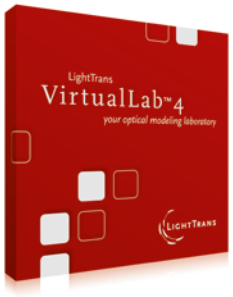
VirtualLab™4

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 ray bundles. 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. The toolboxes of VirtualLab™ allow the investigation of nano- and micro-optics, diffractive optics, laser systems, ultra-short 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

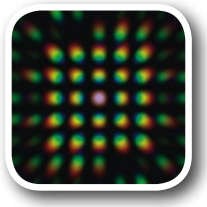
- Modeling of lenses, free-form as well as micro and diffractive optical components on one software platform.
- Simulation of optical systems including diffraction, interference, aberrations, polarization, vectorial effects, temporal and spatial partially coherence.
- Optimization of diffractive diffusers, diffractive homogenizers, diffractive beam splitters, diffractive and refractive beam shapers also known as diffractive optical elements, phase plates, kinoforms, computer generated hologram.
- Analysis of laser cavities including computation of fundamental and higher modes as well as tolerance analysis.
- Electromagnetic analysis and optimization of 2D and 3D gratings.
- Modeling of ultra short pulses.

LIGHTTRANS

VirtualLab™ 4

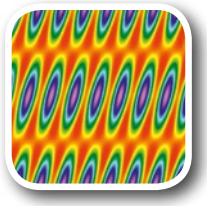
Starter Toolbox

The VirtualLab™ Starter Toolbox allows the analysis 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 allows the rigorous electromagnetic analysis 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.

System Requirements

Operating system: Windows XP, Vista or Windows 7
CPU: Processor with at least 2.4 GHz,
recommended Intel Core 2 Duo with 3.0 GHz (VirtualLab™ Standard),
2 × Intel XEON Quad core with 3.0 GHz (VirtualLab™ Advanced)
RAM: 1 GB, recommended 3 GB (VirtualLab™ Standard),
16 GB (VirtualLab™ Advanced)
Hard-disk space: 200 MB, recommended 100 GB
Graphics adapter: DirectX-compatible graphics card with 1024 × 768 resolution or higher, recommended graphics adapter with 512 MB Video-RAM
Interface: USB port, DVD-ROM drive

EFRE
EUROPA FÜR THÜRINGEN
EUROPÄISCHER FONDS FÜR REGIONALE ENTWICKLUNG

This product sheet is financed in part by the European Union (EFRE) and the Free State of Thuringia (TMWTA).

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

LightTrans GmbH, Wildenbruchstraße 15, D-07745 Jena, Germany
Phone +49. 36 41. 66 43 53, Fax +49. 36 41. 66 43 54, service@lighttrans.com