

EUROPEAN
PLASMA RESEARCH
ACCELERATOR WITH
EXCELLENCE IN
APPLICATIONS



DESY interests

S. Antipov

1st WP9 Meeting, March 15th 2023



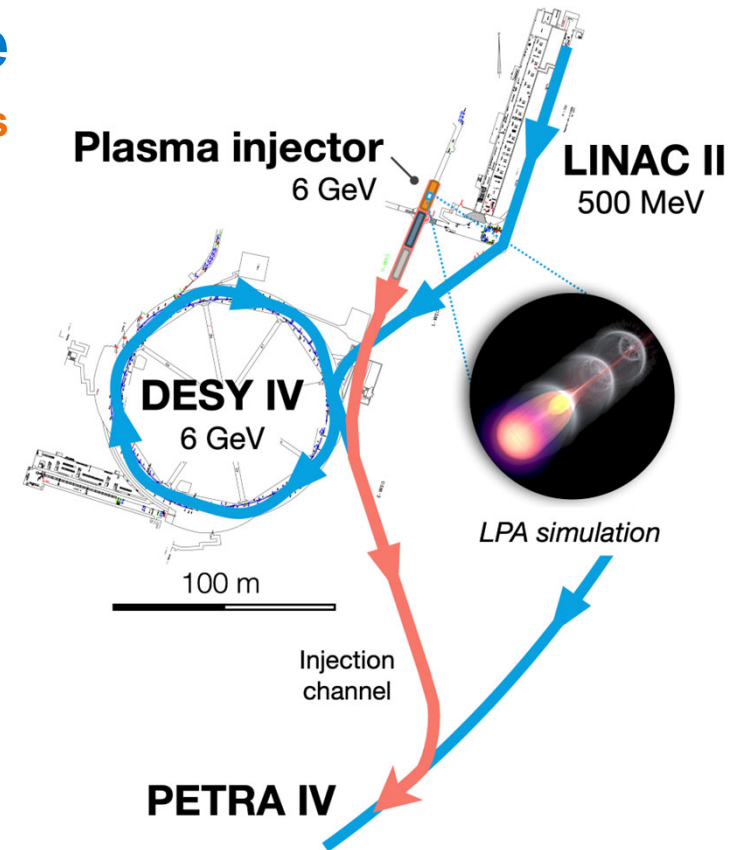
This project has received funding from the European Union's Horizon Europe research and innovation programme under grant agreement No. 101079773

LPA injector for PETRA IV light source

Combining working, proven solutions to manipulate LPA beams

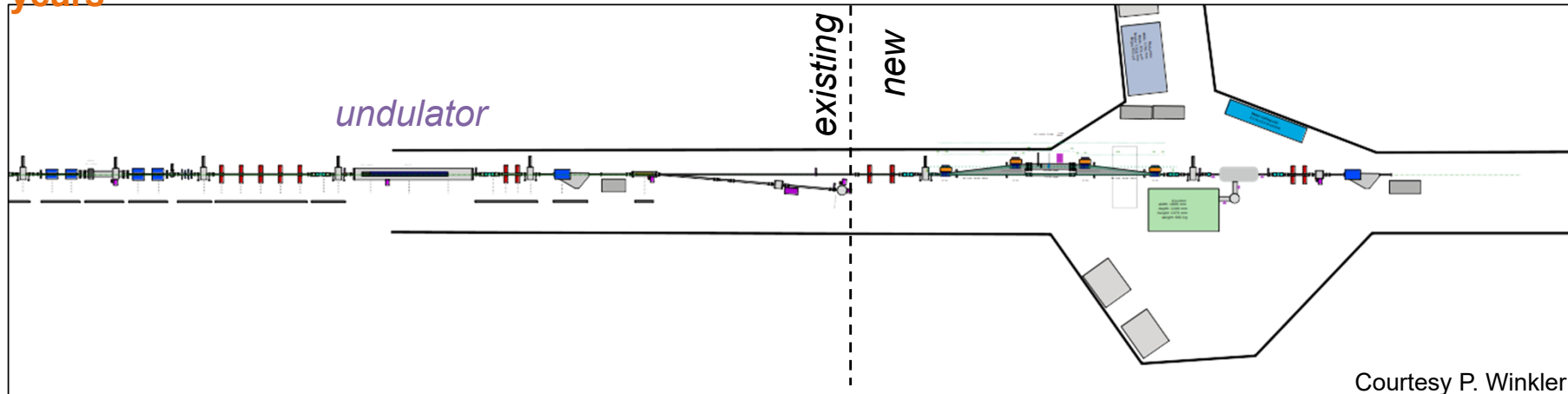
| Energy | 6 GeV |
|--------------------|-----------------|
| Bunch charge | 100 pC |
| Energy spread | 0.1 % |
| Norm. emit. | 1 μm |
| Rep. rate | 2.5 (30) Hz |
| Laser pulse energy | 20 J |

- CDR to be released in 2023
- Included in the PETRA IV project proposal
- R&D on laser, plasma cells starting now



