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Decay Spectroscopy in the vicinity of 78Ni

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Study of doubly-closed-shell and neighboring nuclei provides great opportunities for testing of nuclear models and expanding our knowledge of nucleosynthesis processes. Especially, the region around 78Ni (Z=28, N=50) has attracted great interests because of its extreme neutron-to-proton ratio in the region far from the valley of stability. Despite of a great deal of theoretical activity devoted to the 78Ni, a little is known for 78Ni itself and nothing beyond because of their extremely low production yield in the experiment.
RIBF facility has started providing very neutron-rich nuclei with the world's highest intensity uranium beam. Recent discovery of very neutron-rich nuclei including 79Ni [1] assures that systematic study of decay properties (half-lives, beta-delayed gamma) of nuclei around 78Ni becomes feasible eventually.
Here, our proposal of decay spectroscopy in the vicinity of 78Ni will be presented together with possible scientific program with a combination of our high efficiency beta-counting system and high efficiency euroball cluster (E(U)RICA).

[1] T.Ohnishi, et al., JPSJ 79, 073201 (2010).

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