Beta-decay measurements of very neutron-rich isotopes around mass A=130 within the BRIKEN project at RIBF

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Beta-decays of very neutron-rich isotopes around mass A=130 in the region "southeast" of doubly magic nucleus ^{132}Sn, with particular focus on measurement of beta-delayed neutron emission probability (Pn value), were studied in the Radioactive Isotope Beam Factory [1] at RIKEN by means of beta-neutron-gamma spectroscopy. In this nuclear region, the gross beta decay properties such as beta decay half-life ($T_{1/2}$) and beta-delayed neutron emission probability are important inputs for modeling the astrophysical r-process and provide first access to the nuclear structure information. The isotopes were produced by fragmentation of high intensity ^{238}U beam on Beryllium target, being separated and identified by the BigRIPS fragment separator and terminated by the implantation of ions into the state-of-art AIDA implantation detector [3], which serves as a highly granular beta-counting system. Subsequent delayed neutrons were detected by the BRIKEN neutron detector array [4] consisted of 140 gas-filled ^{3}He counter, a world largest beta delayed neutron detector ever built, together with two large volume HPGe clover detectors. The experimental setup allows measurement of $T_{1/2}$ and P_n values as well as spectroscopic information from measured delayed gamma-rays of nuclei of interest. In this presentation, the experimental details, the analysis procedure and preliminary results will be provided.

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