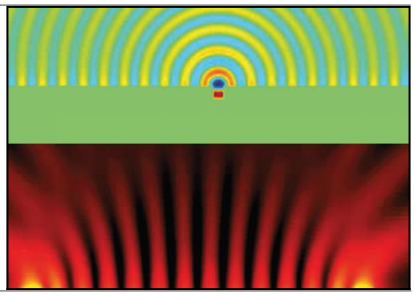
INSTITUT d'OPTIQUE GRADUATE SCHOOL | Continuing Education
Formation Continue

SC6 | Optical interferometry: principle and applications



NIVEAU : BASIC

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

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

Responsable(s) pédagogique(s) :

Langue de la formation : French

Capacité maximum : 12

Prix : 1820€ HT - **Durée :** 4 days - 28 h

Objectifs

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

Thèmes abordés

Physical optics
Coherence
Components
Signal processing
Industrial or commercial applications

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Le programme

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)

Méthodologie et évaluation

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

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