

# Chirped-Pulse Amplification (CPA) - Dispersion / Stretcher / Compressor - Characterization for ultra-intense lasers

5 DAYS (35H)

Ref. LSL-16

## OBJECTIVES

- Understand the dispersion laws for ultra-short pulses
- Review current dispersion techniques (especially stretching techniques)
- Visit pioneering intense-laser laboratories on the Saclay plateau
- Visit a world-famous grating company
- Interact with industrial partners and leading scientists
- Initiate collaborations

## PUBLIC

- Users or designers of high-intensity, high-energy, or high-average-power lasers
- Technicians, Engineers, researchers
- Undergraduates and Ph.D. students

## TOPICS

- Basic concepts : stretching/compression principle
- Grating technology
- Optimization and characterization
- Simulations / Practical work

## INSTRUCTORS

Experts in their field

## PROGRAMME

- Basic Concepts : Stretching/compression principle  
Dispersion generality ; CPA basics ; CPA at the extreme
- Grating Technology  
Methods to manufacture a grating ; Dimensioning and characterization of high damage threshold grating ; Methods to clean a grating
- Optimization and Characterization  
Grating and Optic metrology ; Different temporal methods to characterize and optimize a pulse ; New method to characterize a pulse. Taking in consideration the spatio temporal effect especially in stretcher and compressor
- Simulations/ Practical work  
Laser safety training ; Grating principle. Alignment ; Compressor simulation with Zemax ; Optimizing a laser chain: stretcher/Amplifiers/compressor ; Aligning a compressor in virtual 3D
- Lab Work  
Grating and dispersive mirrors Characterization: efficiency, flatness and dispersion  
Alignment, optimization and temporal characterization  
Lab Visit: LOA, LULI-Elfie, LULI-2000, APOLLON  
Horiba Jobin-Yvon Visit.

## METHODS & EDUCATION TOOLS

- Lectures: 50%
- Hands-on training: 50%

## MORE INFO

- Location : Ecole Polytechnique - Laboratoire LULI
- Dates : 16 - 20, September 2019
- Prerequisite : Degree in lasers and optics
- Early-bird fee : 2 250 € HT (by June 30, 2019)
- Registration fee after July 1th, : 2 500 € HT

## IN PARTNERSHIP WITH

