Contribution ID: **51**   Type: **not specified**

HIE-ISOLDE: Status Report of the Project and Highlights

Thursday 19 November 2009 09:30 (20 minutes)

The research with radioactive beams has strengthen the link between technical developments and physics output. The study of radioactive beams allows us to follow the evolution of nuclear structure over extended regions in the nuclear chart. ISOLDE has nowadays a vast variety of species produced, more than 1000 nuclei from almost 70 elements, the largest number by far of the existing ISOL-facilities. A key feature of the REX-ISOLDE complex is that essentially all isotopes produced can be charge bred and accelerated further up to 3 MeV/u. The present energy range limits the experimental program to Coulomb excitation of light and intermediate mass nuclei and to transfer reaction for the lightest species.

The ISOLDE facility has been expanded several times in order to continue being a reference facility. Improvement of beam quality, increase in intensity and availability of new radioactive beams will boost decay experiments as well as the study of ground state properties as, for instance, Penning trap mass measurements that continuously refine our understanding of the nuclear mass surface. An energy upgrade will make all produce nuclei available for reactions up to and above the Coulomb barrier opening new avenues from the physics point of view. The enlarged dynamic range, first to 5.5 MeV/u and in a later stage to 10 MeV/u, will allow the optimization in each case with respect to cross section and reaction channel opening.

A major upgrade of the present facility, High Intensity and Energy ISOLDE (HIE-ISOLDE), is now proposed to fully exploit the latest developments and significantly increase the ISOLDE scope. The HIE-ISOLDE project proposes a staged upgrade in three main categories: beam intensity, beam energy and beam quality. In this talk the present status of the project, and the future plans will be presented.

Author: KADI, Yacine (CERN)

Presenter: KADI, Yacine (CERN)

Session Classification: Session 5: HIE ISOLDE