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RF design of a C-band distributed cavity for Southern Advanced Photon Source

Thursday 29 August 2024 16:00 (2 hours)

As one of the options for the injector of the Southern Advanced Photon Source, the C-band parallel feeding accelerating cavity has advantages such as the ability to operate under conditions of low pulse width (<1μs), high repetition rate, and high accelerating gradient. This paper will detail the electromagnetic design of the cavity, including the optimization of the electromagnetic parameters of the accelerating units and the design of the parallel feeding network. Specifically, we introduce a design with magnetic coupling holes to counteract the electrical coupling strength at the beam port. This approach can be applied to future large-aperture beam port designs to reduce the impact of the wakefields on the beam.

Footnotes

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