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Radiation Protection Studies for CERN's HI-ECN3 Facility

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The High Intensity ECN3 (HI-ECN3) facility in CERN's SPS North Area has been proposed. It shall be housed in the ECN3 underground cavern and offer unique opportunities in terms of intensity, energy and infrastructure for a potential high-impact particle physics programme. Its initial Technical Design Report (TDR) phase of the beam delivery and facility study has recently been approved.

The implementation of the HI-ECN3 facility in ECN3 has undergone comprehensive radiation protection (RP) studies. These studies focus on ensuring compliance with CERN's RP code and achieving radiation exposure levels for personnel, the public, and the environment that are as low as reasonably achievable (ALARA). The optimization process considers factors such as prompt and residual radiation, soil activation, transfer of activation products to groundwater, air activation, and environmental impact. Extensive simulations, utilizing the CERN FLUKA Monte Carlo particle transport code, have been conducted to assess these radiation protection aspects. The presentation will cover the current status of RP assessments and design optimization.

Scientific Topic 1

Scientific Topic 2

Scientific Topic 3

Scientific Topic 4

Shielding and dosimetry

Scientific Topic 5

Induced radioactivity and decommissioning

Scientific Topic 6

Scientific Topic 7

Scientific Topic 8

Primary authors: AHDIDA, Claudia; NOWAK, Elzbieta; MAZZOLA, Giuseppe; VINCKE, Heinz; GRENARD, Jean-Louis; BERNHARD, Johannes; ESPOSITO, Luigi Salvatore; KRZEMPEK, Lukasz; CALVIANI, Marco (CERN); BRUGGER, Markus; FRASER, Matthew; XIMENES, Rui

Presenter: AHDIDA, Claudia

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