

Fission modes of the ^{256}Fm and ^{258}Fm isotopes within a microscopic approach

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A static, microscopic study of potential energy surfaces within the Skyrme–Hartree–Fock plus BCS model has been carried out for the ^{256}Fm and ^{258}Fm isotopes in view of deducing some spontaneous fission properties. The calculated fission modes have been found in agreement with the asymmetric-symmetric transition in the experimental fragment mass distributions and with the high and low total kinetic energy (TKE) modes experimentally observed in ^{258}Fm . Most of the presented results are similar to those obtained in macroscopic-microscopic models as well as in recent Hartree–Fock–Bogolyubov calculations with the Gogny interaction, however with a few differences in their interpretations especially for the low-TKE fission mode of ^{258}Fm for which a new explanation is proposed.