

## **BROADBAND HOM ABSORBER FOR THE CORNELL ERL**

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### *Abstract*

The damping of higher-order-modes (HOMs) in the Cornell ERL injector cryomodule is demanding: The high current beam (100 mA) with short bunch length will deposit significant HOM power at high RF frequencies up to tens of GHz. In addition emittance preservation is of outmost importance, and requires axial symmetry of the HOM absorber. Based on the successful HOM ring absorber in the CESR RF system, we have designed an RF absorber, which will be placed in the beam pipe between adjacent cavities in the ERL injector cryomodule. This absorber will be operated at 80 K to simplify thermal transitions to the cavities at 2 K. Several potential absorber materials have been studied in detail, and a combination of three materials has been chosen to guarantee efficient RF absorption over a wide frequency range. Prototyping of the absorber has been started. In this paper we present the design of the broadband absorber, show results of RF studies on the absorbing materials, and give an update on the prototyping work.

**NO SUBMISSION RECIEVED**