

# OPTIS

ILLUMINATING THE DESIGN PROCESS

## **SPEOS** CAA V5 Based

The integrated software solution for the physics based simulation of light and human vision



**SPEOS CAA V5 Based** This dedicated light simulation solution enables users to analyze, optimize and visualize illumination and sensor systems throughout the design process. Based on our powerful and accurate SPEOS technology developed over more than 15 years, this fully integrated software is now available directly inside CATIA V5®.

## THE ONLY FULLY INTEGRATED LIGHTING SOLUTION

SPEOS by OPTIS is the only optical technology available in the market to be fully integrated in **CATIA V5®**

Integrated technology means you use exactly the same software for your mechanical design, lighting and color analysis, optical design and rendering.

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 in a PLM environment
- Allows **CATIA V5** users to master light throughout design process
- Fast photometric, colorimetric virtual measurement and analysis
- Product is simulated as perceived in real lit environment
- Based on industry proven, physics-based SPEOS technology
- Fast learning curve

Merge light, optics and mechanics...  
... in one PLM software





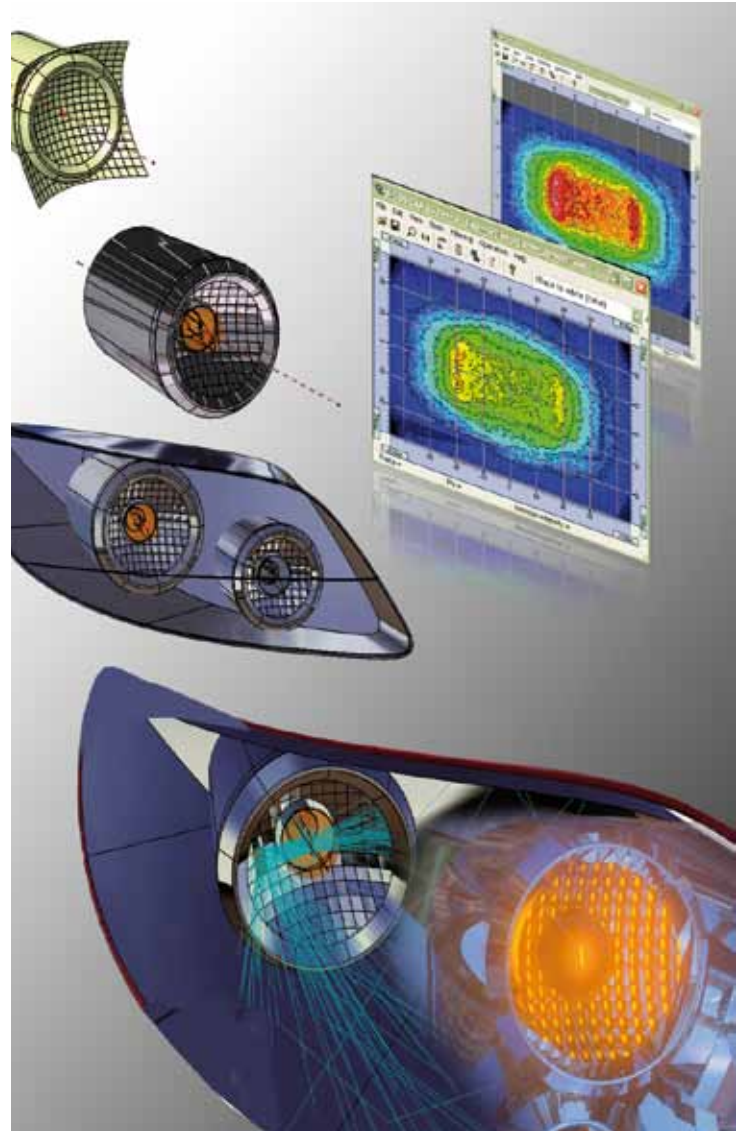
# LIGHT MODELING

*THE MARKET LEADING TOOLSET FOR OPTIMIZING THE LIGHT PERFORMANCE OF YOUR SYSTEMS DIRECTLY IN CATIA V5®*

**SPEOS Light Modeling** enables complete simulation of all of the photometric and colorimetric characteristics of light on products of any size, from electronic goods to white goods, cars and aircraft. SPEOS Light Modeling provides all of the pertinent information related to light such as quantity, propagation, distribution in 3D space, color, as well as compliance with standards and specifications.

SPEOS handles the full spectrum of light from ultraviolet to infrared in your system, supporting you in designing lighting systems, remote control systems, and UV insulation systems.

SPEOS solutions include powerful Analysis tools which allow you to verify compliance with International Standards and customer specifications. Our Virtual Photometric Laboratory (VP Lab) provides a wide range of tools (cross section, contrast, iso-curves, spectral and chromaticity coordinates...) for comprehensive analysis.



