Contribution ID: **568** Contribution code: **SUP058** Type: **Poster Presentation**

Bayesian calibration of the AWA photocathode gun using YAG screen diagnostics and OPAL simulations

Sunday 10 August 2025 15:00 (3 hours)

We present a data-driven characterisation of the photocathode gun at the Argonne Wakefield Accelerator (AWA) using Bayesian inference, combined with OPAL beam dynamics simulations. Our methodology employs readily available YAG screen diagnostics to perform calibration across a range of experimental conditions, including varying cathode voltages, laser profiles, and beam currents. By integrating these diagnostics with forward beam dynamics simulations from OPAL, we estimate key gun parameters, such as the gun voltage and phase from beam current and solenoid currents. Ongoing work will further refine the calibration process and explore the integration of other diagnostics to enhance the inference process. This allows for more efficient and flexible calibration of complex accelerator systems, particularly with limited readily available measurements

Please consider my poster for contributed oral presentation

Yes

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

Yes

Footnotes

Funding Agency

I have read and accept the Privacy Policy Statement

Yes

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