Université Paris-Saclay
IJCLab
(Laboratoire de Physique des 2 Infinis Irène Joliot-Curie)
Bât. 100, F-91405 Orsay

Séminaire de Physique Nucléaire Théorique

Exotic nuclei and their properties from chiral low-resolution interactions

Pierre Arthuis
(MSCA fellow/IJCLab)

The quest for an ab initio description of atomic nuclei has benefited recently from a lot of progress in the development of chiral interactions, allowing for predictions to span the nuclear chart up to 208Pb. Still, an accurate description of all nuclear structure properties on the basis of one single interaction remains out of reach to this day. In this talk, we will introduce two low-resolution chiral interactions recently developed for the description of bulk properties of nuclei [1], and how they shade a new light on nuclear properties like the neutron skin, that connect finite nuclei to neutron stars and the description of infinite matter. We will also discuss preliminary results that show how interactions and many-body method intersect for an accurate reproduction of the properties of neutron-deficient calcium isotopes. [1] P. Arthuis, K. Hebeler and A. Schwenk, arXiv :2401.06675 [nucl-th] (2024)

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