Contribution ID: **11** Contribution code: **TUP099** Type: **Poster Presentation**

Timing of Ultrafast Electron and Laser Pulses with Narrowband Thz Interferometry for Ultrafast Electron Diffraction

Tuesday 12 August 2025 16:00 (2 hours)

Ultimately, accurate time of arrival determination of laser pump and electron beam probe will determine the temporal resolution of the SLAC MeV-Ultrafast Electron Diffraction* (MeV-UED) instrument, and therefore methods to achieve this at femto-second scales is an ultrafast science enabler. Interferometry of THz based e-beam and pump laser THz signals is a natural path towards this goal. As a first step, a detection scheme will be developed in a lab using laser pulses. The second step involves extracting the electron beam signal from a 100 GHz accelerating structure. Subsequently, both pump and electron beam signals are combined, filtered, amplified, and a temporal analysis can be performed. This proposal is for experimental detection and characterization of such signals, which arises from electron beam wakefield excitation of electromagnetic fields in a 100/200 GHz accelerating structure combined with a pump derived signal.

Please consider my poster for contributed oral presentation

Yes

Would you like to submit this poster in student poster session on Sunday (August 10th)

No

Footnotes

Funding Agency

I have read and accept the Privacy Policy Statement

Yes

Author: WEATHERSBY, Stephen (SLAC National Accelerator Laboratory)

Co-authors: Dr PALMER, Dennis (SLAC National Accelerator Laboratory); OTHMAN, Mohamed (SLAC National Accelerator Laboratory); Dr KRAMER, Patrick (SLAC National Accelerator Laboratory); DOLGASHEV, Valery (SLAC National Accelerator Laboratory)

Presenter: WEATHERSBY, Stephen (SLAC National Accelerator Laboratory)

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