Latest Advancements of a Compact Electro-optical Bunch Length Detector.

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Collaboration

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PhLAM, Lille University, France S. Bielawski, Q. Demazeux, E. Roussel, C. Evain, Ch. Szwaj

Marie Kristin Czwalinna

13th MT ARD ST3 Meeting 2025 at DESY, Zeuthen

HELMHOLTZ RESEARCH FOR GRAND CHALLENGES

FLASH. Free-Electron Laser FLASH

European XFEL

PhLAM Physique des Lasers Atomes et Molécules

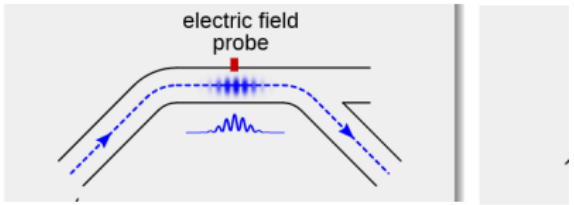
DESY.

Electro-optic Spectral Decoding (EOSD)

From expert-only to a user-friendly measurement device

- High system complexity
  → high level of automation required
  → Supervision / fault diagnosis of all sub-components

  - Automated time overlap retrieval and calibration
  - Online pulse shape monitoring

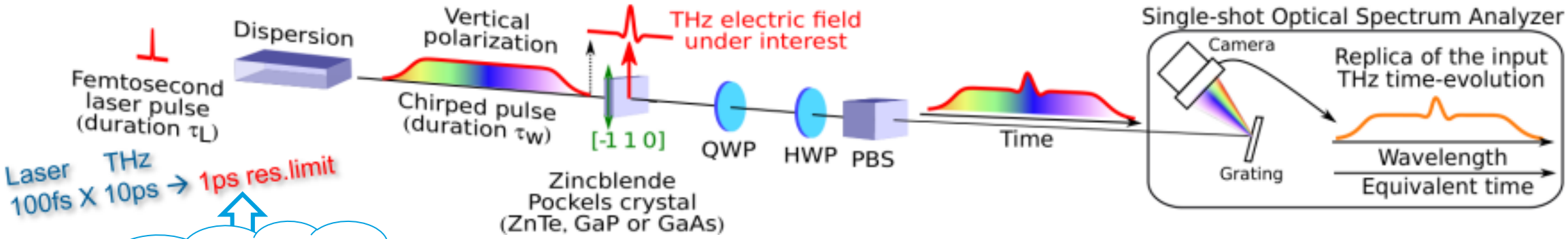


Suited for THz waveforms
from different source,
- e-bunch
- FEL, CSR, ….

Longitudinal bunch shapes

u-bunch instability

THz science, e.g. spectroscopy



Limit overcome by Diversity EO (DEOS)

Frontend servers, Middle-layer server, ChimeraTK **Control system interface → DOOCS backend**

14th Collaboration Workshop on Longitudinal Diagnostics

29th Sep to 1st Oct 2025

https://indico.desy.de/event/48267/overview

DESY Campus, Hamburg

For detailed discussion
On the topic & on collaboration options:

Contact

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