CYCLOTRON COLLOQUIUM

Damping of High-Energy Charge-Exchange Monopole Excitations in Medium-Heavy Mass Spherical Nuclei: Implementation of Particle-Hole Dispersive Optical Model.

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Refreshment will be served at 3:30pm

A semi-microscopic model (particle-hole dispersive optical model) is applied to describe the main relaxation modes of high-energy charge-exchange monopole excitations in medium-heavy mass nuclei. Within this model, Landau damping and the single-particle continuum are considered microscopically, while the spreading effect is treated phenomenologically, employing a statistical assumption [1]. A small value of the spreading width of the Isobaric Analog Resonances (IAR) is the impressive manifestation of the approximate isospin-symmetry conservation. In medium-heavy mass nuclei the main mixing mechanism consists in IAR coupling to its overtone (the Isovector Monopole Giant Resonance in the $\beta^{(-)}$-channel (IVMGR$^{(-)}$) via a variable part of the mean Coulomb field [2]. A realistic attempt to estimate quantitatively the spreading width has been undertaken rather recently [3] within the theoretical scheme, which contains "Coulomb description" of the IAR, including exact consideration for the single-particle continuum, and a phenomenological description of the spreading effect for giant resonances with the "normal" isospin within a semi-microscopic approach. In the present work we use for description of the spreading effect the formulated recently particle-hole dispersive optical model.

List of references:

1. M. H. Urin, Phys. Rev. C **87**, 044330 (2013).
2. N. Auerbach, Phys. Rep. **98**, 273 (1983).
3. M. L. Gorelik, V. S. Rykovanov, M. H. Urin, Phys. Atom. Nucl. **73**, 1997 (2010)