

# Present status of the HIE-ISOLDE Superconducting Recoil Separator

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### Abstract

The availability of post-accelerated radioactive beams (RIB) has unprecedentedly expanded our knowledge of nuclear structure and nucleon correlations. RIB facilities like HIE-ISOLDE [1] at CERN (Geneva, Switzerland) can deliver high intensity low-energy RIBS (5-10 MeV/u) where relevant features of the atomic nucleus are investigated by Coulomb excitation, transfer, deep inelastic and fusion-evaporation reactions. These studies can benefit from the use of a high-resolution recoil separator which selects and quantifies the beam-like reaction fragments from the intense primary beam [2]. At the focal plane decay studies of very short-lived species produced through multi-nucleon transfer reactions can also extend nuclear structure studies beyond currently available beams. In this contribution an update on beam dynamics [3], design concepts of SC magnets [4] and cryostats [5], and possible location at the HIE-ISOLDE hall, will be presented and discussed.

[1] Y. Kadi, M.A. Fraser, A. Papageorgiou-Koufidou (Eds.), HIE-ISOLDE: Technical Design Report for the Energy Upgrade, CERN Yellow Reports: Monographs, Vol. 1/2018, CERN-2018-002-M.

[2] C. Bontoiu et al., Nuclear Inst. and Methods in Physics Research, A 969 (2020) 164048. [3] I. Martel et al., "The Isolde Superconducting Recoil Separator (ISRS)". 84th ISOLDE Collaboration

Committee meeting. CERN (Geneva, Switzerland) 19 March 2019, <https://indico.cern.ch/event/801266/>

[4] A.P. Foussat. ISOLDE - EPIC 2019, 3-4 December 2019, CERN (Geneva, Switzerland). <https://indico.cern.ch/event/838820/contributions>

[5] O. Kochebina. ISOLDE - EPIC 2019, 3-4 December 2019, CERN (Geneva, Switzerland). <https://indico.cern.ch/event/838820/contributions>

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