

SEMINÁŘ OTF ÚJF, ŘEŽ

H. FELDMEIERS

(GSI Helmholtz Center, Darmstadt)

**Nuclear structure with
Fermionic Molecular Dynamics**

Abstrakt

The understanding of the atomic nucleus in terms of its constituents, the protons and neutrons, and the strong interaction, which binds them together, has been advancing substantially over the last years. Progress has been made, both, in the derivation of the residual strong interaction between the colorless nucleons and in numerical mastering of large many-body Hilbert spaces. This presentation discusses first the nucleon-nucleon interaction and the problems when using it naively in a many-body space. Then it concentrates on a special many-body basis that is particularly suited to describe exotic structures in nuclei that cannot be addressed by the shell model. One is the occurrence of cluster structures, as for example in the so called Hoyle state in Carbon without which our life as we know it would not exist. Another phenomenon is the observation of halos where nucleons are moving around a nucleus at distances where they do not interact anymore.

**Seminář se koná v pátek 14. 2. 2014 v 10:30 hod.
v zasedací místnosti ÚJF Řež**

A. Cieplý/otf