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CSNS-II superconducting Section Beam Loss Measurement Electronic Design

Monday 8 September 2025 16:00 (2 hours)

The CSNS-II linear accelerator upgrade will adopt superconducting accelerator structures, with the beamline enclosed in low-temperature modules. Detection of beam loss can only be done on the outer surface of the low-temperature modules. The CSNS-II accelerator plans to use a parallel plate multi-electrode ionization chamber as the beam loss monitor (BLM) probe for the superconducting section. The electronic system of the beam loss measurement (BLM) is primarily used for signal conditioning, digitization (ADC), transmission storage as EPICS PV quantities, and providing interlock signals for machine protection based on the output signals from the BLM probes. The main tasks of the development of the beam loss measurement (BLM) electronic system include: signal conditioning of weak current output from the BLM probes in the analog circuit section; and analog-to-digital conversion, digital signal processing, storage, PV quantity publication in the digital circuit section for the front-end analog output signals.

Footnotes

Funding Agency

I have read and accept the Conference Policies

Yes

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