

RCNP NUCLEAR PHYSICS THEORY SEMINAR

Title Simplicity exhibited by complex nuclear structure

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Date/Time Wednesday, October 25, 2017, at 13:00

Place Lecture room 1, 6th floor, RCNP

Abstract:

Atomic nuclei are complicated systems consisted of neutrons and protons. Yet from case to case, nuclei exhibit simple regular patterns such as shell closures, vibrational and rotational motions, clustering phenomena, and so on.

In the first half of this presentation we shall show a number of examples in which many nuclear excited states are very well represented by ONE-dimensional nucleon-pair states. This is one-step-forward observation of seniority scheme. I shall also mention briefly our recent development of nucleon-pair approximations; we extended this approach with isospin symmetry, and with particle-hole configurations.

In the second half part, I shall go to our recent studies of sd bosons (IBM) with random interactions. This is my favorite talk these days. We report that many cases which were thought of as noises are actually very regular, dynamical symmetry dictated, states. Then a very sharp question comes immediately: what are the non-regular results of sd bosons with random interactions?

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