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ISOLDE Consolidation and Improvements programme until LS3 and beyond

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Since the relocation of the On-Line Isotope Mass Separator ISOLDE at the PS Booster more than 30 years ago, the facility has benefitted from several upgrades and from a very rich target and ion source development program. Over 1000 radioactive nuclides from 70 elements can now be produced in thick targets via different nuclear reactions induced the PS-Booster 1.4 GeV proton-beam and delivered in the form of radioactive ion beams for different experiments. The installation of the REX-ISOLDE Linac in 2001 and the addition of a superconducting Linac starting in 2015 have allowed to increase the maximum energy of the ion beam above the Coulomb barrier and open possibilities for new experiments on top of the ones performed in the low energy beam lines. Considering the leading role of ISOLDE worldwide and the backlog of experiments, a proposal for target consolidations and improvements is proposed in the coming years with the objective of enhancing the capacity and capabilities of the facility. For the beam production system, the consolidation and improvement program includes the upgrade of the proton transfer-line, the replacement of the beam dumps as well as the re-enforcement of the shielding to fully exploit the potential of the Linac4 and PS Booster energy upgrade to 2.0 GeV that was implemented during LS2. As safety of and the protection of the environment are paramount, another major consolidation concerns the modernization of the target area ventilation process with the installation of charcoal filters and the improvement of the fire compartmentation of the facility. For the post-accelerator, a consolidation plan and several upgrades are proposed to ensure the availability and increase the performances of the REXTRAP and REXEBIS. For the superconducting Linac, improvements of the cryogenics process and the production of an additional cryomodule during LS3 are considered to reduce the Linac's thermal cycles and to improve the availability of post-accelerated beams.

The presentation will review the consolidation and improvement proposed until the Long Shutdown 3 and beyond and the status of the different activities.

Author: VOLLAIRE, Joachim (CERN)

Presenter: VOLLAIRE, Joachim (CERN)

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