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Two-cell high-gradient C-band RF accelerator cavity for high power HOM absorber testing

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High-gradient RF accelerator cavities must have absorbers for the suppression of the higher order modes (HOM). It was proposed that NiCr deposited into thin waveguide slots that run along a distributed coupling structure may provide adequate HOM absorption, for the proposed Cool Copper Collider (C3) accelerator design. Fabrication methodology for NiCr was recently developed at SLAC. At LANL we conducted electromagnetic design of the proposed HOM absorbers. We also designed a two-cell structure with the HOM absorbers and a fundamental mode coupler for high power testing. This presentation will summarize the latest HOM absorber design, the design of the two-cell test structure, and our plans to conduct breakdown testing of the two-cell structure to evaluate the performance of the NiCr coating during the high gradient RF conditioning.

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