



Seminario e Research Discussion

Venerdì 13 Marzo 2026 – Ore 11:00

Aula Conferenze, Dip. di Fisica e Astronomia “E. Majorana”

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Exploring the Extremes of Neutron-rich Nuclei

What are the limits to the neutron addition in nuclei, and how do nuclei behave at these extremes? The seminar addresses these fundamental questions of nuclear structure, nuclear interactions, and multi-neutron correlations at and beyond the stability limit defined by the neutron drip line.

I will present experimental results from the SAMURAI collaboration at RI-Beam Factory (RIBF), RIKEN. After introducing the unique properties of structural features that emerge near the neutron drip line, the discussion will focus on recent experimental observation of the doubly magic nucleus candidate ^{28}O [1], and its neighboring nucleus ^{30}F [2]. I will also discuss dineutron correlation in halo nuclei, illustrated by the Coulomb breakup studies of ^{19}B [3] and ^{22}C . Finally, I will introduce the recent development of a new-generation neutron detector array, NEOLITH, designed to explore multi-neutron systems beyond the neutron drip line.

[1] Y. Kondo et al., *Nature* 620, 965-970 (2023).

[2] J. Kahlbow et al., *Phys. Rev. Lett.* 133, 082501 (2024).

[3] K.J. Cook et al., *Phys. Rev. Lett.* 124, 212503 (2020)