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## Design and commissioning of a new SRF cavity for a conduction-cooled system

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Cornell is designing a standalone superconducting radio-frequency (SRF) accelerating cryomodule which utilizes a conduction cooling scheme in place of liquid helium. A key component of this system is a new single-cell 1.3 GHz Nb<sub>3</sub>Sn-coated SRF cavity. This cavity was designed based on Cornell's ERL injector cavities in order to replicate their RF properties, such as being able to operate at high current (> 100 mA) and high average power (> 100 kW). Thermal modelling of the cavity was then used in order to optimize the design and placement of heat intercept rings to enable the use of conduction cooling. The cavity has since been fabricated and welded, and is currently undergoing chemical treatment before baseline RF tests are performed.

### Funding Agency

### Footnotes

### I have read and accept the Privacy Policy Statement

Yes

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