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In-beam gamma-ray spectroscopy at RIKEN

Monday, 20 September 2021 13:00 (30 minutes)

At the Radioactive Isotope Beam Factory at the RIKEN Nishina Center in-beam gamma-ray spectroscopy experiments take advantage of the wide range of radioactive ion beams produced by the projectile fragmentation and fission. Isotopes of interest are separated by the BigRIPS fragment separator and guide to a secondary target. Reaction residues are identified either in the ZeroDegree spectrometer or with the SAMURAI setup. Gamma rays emitted at the reaction target are detected with high efficiency in the DALI2 NaI(Tl) array. The HiCARI project (High-resolution Cluster Array at RIBF) aimed at overcoming the limitations of the DALI2 array by combining several germanium based detectors from around the world. In 2020/21, an experimental campaign was launched studying neutron-rich nuclei from Ca to Te isotopes with high resolution using HiCARI.

The physics program includes a wide range of topics in nuclear structure addressing collective and single-particle structure of nuclei very far from stability. In this talk, I will present selected results on the spectroscopy of very exotic nuclei and discuss future prospects of in-beam gamma-ray spectroscopy at the RIBF.

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