



Contribution ID: 2044 Contribution code: TUPL142

Type: **Poster Presentation**

Beam dynamics for the RUEDI microscopy beamline

Tuesday, 9 May 2023 16:30 (2 hours)

RUEDI is a proposed relativistic ultrafast electron diffraction and imaging facility for the UK. It will deliver single-shot time-resolved imaging with MeV electrons, as well as ultrafast electron diffraction at 10 fs timescales. The few-MeV-scale imaging and microscopy line aims to deliver high charge (up to 10^{10} electrons), ultra-low emittance electron bunches to a $10\mu\text{m}$ sample with minimal energy spread and transverse divergence, aiming for imaging resolutions at the 10nm scale. The physical layout of the imaging beamline will be discussed, along with a multi-dimensional study of the beam dynamics of the proposed design. The extreme requirements on the injector specification, and the limitations inherent in such systems, will be investigated, and potential upgrade paths explored in terms of both imaging resolution and technological feasibility.

Funding Agency

Footnotes

I have read and accept the Privacy Policy Statement

Yes

Primary author: JONES, James (Science and Technology Facilities Council)

Co-authors: HOUNSELL, Benjamin (Science and Technology Facilities Council); MURATORI, Bruno (Science and Technology Facilities Council); MCKENZIE, Julian (Science and Technology Facilities Council)

Presenter: JONES, James (Science and Technology Facilities Council)

Session Classification: Tuesday Poster Session

Track Classification: MC2: Photon Sources and Electron Accelerators: MC2.A08: Linear Accelerators