SRF2025 TOKYO

22ND INTERNATIONAL CONFERENCE ON RF SUPERCONDUCTIVITY

September 21-26, 2025

Contribution ID: **240** Contribution code: **MOP06** Type: **Poster Presentation**

Upgrade of E2.0cryogenic plant

Monday 22 September 2025 14:30 (3 hours)

As part of the upgrade of the Elettra synchrotron ring to Elettra 2.0, an upgrade and expansion of the helium liquefaction plant is also planned. The current cryogenic system is based on a Kaeser He compressor and a Helial 1000 cold box liquefier/refrigerator, with a Siemens S7-00 PLC-based control system, currently connected exclusively to the superconducting third harmonic cavity (S3HC).

The upgraded system will continue to provide cooling for the S3HC, but will also supply liquid helium to users and provide cryogenic support for the superconducting wiggler (SCW). A complete renewal of the control system is underway, transitioning from the obsolete and unsupported Siemens S7-00 PLC to the S7-1500 series.

A helium recovery and re-liquefaction system is planned both for the SCW and for the beamlines that require liquid helium for experimental activities.

This paper presents the current status of the cryogenic plant upgrade project, along with its economic and environmental impact.

I have read and accept the Privacy Policy Statement

Yes

Footnotes

Funding Agency

Author: Dr MODICA, Marco (Elettra-Sincrotrone Trieste S.C.p.A.)

Co-authors: FABRIS, Alessandro (Elettra-Sincrotrone Trieste S.C.p.A.); KARANTZOULIS, Emanuel (Elettra-Sincrotrone Trieste S.C.p.A.); DI MITRI, Simone (Elettra-Sincrotrone Trieste S.C.p.A.); KRECIC, Stefano (Elettra-Sincrotrone Trieste S.C.p.A.); Mr CARNIEL, alessandro (Elettra-Sincrotrone Trieste S.C.p.A.); Mr ZUPANCICH, pietro (Elettra-Sincrotrone Trieste S.C.p.A.)

Presenter: Dr MODICA, Marco (Elettra-Sincrotrone Trieste S.C.p.A.)

Session Classification: Monday Poster Session

Track Classification: MC1: SRF Facilities