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Design of a shipping fixture for a compact cryomodule hermetic assembly

Wednesday 13 August 2025 16:00 (2 hours)

In support of the development of a conduction-cooled 915MHz superconducting radio frequency (SRF) cryomodule, this study highlights the design of a shipping fixture for transporting the hermetic assembly 4500 km from Jefferson Lab to General Atomics in San Diego, California. The hermetic assembly consists of a 2-cell 915 MHz SRF cavity, a coaxial fundamental power coupler and warm-to-cold transition beam tubes. The two-part shipping assembly consists of an inner frame, providing direct mounting of the components, and an outer frame mounted to the ground transport vehicle. The inner frame is then connected to the outer frame by way of wire-rope isolators. Accelerometer data from ground transportation of previous projects at Jefferson Lab provides the baseline for the expected frequency and magnitude of vibrational and shock events during transit. Modal analyses were carried out in ANSYS on the inner frame assembly and critical components to identify an appropriate wire-rope isolator configuration such that peak loads are mitigated and the incurred frequencies do not correspond with the fundamental modes of the structures.

Please consider my poster for contributed oral presentation

Yes

Would you like to submit this poster in student poster session on Sunday (August 10th)

Yes

Footnotes

Funding Agency

I have read and accept the Privacy Policy Statement

Yes

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