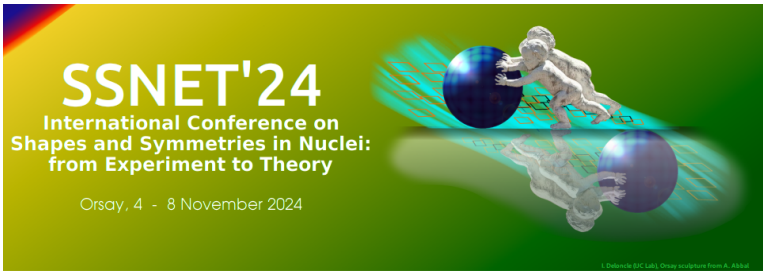

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Deuteron and alpha clustering in the shell model

mardi 5 novembre 2024 14:40 (20 minutes)

In this talk I address the problem of quantifying the probability of formation of a deuteron or an alpha particle in a shell-model wave function. The method relies on the application of the Talmi-Moshinsky transformation for a deuteron and its repeated application for an alpha particle. Once this transformation is carried out, it is then assumed that the neutron-proton pair or 2n-2p quartet in the shell-model wave function has the same intrinsic structure as a deuteron or an alpha particle in the s shell.

I will present results of schematic calculations to illustrate the dependence of deuteron and alpha clustering in the shell model on nucleon numbers, isospin, isoscalar/isovector interaction strengths, etc.

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