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Commissioning of the soft X-ray variable polarization afterburner at the European XFEL

Monday 2 June 2025 16:00 (2 hours)

Following the successful commissioning of the soft X-ray planar undulator system (SASE3), the European XFEL user community expressed a strong demand to extend the radiation properties and provide the possibility to obtain variable polarization modes. It was therefore decided to build a helical afterburner behind the SASE3 system in collaboration with Paul Scherrer Institute (PSI). The final installation of the undulators in the tunnel took place at the beginning of 2024. Since then, a series of measures have been taken to commission four APPLE-X undulators, which form the base for the helical afterburner. The main objective is to maximally suppress the linear polarization of planar undulators in order to obtain the purest radiation from helical undulators. The methods and results of the optimization to achieve a maximum contrast between the pulse intensity generated by planar and helical undulators as well as the operating experience are presented.

Footnotes

Paper preparation format

Region represented

Europe

Funding Agency

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