



Contribution ID: 908 Contribution code: TUPS154

Type: **Poster Presentation**

S-parameters live measurement for the multiport RF components: applications to the circulator and the LIPAc RFQ cavity

Tuesday 3 June 2025 16:00 (2 hours)

In general, it is not easy to measure the drifting RF properties of a device during its operation. If the scatter matrix changes depending on the temperature, the vector network analyzer provides only a static or a starting point of the thermal development. In particular, it is impossible to fully characterize the component that has more than two ports only by the online measurement. So, in the model proposed, assuming that the heat source defined as the average dissipation is given by stored power in the device and the duty cycle, preliminary measurements for several average dissipations are performed. Analytical solutions are derived by using the preliminary and online measurement for the same average dissipation based on the input-output power pickups. As study case, the method is applied to the circulators and the RFQ of the Linear IFMIF Prototype Accelerator, for the three-port and eight-port device case respectively. The model, the results of experiments, and discussions will be summarized in this report.

Footnotes

Paper preparation format

Word

Region represented

Asia

Funding Agency

Author: HIROSAWA, Kouki (National Institutes for Quantum Science and Technology)

Co-authors: DE FRANCO, Andrea (National Institutes for Quantum Science and Technology); SCANTAMBURLO, Francesco (IFMIF/EVEDA Project Team); MOYA, Ivan (Fusion for Energy); ADAM, Jean-Pierre (Fusion For Energy); ISHIMURA, Kouhiro (IFMIF/EVEDA Project Team); GONZALEZ GALLEGU SANCHEZ CAMACHO, Luis (Consorcio IFMIF-DONES España); KUBO, Naoya (National Institutes for Quantum Science and Technology)

Presenter: HIROSAWA, Kouki (National Institutes for Quantum Science and Technology)

Session Classification: Tuesday Poster Session

Track Classification: MC4: Hadron Accelerators: MC4.A08 Linear Accelerators