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Status of SLS 2.0 front ends

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As part of the SLS 2.0 upgrade program, front-end systems have been extensively redesigned, refurbished, or constructed entirely anew to accommodate increased heat load, higher power density, and more compact device requirements∗. Of the 18 front ends in scope, 12 have been installed and connected to the storage ring, most achieving first light at 400 mA and enabling initial user preparation; the remaining six are scheduled for installation in 2026 (Phase 2). Commissioning demonstrated flawless front-end performance, with beam delivery to the beamlines requiring minimal intervention. While design, procurement, manufacturing, and assembly adhered to schedule, ancillary systems such as cabling, vacuum, cooling, alignment, and PLC-based beamline control posed greater scheduling challenges due to complex inter-group coordination and shifting project priorities. The first-light results confirmed the efficacy of a fixed-mask plus movable-slit configuration, with newly developed slits reliably withstanding the increased thermal load.

Footnotes

∗ Just, D. M., Brüstle, M., Guntli, S., Mück, J. & Pradervand, C. (2024). J. Synchrotron Rad. 31, 1582-1592.

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