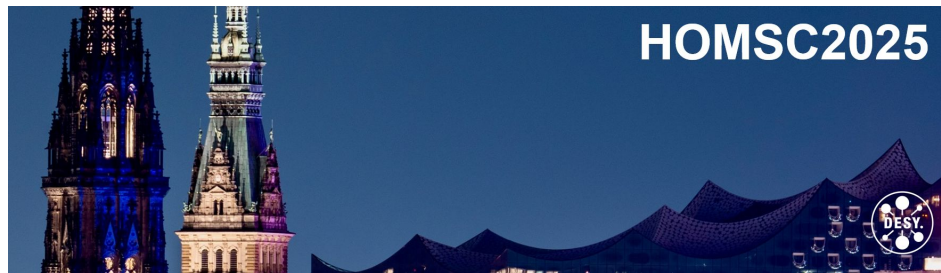


International Workshop on Higher Order Modes in Superconducting Cavities (HOMSC2025)



Contribution ID: 20

Type: **Oral contribution**

Compact Coaxial HOM Damper for SRF Cavities

Tuesday 7 October 2025 12:00 (30 minutes)

SRF technology enable particle accelerators operate with greater average beam currents and higher duty cycles. In these regimes parasitic excitation of the cavity HOM spectrum become the limiting factor due to extra RF losses and instabilities appearing in the beam. We discuss the limitations of HOMs for large accelerator projects as the Fermilab MI upgrade and the proposed future circular and linear colliders EIC and ILC. A new compact HOM damper concept is suggested providing required HOM suppression. The idea is based on an oversized coaxial line with radial sections, which is directly connected to the axial region of the SRF cavity. Such radially sectioned coaxial works as a filter for the operating mode, while being transparent for the HOMs. Implementations of this design for the accelerator and crab cavities developed for the MI and EIC machines, respectively, are discussed.

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Session Classification: Design of SRF Cavities and HOM Damping Schemes

Track Classification: Design of SRF Cavities and HOM Damping Schemes