



Contribution ID: 306

Type: **not specified**

## Booster ring design

*Thursday 12 April 2018 09:40 (15 minutes)*

The FCC-ee booster synchrotron is a 97.75 km long full energy injector performing continuous top-up injection, since the beam lifetime of the collider is very short because of beamstrahlung and radiative Bhabha scattering.

This talk presents the two optics foreseen to obtain similar emittances as in the collider at different operation modes. Particular emphasis is put on the investigation of the beam parameters at injection energy: wigglers are installed to reduce the damping time to 0.1 s and to increase the equilibrium emittance in order to mitigate the effect of intra-beam-scattering.

Dynamic aperture studies included the effects of radiation damping, quantum excitation and 150  $\mu\text{m}$  quadrupole misalignments. More studies with gradient errors and a calculation of TMCI are on the way.

**Author:** HARER, Bastian (CERN)

**Co-authors:** HOLZER, Bernhard (CERN); TYDECKS, Tobias (CERN); PAPAPHILIPPOU, Yannis (CERN)

**Presenter:** HARER, Bastian (CERN)

**Session Classification:** FCC-ee injector

**Track Classification:** FCC-ee INJ