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## **Prototyping of distributed coupling accelerators at mm-wave frequencies**

*Tuesday, 8 November 2022 17:00 (2h 30m)*

We present on the fabrication and testing of a 16-cell distributed coupling accelerator operating at 95 GHz. The  $\pi$ -mode standing wave cavities are designed with a side-coupled aperture that enables flexible optimization of the beampipe iris between cells. Simulations of the optimized cavity geometry predict a room temperature shunt impedance exceeding 400 MOhm/m. We also discuss techniques for cold testing and tuning mm-wave accelerators. High power testing of this distributed coupling structure design will be conducted with pulses from a MW gyrotron oscillator, including active pulse compression techniques to achieve higher peak power. With an input power of 1 MW, an energy gain of 3 MeV would be achieved for a relativistic electron beam in this 25 mm linac.

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