



Contribution ID: 2261 Contribution code: SUPS053

Type: Student Poster Presentation

## Investigating beam-induced electron emission from thin wires in PSI proton beams

*Sunday 1 June 2025 14:00 (2 hours)*

The emission of electrons induced by beam interaction with thin targets is a phenomenon used to measure various properties of particle beams. The main processes of electron emission are: secondary emission, delta electron production and thermionic emission. The last one is not desired, because the intensity of thermionic electrons is not directly related to beam density profile. A common technique to suppress thermionic emission employs bias potential on the wire, which allows for recapturing of low energy electrons. This study investigates the effectiveness of the bias voltage method for high-brightness proton beams of the HIPA accelerator. Through experiments and simulations, the study aims to better understand the emission spectra, the suppression of thermionic emission, and the effects of beam fields on electron dynamics.

### Footnotes

### Paper preparation format

LaTeX

### Region represented

Europe

### Funding Agency

**Author:** TOUGUET, Jerome (Commissariat à l'Énergie Atomique et aux Énergies Alternatives)

**Co-author:** Dr SAPINSKI, Mariusz (Paul Scherrer Institute)

**Presenter:** Dr SAPINSKI, Mariusz (Paul Scherrer Institute)

**Session Classification:** Student Poster

**Track Classification:** MC6: Beam Instrumentation and Controls, Feedback and Operational Aspects: MC6.T03 Beam Diagnostics and Instrumentation