Contribution ID: **3** Type: **Talk**

Future Continuation of Test Beams at SLAC's End Station A

Monday 17 April 2023 15:50 (20 minutes)

Until end of 2018 SLAC's End Station Test Beam (ESTB) provided 2 - 15 GeV electrons for over seven years to 58 experiments with 701 users. Operation was suspended with the start of LCLS-II construction. We have designed and are installing a new beam line which will connect the LCLS-II 4 GeV CW superconducting RF Linac to End Station A (ESA). In some respects, beam conditions will be similar but also distinctively different compared to the past. Maximum beam energy will be lower at 4 GeV and the maximum beam current will be a few nA, but the beam rate will increase from 5 Hz to 40 - 186 MHz with a 50 % duty cycle. Due to the low current, the bunch charge, or number of electrons per bunch will be drastically reduced since no primary beam will be brought into ESA. For tracking experiments which use one to a few electrons per bunch, the new beam will be a vast improvement due to its high repetition rate. The high repetition rate and short bunch length also enable test beam studies of fast timing detectors and high-rate performance, or pile-up studies. The experimental infrastructure remains unchanged with the Caladium Telescope from Carlton University still available. The beam line should be operational by the end of 2024.

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Session Classification: Facilities