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Physics motivation for the EPIC upgrade proposal of ISOLDE

Wednesday 15 December 2021 14:15 (25 minutes)

The presentation will outline the variety of scientific goals that drive the need for a new experimental hall and higher RIB beam intensities at ISOLDE, CERN. The proposed developments will lead to an increased capacity and capability for producing more intense, higher-quality, radioactive ion beams for precision studies on very exotic isotopes from He (Z=2) up to Ac (Z=89), using low-energy and post-accelerated beams. By also exploiting synergies with other CERN facilities (e.g. AD, n_TOF) as well as other scientific communities (e.g. quantum technologies, quantum chemistry, particle physics, ⋯), the range of science done at ISOLDE and its scientific output will be further enhanced. The ideas presented are the result of discussions with the ISOLDE User community at the occasion of two dedicated EPIC workshops, held in 2019 [https://indico.cern.ch/event/838820/] and 2020 [https://indico.cern.ch/event/928894/], which were attended by more than 130 and 210 persons, respectively.
The technical upgrades and consolidation plans of the existing facility are presented in a separate talk, along with a proposal for a new ISOLDE experimental hall.

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