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Neutron-Rich Systems and Neutron Correlations

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In this contribution, I present our latest developments in the study of neutron-rich nuclei. In particular, recent observations of a sharp low-energy structure in the four-neutron missing mass distribution [1] —following the fast removal of the ^4He core from ^8He nucleus—have sparked considerable interest. We have been able to explain this phenomenon as a consequence of neutron correlations arising from the emission of neutrons in a diffuse, weakly bound system.

Our earlier work relied on a simplified model of the neutron distribution within the ^8He nucleus. In the present study, we aim to build on these foundations by developing a more realistic model of the ^8He structure.

Additionally, we will discuss other neutron-rich systems, including neutron-rich hydrogen [3] and the $^{18-21}\text{B}$ isotopes.

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