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Decay Spectroscopy Project at the RIBF

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Beta-decay spectroscopy of the nuclei far from the stability is one of sensitive methods to shed light on evolution of nuclear structure toward extreme neutron-to-proton ratios. The beta-decay related information is also essential to study the rapid neutron-capture process (r-process), which is responsible for producing about half of the elements heavier than Fe in the universe.

A significant progress of beta-decay spectroscopy has been made by measuring the beta- and gamma-rays from very neutron-rich nuclei on the boundary of r-process path [1]. Recent achievement of the experiment will be presented to discuss its impact on the r-process nucleosynthesis as well as the nuclear structure. In addition, a new project of utilizing an EUroball-RIKEN-Cluster-Array (EURICA) launched for high precision gamma-ray spectroscopy will be introduced with its perspective at the RIBF.

[1] S.Nishimura, et al., Phys. Rev. Lett. 106, 052502 (2011).

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