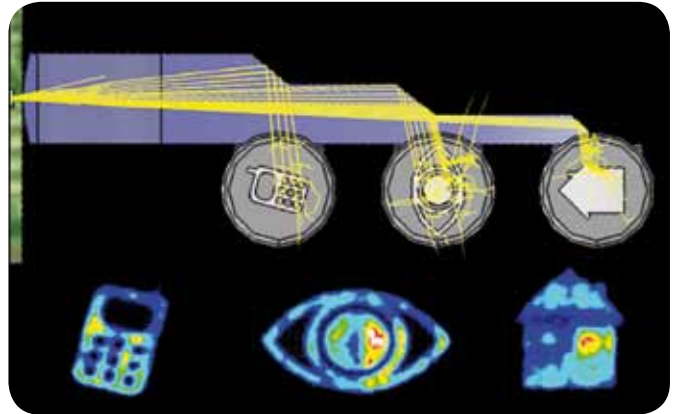


# LIGHT MODELING

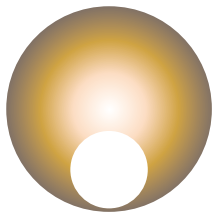
*THE MARKET LEADING TOOLSET FOR OPTIMIZING THE LIGHT PERFORMANCE OF YOUR SYSTEMS DIRECTLY IN CATIA V5®*

## OPTICS & PHOTOMETRY

- Illumination analysis
- Check efficiency with active 3D ray tracing in opto-mechanical systems
- Simulate and analyze photometric properties
- Measure illuminance, intensity and luminance
- Perform radiometry and colorimetry analysis



- **Optimize** photometric results
- Iterate between **virtual lighting prototypes**
- Use source, material & surface **libraries**
- Check compliance with international **standards**
- Easy to use / Intuitive interface
- Obtain **2D & 3D map** results for easy analysis



# VISUAL ERGONOMICS

*SIMULATE, OPTIMIZE & VALIDATE ANY HUMAN-MACHINE INTERFACE TO  
MAXIMIZE VISIBILITY, READABILITY, AND VISUAL COMFORT*

**SPEOS Visual Ergonomics** allows you to optimize the position, orientation, color and lighting of information and displays on dashboards, flight decks, control panels and any human machine interface in order to maximize comfort and safety.

...SPEOS' unique physiological human vision model enables early prediction and therefore the opportunity to prevent glare, blooming, ghost images and unwanted reflections while ensuring compliance with industry-specific, international standards.



## HUMAN VISION

- **Simulate visual perception** based on a unique physiological human vision model including day and night vision
- Improve perceived quality by optimizing **color, contrast, harmony, light uniformity, intensity...**
- Take into account **ambient lighting conditions**, sun, fog, LED, fluorescent, tungsten sources
- Check compliance with **international standards**
- Take into account **observer age**
- Represent environmental conditions at any **point on the globe, at any time of day**



# PHYSICS-BASED RENDERING

*ENSURE YOUR FINAL PRODUCT WILL BE PERCEIVED EXACTLY HOW YOU DESIGNED IT TO BE*

**SPEOS Photo-Realism** brings added value by providing high quality lighting visualization simulations of any product for early design validation and consequently reduces the number of physical prototypes required. Photo-Realism enables designers to validate material choice, light, colors, and see the final working appearance of the product, guaranteeing the design intent and optimizing perceived quality.

The final picture takes into account all optical properties even for brushed surfaces and iridescent paints, which guarantees exact colors and aspect of your future product inside a show room or in any environment, day or night. SPEOS is the only software to provide lit appearance representation combined with a human vision model, ensuring your final product will be perceived exactly how you designed it to be.



## PHYSICS-BASED RENDERING

- Spectral, BRDF and real material libraries
- Realistic rendering takes into account your display properties
- Physically correct image analysis (photometry, colorimetry...)
- Validate choice of materials, lighting, colors
- Render your product's appearance switched on or off



# CREATE YOUR OWN SOLUTION

TAILOR YOUR SOFTWARE TO MEET YOUR SPECIFIC REQUIREMENTS BY  
ADDING MODULES & EXPERT APPLICATIONS

**SPEOS Colorimetry** analysis allows you to measure the light spectrum and to obtain the colorimetry-chromaticity coordinates in the tri-chromatic graph (xyY, Lab, Luv...), simply and quickly by pointing the mouse anywhere in the result. More than displaying colors, choosing a reference color allows you to detect whether the final user will perceive any differences between your reference color and your finished product. A colorimetric error value informs of any differences between the simulated color and the one displayed on your monitor.

## Optimization & Tolerancing

Automatically modifies geometry and optical parameters including source power, spectrum, surface quality and material to reach your target first time.



- **Multi-configuration tool**  
Optimization
- **Genetic & gradient optimizer**  
Tolerancing
- **Automation**  
Automatic task management



## SPEOS Light expert

Understand light behavior and detect which components could generate hot spots. Interactively modify the shape and materials of these system components to adapt light effects.

- **Light Path Finder**  
Stray light tracking
- **3D Ray Tracing Filtering**  
Hot-spot analysis
- **Surface Contribution Analyser**  
Ghost image detection



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## Physics based simulation

SPEOS is based on advanced high speed Monte-Carlo non-sequential light propagation which perfectly reproduces photon behavior from the light source to the eye.

## High speed simulation

The fastest technology available in the world benefiting from distributed calculation, 64 bits, multithreads- all available in SPEOS technology.

- Network calculations to distribute tasks
- Concurrent simulations Work on another file or software during the calculation

## Reduce time to market

Optimize competitive advantage with a powerful simulation platform.



## Libraries

*Unique realistic input to be sure of perfect output results*

### All the input data from our libraries are:

- Totally measured
- Accurately and fully modeled
- Downloadable on-line
- Regularly updated
- 25 standards references
- 715 material references
- 320 source references
- 105 surface references

# 20 YEARS OF INNOVATION

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dashboard • scanner • PDA • watch • keypad • mechanical system for laser  
LED • luminous button • optical mouse • display • CD / DVD player • remo  
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• camera • keypad • mechanical system for laser • zoom • traffic light • projection

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