Contribution ID: **2141** Contribution code: **THPS041** Type: **Poster Presentation**

Design and status of LLRF system for PREF linac

Thursday 5 June 2025 15:30 (2 hours)

The Proton radiation effects facility (PREF) was designed and constructed by the Institute of Modern Physics, which can provide high-quality proton beams with continuous and accurate tunable energy range, high current intensity, high duty cycle and large scanning area of 10-60MeV energy range. which consists of a proton source, RFQ linac injector, synchrotron and irradiation terminals. The RFQ works at 162.5 MHz, providing 1.2Mev proton beam for synchrotron. The RF system consists of a RFQ cavity, two 50 kW solid state amplifiers and digital low level RF control system (LLRF). The amplitude and phase stability requirements for the LLRF are 1% and ±1°separately. To meet requirements and to ensure reliability, a digital LLRF system was designed. The new digital LLRF is based on Virtex5 FPGA, fast ADCs and DACs, and CPCI bus. The progress and plans for future are presented.

Footnotes

Paper preparation format

Region represented

Asia

Funding Agency

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Session Classification: Thursday Poster Session

Track Classification: MC6: Beam Instrumentation and Controls,Feedback and Operational Aspects: MC6.T27 Low Level RF