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Theoretical approaches describing low-lying dipole states

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The presence of the low-lying dipole states on stable and unstable nuclei with neutron excess - known as Pygmy Dipole Resonances (PDR) - is well established in theoretical and experimental studies. The isospin mixed nature of the PDR allows to study the excitation with isovector and isoscalar probes.
The theoretical approaches devoted to investigate this new mode extend from the macroscopic collective models to the microscopic mean-field theories; all of them reproducing the isospin mixing feature.
Detailed investigation on the reaction mechanisms are in order when isoscalar probes are used. Cross section calculations - based on detailed structure descriptions - are calculated within semiclassical Coupled Channel equations with particular attention to the construction of the nuclear potential and radial form factors with the microscopic transition densities.
A short review will be presented on both structure and dynamic approaches paying attention to some of the few questions that remain to be clarified.

Attendance Type

In-person

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