

Design update of the power couplers for the single-spoke resonators in Institute for Rare Isotope Science

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A heavy-ion accelerator facility was constructed for the Rare Isotope Science Project (RISP) at the Institute for Rare Isotope Science (IRIS) in Daejeon, Korea. A cryomodule with quarter-wave resonators (QWRs) and half-wave resonators (HWRs) was installed in the SCL (Superconducting Linac) 3 tunnel, and the initial beam commissioning using argon beams has been completed. Additionally, a cryomodule with single-spoke resonators (SSRs), power couplers, and tuners is currently under development for the SCL2 project. The geometry of the power couplers for the SSRs is a coaxial capacitive type based on a conventional 3-1/8 inch Electronic Industries Alliance (EIA) coaxial transmission line with a single ceramic window. A multi-physics analysis, incorporating electromagnetic, thermal, and mechanical aspects, was conducted to evaluate the design of the power coupler for the SSRs. This paper presents the results of the multi-physics analysis and the current design status of the power coupler for the SSRs.

Footnotes

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