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Overview of the radiation levels in the CERN accelerator complex after LS2

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The PSB, PS, and SPS accelerators at CERN provide high-energy proton and ion beams to a wide range of experiments, from fixed targets to the world's biggest particle accelerator: the Large Hadron Collider (LHC). In 2021 and 2022, their beams have reached unprecedented intensities thanks to the LHC Injectors Upgrade (LIU) undertaken during the Long Shutdown 2 (LS2) in preparation of the High-Luminosity (HL) LHC era. The operation of these accelerators results in beam losses that generate a mixed radiation field that can negatively impact the exposed electronic systems through cumulative and single event effects. To minimise the associated damage, including potential the machine downtime due to radiation effects on electronics, the evolution and distribution of radiation levels must be carefully monitored across the CERN complex to detect anomalies promptly, to propose mitigation measures to protect electronic systems when needed, and to plan the installation of new electronic systems appropriately. This contribution will give an overview of the new radiation levels across the CERN injector complex in 2021 and 2022.

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Footnotes

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Yes

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