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Shape evolution in neutron-rich $A \sim 140$ nuclei beyond the doubly-magic nucleus ^{132}Sn ATSUKO ODAHARA, Department of Physics, Osaka University, EURICA COLLABORATION — Study for the shape evolution enables us to disentangle competition between spherical (single-particle like) shape and deformed (collective-like) shape as a function of neutron number. Neutron-rich nuclei in the northeast region of the doubly-magic ^{132}Sn locates in one of the best mass region where a variety of collective modes, not only prolate deformation but also octupole collectivity, are expected to appear. These neutron-rich $A\sim140$ nuclei were produced by using in-flight fission reaction of the 345 MeV/u $^{238}U^{86+}$ beam at RIKEN RI Beam Factory. This experiment was performed in the framework of the EURICA (EUroball RIken Cluster Array) project based on the highly-efficient β- and isomer- decay spectroscopy methods. Around 20 extremely neutron-rich nuclei with Z=51-55 have been studied in this work. New isomers with half lives of longer than hundreds ns were found in some nuclei, such as the neutron-rich Cs isotopes. Also, preliminary results for the β decay of neutron-rich I and Xe isotopes have been obtained. Systematic change of the shape evolution for these neutron-rich isotopes will be discussed.

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