



Contribution ID: 215 Contribution code: WEP096

Type: Poster Presentation

## Updates towards a laser heated thermionic cathode

Wednesday 13 August 2025 16:00 (2 hours)

There is increasing interest in developing accelerator technologies for space missions, particularly for fundamental science. In order to meet these mission needs, key accelerator technologies must be redesigned to be able to function more reliably and efficiently in a remote and harsh environment. In this work we focus on a modest electron injector system, specifically the traditional thermionic cathode. Typically such cathodes are resistively heated by a power supply that is floated at the cathode accelerating negative high voltage. This cathode power supply can increase engineering complexity and add significant constraints to the accelerating voltage supply. We pursue laser heating a thermionic cathode in order to remove the heater power supply from the injector system, allowing for reduced engineering complexity and power requirements. We expand on previous work comparing emission from a simple tungsten disk cathode heated by a laser with similar emission performance of the same disk resistively heated.

### Please consider my poster for contributed oral presentation

Yes

### 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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**Track Classification:** MC3 - Novel Particle Sources, Acceleration Techniques, and their Applications