

New Electro-optical electron bunch length detection for FLASH2020+.

Upgraded accelerator, upgraded diagnostics

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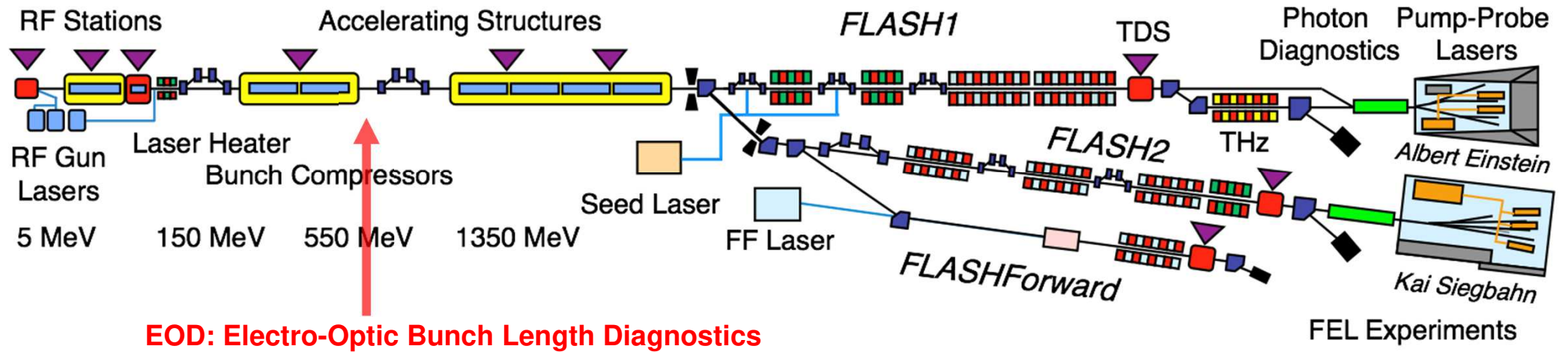


HELMHOLTZ RESEARCH FOR
GRAND CHALLENGES



FLASH

After 2022/2024 upgrades

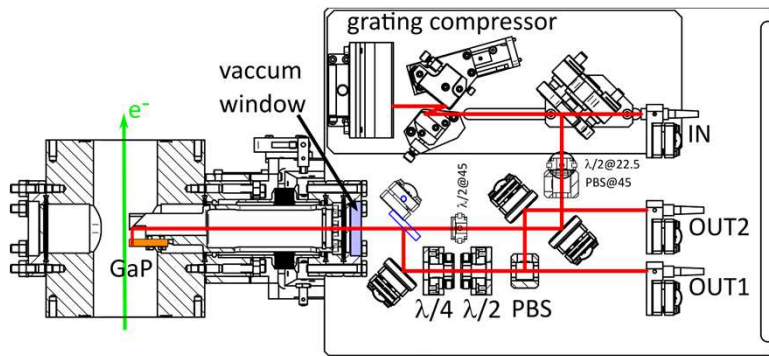


- 250pC bunches at 550MeV
- 1 MHz in 10Hz bursts
- approx. **200fs(rms)** in normal operation
- 2mm GaP crystal
- [-110] perpendicular to THz field (**DEOS configuration**)
- Temperature controlled rack
- Easy access **outside the tunnel**
- 15m fiber length
- approx. 10HU free for further development

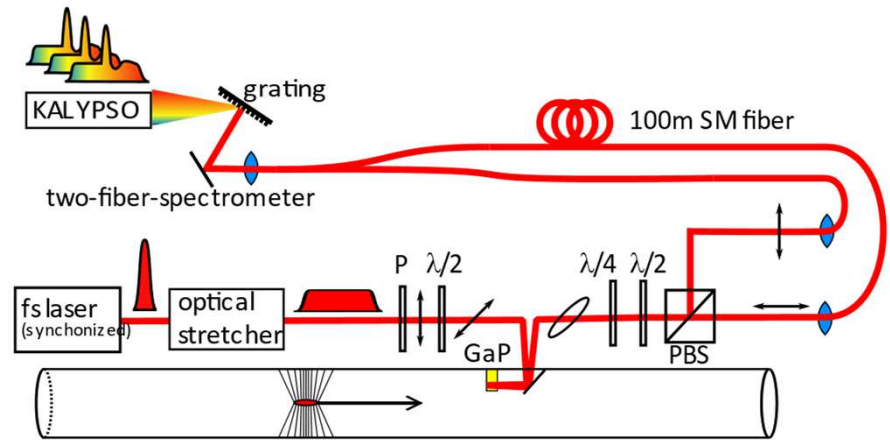
New design **optimized for novel electro-optic detection scheme:**

DEOS: Diversity Electro-Optic Sampling

High temporal resolution and long time window with Spectral decoding



- **New optics design** to prevent polarization distortion from metallic mirrors (see also Quentin's poster)
- Further optics upgrades to test



- **New detection schemes** to test

➔ Aiming for reliable operation AND new developments.

Contact

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