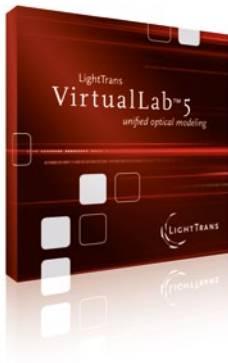


Field Tracing by VirtualLab™

Unified optical modeling
for system analysis and design



Field tracing generalizes the concepts of ray tracing: harmonic fields are traced through the system instead of bundles of rays. Hence field tracing utilizes and provides more information about the light in optical systems. Field tracing enables unified optical modeling that integrates simulation techniques ranging from geometrical optics to electromagnetic methods.

Based on these technologies VirtualLab™ offers an unsurpassed flexibility and efficiency in optical modeling and design. The toolboxes of VirtualLab™ allow the investigation of nano- and micro-optics, diffractive optics, laser systems, ultrashort pulses, laser resonators, LEDs, excimer lasers, gratings, photonic crystals, artificial materials and much more. All toolboxes work fluently together on a single platform.

Your Benefit

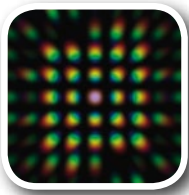
- ▶ Modeling of lenses, free-form and hybrid surfaces, micro and diffractive optical components on one software platform.
- ▶ Simulation of optical systems including diffraction, interference, aberrations, polarization, vectorial effects, temporal and spatial partial coherence.
- ▶ Optimization of lens systems, diffractive diffusers, diffractive homogenizers, diffractive beam splitters, diffractive and refractive beam shapers, diffractive optical elements, phase plates, kinoforms and computer generated holograms.
- ▶ Electromagnetic analysis and optimization of gratings.
- ▶ Analysis of laser cavities including computation of fundamental and higher modes as well as tolerance analysis.
- ▶ Modeling of ultrashort pulses.

VirtualLab™ 5



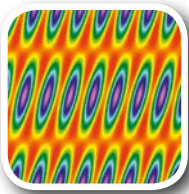
Starter Toolbox

The VirtualLab™ Starter Toolbox allows the analysis and optimization of laser systems, micro optical systems, diffractive optical systems, interferometers, imaging and illumination systems. Optical systems may contain components with features from micrometer to meter scale. Coherent, temporal and spatial partially coherent light can be modeled.



Diffractive Optics Toolbox

The VirtualLab™ Diffractive Optics Toolbox allows to design diffractive beam splitters, diffusers and beam shapers. These elements are also known as diffractive optical element, computer generated hologram, phase plate or kinoform.



Grating Toolbox

The VirtualLab™ Grating Toolbox enables the rigorous electromagnetic analysis and optimization of 2D gratings, 3D gratings and photonic crystals with features from nanometer to millimeter scale. Diffraction efficiency, near field, polarization, reflectance, transmittance, absorption and field inside grating can be calculated.



Laser Resonator Toolbox

The VirtualLab™ Laser Resonator Toolbox allows the analysis of eigenmodes of stable laser resonators. The analysis includes the calculation of fundamental modes, higher order modes and eigenvalues. Index modulations of the active medium can be taken into account. Tolerance simulations enable the investigation of the stability of a resonator.



Lighting Toolbox

The VirtualLab™ Lighting Toolbox provides field tracing for the analysis and design of illumination systems. Using new concepts with emphasis on the integration of microstructures and diffractive optics gives more flexibility for the design of compact illumination systems for the homogenization and shaping of LED light.

System Requirements

OPERATING SYSTEM: Windows XP, Vista or Windows 7 (64-bit operating system for VirtualLab™ Advanced)
CPU: 2.4 GHz, recommended Intel Core 2 Duo, 3.0 GHz (2 x Intel Quad core, 3.0 GHz, for VirtualLab™ Advanced)
RAM: 1 GB, recommended 3 GB (32 GB for VirtualLab™ Advanced)
HARD-DISK SPACE: 200 MB, recommended 100 GB
DISPLAY ADAPTER: Resolution 1024 x 768 or higher, recommended 512 MB Video-RAM
INTERFACE: USB port, DVD-ROM drive

More information concerning VirtualLab™ including a list of all available features is shown on our website www.lighttrans.com

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