



Contribution ID: 2118 Contribution code: MOPA017

Type: **Poster Presentation**

Superconducting RF systems for the SEALab facility, status and commissioning

Monday, 8 May 2023 16:30 (2 hours)

The Superconducting Electron Accelerator Lab (SEALab)* is the SRF-accelerator physics research facility at HZB created in 2021 following official completion of the bERLinPro project. It provides opportunities for SRF-accelerator related research beyond the ERL program, yet ERL-related research continues in this facility (“bERLinPro@SEALab”).

The first stage of commissioning and operation will focus on the SRF injector, in 2022 mainly the SRF photo-injector. It is planned to study a wide range

of beam parameters from shortest pulses low charge regime applicable to e.g. ultrafast electron diffraction (“UED@SEALab”) to high charge and medium current

beam studies for ERLs, whether this may be for a light source or high-energy physics collider machine.

Here, we will mainly present the current status of the commissioning of the SRF photo-injector cryo module, the state of the Booster cryo module and plans towards a Linac allowing for a more sustainable and effective implementation of an ERL, including studies of fast reactive tuner implementation at 1.3 GHz for microphonics compensation and a potential test site for 4K operation of new SRF coating materials finally with beam.

Funding Agency

Work supported by German Bundesministerium für Bildung und Forschung, Land Berlin, and grants of Helmholtz Association

Footnotes

*A. Neumann et al., “bERLinPro Becomes SEALab: Status and Perspective of the Energy Recovery Linac at HZB”, in Proc. IPAC'22, Bangkok, Thailand, Jun. 2022, pp. 1110-1113. doi:10.18429/JACoW-IPAC2022-TUPOPT048

I have read and accept the Privacy Policy Statement

Yes

Primary author: NEUMANN, Axel (Helmholtz-Zentrum Berlin für Materialien und Energie GmbH)

Co-authors: FRAHM, Andre (Helmholtz-Zentrum Berlin für Materialien und Energie GmbH); USHAKOV, Andriy (Helmholtz-Zentrum Berlin für Materialien und Energie GmbH); SHARPLES-MILNE, Emmy (Helmholtz-Zentrum Berlin für Materialien und Energie GmbH); STEIN, Hannes (Helmholtz-Zentrum Berlin für Materialien und Energie GmbH); PLOETZ, Henry (Helmholtz-Zentrum Berlin für Materialien und Energie GmbH); ULLRICH, Jan (Helmholtz-Zentrum Berlin für Materialien und Energie GmbH); KNOBLOCH, Jens (University of

Siegen); KUEHN, Julius (Helmholtz-Zentrum Berlin für Materialien und Energie GmbH); KOLBE, Jörg (Helmholtz-Zentrum Berlin für Materialien und Energie GmbH); SCHUSTER, Michael (Helmholtz-Zentrum Berlin für Materialien und Energie GmbH); KLAUKE, Sascha (Helmholtz-Zentrum Berlin für Materialien und Energie GmbH); Dr MIS-TRY, Sonal (Helmholtz-Zentrum Berlin für Materialien und Energie GmbH); ROTTERDAM, Stefan (Helmholtz-Zentrum Berlin für Materialien und Energie GmbH); KAMPS, Thorsten (Humboldt-Universität zu Berlin)

Presenter: SHARPLES-MILNE, Emmy (Helmholtz-Zentrum Berlin für Materialien und Energie GmbH)

Session Classification: Monday Poster Session

Track Classification: MC1: Colliders and other Particle Physics Accelerators: MC1.A18: Energy Recovery Linacs(ERLs)