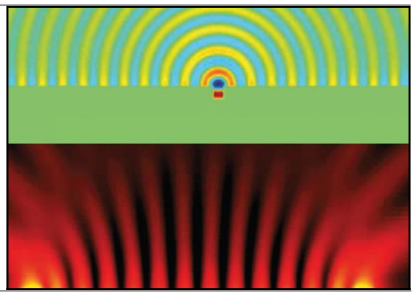
INSTITUT d'OPTIQUE GRADUATE SCHOOL | Continuing Education
Formation Continue

SC6 | Optical interferometry: principle and applications



LEVEL: BASIC

Audience: Engineers or technicians who whish to specify, design, use or optimize an interferometer for phase or amplitude measurements, in industrial or research fields.

Prerequisites: Preliminary knowledge of complex numbers and Fourier Transforms would be useful

Pedagogical manager(s):

Language of the training: French

Maximum capacity: 12

Price: 1820€ HT - **Duration:** 4 days - 28 h

Objectives

- Understand optical interferometry
- Discover the usefulness of this technique in various industrial applications

Next sessions

- 08 october 2019 au 11 october 2019 - Palaiseau

Addressed topics

Physical optics
Coherence
Components
Signal processing
Industrial or commercial applications

SC6 | Optical interferometry: principle and applications

The program

Principle and operation of an interferometer, coherence and applications

- Analysis of 2-beam interference and contrast losses, N-beam Interference
- Sub-systems of an interferometer (splitting, combining, [de]modulation), types (Young, Michelson, Mach-Zehnder, Fizeau...) and exploitation (Zernike polynomials)
- Detailed study of spatial and temporal coherence
- Interferometric techniques and uses (longitudinal or surface metrology, spectroscopy, velocimetry, fibered sensors, coherent detection, phased arrays)
- tutorial classes: part or prolongation of main course, study of application cases

Practical exercises

- Michelson interferometer
- Fizeau interferometer (Zygo type)
- Homodyne/heterodyne detection (acousto-optic modulator)
- Speckle interferometry (deformation/vibration)

Methodology and assessment

Lectures and exercices
Demonstration on laboratory material, according to trainees wishes
Practical hands-on on instruments