



Contribution ID: 2333 Contribution code: THPL122

Type: **Poster Presentation**

Split-ring resonator experiments and data analysis at FLUTE

Thursday, 11 May 2023 16:30 (2 hours)

FLUTE (Ferninfrarot Linac- Und Test-Experiment) is a compact linac-based test facility for accelerator and diagnostics R&D located at the Karlsruher Institute of Technology (KIT). A new accelerator diagnostics tool, called the split-ring resonator (SRR), was tested at FLUTE, which aims at measuring the longitudinal bunch profile of fs-scale electron bunches. Laser-generated THz radiation is used to excite a high frequency oscillating electromagnetic field in the SRR. Electrons passing through the $20\ \mu\text{m} \times 20\ \mu\text{m}$ SRR gap are time-dependently deflected in the vertical plane, leading to a vertical streaking of the electron bunch. During the commissioning of the SRR at FLUTE, large series of streaking attempts with varying machine parameters and set-ups were investigated in an automatized way. The recorded beam screen images during this experiment have been analyzed and evaluated. This contribution motivates and presents the automatized experiment and discusses the data analysis.

Funding Agency

J. Schäfer acknowledges the support by the DFG-funded Doctoral School "Karlsruhe School of Elementary and Astroparticle Physics: Science and Technology". This project has received funding from the Eur

Footnotes

I have read and accept the Privacy Policy Statement

Yes

Primary author: SCHAEFER, Jens (Karlsruhe Institute of Technology)

Co-authors: HAERER, Bastian (Karlsruhe Institute of Technology); MUELLER, Anke-Susanne (Karlsruhe Institute of Technology); NABINGER, Matthias (Karlsruhe Institute of Technology); NASSE, Michael (Karlsruhe Institute of Technology); RUPRECHT, Robert (Karlsruhe Institute of Technology); SCHMELZER, Thimo (Karlsruhe Institute of Technology); SMALE, Nigel (Karlsruhe Institute of Technology)

Presenter: HAERER, Bastian (Karlsruhe Institute of Technology)

Session Classification: Thursday Poster Session

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