Contribution ID: **1171** Contribution code: **TUPS129** Type: **Poster Presentation**

Design iteration of a compact photoinjector

Tuesday 3 June 2025 16:00 (2 hours)

The study of high-brightness, low-emission photocathode injectors and high-gradient electron guns is an important topic in the field of linear accelerator. Research has been carried out on cryogenic photocathode electron guns to obtain higher quality beams with shorter driven laser. However, problems such as multipole fields and dark currents have been found in the research experiments. An iterative design was carried out to address these issues and an attempt was made to use a short Gaussian shaped drive laser to generate the initial beam. This iterative design significantly reduces the length of the photocathode injector and there exists a means of beam cluster pre-compression that improves the beam quality of the accelerator.

Footnotes

Paper preparation format

LaTeX

Region represented

Asia

Funding Agency

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Session Classification: Tuesday Poster Session

Track Classification: MC3: Novel Particle Sources and Acceleration Techniques: MC3.T02 Electron Sources