Contribution ID: **203** Type: **Poster Presentation**

New fast orbit feedback system using MicroTCA Based BPM electronics for the PF-ring

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

The upgrade of the fast orbit feedback (FOFB) system is currently underway at the PF-ring. The new FOFB system consists of MicroTCA-based BPM electronics and a feedback control (FBC) unit. The BPM electronics are prepared with the same number as BPMs and synchronously transmit 10-kHz rate beam position data to the FBC unit via an optical data link. The FBC unit immediately calculates the closed orbit distortion from the received position data and performs an inverse matrix operation to correct it. The results are converted to analog signals by fast D/A converters and set to power supplies of the fast steering magnets. The primary goal of the new FOFB system is to archive a closed-loop bandwidth of 100 Hz, which is about 100 times the current system performance. Details on the new BPM electronics and the new FOFB system using them will be presented as well as some initial results obtained during beam tests.

Footnotes

Funding Agency

I have read and accept the Privacy Policy Statement

Yes

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Session Classification: WEP: Wednesday Poster Session

Track Classification: MC6: Feedback Systems and Beam Stability