

TRAINING SCHOOL on

## ULTRAFAST AND INTENSE LASER METROLOGY

### 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.

### Term

- Lectures: 2.5 days
- Hands on training: 2.5 days (18 limited places)

### Prerequisites

- Degree in lasers and optics

### Audience

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

### Dates

- 4-8 December 2017

### Venue

- PYLA/University of Bordeaux

### Teachers

- Eric Cormier, CELIA, Bordeaux University
- JC Delagnes, CELIA, Bordeaux University
- Antoine Jeandet, CEA
- Yann Mairesse, CELIA, CNRS
- Patrick Mounaix, IMS, CNRS
- Fabien Quere, CEA
- Stéphane Petit, CELIA, CNRS
- Baptiste Fabre, CELIA, Bordeaux University

With the collaboration of:

- Fastlight
- Femtoeasy
- Gentec/Laser Components
- Imagine Optic
- Phasics
- Sphere/ Porto University

# Program

## 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<sup>2</sup>, 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<sup>2</sup>)
- Spatio-temporal (simulations)
- THz (characterization)

# Registration fees

## French VAT (20%) not included

	<b>Lectures</b> 2.5 days	<b>Lectures + lab work*</b> 5 days
<b>Full price</b>	<b>800 €</b>	<b>2 200 €</b>
<b>Students &amp; PhD (-25%)</b>	<b>600 €</b>	<b>1 650 €</b>
<b>CNRS personal</b>	<i>Contact us</i>	<i>Contact us</i>

\* Lab work is limited to 18 people (applications will be handled on a first-come first served basis). If more than 18 applications are received for the full session, an additional training session might be scheduled.

# Training session chair

- **Prof. Eric CORMIER**, CELIA, Bordeaux University, PYLA  
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# Coordination

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