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Exploring pairing correlations along the nuclear chart (and beyond).

Nuclear superfluidity is an absolutely fascinating phenomenon: due to a residual interaction, two fermion can couple and form a Cooper pair. The formation of the pairs impact macroscopic properties of the system. This was illustrated in the seminal paper of Bohr, Mottelson and Pines, by inspecting the excitation spectra of even-even and odd-odd nuclei. A lot of theoretical work has been done to investigate pairing correlations and their possible impact on the properties of the nuclear system. Despite such an effort several open questions concerning the underlying structure of the pairing interaction is still unknown. How to improve our knowledge? In my talk, I will focus on the description of pairing properties within Nuclear Energy Density functional theory by illustrating how particular assumptions on the pairing interaction may have large effects on some particular experimental observables. The talk aims at triggering a discussion between theory and experiment on future plans on how to tackle such a complicated, but definitely fascinating problem.

Mardi 20 Nov. 2018, 11h30
IPN, Bât. 100, Salle A015

