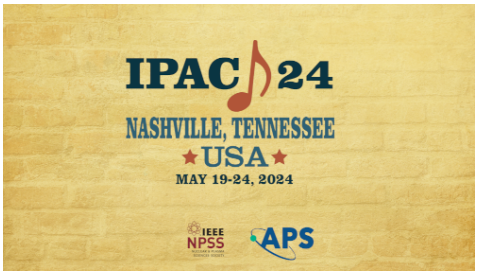

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Experimentally verified reduction of local reflection of traveling-wave accelerating structure by output coupler undercoupling

Wednesday, 22 May 2024 16:00 (2 hours)

Hefei Advanced Light Facility (HALF) injector comprises 40 S-band 3-meter traveling wave accelerating structures, capable of delivering electrons of full energy 2.2 GeV into the storage ring. To mitigate the emission degradation caused by dipole and quadrupole fields in the coupler cavity, the coupler design incorporates a racetrack and a short-circuit waveguide to eliminate this impact. This article presents an introduction to design of the traveling wave structure and the results of cold and high-power testing. We performed tuning and preliminary measurements on accelerating structure, resulting in meeting the single-cell phase deviation and accumulated phase deviation requirements of the project objectives while maintaining good measurement consistency.

Footnotes

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