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FEL machine development and experiments

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The FERMI free-electron laser (FEL) facility has recently reached an important milestone with the successful implementation of the echo-enabled harmonic generation (EEHG) scheme in the FEL-1 amplifier line. The maximum photon energy of FEL-1 has been doubled and the spectral quality of this FEL has been significantly improved. FERMI FEL-1 is now the first FEL operating in the 20-10 nm spectral range using the EEHG scheme for user applications. In this communication we review some of the operating modes and recent experiments carried out at FERMI before the upgrade and the prospects offered by the new EEHG configuration, which is part of a wider upgrade strategy to extend the spectral range of the facility to cover the water window and beyond.

I plan to submit also conference proceedings

No

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