



Contribution ID: 1895 Contribution code: MOPL051

Type: **Poster Presentation**

## CEPC damping ring design in TDR stage

*Monday, 8 May 2023 16:30 (2 hours)*

A damping ring system which includes a small 1.1 GeV ring and two transport lines is introduced in CEPC linac in order to reduce the transverse emittance of positron beam at the end of linac and hence reduce the beam loss in the booster. The repetition rate of Linac is 100 Hz and one-bunch-per-pulse is considered. The double-bunch scheme of Linac is only considered for the high luminosity mode at Z pole. The positron beam is generated by 4 GeV electron beam hitting tungsten target and then is captured by an AMD flux concentrator. Each positron bunch is injected into damping ring every 10 ms and two bunches are stored in the ring so that the storage time for each bunch is 20 ms. The bunch number in the damping ring can be increased to 4 with an upgrade and hence the storage time for each bunch can be increased to 40 ms. The reversed bending magnet scheme is adopted for TDR in order to reduce the emittance significantly. The normalized emittance of positron beam is expected to be reduced from 2500 mm.mrad to 166 mm.mrad (or 97 mm.mrad) in the damping ring.

### Funding Agency

### Footnotes

### I have read and accept the Privacy Policy Statement

Yes

**Primary author:** WANG, Dou (Chinese Academy of Sciences)

**Co-authors:** MENG, Cai (Institute of High Energy Physics); JI, Daheng (Institute of High Energy Physics); SHI, Hua (Institute of High Energy Physics); GAO, Jie (Chinese Academy of Sciences); ZHANG, Jingru (Chinese Academy of Sciences); LI, Meng (Chinese Academy of Sciences); CUI, Xiaohao (Institute of High Energy Physics); LIU, Yudong (Institute of High Energy Physics)

**Presenter:** WANG, Dou (Chinese Academy of Sciences)

**Session Classification:** Monday Poster Session

**Track Classification:** MC1: Colliders and other Particle Physics Accelerators: MC1.A10: Damping Rings