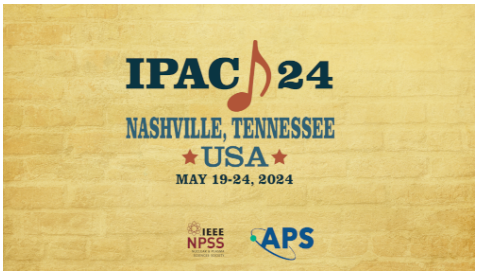

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Radiation levels from a beam gas curtain instrument at the LHC at CERN

Thursday, 23 May 2024 16:00 (2 hours)

A prototype Beam Gas Curtain (BGC) monitor was installed at the Large Hadron Collider (LHC) at CERN to provide 2D images of the transverse beam profile during the ongoing Run 3 (2022 to date) and in view of the High Luminosity LHC upgrade (HL-LHC). By design, the BGC operation generates collisions between the beam particles and an injected gas jet proportionally to the beam intensity and the gas density, possibly causing radiation-induced issues to the downstream LHC equipment. In this work, the radiation showers from the BGC are characterized using measured data from different LHC radiation monitors during the Run 3 BGC operation, along with Monte Carlo simulations with the FLUKA code. Finally, predictions of the expected radiation showers during the operation of the BGC in the HL-LHC era are discussed.

Footnotes

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Primary author: PRELIPCEAN, Daniel (European Organization for Nuclear Research)

Co-authors: SEQUEIRO, Cristina (European Organization for Nuclear Research); SCHNEIDER, Gerhard (European Organization for Nuclear Research); LERNER, Giuseppe (European Organization for Nuclear Research); ADY, Marton (European Organization for Nuclear Research); SEDLACEK, Ondrej (The University of Liverpool); VENESS, Raymond (European Organization for Nuclear Research); RODIN, Volodymyr (European Organization for Nuclear Research)

Presenter: RODIN, Volodymyr (European Organization for Nuclear Research)

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