Contribution ID: **290** Contribution code: **MOP070** Type: **Poster Presentation**

Performance optimization of the IOTA duoplasmatron proton source

Monday 11 August 2025 16:00 (2 hours)

We present results from online optimization studies of a duoplasmatron ion source designed to produce 50 keV protons for acceleration to 2.5 MeV and subsequent injection into the Integrable Optics Test Accelerator (IOTA) at Fermilab. Using a Bayesian exploration technique, we developed multi-parameter models of the source's proton current and employed these models to optimize its performance. Depending on the spectrometer configuration used to isolate the proton beam and the chosen optimization objective, we identified three candidate operating points, achieving normalized 50 % emittances between 0.57 µm and 1.3 µm and a maximum proton current of 14.5 ± 0.6 mA.

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

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Author: BANERJEE, Nilanjan (Fermi National Accelerator Laboratory)

Co-authors: ROMANOV, Alexander (Fermi National Accelerator Laboratory); SIMONS, Benjamin (Northern Illinois University); EDSTROM, Dean (Fermi National Accelerator Laboratory); WALLBANK, Michael (Fermi National Accelerator Laboratory)

Presenter: WALLBANK, Michael (Fermi National Accelerator Laboratory)

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