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Performance on high-power test bench of RF couplers for the LIPAc's RFQ

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The Linear IFMIF Prototype Accelerator (LIPAc) in Rokkasho, Japan, designed to accelerate p+ to 4.5 MeV and D+ to 9 MeV at 62.5 mA and 125 mA in Continuous Wave (CW) mode, respectively, is under commissioning and about to enter into its final stages. A high-power test bench was developed for the testing and conditioning of the Radio-Frequency (RF) couplers of the RF Quadrupole (RFQ) cavity. The processing, requiring thermomechanical validation up to 200 kW and CW, is currently ongoing. Several tests were done, during which multipacting and thermal outgassing was observed in numerous power bands, particularly at 70 - 90 kW for the couplers, which is crucial for RFQ conditioning at nominal voltage. Subsequent tests showed that the cavity and couplers performed as expected at forward power levels close to beam operation (~ 160 kW).

Footnotes

Paper preparation format

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Region represented

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