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Transfer reaction measurements in inverse kinematics using a solenoid

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The availability of radioactive beams at energies (~ 10 MeV per nucleon) and intensities ($>10^4$ ions per second) conducive to transfer reaction measurements at HIE-ISOLDE will open up new opportunities for the study of the single-particle properties of nuclei in exotic systems. A new spectrometer, the ISOL Solenoidal Spectrometer (ISS), is being commissioned to exploit the available radioactive beams from HIE-ISOLDE. This spectrometer is based on the HELIOS concept [1], which has been successfully exploited for transfer reaction studies at Argonne National Laboratory. This presentation will provide an overview of a selection of measurements made using the HELIOS spectrometer at Argonne as well as providing an update on the current status of the ISS project and the science proposals for early implementation of the spectrometer.

[1] J.C.Lighthall et al., Nuclear Instruments and Methods in Physics Research A622 (2010) 97.

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