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## A HELIOS spectrometer for HIE-ISOLDE

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The HELIOS concept is a new approach to the study of transfer reactions in inverse kinematics using a large solenoidal magnet. Light ions are transported in helical trajectories in this field and detected in silicon detectors along the axis. Particles can be discriminated on the basis of their cyclotron period and the kinematics reconstructed. This leads, in principle, to improved resolving power compared to standard silicon box spectrometers like T-REX. A successful implementation of such a spectrometer exists at Argonne National Laboratory where it will be used with radioactive beams from the CARIBU facility.

A project has already started to implement a HELIOS spectrometer for HIE-ISOLDE phase 1. A collaboration is forming and a suitable magnet, being the largest capital item needed for the project, has been secured following the donation by the University of Nottingham of a large bore 3-T redundant MRI magnet. The present status of this project will be discussed. In addition, the perspectives for an eventual move of this spectrometer to a position following the TSR will be considered. In principle, the isobaric purity of TSR beams and their excellent emittance would lead to considerably improved performance. The reimposition of a suitable time structure into the extracted TSR beam would be crucial, however, to allow the compatible operation of the TSR and a HELIOS spectrometer. Due to the unshielded nature of the magnet obtained, consideration should also be given to the suitable housing of the magnet which would benefit from being placed in its own building as an annex to the construction needed for the TSR, to remove the need for elaborate magnetic shielding.

**Primary author:** Dr JENKINS, David (University of York)

**Presenter:** Dr JENKINS, David (University of York)