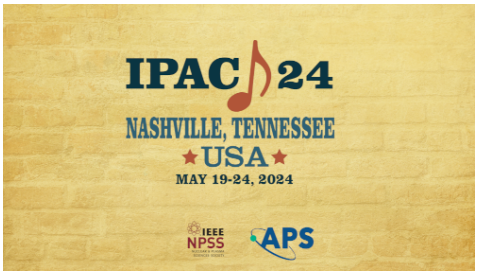

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First measurement of the proton beam and lead ion beam in the LHC using beam gas curtain monitor

Thursday, 23 May 2024 09:50 (20 minutes)

A novel beam gas curtain (BGC) monitor was installed in the LHC as part of CERN's High Luminosity LHC upgrade during the 2022 year-end technical stop and started to measure the profile of the proton and lead ion beams during the 2023 run. The monitor utilizes a supersonic neon beam shaped into a curtain that crosses the primary LHC beam with an angle of 45 degrees. By observing the fluorescence generated due to this interaction, one can measure the 2-dimensional profile of the circulating beam minimum-invasively. This contribution presents the first profile measurement of the LHC's proton and lead ion beams using the BGC monitor. It also summarizes the experiences gained from operating this novel device in the LHC, particularly its minimal impact on the vacuum and radiation levels.

Footnotes

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