

The Beams and Applications Seminar Series

Multi-dimensional characterization of the laser and electron beams of the Cornell Energy Recovery Linac

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**Bldg. 401, Room B-4100
Friday June 22, 10:30 am**

Host: Kwang-Je Kim

The Energy Recovery Linac (ERL) is a next-generation x-ray source that is under development at Cornell University. A critical component of the ERL is a photocathode that can produce electron beams with low emittance, short bunch length, and high current. Several performance milestones have been achieved recently. In this talk, I will describe the characterization of the laser and electron beams of the ERL injector. Three-dimensional (3D) intensity characterization of the laser pulses is based on a non-collinear first-order interferometer. Time-resolved vertical emittance (slice emittance) measurements of the electron beam are based on the two-slit emittance measurement system and a vertical deflecting cavity. Results of the emittance measurements will be compared to numerical simulations of the electron beams. Progress to date on emittance and bunch length at 5 MeV will be summarized, and prospects for future experiments at 10 MeV will be discussed.

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