

Ultrafast and intense laser metrology

5 DAYS (35H)

Ref. LSL-07en

OBJECTIVES

- Master laser field representation
- Understand the many laser field parameters (energetic, spatial, temporal, spectral, spatio-temporal, ...)
- Review up-to-date laser metrology techniques
- Train on common metrology techniques during hands on sessions
- Interact directly with the many industrial partners in charge with the trainings
- Build a network of users within the European community and exchange knowledge and how-to among the participants. Initiate collaborations.

PUBLIC

- Users or designers of high intensity/high energy/high average power lasers
- Technicians, Engineers, Researchers
- Undergraduate and PhD students

TOPICS

METHODS AND EDUCATION TOOLS

- Theoretical background
- Practice and Lab
- Computation and simulations

TRAINING SESSION CHAIR

Pr Eric CORMIER – CELIA, Bordeaux University, PYLA

PROGRAMME

- Laser Architecture
- Basic concepts:
 - Ultrashort and intense laser sources
 - Laser field representation
 - Laser parameters
 - Linear and non-linear optics

Measurement methods:

- Energy (Photodiode, pyroelectric, thermopile)
- Spectral (wavemeter, Fabry-Perot, monochromator, imaging spectrometer, FTIR, ...)
- Temporal (Autocorrelation, FROG-type, SPIDER-type, D-Scan, Wizzler, CEP, ...)
- Spatial (Knife-edge, CCD, ..., M^2 , Shack-Hartman, multilateral interferometry, ...)
- Spatio-temporal couplings (Termite, ...)

Special cases:

- THz characterization
- XUV/attosecond pulse characterization

Lab work:

- Time-frequency duality (simulations)
- SNLO (simulations)
- Spatial propagation (simulations)
- Energy, power, intensity
- Spectral measurements (calibration, resolution)
- Temporal (Autoco, SPIDER, Wizzler, FROG, D-Scan, ...)
- Spatial (Shack-Hatmann, multi-lateral shearing interferometry, Knife-edge, M^2)
- Spatio-temporal (simulations)
- THz (characterization)

METHODS AND EDUCATION TOOLS

+ D'INFOS

- Venue : PYLA/Bordeaux University
- Dates : contact us
- Registration fee : contact us