Contribution ID: **19** Contribution code: **THP21** Type: **Poster Presentation**

Modeling of transverse trapped-mode impedance for In-Vacuum Undulators of HALF

Thursday 4 September 2025 18:55 (1h 35m)

The In-Vacuum Undulator (IVU) exhibits exceptionally strong trapped-mode impedance due to its distinctive ridge-loaded waveguide structure and narrow magnetic gap design, which may lead to beam instability issues. This study systematically investigates the trapped-mode impedance in the Hefei Advanced Light Facility's (HALF) IVU using both eigenmode and wakefield solvers in CST Studio Suite, with comparative calculations of vertical trapped-mode impedance for structures with and without pumping ports. The results demonstrate that impedance values significantly exceed the synchrotron radiation damping threshold.

Footnotes

Funding Agency

I have read and accept the Privacy Policy Statement

Yes

Author: YAO, Haiyan (University of Science and Technology of China)

Co-authors: HE, Tianlong (University of Science and Technology of China); LI, Weiwei (University of Science and Technology of China); Mr LIU, Xiaoyu (University of Science and Technology of China); BAI, Zhenghe (University of Science and Technology of China)

Presenter: YAO, Haiyan (University of Science and Technology of China)

Session Classification: Poster Session

Track Classification: MC2: Beam Dynamics and EM Fields