

OPTIS

ILLUMINATING THE DESIGN PROCESS

# OptisWorks

SolidWorks® - integrated  
solutions for the modeling  
and perception of light



# OptisWorks for SolidWorks®



The complete simulation solution for the design, analysis, optimization and virtual prototyping of any product where optics, light or human vision are critical design elements.

Seamless integration with SolidWorks® provides an identical platform for both optical and mechanical engineers and designers, significantly reducing the design cost and time to market.

Reusable simulation during the design iteration phase offers an 80% time saving

## COMPLETING THE DESIGN PROCESS

- First software to integrate optics, light and human vision within a CAD platform
- Allows SolidWorks® users to accurately predict the behavior of light
- Fast photometric, radiometric and colorimetric virtual measurement and analysis
- Visualize your product through your customer's eyes
- Based on industry-proven, physics-based, SPEOS technology
- Automatically optimize and iterate your product design

**INTEGRATE LIGHT, OPTICS AND MECHANICS IN A UNIQUE PLATFORM**



# OPTISWORKS

*THE MARKET LEADING TOOLSET FOR OPTIMIZING LIGHT IN ANY SYSTEM DIRECTLY  
IN SOLIDWORKS®*

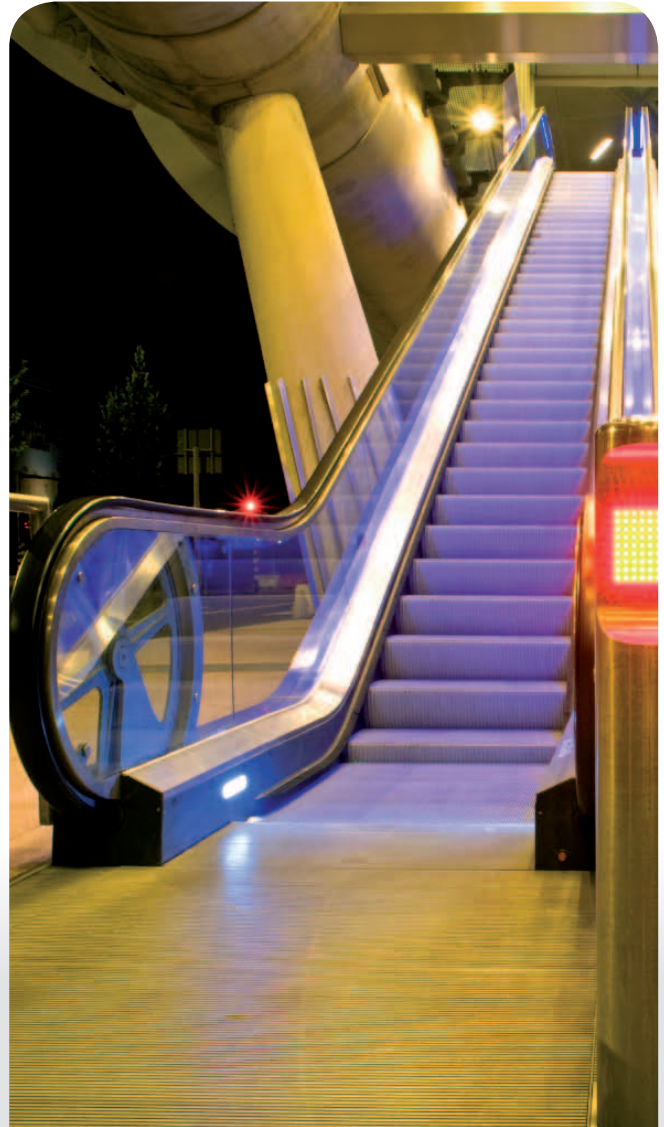
Benefit from the precision and reliability of proven scientific software combined with the industry-focused, practical features of SolidWorks.

Complete simulation of all photometric, radiometric and colorimetric characteristics of light on products regardless of data size and complexity.

Provides all pertinent information related to light including quantity, propagation, distribution and color in 3D space, as well as compliance with standards and specifications.

Perform quick and straight-forward reviews of requirements and design modifications throughout your process; from concept demonstration and validation, to production and deployment.

Reduce design cycles from weeks to hours by seamlessly integrating mechanical and optical information - reducing the number of physical prototypes.

