



Contribution ID: 120 Contribution code: WEP04

Type: Contributed Poster

Upgrade to the Transverse Optics Matching Strategy for the FERMI FEL

Wednesday, 24 August 2022 17:10 (20 minutes)

Good control over the transverse distribution of an electron bunch is crucial for optimising the beam transport through a linear accelerator, and for improving the energy transfer of electrons to photons within the undulators of a free-electron laser (FEL). In order to achieve this, it is necessary to match, as closely as possible, the Twiss parameters of the electron bunch to the design values. This is done, in the case of the FERMI FEL, by finding the optimal quadrupole strengths in various matching sections using a particle tracking code. This contribution reports an upgrade to the matching tools in use in the FERMI control room: the functionalities of two existing programs have been merged into a single tool; and some new options are available in order to provide more flexibility when performing transverse optics matching.

I have read and accept the Privacy Policy Statement

Yes

Primary author: BRYNES, Alexander (Elettra-Sincrotrone Trieste S.C.p.A.)

Co-authors: TROVO, Mauro (Elettra-Sincrotrone Trieste S.C.p.A.); DI MITRI, Simone (Elettra-Sincrotrone Trieste S.C.p.A.); PENCO, Giuseppe (Elettra-Sincrotrone Trieste S.C.p.A.); ALLARIA, Enrico (Elettra-Sincrotrone Trieste S.C.p.A.); SPAMPINATI, Simone (Elettra-Sincrotrone Trieste S.C.p.A.); PEROSA, Giovanni (Elettra-Sincrotrone Trieste S.C.p.A.); Dr GIANNESI, Luca (Elettra-Sincrotrone Trieste S.C.p.A.)

Presenters: BRYNES, Alexander (Elettra-Sincrotrone Trieste S.C.p.A.); TROVO, Mauro (Elettra-Sincrotrone Trieste S.C.p.A.); DI MITRI, Simone (Elettra-Sincrotrone Trieste S.C.p.A.); PENCO, Giuseppe (Elettra-Sincrotrone Trieste S.C.p.A.); ALLARIA, Enrico (Elettra-Sincrotrone Trieste S.C.p.A.); SPAMPINATI, Simone (Elettra-Sincrotrone Trieste S.C.p.A.); PEROSA, Giovanni (Elettra-Sincrotrone Trieste S.C.p.A.); Dr GIANNESI, Luca (Elettra-Sincrotrone Trieste S.C.p.A.)

Session Classification: Wednesday posters

Track Classification: Electron beam dynamics