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Mixed-spin pairing in heavy nuclei

In the two-body sector, the spin-triplet interaction (neutron-proton) is stronger than the spin-singlet one, as reflected in the fact that there is no bound dineutron or diproton (in vacuum). Even so, nuclei typically exhibit identical-particle (spin-singlet) pairing, since the spin-orbit field suppresses the spin-triplet pairing. In earlier theoretical work, we found a region of nuclei around $A \approx 130$ that exhibit a combination of the two types of superfluidity, which we dubbed "mixed-spin pairing". In this talk I will discuss recent work trying to introduce the effects of deformation into our calculation, along with related work on s- and p-wave pairing in the context of cold-atomic gases. Both of these systems are (or will soon be) experimentally accessible.

Mercredi 8 février 2023, 10h00

*IJCLab, Bât. 100, Salle des
conseils*