Contribution ID: **367** Contribution code: **TUP048** Type: **Poster Presentation**

Generation of low-emittance bunches with selective collimation at the Argonne Wakefield Accelerator

Tuesday 12 August 2025 16:00 (2 hours)

The Argonne Wakefield Accelerator (AWA) facility's drive-beam linear accelerator can generate electron bunches at a wide range of charge - from 100 pC to 100 nC. This gives us a unique opportunity to study selective transverse collimation as a method to increase beam brightness using various initial bunch charges. This paper presents numerical modeling of the scheme. Simulations were performed to explore the impact of a collimating aperture on emittance, scraping the outermost electrons and retaining only the inner core of the beam with the goal of maximizing the beam brightness for a 100-pC electron beam. An optimization of various beamline parameters, including the initial bunch charge, was done to produce possible operating points that generate the lowest emittance. These simulations inform an experimental campaign that is also discussed in this work.

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

I have read and accept the Privacy Policy Statement

Yes

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