



Contribution ID: 82

Type: **not specified**

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

*Tuesday, 23 July 2024 17:12 (24 minutes)*

While the well-known transition radiation usually has negligible impact on high-energy beams, high-current beams such as those from the FACET-II facility can be strongly self-focused by the near field of transition radiation when passing through multiple closely spaced foils. This extreme focusing of high-energy beams opens a new physics frontier with unprecedented 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 a collective interaction between a high-energy beam and a multifoil target, whereby the focusing nature of the interaction has been evidenced. This major experimental achievement and future plans will be presented.

### Working group

WG5 : Beam sources, monitoring and control

**Primary author:** STOREY, Doug (SLAC National Accelerator Laboratory)

**Co-authors:** MATHERON, Aime (LOA, ENSTA Paris, CNRS, Ecole Polytechnique, Institut Polytechnique de Paris); CORDE, Sebastien (Ecole Polytechnique); GESSNER, Spencer (SLAC National Accelerator Laboratory); GILJOHANN, Max (LOA, ENSTA Paris, CNRS, Ecole Polytechnique, Institut Polytechnique de Paris); HOGAN, Mark; TAMBURINI, Matteo (Max-Planck-Institut für Kernphysik)

**Presenter:** STOREY, Doug (SLAC National Accelerator Laboratory)

**Session Classification:** WG5