

RCNP

NUCLEAR PHYSICS

THEORY SEMINAR

Title	Transfer to the continuum calculations for (p,pN) reactions.
Speaker	Mr. Mario Gómez-Ramos (Universidad de Sevilla)
Date/Time	Monday, February 27, 2017, 13:30PM
Place	Lecture room 1, 6th floor, RCNP

Abstract:

Nucleon removal (p,pn) and $(p,2p)$ reactions at intermediate energies have gained renewed attention in recent years as a tool to extract information from exotic nuclei, thanks to the availability of exotic beams with which to perform these reactions in inverse kinematics. In this talk we present the Transfer to the Continuum [1] formalism and we employ it to study the momentum distributions of different $(p,2p)$ and (p,pn) reactions at high and intermediate energies.

We follow by presenting an extension of the formalism with the aim of applying it to (p,pN) reactions involving Borromean nuclei, employing $\langle A - 1|A \rangle$ overlaps obtained from three-body structure calculations. The method is applied to the reaction $^{11}\text{Li}(p,pn)^{10}\text{Li}^*$ [2], where $n-^9\text{Li}$ relative energy distributions, resulting from the decay of the emitted ^{10}Li , are the main observable of interest. We then apply the same overlap functions to the recently measured $^{11}\text{Li}(p,d)^{10}\text{Li}^*$ reaction [3], finding the same overlaps to be able to reproduce both (p,pn) reactions at high energies and (p,d) at low ones.

References:

- [1] A. M. Moro, Phys. Rev. C 92, 044605 (2015).
- [2] Y. Aksyutina et al, Phys. Lett. B, 430 (2008).
- [3] A. Sanetullaev et al, Phys. Lett. B, 481 (2016).