

Giant Monopole Resonance Excitation Energy: Systematic Analysis and Open Problems

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In this talk, results for the isoscalar giant monopole resonance (ISGMR) in a wide range of nuclei from various isotopic chains will be presented [1, 2]. They are obtained within the microscopic self-consistent Skyrme HF+BCS method and the coherent density fluctuation model [3]. Different definitions of the ISGMR energy are applied and two energy-density functionals for nuclear matter are used to calculate the nuclear incompressibility: Brueckner [4] and Barcelona-Catania-Paris-Madrid [5]. The problems related to the lack of precise data for the neutron (and matter) rms radii in the analysis of the ISGMR energy are pointed out and discussed. A connection with the measured neutron skin thicknesses is proposed as a possible way for realistic estimations of the ISGMR centroid energy.

References

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