

# RADIOACTIVE ION BEAMS AT REX-ISOLDE, CERN

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In the early 2000's, the REX-ISOLDE Facility was completed at the accelerator complex of CERN. The post-accelerator for Radioactive Experiments (REX) was attached to the existing radioactive isotope facility ISOLDE, which is operating based on the Isotope Separation OnLine (ISOL) technique since the late 1960's. Using different ISOL targets more than 600 isotopes of more than 70 elements can be provided by ISOLDE. The REX-ISOLDE post-accelerator provides RIBs up to a maximum energy of 3.1 MeV/u. While the optical quality of ISOL beams is already of the order of the quality of stable ion beams, the occurrence of stable contaminations in certain RIBs is still under investigation. Different hardware-based and software-based techniques for RIB purification have been developed in the past years in order to provide highly pure, post-accelerated RIBs.

One of the main experimental setups using REX-ISOLDE beams is the Miniball  $\gamma$ -ray detector array, which has been in operation since the early 2000's. Consisting of 24 HPGe  $\gamma$ -ray detectors, the Miniball array can be used for sub-barrier, projectile Coulomb-excitation experiments, transfer-reaction experiments using the recently commissioned T-REX chamber or g-factor measurements using the transient-field technique.

In this seminar, the layout of the REX-ISOLDE facility will be presented and different techniques for RIB purification will be illustrated by the example of recent experiments on  $^{96}\text{Kr}$ , carried out at the REX-ISOLDE facility using the standard Coulomb-excitation setup of the Miniball  $\gamma$ -ray detector array. It will be pointed out, why a reasonable understanding of the RIB was particularly important in those experiments and how the detailed study of the RIB can help to assign observed  $\gamma$ -rays to corresponding nuclei.