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Probing α -like quartet condensation by α transfer reactions

Probing α -like quartet condensation in N=Z nuclei by α transfer reactions

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Recent theoretical studies have shown that the ground state of N=Z nuclei can be described by a condensate of α -like quartets [1–4]. In particular, α -like quartets, defined as collective 4-body structures of 2 neutrons and 2 protons coupled to zero isospin, are the appropriate degrees of freedom to treat the proton-neutron pairing interaction and its contribution to the binding energies of nuclei close to N=Z line [5]. A possible way to probe the existence of α -like quartet condensation is through the α transfer reactions along a chain of N=Z nuclei [6]. In the first part of the talk it will be shown how the α -like condensation in N=Z nuclei is pointed out by various calculations and then it will be discussed what could be the fingerprints of quartet condensation which might show up in the α transfer reactions along a chain of N=Z nuclei.

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Topic

Theory

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