



## Influence of longitudinal impedance on beam-beam interaction \*

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### Abstract

In conventional e+e- storage ring colliders, we only use lengthened bunch length in beam-beam simulation instead of considering impedance directly. It is no problem since the longitudinal dynamics is not sensitive to beam-beam interaction. But it is different since the bunch will also be lengthened during beam-beam interaction by beamstrahlung effect. It is very natural and more self-consistent to consider the longitudinal impedance in the beam-beam simulation. The simulation shows that the working point region of stable collision is slightly shifted by the longitudinal impedance at Higgs mode, but the dynamics is strongly distorted by the longitudinal wake field at Z mode.

