

The islands of shape coexistence within the Shell Model SU(3) symmetry

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Shape Coexistence in nuclei appears in all mass regions, in certain nuclei and manifests by the presence of two low-lying nuclear bands, which correspond to drastically different nuclear shapes. The state-of-the-art theoretical mechanism is the well established particle-hole excitation, which attributes the one of the two coexisting bands to proton or neutron excitations. This mechanism is realized within the traditional Shell Model and predicts that particle-hole excitations- and so shape coexistence- can occur in every nucleus. Our group proposed in 2021 a dual-shell mechanism, which aligns with the particle-hole mechanism, is realized within the Shell Model SU(3) symmetry of Elliott and predicts that shape coexistence can occur in certain islands of nuclei on the nuclear chart, namely the islands of shape coexistence. The new mechanism shall be presented and comparison with the experimental occurrences of shape coexistence shall be discussed.

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Commentaires:

I will participate in the conference on-line.

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