Exploring Nuclear Structure and Its Evolution

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Nuclear structure seeks to understand how atomic nuclei are organized and how they evolve under the influence of the strong interaction. While nuclei near stability are relatively well described, exotic nuclei far from stability exhibit significant changes in their structure, including the modification or disappearance of traditional magic numbers and the emergence of phenomena such as the Island of Inversion. These effects arise from the complex interplay between single-particle and collective degrees of freedom and remain only partially understood. Experimental studies using radioactive ion beams, together with advanced data analysis techniques, provide key insights into these phenomena and contribute to a deeper understanding of atomic nuclei.