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Nuclear structure near decay thresholds

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The quantum many-body dynamics is influenced by the coupling to the continuum of reaction states. This influence is particularly strong near the decay threshold causing structural changes in the wave functions relative to the decay channels.
Threshold discontinuities, collectivization of states relative to decay channels, clusterization, symmetry breaking, and interplay of decay and internal dynamics are all remarkable manifestations of quantum many-body physics at the verge of stability.

In this presentation we discuss recent experiments on alpha clustering that show strong correlations between alpha clustering structure and the corresponding decay thresholds; isobaric mirror resonant reactions provide further insight into competition between clustering and other features of the many-body dynamics. We also discuss recent studies of few-body decays, both direct and sequential, as well as the dynamics involving virtual excitations.

Topic

Theory

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