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MODELLING OF THE CLUSTER FORMATION IN HEAVY NUCLEI FISSION

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This paper presents a study on the microscopical modelling of the cluster formation in the cold fission of actinides.
In the last three decades, the situation in experimental and theoretical investigation of clustering effects in multimodal fission has changed dramatically [1,2,3].
Based on our cold fission multi-valley calculations in the framework of Strutinsky shell correction method, a theoretical study of various cluster structures emerging in the process of fission has been carried out. Results have demonstrated the effect of the arrangement and rearrangement of magic clusters in the fission process [4,5].
This type of the cluster formation modelling has been successfully implemented for the flow turbulence control using air pressure sensors and aircraft wing surface modifying actuators [6]. For the first time a new approach to the emergent cluster aggregation by the local rules of interaction has been proposed in highly-cited work of Vicsek et al. [7].
Our computable microscopical modelling of the clustering can contribute to understanding of the fission process dynamical features such as a time scale, an interplay between collective and single-particle degrees of freedom and a degree of equilibration on the fission path.

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The speaker is a student or young scientist

No

Section

1. Experimental and theoretical studies of nuclear reactions

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