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HIE-ISOLDE The Physics Case

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The high quality and selectivity of the ISOLDE beams allows high-precision measurements of nuclear structure phenomena. In the period of 2001-2012 ISOLDE offered the largest variety of post-accelerated radioactive beams in the world up to an energy of 3 MeV/u. In order to broaden the scientific opportunities, the HIE-ISOLDE (High Intensity & Energy) project will increase the final energy of the post-accelerated beams to 10A MeV throughout the periodic table. The first stage will boost the energy of the current REX LINAC to 4.3 MeV/u in 2015 and 5.5 MeV/u in 2016, energy domain where the Coulomb excitation cross sections are strongly increased and many transfer reaction channels will be opened.

After a submission of thirty-four letters of intend in 2009, twenty-nine experiments have been approved for day-one physics with more than six hundred shifts. The physics cases approved expand over the wide range of post-accelerated beams available at ISOLDE. In this contribution the first cases plan to be addressed this year will be presented together with a general overview of the experiments approved and their associated instrumentation.

Primary author: Dr G. BORGE, Maria J (CERN)

Presenter: Dr G. BORGE, Maria J (CERN)

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