

# Present status of the HIE-ISOLDE Superconducting Recoil Separator

Wednesday 25 November 2020 14:00 (20 minutes)

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I. Martel(1,6), J.L. Aguado(1), M. Assie(2), M.A.M. Al-Aqee(13,21), R. Berjillos(4), M.J.G. Borge(5), L. Bottura(6), W. Catford(7), J. Cederkall(8), T. Davinson(9), G. De Angelis(10), T. Ekelof(11), A.P. Foussat(6), , L. Gaffney(3), E. Galanis(12), T. García-Fernández(1), C. García-Ramos(1), H. Glass(12), K. Johnston(6), T. Junquera(13), O. Kochebina(13), T. Kurtukian-Nieto(14), M. Losasso(6), A. Laird(15), J. L. Muñoz(16), B.S. Nara Singh(19), G. Neyens(6), D. O'Donnell(19), R. D. Page(3), A.R. Pinto(1), J.A. Rodriguez(6), J. Resta-López(3), V. Rodin(18), J. Sánchez-Segovia(1), K. Riisager(17), A.M. Sánchez-Benítez(1), J. Sánchez-Segovia(1), B. Shepherd(18), E. Siesling(6), J. Smallcombe(3), O. Tengblad(5), D. Tommasini(6), J. Uusitalo(20), C.P. Welsch(3).

1.Univ. Huelva, Spain. 2.IPNO, Univ. Paris-Sud, Orsay, France. 3.Univ. Liverpool, United Kingdom. 4.TTI Norte, Santander, Spain. 5.IEM-CSIC, Madrid, Spain. 6.CERN, Geneva, Switzerland. 7.Univ. Surrey, United Kingdom. 8.Univ. Lund, Sweden. 9.Univ. Edinburgh, United Kingdom. 10.LNL-INFN Legnaro, Italy. 11.Uppsala University, Sweden. 12.PARAGRAF, Somersham, United Kingdom. 13.ACS, Orsay, France. 14.CENGB, Gradignan, France. 15.Univ. York, United Kingdom. 16.ESS-BILBAO, Bilbao, Spain. 17.Univ. Aarhus, Denmark. 18.Cockcroft Institute, Daresbury, United Kingdom. 19.Univ. West Scotland, United Kingdom. 20.Univ. Jyväskylä, Finland. 21.IMIS Univ., Riyadh, Saudi Arabia.

### 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>

**Primary author:** MARTEL BRAVO, Ismael (University of Huelva (ES))

**Presenter:** MARTEL BRAVO, Ismael (University of Huelva (ES))

**Session Classification:** Contributed Talks