



SEMINAR ANNOUNCEMENT

“Two-nucleon correlations in light exotic nuclei: The ^{11}O case”

by

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Abstract

In the past few decades, the development of Radioactive-Ion Beam (RIB) facilities has enabled the study of nuclei far from stability. A strong effort has been devoted to understand the structure and decay modes associated with the exotic properties of these systems. Of particular interest is the case of the so-called halo nuclei, formed by a compact core and one or more weakly-bound nucleons which give rise to a diffuse matter distribution. Typical examples for two-neutron halos are ^6He and ^{11}Li , whose mirror partners are the proton-unbound systems ^6Be and ^{11}O . Interestingly, the ^6Be ground state decays via a correlated two-proton emission, showing a clear symmetry with the two-neutron halo in ^6He . The situation for $^{11}\text{Li}/^{11}\text{O}$ is less clear, as little is known about ^{11}O and the breaking of mirror symmetry along light isobaric chains has been a long-debated problem.

I will present core+N+N calculations to study the correlation of the valence nucleons in three-body systems. I will validate the method with $^{17}\text{Ne}(^{15}\text{O}+p+p)$, whose ground state presents a strong diproton configuration, and $^{16}\text{Be}(^{14}\text{Be}+n+n)$, an unbound two-neutron emitter. Then, I will study the mirror symmetry in $^6\text{He}(^4\text{He}+n+n)/^6\text{Be}(^4\text{He}+p+p)$ and $^{11}\text{Li}(^9\text{Li}+n+n)/^{11}\text{O}(^9\text{C}+p+p)$.