

## **HOM damping requirements for high-current option of FCCee**

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The beam induced power losses and longitudinal coupled-bunch instabilities due to high order modes (HOM) in superconducting radio frequency (RF) cavities can impose significant limitations for the high-current synchrotrons. They strongly depend on the both cavity geometry and filling schemes used in the operation. For the beam stability, the considered HOMs should be damped below a certain value, while overdamping can cause higher power losses due to overlap of several high-amplitude beam spectral lines with the HOMs. To overcome these issues, recommendations for the cavity design and the machine operation are given using the developed systematic approach. This analysis was applied to the 400 MHz single-cell RF cavities proposed for the high-current option of the future circular electron-positron collider (FCCee).

**Primary author:** Dr KARPOV, Ivan (CERN)

**Co-authors:** Dr SHAPOSHNIKOVA, Elena (CERN); Dr CALAGA, Rama (CERN)

**Presenter:** Dr KARPOV, Ivan (CERN)

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