



Contribution ID: 1501 Contribution code: TUPL161

Type: **Poster Presentation**

Numerical studies of Thomson backscattering at MESA

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

The Mainz Energy-recovering Superconducting Accelerator (MESA), currently under construction at the Johannes Gutenberg University (JGU) in Mainz, will offer two modes of operation, one of which is an energy-recovering (ER) mode in order to deliver electron beams of up to 155 MeV to two experiments. As an ERL, MESA, with its high brightness electron beam, is a promising accelerator for supplying a Thomson back scattering based Gamma source. Furthermore, at MESA, the polarization of the electron beam can be set by the injector. The aim of this work is to provide a concept and comprehensive analysis of the merit and practical feasibility of a Thomson backscattering source at MESA under consideration of beam polarization and transversal effects. In this paper, the first results of our semi analytical approach to calculate various Thomson back scattering light source scenarios including polarization effects at MESA will be presented.

Funding Agency

Footnotes

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Session Classification: Tuesday Poster Session

Track Classification: MC2: Photon Sources and Electron Accelerators: MC2.A18: Energy Recovery Linacs (ERLs)