

Structure along the $N=Z$ line studied by interacting shell models

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Owing to fruitful structure variations along the $N=Z$ line, it is interesting to study how these changes influence the consequences of neutron-proton knockout and transfer reaction experiments. To this end, one needs to calculate the physical quantities that are directly linked to observables by using shell model wavefunctions. In this talk, we mention two kinds of interacting shell models: the spherical shell model that deals with weakly deformed nuclei and the projected shell model that can treat well deformed nuclei. Structure variations such as the shape phase transition, shape coexistence, occurrence of isomers will be highlighted. An isospin invariant Hamiltonian with the extended $P+QQ$ terms is discussed.

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