Symmetries in the intrinsic frame

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The notion of intrinsic frame is related to existence of intrinsic symmetries which commute with symmetries considered within the laboratory frame. The hypothesis of nuclei having higher point symmetries enhances interest in considering so called intrinsic groups as tools for analysis of symmetries in the intrinsic variables.

Using the notion of sub-Hamiltonians allows for considering energy nuclear bands with different symmetries within a collective nuclear model.

The state symmetrization group (R–symmetries introduced by Bohr) is revisited to understand its importance in construction of physical solutions within the models based on intrinsic variables.

An analysis for rear earth nuclei is shown, as an example.

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