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COXINEL : Laser plasma accelerator based seeded free electron laser

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The commissioning of a seeded free electron laser (FEL) using a Laser Plasma Accelerator (LPA) source consisting of the COXINEL beamline and HZDR DRACO 100 TW driving laser is reported. Several diagnostics are installed along the beamline to transport and characterize the electron beam, synchronize and align it with the laser seed to attain FEL amplification. A UV spectrometer is installed at the end of the beamline for undulator radiation characterization and FEL measurements. We present the methods used that led to the first LPA based seeded FEL at 270 nm wavelength, as well as the future prospects of the COXINEL experiment.

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