Contribution ID: **2083** Contribution code: **WEPB080** Type: **Poster Presentation**

Predicting LANSCE klystron health and performance

Wednesday 4 June 2025 16:00 (2 hours)

Beam production through the LANSCE accelerator is currently disrupted due to lack of critical klystrons spares that power the Side Coupled Cavity Linear accelerator (SCCL). The situation is so dire that the facility had to compromise running beam at 100MeV for 2024 run cycle instead of its nominal 800MeV. This project aims to predict the future performance of those critical klystron units through upgrading our current testing capabilities and developing a prediction model that can warn about klystron failures before they happen. This paper will cover improving current measurement, diagnostics, and controls, developing initial klystron health and performance prediction model and automating expert dependent klystron testing. This project will increase klystron reliability for the SCCL enabling LANSCE to provide reliable 800MeV proton beam for the upcoming run cycles.

Footnotes

Paper preparation format

Word

Region represented

America

Funding Agency

Los Alamos National Laboratory

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Session Classification: Wednesday Poster Session

Track Classification: MC7: Accelerator Technology and Sustainability: MC7.T08 RF Power Sources