MATTER AND TECHNOLOGIES

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Advanced high power coupler layout for 217 MHz sc cw CH-cavities

After its upcoming upgrade, the UNIversal Linear ACelerator (UNILAC) at GSI will be used as an injector for the Facility for Antiproton and Ion Research (FAIR). To continue the Super Heavy Element (SHE) research program at GSI a new dedicated linac is required. For this purpose the HELmholtz LInear ACcelerator (HELIAC), a new superconducting (sc) continuous wave (cw) linac is developed. This linac will include twelve 217 MHz multi gap Crossbar-H-mode (CH) cavities. Two beam tests with the first cavity were already successfully performed within the framework of the demonstrator project. During these tests it became clear, that the existing RF-coupler needs further improvement. A new modular power coupler design is envisaged to simplify the cleaning and installation process. In case of malfunction, the damaged part can be replaced easily. A reliable, fail-safe solution has to be found for the delicate mounting of the RF-windows. Furthermore, the dynamic and static heat load into the cryostat needs to be decreased. Variable coupling is also intended.

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