

Multiple shape coexistence around 80Zr region

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Neutron-deficient nuclei around mass number $A \sim 80$ are of great interest in nuclear structure and nuclear astrophysics (this region, e.g., is explored in the rp-process nucleosynthesis). Although shape-coexistence is becoming a rather common feature along the nuclear chart [1], the region of medium-mass $N \sim Z$ nuclei is expected to show several collective structures associated to distinctive shapes present at the mean-field approximation, i.e., multiple shape coexistence [2].

One of the best suited theoretical tools to study these phenomena is the projected generator coordinate method (PGCM, also referred to as symmetry conserving configuration mixing, or multi-reference energy density functional methods) [3]. In this contribution I will discuss the application of the PGCM method with the Gogny energy density functional in the description of multiple shape coexistence in $N \sim Z$ nuclei from ^{56}Ni to ^{100}Sn .

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