

Mechanisms of nuclear deformation - experimental search.

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Sudden onset of nuclear deformation observed in specific regions of nuclear chart, and most clearly seen around mass numbers $A=100$ and $A=150$, offers a possibility to study microscopic mechanisms behind the emergence of nuclear deformation. The subject has a half-a-century history and, still, not all has been explained. This is probably because at first a single mechanism (as for instance the spin-orbit-partners interaction) was thought to be responsible for the deformation change. In this paper we will focus on the $A=100$ region, where nuclei are rather easily accessible in experiment, offering a possibility to search experimentally for various effects causing deformation. As shown in some of our studies and the works of other authors, there are several mechanisms, responsible for the onset of nuclear deformation. These mechanisms will be discussed and a new one will be proposed, causing deformation in the vicinity of the ^{78}Ni nucleus.