

## Toward an Ab-Initio Description of Exotic Open-Shell Isotopes

*lundi 8 octobre 2012 11:30 (40 minutes)*

The talk discusses recently achieved proof-of-principle calculation based on Gorkov-Green's function theory. The method allows first principle calculations of truly open shell, semi-magic, nuclei and has been applied successfully up to Ni-78 with soft low-momenutm interactions. The inclusion of three-nucleon forces has also been demonstrated by calculations within the Green's function formalism and provides the last key element for realistic studies of nuclear physics.

The Gorkov approach presented here substantially extends the scope of ab-initio theory in the medium mass region from a few tens of closed shells cases to hundreds of open shell isotopes. The main output of the formalism is the single-particle spectral function which describes processes involving the addition or knockout of a nucleon and provides a theoretical optical potential for elastic scattering.

We will give some example of applications and discuss first results regarding the implication of three-nucleon forces on the evolution of correlations with proton-neutron asymmetry.

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**Classification de Session:** Ab-initio approaches to nuclear structure

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