

## RECENT RESULTS OF IN-BEAM GAMMA-RAY SPECTROSCOPY AT THE RIBF

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At the Radioactive Isotope Beam Factory stable primary beams are accelerated up to 345 MeV/nucleon and incident on a target to produce secondary beam cocktails with the fragment separator BigRIPS ranging from the lightest nuclei up to the uranium region. For in-beam gamma-ray spectroscopy, the secondary beams impinge on a reaction target at energies between 100 and 300 MeV/nucleon. Reaction residues are detected with the ZeroDegree spectrometer and gamma-rays detected with the NaI(Tl) based DALI2 array.

Since spring 2014, in-beam gamma experiments are also performed with the liquid hydrogen target system MINOS. This device includes a time projection chamber around the reaction target which enables the reconstruction of the vertex position, thus allowing for a very thick reaction target that result in a luminosity of about a factor three higher than with conventional solid reaction targets.

With MINOS and DALI2, an RIBF program called SEASTAR was initiated to systematically study  $2_1^+$  in neutron-rich nuclei ranging from  $^{52}\text{Ar}$  to  $^{110}\text{Zr}$ . In my talk I will present latest experimental results, which may include for example spectroscopy in the "Island of Inversion" region, shape-coexistence and deformation in proton and neutron-rich  $^{88,90,92,94}\text{Se}$  and  $^{70,72,94,96,98,100}\text{Kr}$  isotopes, the doubly-magic  $^{78}\text{Ni}$ , spectroscopy beyond  $^{132}\text{Sn}$  and other nuclei.