

## Exotic nuclei produced and studied with multi-nucleon transfer reactions at the FRS Ion Catcher

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### Abstract

One of the main goals of contemporary Radioactive Ion Beam (RIB) facilities is to access the neutron-rich isotopes close to the r-process path in the heavy region ( $A \sim 160-250$ ) of the nuclide chart. Since this region is difficult to reach via the nuclear reactions typically used in such facilities, like fission, fusion and fragmentation, multi-nucleon transfer (MNT) reactions have been proposed lately as the best alternative [1].

We will present the experimental program scheduled for the Summer of 2024 at the FRS Ion Catcher facility at GSI to investigate the opening of a new research direction [2] that uses MNT reactions inside the Cryogenic Stopping Cell [3] to produce and study neutron-rich actinides and lanthanides. The developments, challenges and opportunities brought by this new program will be discussed.

### References

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- [3] A. Rotaru et al., *Nuclear Instruments and Methods B* **512**, 83 (2022).