

HOM damping schemes for the FCC-ee cavities

Wednesday, 3 October 2018 09:30 (30 minutes)

An e^+e^- collider is foreseen in the design of future circular collider (FCC-ee) to make precise measurements of the properties of the Z, W, H bosons and the top quark ($t\bar{t}$). The two limiting cases from the SRF point of view are the Z operation which is characterized by low voltage and high beam current (1.39 A) and the $t\bar{t}$ operation which requires a high voltage of around 10.9 GV and has a relatively low beam current. In this presentation a single-cell cavity design is proposed for the Z-pole with the main focus on HOM-related aspects of the cavity. Moreover, a multi-cell cavity with minimal surface losses is designed for the W, H and $t\bar{t}$. A higher order mode damping scheme is proposed in each case to reduce the longitudinal and transverse impedance of the cavities below the impedance stability thresholds.

Primary author: Mr GORGI ZADEH, Shahnam (Universität Rostock)

Co-authors: CALAGA, Rama (CERN); Prof. VAN RIENEN, Ursula (University of Rostock)

Presenter: Mr GORGI ZADEH, Shahnam (Universität Rostock)

Session Classification: Design of SRF Cavities and HOM Damping Schemes