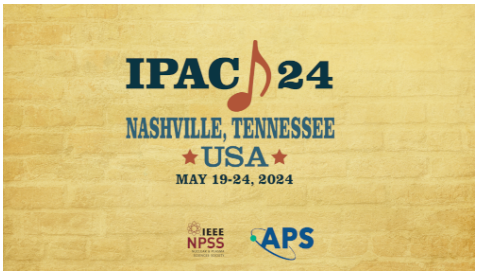

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High-resolution bunch profile measurements for enhanced longitudinal beam diagnostics

Wednesday, 22 May 2024 16:00 (2 hours)

Efficient operation of the Large Hadron Collider (LHC) relies on accurate longitudinal beam measurements to diagnose beam instabilities and verify the correctness of bunch-shaping techniques. To achieve this goal, a diagnostic system was developed to perform high-resolution measurements of longitudinal bunch profiles. High-performance oscilloscopes, synchronized to precise accelerator events, are employed to carry out the measurements, acquiring data from wideband wall-current monitors installed in the machine. This paper provides details on the implementation of the system, highlighting its current and future applications that will play a key role in increasing beam intensity in the LHC.

Footnotes

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