

# Service de Physique Nucléaire



## Séminaire

le vendredi 26 septembre 2008 à 11h

CEA-Saclay SPhN, Orme des Merisiers Bât. 703 Salle 135

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Towards a non-empirical energy density functional for nuclei.

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The nuclear Energy Density Functional (EDF) approach provides a systematic tool for investigating medium-mass and heavy nuclei. However, due to the empirical character of current functionals, the predictive power for yet unknown nuclei away from the valley of stability is quite restricted. Our long-term goal is to derive/constrain instead these functionals explicitly, starting from the vacuum nucleon-nucleon interaction. Recently, calculations using an EDF whose pairing part has been derived from the nuclear + Coulomb two-nucleon interaction have been performed, still using a phenomenological model for the normal part of the functional.

In this seminar we will focus on the importance of a consistent treatment of the used “resolution scale” (in the renormalization group sense) in the different parts of the EDF, i.e. we will discuss the fact that it is inconsistent to use a hard core interaction to build the pairing part of the functional and couple it to a single-particle field that is intrinsically of low-momentum character.

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Le café sera servi 10 minutes avant, en salle 125

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