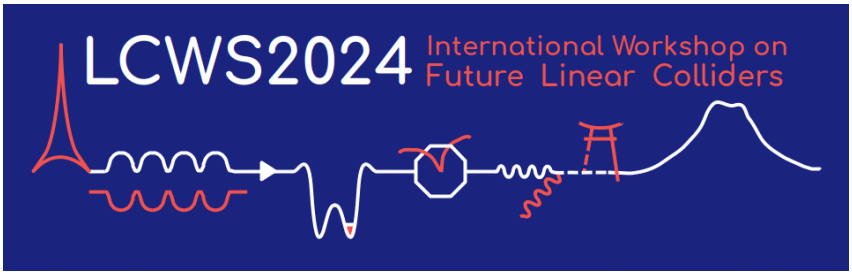

Contribution ID: **127** Type: **Oral presentation (in person)**

Traveling Wave Demonstration in SRF Cavity With a Feedback Waveguide

Wednesday 10 July 2024 09:00 (20 minutes)

Conventional SRF cavities are used in standing wave regime and are limited by surface fields to ˜50 MV/m. In order to overcome this limit, Superconducting Traveling Wave (SCTW) cavity was proposed as it allows to achieve ˜1.5 times higher accelerating gradient operating at lower phase advance per cell, thus improving transit time factor. However, power recirculation through a feedback waveguide is required to maintain cavity efficiency. Funded by the U.S. Department of Energy's SBIR program, Euclid Techalbs, in collaboration with Fermilab, demonstrated in the past the surface processing capability of a single-cell prototype with a feedback waveguide. Subsequently, a 3-cell prototype was designed and fabricated to demonstrate a traveling wave regime in SRF cavity with a feedback waveguide at cryogenic temperatures and the highest gradients. Here we present our recent results of traveling wave demonstration in the 3-cell prototype, tested in 2K liquid helium at Fermilab.

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Session Classification: Superconducting RF

Track Classification: Accelerator: Superconducting RF