ACCELERATOR SEMINAR

Winfried Barth
GSI

Thursday, 11 April at 3:45 pm

SB1 1.201 (Lecture Hall)
Planckstraße 1, 64291 Darmstadt

ACCELERATION OF HEAVY ION BEAMS WITH A SUPERCONDUCTING CONTINOUS WAVE (CW)-LINAC AT GSI

At June 2017, after successful RF-testing of the sc RF-cavity in 2016, set up of the matching line to the demonstrator and a short commissioning and ramp up time of some days, the Crossbar H-Mode cavity CH0 of the cw-Linac accelerated first time heavy ion beams (Ar^{11+}) with full transmission up to the design beam energy. The design acceleration gain of 3.5 MV inside a length of less than 70 cm has been verified with heavy ion beam of up to 1.5 pmA. The measured beam parameters show an excellent beam quality. The machine commissioning with beam was a milestone of the R&D work of Helmholtz Institute Mainz (HIM) and GSI in collaboration with IAP Goethe-University Frankfurt in development of the superconducting heavy ion cw-Linac. In autumn 2018 two additional machine runs have been successfully executed, confirming the strong capabilities of heavy ion beam acceleration with CH-cavities. Further R&D efforts, as well as preparatory work for the future Linac will be presented.

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