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Development of a variable power divider for the ILC power distribution system

Wednesday 4 June 2025 16:00 (2 hours)

The R&D of the radio frequency (RF) power distribution system (PDS) for the International Linear Collider is ongoing. The PDS is designed to drive 39 superconducting RF (SRF) cavities by a 10 MW multibeam klystron. The key feature of the PDS is the usage of power dividers and phase shifters, which allow driving all cavities below their respective operational limits over the whole flattop. This is necessary to maximize the beam energy. Following the design of the variable power divider (VPD) developed at SLAC, we intend to combine power dividing and phase shifting capabilities in a single device. The VPD consists of two folded magic tees (FMTs), four small WR650 waveguides, and two U-bends. The U-bends serve as variable phase shifters. The FMTs have been designed, fabricated, and tested. A prototype for the checking the working mechanism of U-bend phase shifter was produced. Preparations for its high-power testing are currently underway.

Footnotes

Paper preparation format

LaTeX

Region represented

Asia

Funding Agency

Expected from IPAC25 organizers.

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