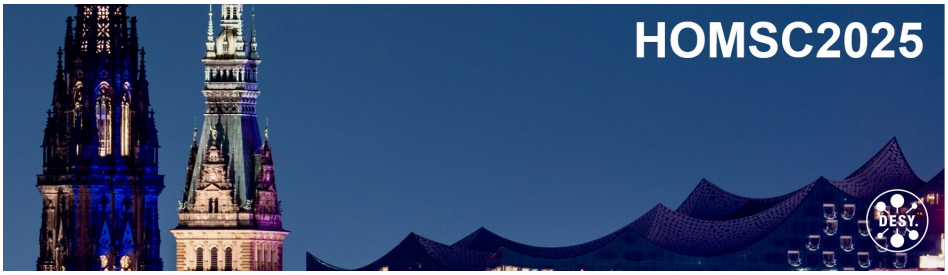

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Higher Order Mode Damping Requirements for New Circular Accelerators

Monday 6 October 2025 12:00 (30 minutes)

In recent years, a new generation of high-energy circular electron-positron colliders and diffraction-limited light sources have been proposed or are under construction. These advanced circular accelerators impose significantly more demanding requirements on beam performance. To meet the design objectives, the accelerator design has been pushed to a new parameter range. Among the various challenges, the management of Higher Order Modes (HOMs) in superconducting cavities is of particular concern. This article outlines the HOM damping requirements from the perspective of accelerator physics and discusses the impact of HOMs on beam quality in these next-generation circular accelerators.

Primary author: WANG, Na (Institute of High Energy Physics)

Presenter: WANG, Na (Institute of High Energy Physics)

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