

SEMINÁŘ OTF ÚJF, ŘEŽ

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(ÚJF Řež)

Self-consistent mean field calculations of the nuclear response using a realistic NN interaction with a density dependent corrective term

Abstrakt

A density-dependent (DD) two-body potential is extracted from a phenomenological three-body force and added to a realistic nucleon-nucleon potential to perform a Hartree-Fock-Bogoliubov calculation (HFB) in light and heavy nuclei. The DD term came out to be crucial for generating single particle spectra in agreement with experiments.

Subsequently, the Tamm-Dancoff (TDA) and random phase (RPA) approximations were adopted to compute the nuclear responses. The special attention is focused on the electric dipole spectra. The comparative study allows us to establish the quantitative differences between the two approaches - TDA and RPA.

We then compute all TDA states for all multipolarities and use them as input in the equations of motion which generate a basis of multiphonon states. This calculation allows us to account for the collisional damping of the giant dipole resonance. Also we obtain the explicit correlations in the ground state as well as excited states.

Seminář se koná v pátek 29. 11. 2013 v 10:30 hod.
V zasedací místnosti ÚJF Řež

A. Cieplý/off