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Physics case and status of the HIE-ISOLDE project

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The High Intensity and Energy ISOLDE (HIE-ISOLDE) project is a major upgrade of the existing ISOLDE and REX-ISOLDE facilities at CERN. The project contains three major elements: higher energies, improvements in beam quality and flexibility, and higher beam intensities. This requires developments in radioisotope selection, improvements in charge-breeding and target-ion source development, as well as construction of the new injector for the PS Booster, LINAC4. The most significant improvement will come from replacing most of the existing REX accelerating structure by a superconducting (SC) linear accelerator with a maximum energy of 10 MeV/u. This would allow all ISOLDE beams to be accelerated to energies well below and significantly above the Coulomb barrier, facilitating a broad programme of nuclear structure and nuclear astrophysics studies using different classes of nuclear reactions. An overview of the status and the time line of the project will be given followed by a number of physics cases becoming possible. Also the required instrumentation will be discussed

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