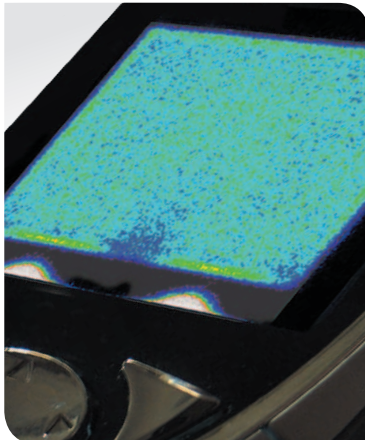
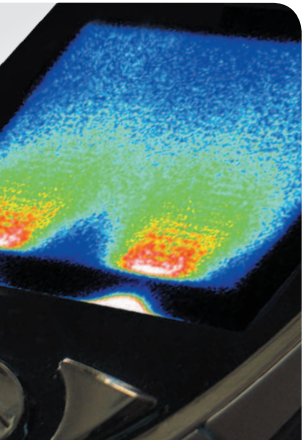
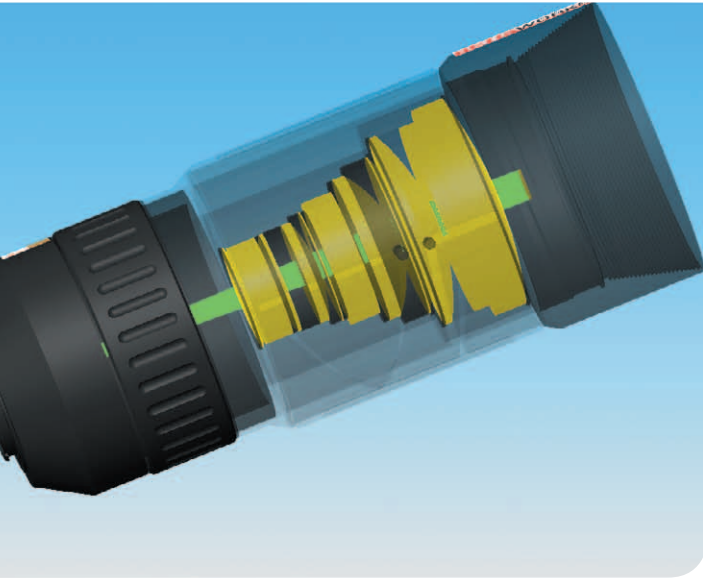




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## **LIGHT MODELING**



- Understand lighting behavior with interactive 3D ray tracing in opto-mechanical systems
- Measure/analyze illuminance, irradiance, intensity, radiant intensity, luminance and radiance
- 2D & 3D map results for easy analysis
- Simulate, analyze and optimize photometric, radiometric and colorimetric outputs
- Iterate between virtual prototypes
- Use OPTIS on-line libraries of sources, materials & surfaces
- Check compliance with international standards and customer specifications
- Virtual Photometric Laboratory (VP Lab) provides a wide range of tools (cross section, contrast, iso-curves, spectrum distribution and chromaticity coordinates...) for comprehensive analysis
- Radiometry : IR and UV modeling



# RENDERING FOR ENGINEERS

*SIMULATE, OPTIMIZE & VALIDATE THE APPEARANCE OF ANY PRODUCT TAKING INTO ACCOUNT HUMAN VISION AND PHYSICAL PROPERTIES*



## **OPTISWORKS Rendering for Engineers**

provides physics-based representations of lighting simulations of any product for early design validation reducing the number of physical prototypes required.

Enables designers to validate and view the final appearance of the product - ensuring brightness and uniformity, and optimizing perceived quality.

Combine the correct optical properties of all materials and light sources with advanced, high performance light propagation to ensure a 100% true representation of your future product in any natural or artificial environment, day or night.

Use a unique model of the human eye to simulate lit and unlit appearance.







# RENDERING FOR ENGINEERS

*SIMULATE, OPTIMIZE & VALIDATE THE APPEARANCE OF ANY PRODUCT TAKING INTO ACCOUNT HUMAN VISION AND PHYSICAL PROPERTIES*



## PHYSICS-BASED RENDERING

- Accurately represent surface quality based on spectral BRDF/BSDF
- Material libraries based on **actual optical properties** including refractive index, dispersion, spectral absorption, diffusion and fluorescence
- Perform **light output analysis** (photometry, colorimetry...)
- Take into account **ambient lighting conditions** (sun, sky, HDRI environment...) and direct sources (LED, fluorescent, CFL, tungsten...)
- Simulate **lit and unlit appearance**

## HUMAN VISION

- Simulate visual perception based on a **complete physiological model of the human eye** under day or night conditions
- Improve **perceived quality**, including color, contrast, harmony, light uniformity, brightness level...
- Ensure **visibility and legibility** of instruments, controls and information displays
- Consider variations and limitations of your display devices
- Take into consideration **operator demographics**
- Simulate **glare effects**
- Accurately simulate **time adaptation**





# ADVANCED SOLUTIONS

*TAILOR YOUR SOFTWARE TO MEET YOUR SPECIFIC REQUIREMENTS*

## LIGHT EXPERT

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Understand the behavior of light and identify potential hot spots. Interactively study the contribution made by each ray, surface and volume.

