Contribution ID: **396** Contribution code: **TUP043** Type: **Poster Presentation**

Extreme focusing of high-energy beams using near-field coherent transition radiation

Tuesday 12 August 2025 16:00 (2 hours)

The emission of transition radiation as a relativistic beam passes through a metallic foil usually has negligible impact on the high-energy beam itself. However, if the beam has very high current, such as those from the FACET-II facility, the near-field of the transition radiation can provide a strong focusing force on the beam which can be enhanced by passing through multiple closely spaced foils. This extreme focusing of high-energy beams opens a new physics frontier with unprecedented beam densities, potentially approaching that of a solid. The E-332 experiment at SLAC National Accelerator Laboratory has reached a first critical milestone with the experimental demonstration of this focusing effect from the collective interaction between a high-energy beam and a multifoil target. This result and future plans will be presented at the conference.

Please consider my poster for contributed oral presentation

No

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

No

Footnotes

Funding Agency

FACET-II is supported in part by the U.S. DOE under contract number DE-AC02-76SF00515. This work has also been supported by the France-Stanford Center for Interdisciplinary Studies.

I have read and accept the Privacy Policy Statement

Yes

Author: STOREY, Douglas (SLAC National Accelerator Laboratory)

Co-authors: MATHERON, Aimé (Institut Polytechnique de Paris); HOGAN, Mark (SLAC National Accelerator Laboratory); TAMBURINI, Matteo (Max Planck Institute for Nuclear Physics); CORDE, Sebastien (SLAC National Accelerator Laboratory; Institut Polytechnique de Paris); REGO, Sheldon (Laboratoire d'Informatique de l'École Polytechnique)

Presenter: STOREY, Douglas (SLAC National Accelerator Laboratory)

Session Classification: TUP: Tuesday Poster Session

Track Classification: MC5 –Beam Dynamics and EM Fields