

Status of the superconducting cw LINAC Demonstrator

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Setup at GSI HLI

The Demonstrator should be mounted in straightforward direction to the existing GSI High Charge Injector (HLI), aiming at full performance tests of the key component, i.e. the superconducting (sc) CH-Cavity [1]. The setup at the GSI HLI is in progress: The radiation protection cave was mounted in July 2012 and the beam transport line is almost completed (fig.1).

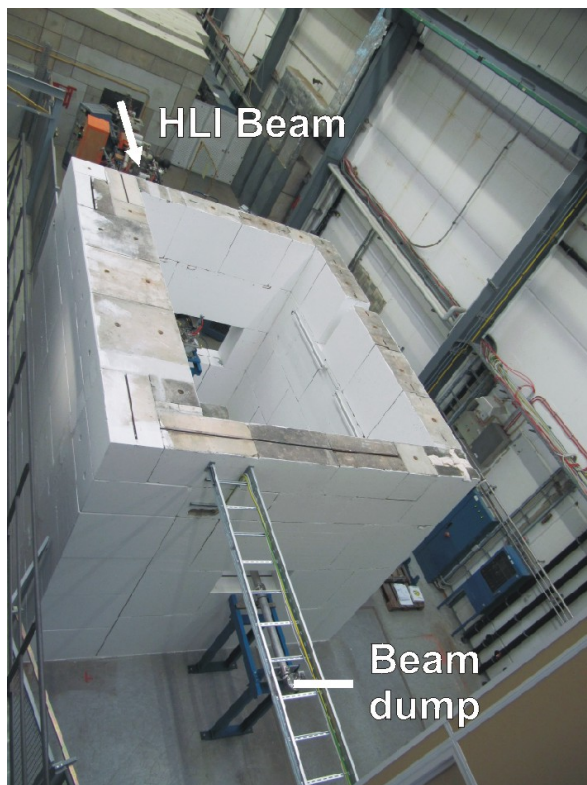


Figure 1: Photograph of the cw Demonstrator setup from July 2012 showing the radiation protection cave and the beam dump.

Emittance Measurements

In parallel to the beamline assembling the beam characteristics at the exit of the HLI were measured with a temporary emittance meter setup (fig.2). The analysis of the measurements allows detailed beam dynamic investigations with respect to a realistic input particle distribution [2]. The aims are matching the beam to the Demonstrator, and the adaption of the conceptual layout of the whole cw LINAC to realistic boundary conditions.

Scheduling

The commissioning of the Demonstrator at GSI depends on the delivery of the main components: The fabrication of the sc CH-cavity has started after the drawings were approved in June 2012 [3]. The delivery is expected in September 2013. The order for the cryostat and the solenoids was placed at Cryogenic, London, UK in late April 2012. Currently the final design is worked out. The final drawings are expected in spring 2013. The delivery of the cryostat and the solenoids is expected one year later in 2014.

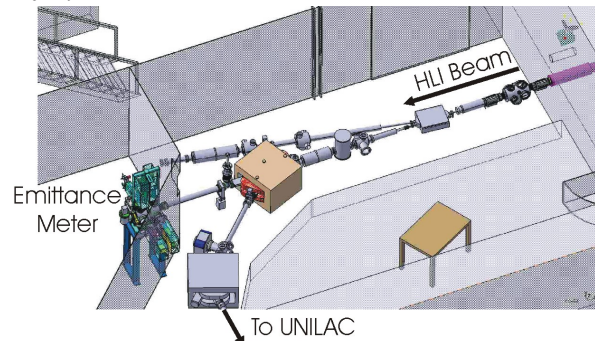


Figure 2: Intermediate setup comprising an emittance meter to measure the transverse beam characteristics at the exit of the HLI.

2013	1 st half	<ul style="list-style-type: none"> • Setup at GSI HLI is completed • Fabrication of the cryostat and the solenoids starts
	2 nd half	<ul style="list-style-type: none"> • Delivery of the cavity • rf-tests at IAP
2014	1 st half	<ul style="list-style-type: none"> • Delivery of the cryostat and the solenoids
	2 nd half	<ul style="list-style-type: none"> • Commissioning of the Demonstrator at GSI HLI with beam

Table 1: Project Schedule.

References

- [1] S. Mickat et al., GSI Scientific Report 2011.
- [2] A. Orzhekovskaya et al., HIM Scientific Report 2012.
- [3] F. Dziuba et al., HIM Scientific Report 2012