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The PRESPEC-AGATA in-beam spectroscopy campaign at GSI

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The goal of the PRESPEC-AGATA project is to investigate the structure of exotic nuclei by performing in-beam gamma-spectroscopy experiments employing the SIS-FRS accelerator complex at GSI. The experimental set-up currently includes 19 AGATA high-resolution tracking gamma detectors providing about 10% full energy efficiency at 1 MeV. A set of advanced heavy ion detectors is used for identification and tracking of exotic nuclei selected and transported through the fragment separator FRS. An active target and the heavy ion calorimeter and ToF detector LYCCA-1 complete the arrangement. The set-up constitutes the first full implementation of the HISPEC experiment for NUSTAR at the future FAIR facility.
After successful commissioning, a first series of relativistic Coulomb excitation and secondary fragmentation experiments were performed in Autumn 2012. They dealt with the determination of B(E2) values in neutron-rich unstable Pb, Hg and Pt isotopes, fine structure of the pygmy resonance in 64Fe, Coulomb excitation of yrast-trap states in 52Fe and life times in neutron-rich Zr and Mo nuclei. First results show an unrivaled sensitivity of the set-up, surpassing the predecessor experiment RISING by at least one order of magnitude, offering unique access to the structure of exotic nuclei.

Summary

An overview of the PRESPEC-AGATA project will be given, including the characteristics and qualities of the set-up derived from simulations and confirmed by the commissioning runs.
The experimetns performed so far will be introduced and the current state of the analysis will be discussed.
Finally the plans for further experiments and the prospect for HISPEC will be shown.

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