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# The FLASH User Facility Between Two Upgrade Shutdowns

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FLASH, the XUV and soft X-ray free-electron laser user facility at DESY, is in the transitional period between two substantial upgrade shutdowns within the FLASH2020+ upgrade project.FLASH consists of a common injector and linac and drives 3 different beamlines of which the two FEL beamlines FLASH1/2 can be operated simultaneously at 10 Hz with subtrains of typically 1 to 500 bunches within the the 600 us RF flat tops made possible by the high duty cycle of FLASH's superconducting RF.The first (2021/22) shutdown was aimed at upgrading injector and linac and equipping the beamline FLASH2 with an APPLE-III type after burner undulator, to enhance the third harmonic output and to enable controllable polarization.The next (2024/25) shutdown will focus on the complete exchange of the FLASH1 beamline to allow for externally seeded operation in the range from 60 nm down to 4 nm at 1 MHz pulse repetition rate.

We report on the operation between the two shutdowns which was, to a large extend, dedicated to FEL operation for users and on the commissioning of the new features implemented in the last shutdown with emphasis on new features for FEL operation.

## Footnotes

## Funding Agency

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