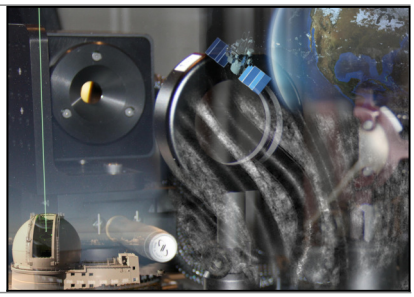
INSTITUT d'OPTIQUE GRADUATE SCHOOL | Continuing Education
Formation Continue

SC21 | Adaptive optics in practice: from principle to applications



New training

LEVEL: BASIC
Audience: Technicians, engineers, designers, end users, project managers
Prerequisites: Some basic knowledge on coherent optical propagation would be preferable
Pedagogical manager(s): Jean-Marc Conan - Ingénieur expert Onera, Caroline Kulcsár - Enseignante-chercheure à l'Institut d'Optique
Language of the training: French
Maximum capacity: 12
Price: 1100€ HT - **Duration:** 2 days - 14 h

Objectives

- Understand adaptive optics principle and dimensioning
- Know the current applications and undestand their stakes
- Appreciate effective and potential performance in different applicative fields
- Be able to appreciate the relevance of adaptive optics for new applications

Next sessions

- 09 may 2019 au 10 may 2019 - Palaiseau

Addressed topics

Propagation through turbulence
Wavefront sensing
Servoing
- Control loop, performance criterion

Performance indexes
- MTF, Strehl ratio, flux coupled in a monomodal fiber...

Adaptive optics applications
- High angular resolution in astronomie, eye imaging and surgery, optical links for telecommunications, beam shaping of power lasers

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The program

Adaptive optics principle
- Performance limitation due to aberrations
- Real-time correction of aberrations with adaptive optics
- Current applications

Analysis and wavefront correction
- Shack-Hartmann or pyramid wavefront sensors...
- Sensorless approaches
- Deformable mirrors, spatial light modulators (SLM)
- Servoing control

Specification and dimensioning of adaptative optics systems

Issues and applications
- Astronomy, telecommunication
- Eye imaging and surgery
- ...

Methodology and assessment

Courses and exercises
Interactive experimental demonstrations
Practical hands-on on instruments

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