



Contribution ID: 86

Type: **not specified**

Building nuclear Energy Density Functionals with the FRG

Tuesday 24 September 2024 14:30 (1h 40m)

Since two decades, Ab Initio methods in nuclear physics have undergone considerable development. These methods have two pillars : on one hand interactions between nucleons are derived order by order from chiral EFT ; on the other hand many-body techniques are applied to solve the Schrödinger equation. Such methods have proved successful and reliable in describing the properties of nuclei up to mass $A \sim 100$. Due to their prohibitive numerical scaling, these many-body methods are bound to fail in heavier systems. It is therefore necessary to develop another efficient framework for dealing with heavier masses. It has been shown that such systems can be understood at a mean-field-like cost within the framework of Energy Density Functional (EDF) framework . At present, the interactions involved, are purely empirical and therefore lack a proper theoretical foundation. In the present work, we aim to derive such “in-medium” interactions from a “bare” interaction describing nucleon-nucleon scattering using FRG methods.

Presenter: HEITZ, Louis

Session Classification: Poster Session