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Non-destructive beam profile measurements with a Ionisation Profile Monitor (IPM) based on Timepix3&4 Hybrid Pixel Detectors (HPDs)

Wednesday, 11 September 2024 14:20 (1h 30m)

Beam Gas Ionization monitors have been in operational use in the CERN PS for two years now, and they were installed in the SPS this year. An overview of the operating principal of the instruments is presented, followed by an update on their development. The mechanical design has been simplified and the Timepix3 devices are now mounted individually for easier assembly and maintenance. Reliability and availability have been improved with a new radiation-hard readout, using the GBTx and bPOL12 devices. Performance has been improved with a SoC Back-End making good use of both the FPGA and the Processing System. We have worked to improve the calibration of the instruments, equalization can now be performed in-situ and we have a procedure to calibrate the response between the four detectors. This paper also presents some example results from the instruments and describes our plans for future developments.

Footnotes

Funding Agency

I have read and accept the Privacy Policy Statement

Yes

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