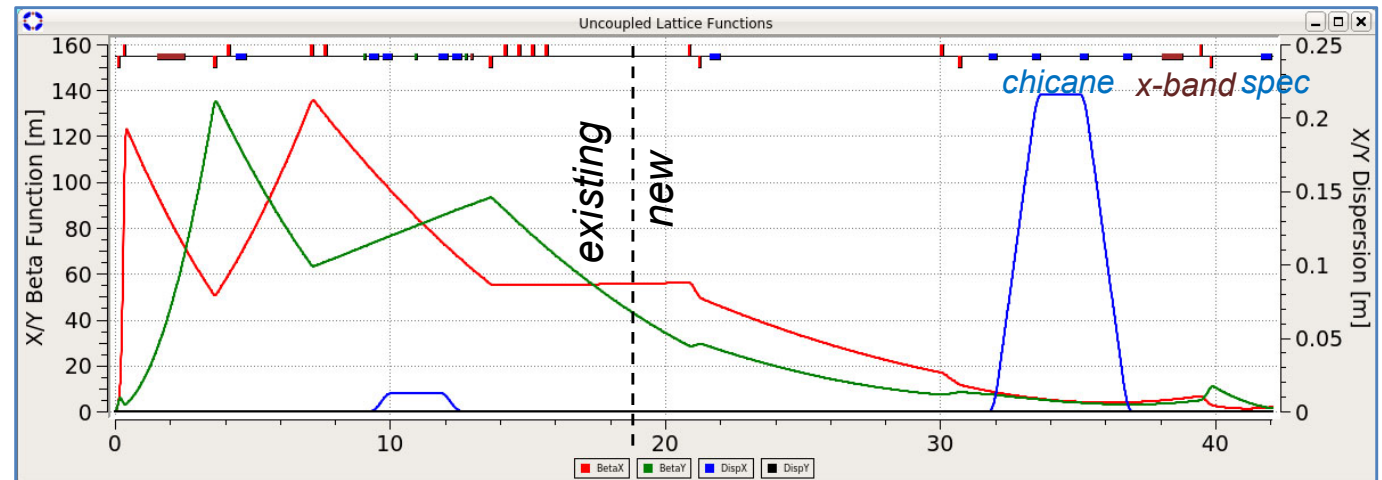
Proof-of-principle prototype at LUX

Building up on the existing LPA FEL infrastructure to demonstrate permille level energy spread in two years



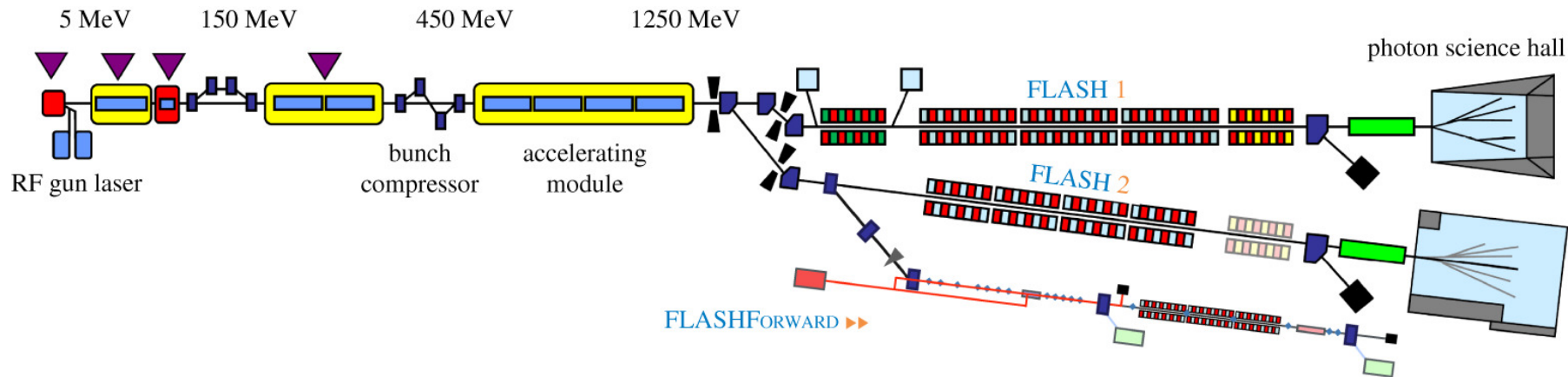
Existing LUX beamline

- 500 MeV range LPA FEL demonstrator
- Collaborating w CERN on X-band
- Re-using HERA-era magnets



FLASHForward

Beam-driven plasma accelerator experiment at DESY

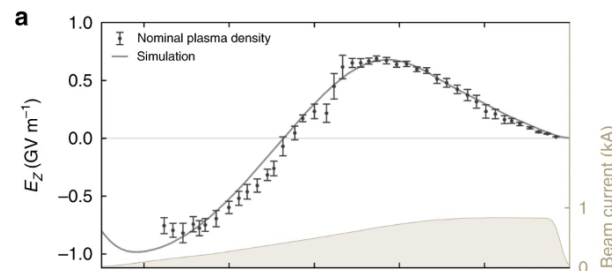


- Goal: high-quality plasma booster
- Research towards energy-spread preservation and high efficiency
- X-Band TDS for beam characterisation

[nature](#) > [nature communications](#) > [articles](#) > [article](#)

Article | [Open Access](#) | [Published: 25 November 2020](#)

High-resolution sampling of beam-driven plasma wakefields



Article | [Open Access](#) | [Published: 11 February 2021](#)

Experimental demonstration of novel beam characterization using a polarizable X-band transverse deflection structure

