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## The COXINEL Demonstrator upgrade

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The COXINEL line has been designed at Synchrotron SOLEIL for electron beam manipulation in view of a seeded free electron laser using Laser plasma acceleration (LPA). After first studies on electron beam transport and undulator radiation in the spontaneous emission regime using LPA from Laboratoire d'Optique Appliquée (Ecole Polytechnique, France), the line has been moved to the HZDR, Dresden, Germany, for high quality LPA electrons driven by the DRACO laser, where the first LPA driven seeded FEL has been demonstrated at 275 nm [1]. The seeded FEL has been extensively reproduced. Towards operation at shorter wavelength, LPA electron beam parameters and stability is being improved [2], and a 3 m long cryogenic permanent magnet undulator is under finalization.

[1] M. Labat, J. Couperus Cabadağ, A. Ghaith, A. Irman et al, Nat. Photon. 17(2), 150-156 (2022). <https://doi.org/10.1038/s41566-022-01104-w>

[2] A. Irman, "Reduction of the electron-beam divergence of laser wakefield accelerators by integrated plasma lense", this conference

### Footnotes

### Funding Agency

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