

# ARW 2024

## Accelerator Reliability Workshop

MAX IV and ESS are Excited and Pleased to Announce their Joint Hosting

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## History of Maintenance Strategy and Reliability Measures Taken for the SLS Operation

*Tuesday, 25 June 2024 16:30 (30 minutes)*

The Swiss Light Source (SLS) at the Paul Scherrer Institute (PSI) in Villigen was the first and only 3rd generation light source in Switzerland. After being approved by the Swiss Government in September 1997, construction works for the SLS project began in 1998. The installation of the accelerator complex began after completion of the building in June 1999. The heart of the complex was the small emittance triple-bend-achromat lattice electron storage ring with 288 m circumference and 2.4 GeV. The performance of the full energy injector complex including the 100 MeV LINAC pre-injector delivering electron bunches to the booster synchrotron installed on the inner wall of the storage ring tunnel enables reusing it for injection into the SLS 2.0 storage ring. Commissioning of the SLS storage ring started in January 2000, the first stored beam was achieved by Christmas 2000, and the design specifications were reached by August 2001 from whereon first user operation with 4 beamlines began. After 22 years of successful operation with over 9500 peer reviewed publications of which the top 5 alone were cited over 10'000 times, the SLS user operation came to its end in September 2023 delivering photons from 16 source points to in total 18 beamlines. The final, ceremonial beam dump was triggered by the PSI director and SLS 2.0 project leader at the end of September 2023. During the 22 years of operation the reliability of the SLS was continuously evaluated and many measures were taken to improve the reliability. In this contribution a retrospective overview of the maintenance strategy and reliability measures are presented highlighting their impact on the reliability for operation of the SLS facility.

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