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Superconducting dipole for Elettra 2.0

Wednesday, 22 May 2024 16:00 (2 hours)

Elettra 2.0 is the 4th generation synchrotron light source that is going to replace Elettra, the 3rd generation light source operating for 30 years in Trieste Italy. The new ring will be giving light to the users in 2026 at 2.4 GeV. Three beam lines require very hard-x-rays i.e. photon energies at 50 keV or more with a flux of 1013 ph/sec and this can be achieved with a superconducting magnet at 6 T peak field.

A new superconducting magnet is developed with an innovative compact design integrated with quadrupole side magnets. A new cryogenic solution will combine the benefits of a liquid-helium cooled inner magnet with a liquid-helium-free upper cooling stage. A C-shaped design will allow to slip in and slip out the magnet from its position on the storage ring vacuum chamber. A prototype of a new 6T superconducting magnet will be constructed and installed in the storage ring to replace a normal 1.4 T magnet allowing a full characterization of its performance. The NbTi superconducting magnet will work at 3.5K conduction cooled, using a system of heat exchanger connected to a subcooled Helium bath.

Footnotes

Funding Agency

Paper preparation format

Word

Region represented

Europe

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