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The ISOLDE Facility and the HIE-ISOLDE Project, Recent Results

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ISOLDE is the CERN facility dedicated to the production of radioactive ion beams for many different experiments in the fields of nuclear and atomic physics, materials science and life sciences. The ISOL method involves in this case the bombardment of a thick target with an intense proton beam, producing high yields of exotic nuclei with half-lives down to the millisecond range. By a clever combination of target and ion source units pure beams of over 1000 different nuclei of 74 elements have been produced and delivered to experiments where properties of the nuclei such as masses, radii, decay modes, structure and shapes are determined. This year ISOLDE celebrates its 50 anniversary of production of radioactive beams offering the largest variety of post-accelerated radioactive beams in the world today.

The HIE ISOLDE upgrade (HIE stands for High Intensity and Energy), intends to improve the experimental capabilities at ISOLDE over a wide front. The main feature is to boost the energy of the beams, going in steps from previous 3 MeV/u via 5.5 MeV/u to finally 10 MeV/u, and to accommodate a roughly fourfold increase in intensity. In 2016 Physics with 5.5 MeV/u for $A/q = 4.5$ was available and six experiments were done with beams from ${}^9\text{Li}$ to ${}^{142}\text{Xe}$ and energies up to 6.8 MeV/u in the case of ${}^9\text{Li}$ were achieved.

In this contribution highlights from ISOLDE and from the HIE-ISOLDE project will be presented.

Primary author: Prof. G. BERGE, Maria J (ISOLDE-CERN)

Presenter: Prof. G. BERGE, Maria J (ISOLDE-CERN)

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