the bound single-particle levels with the continuum.

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- [2] M. Brack, J. Damgaard, A. S. Jensen, H. C. Pauli, V. M. Strutinsky, and C. Y. Wong, Rev. Mod. Phys. 44 (1972) 320.
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