



Contribution ID: 252

Type: **Invited Review Talk**

Role of Exotic Nuclei Away from Stability

Monday 16 June 2025 17:00 (30 minutes)

The synthesis of heavy elements such as gold and uranium remains one of the profound mysteries in astrophysics. These elements are believed to form through rapid neutron capture reactions (r-process) occurring in extreme astrophysical environments. To unravel this process, it is crucial to understand the properties of thousands of neutron-rich nuclei (Ri) produced during r-process nucleosynthesis. Key parameters such as RI masses, half-lives, and beta-delayed neutron emission probabilities are essential for elucidating elemental abundances in solar systems, metal-poor stars, and meteorites, as well as for identifying the astrophysical sites of r-process events, such as supernovae and binary neutron star mergers.

Over the past decades, significant experimental efforts have been dedicated to studying neutron-rich nuclei that play critical roles in the r-process. This talk will present a series of experimental programs conducted at the Radioactive Isotope Beam Factory (RIBF), focusing on the behavior of these nuclei and their impact on r-process nucleosynthesis.

Author: Dr NISHIMURA, Shunji (RIKEN)

Presenter: Dr NISHIMURA, Shunji (RIKEN)

Session Classification: Nuclear Reactions –Experiments