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SP10: Temporal characterization of a UV seeded HGHG FEL at FLASH

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The free-electron laser facility FLASH at DESY operates since several years in SASE mode, delivering highintensity FEL pulses in the extreme ultra violet and soft x-ray wavelength range for users. External FEL seeding has proven to be a reliable method to get more control of the characteristics of the FEL pulses. At FLASH, an experimental setup to test different external FEL seeding methods has been operated since 2010. Recently, operation at the 7th harmonic of a 266-nm seed laser using high-gain harmonic generation (HGHG) has been demonstrated. Bunching up to the 11th harmonic was observed for high peak current electron beams. The temporal characterization of the seeded electron bunches using a transverse deflecting structure reveals the properties of the generated FEL radiation pulses. In this contribution, we give an overview of recent experimental results on the seeding activities at FLASH.

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