

## Status of the cw-LINAC demonstrator project

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### Cryostat and cavity

The Demonstrator is the first section of the proposed cw-LINAC [1]. The fabrication of the Demonstrator is still in progress. The complete system is expected to be at GSI in 2015.

Meanwhile the inner structure of the cavity is fabricated (Fig. 1). The operation frequency was checked at Research Instruments (RI) site during the whole fabrication process dependent on mechanical stress from vacuum, and from cooling down. Frequency shifts are not allowed and has to be compensated by an adequate setting of the static tuners length [2]. Also the change in volume after three times buffered chemical polishing (BCP) has to be taken into account during the tuning process. The chemical treatments etch in total 75  $\mu\text{m}$  of the cavity's surface. After the chemical treatments the cavity is high pressure rinsed and sealed under cleanroom conditions for shipment to the IAP. Here RF performance tests in a cold environment are planned. After successful tests the cavity is sent back to RI for the final step in fabrication. The helium jacked out of titanium as well as the suspending blocks will be welded to the cavity.



Figure 1: The inner structure of the CH-cavity.

The cryostat itself is ready for assembling at Cryogenic Ltd. Site. Most of the parts are on site (Fig.2). The delay in delivery is mainly caused by finding an adequate provider for the  $\mu$ -metal shield. According to an updated schedule the overall system including the two solenoids and dummy is expected to be completed until May 2015.

### Setup at GSI-HLI

The test environment at GSI-HLI is prepared almost. Recently the control room is arranged for the 5kW-RF-Amplifier for the CH-cavity and the 12kW-RF-Amplifier for the cw Buncher. The additional cw buncher cavity is under development and expected in June 2015. Only the RF-piping is outstanding. The liquid helium supply is rearranged and detailed. The 3000 litre tank will be located near the x-ray radiation protection shelter of the de-

monstrator, and connected via flexible pipe to the cryostat. The exhaust helium gas will be heated, counted via gas meter, and as planned collected in a 25<sup>3</sup>m recovery balloon.



Figure 2: The cryostat and the two sc solenoids are ready for assembling at Cryogenic Ltd, London.

### References

- [1] V. Gettmann et al. STATUS OF THE SC CW-LINAC DEMONSTRATOR INSTALLATION, Proceedings annual report 2013, GSI, Darmstadt, Germany.
- [2] F. Dziuba et al. A Superconducting 217 MHz CH Cavity for the CW Demonstrator at GSI, Proceedings of SRF 2013 Paris, France.