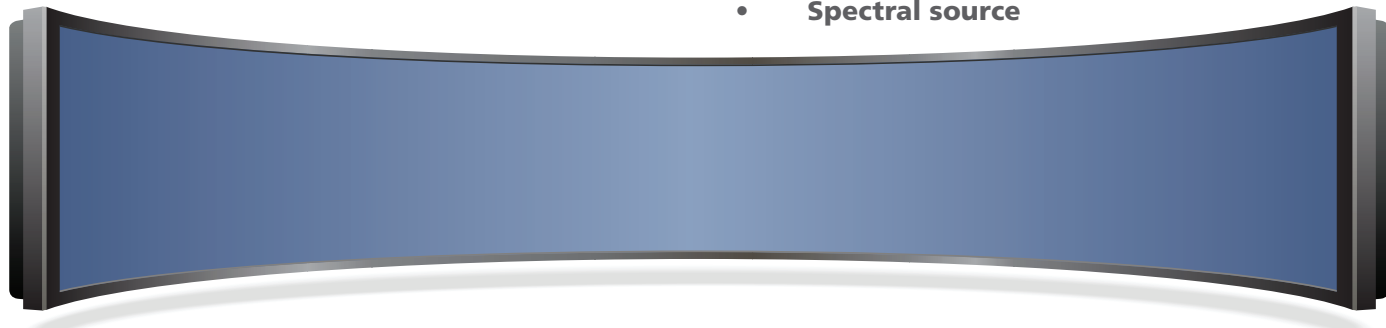
- **Stray light analysis**
- **Hot-spot analysis**
- **Ghost image detection**
- **Surface contribution analyzer**

## COLORIMETRY

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Utilize full spectral data in your photometric analysis to calculate true color as opposed to a projection of the spectrum in the 3 primary colors and obtain spectral distribution and the position in the tri-chromatic graph. Take into account physical properties such as:

- **Spectral transmission (transparent materials and coatings)**
- **Spectral reflection (mirrors)**
- **Spectral diffusion (milky plastics)**
- **Spectral source**



## 3D Textures

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Developed for specialists designing light guides and backlit systems: easily create and optimize hundreds of millions of micro-optics in a light weight format on any shape of optical surface.

- **Optimize the distribution of light AND reduce the number of light sources**
- **Model microstructure of diverse materials, including tinted and diffuse materials**
- **Apply coatings to the microstructure to improve performance**
- **Apply any shape of microstructure to any free-form compound surface**



# ADVANCED SOLUTIONS

*TAILOR YOUR SOFTWARE TO MEET YOUR SPECIFIC REQUIREMENTS*



Algorithms and methodologies are 100% based on the laws of physics to offer an unequalled level of realism

## Libraries

Materials, sources, surfaces & standards

All the input data contained in our libraries are:

- Accurately measured or characterized
- Fully modeled
- Accessible from OPTIS website
- Regularly updated

## Optimization & Tolerancing

Automatically modify geometry and optical parameters including source power, source angle and material properties to reach your target first time.

- Multi-configuration tool
- Genetic & gradient optimizer
- Automation  
Macro / API interface

## Simulation Performance

Fast and accurate technology - benefit from 64 bit technology and multithreading.

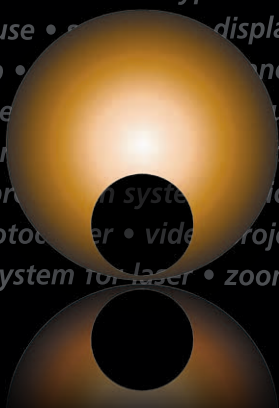
- Work on another file or software during the calculation
- Multithreading options increase simulation performance

Reduce time to market  
Optimize competitive advantage in one powerful simulation platform



# 20 YEARS OF INNOVATION

optical mouse • solarcells • display • CD / DVD player • remote control • sensor • photocopier • video projector • bar  
tail lamp • dashboard • scanner • PDA • watch • camera • keypad • mechanical system for laser • zoom • traffic light  
telescope • LED • luminous button • optical mouse • scanner • PDA • watch • camera • keypad • mechanical  
code reader • luminaire • headlamp • tail lamp • dashboard • scanner • PL  
ght • projection system • microscope • telescope • LED • luminous button • o  
sor • photocopier • video projector • bar code reader • luminaire • headlamp • PL  
mechanical system for laser • zoom • traffic light • projection system • microscope  
CD / DVD player • remote control • sensor • photocopier • video projector • bar code reader • luminaire • headlamp  
PDA • watch • camera • keypad • mechanical system for laser • zoom • traffic light • projection system • microscope



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**TECMES**

### MAIS INFORMAÇÕES:

Para obter mais informações sobre produtos e soluções PLM, acesse: [www.tecmes.com.br](http://www.tecmes.com.br)

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