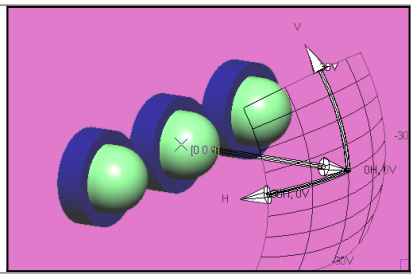
INSTITUT d'OPTIQUE GRADUATE SCHOOL | Continuing Education
Formation Continue

CO4 | Lighting and illumination with Lighttools



NIVEAU : SPECIALIZED

Publics : People working in design offices, R&D units, interested by domestic or public lighting

Prérequis :

Responsable(s) pédagogique(s) : Lionel Jacubowiez - Chargé de cours à l'Institut d'Optique

Langue de la formation : French

Capacité maximum : 10

Prix : 1380€ HT - **Durée :** 3 days - 21 h

Objectifs

- Skills photometry and non-imaging optics
- Understand the methods of photometric computer-aided design
- Learn how to optimize the photometry of optical systems

Thèmes abordés

Sources, surfaces and environments
- Modeling the optical properties of surfaces
- Total reflection, scattering, absorption
- Modeling of light sources

Simulations with Lighttools software
- Principle of non-sequential ray tracings
- Study of illumination and intensity maps

Non-imaging optical applications
- Optics for LED lighting
- Study of display systems
- Light guides and concentrators

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Le programme

Reminders in photometry

- Flux, illumination, intensity, luminance, geometric extent...
- Physical properties of surfaces and environments, scattering, absorption, refraction, specular reflectance, BRDF
- Visual photometry (lighting) and radiometry

Photometric computer assisted design

- Basis for Lighttools : sources definitions, optomechanical structures, optical systems
- Prinicipe of non-sequential ray tracing. Monte Carlo method
- Simulation of illumination and intensity maps. Photometric performance.
- Analysis, optimization methods, definitions of merit functions

Some non-imaging optical applications

- Simulations of sources, plastic optics for LEDs: collimators, concentrators
- Obtaining uniform illumination maps: use of light guides and microlens arrays
- Projector, backlight illumination, screen
- Simulations of the effect of stray light

Méthodologie et évaluation

Lectures and pratical exercices with Lighttools

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