

# Continuum energy representation to study structure and reaction properties of loosely bound nuclei

*Monday, June 10, 2024 12:10 PM (30 minutes)*

The study of the properties of loosely bound or unbound nuclei required the explicit consideration of the continuum spectrum of energy since the Fermi level is close to or even in the continuum. The continuum's single particle level density, with the Fermi gas subtracted, encodes information about its resonant structure. The Berggren representation explicitly isolates the resonant contribution so that one may incorporate them in the Shell Model. This talk presents the Berggren representation and the Gamow Shell Model in the context of few and many-body systems. We will illustrate its application for the calculation of the alpha-spectroscopic factor of  $^{44}\text{Ti}$ , the location of the drip line in the calcium isotopes, and its incorporation in couple channel calculation, with the hope this tool will be helpful for astrophysical applications where the continuum is relevant.

**Primary author:** Dr ID BETAN, Rodolfo (Physics Institute of Rosario)

**Presenter:** Dr ID BETAN, Rodolfo (Physics Institute of Rosario)

**Session Classification:** Session 2

**Track Classification:** IANNA