



Contribution ID: 1769 Contribution code: TUPS30

Type: **Poster Presentation**

Simulation study on an electron cloud and plasma waves confined in GL2000 device

Tuesday, 21 May 2024 16:00 (2 hours)

GL2000 Gabor-lens (GL)[1, 2] is a 2-m long device constructed and successfully operated at Goethe University. The confined electron column is much longer compared to previous constructed lenses and offers unique opportunity for investigation of electron cloud dynamics. Especially, kind of fingertip stopband structures were precisely measured in production diagram (operation function) in the year 2023 [2]. This fully reproducible behavior and dependence on a rest gas pressure left unexplained. For this purpose, a large scale multi-particles simulation PIC(particle-in-cell)-code was written in C++ and implemented on FUCHS-Cluster of the Goethe University. The main objective is to find an optimal operation parameter set for a stable operation of GLs, which is crucial for high energy hadron beam transport and focusing. Further topic will be investigation of possible longitudinal handling of bunched ion beams. The first simulation result will be presented and discussed.

Footnotes

[1] doi:10.18429/JACoW-IPAC2022-WEPOTK002

[2] K.Thoma et al. IPAC2023-TUPM101

Funding Agency

Paper preparation format

Word

Region represented

Europe

Primary author: DROBA, Martin (Goethe Universität Frankfurt)

Co-authors: RAUSCH, Julian (Goethe Universität Frankfurt); THOMA, Katrin (Goethe Universität Frankfurt); MEUSEL, Oliver (Goethe Universität Frankfurt); DÖNGES, Thomas (Goethe Universität Frankfurt)

Presenter: DÖNGES, Thomas (Goethe Universität Frankfurt)

Session Classification: Tuesday Poster Session

Track Classification: MC4: Hadron Accelerators: MC4.A16 Advanced Concepts