

# OPTIS

*From Optics to Virtual Reality*

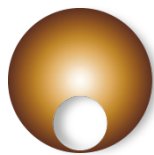


## OMS<sup>2</sup> material scanner

Choosing colors and materials has never been easier!

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Martin Jantschek, Application Engineer, OPTIS



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- Import reality thanks to OPTIS' OMS<sup>2</sup> point-and-scan measurement device

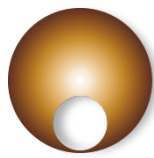
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## OMS<sup>2</sup>

## Why OPTIS ?



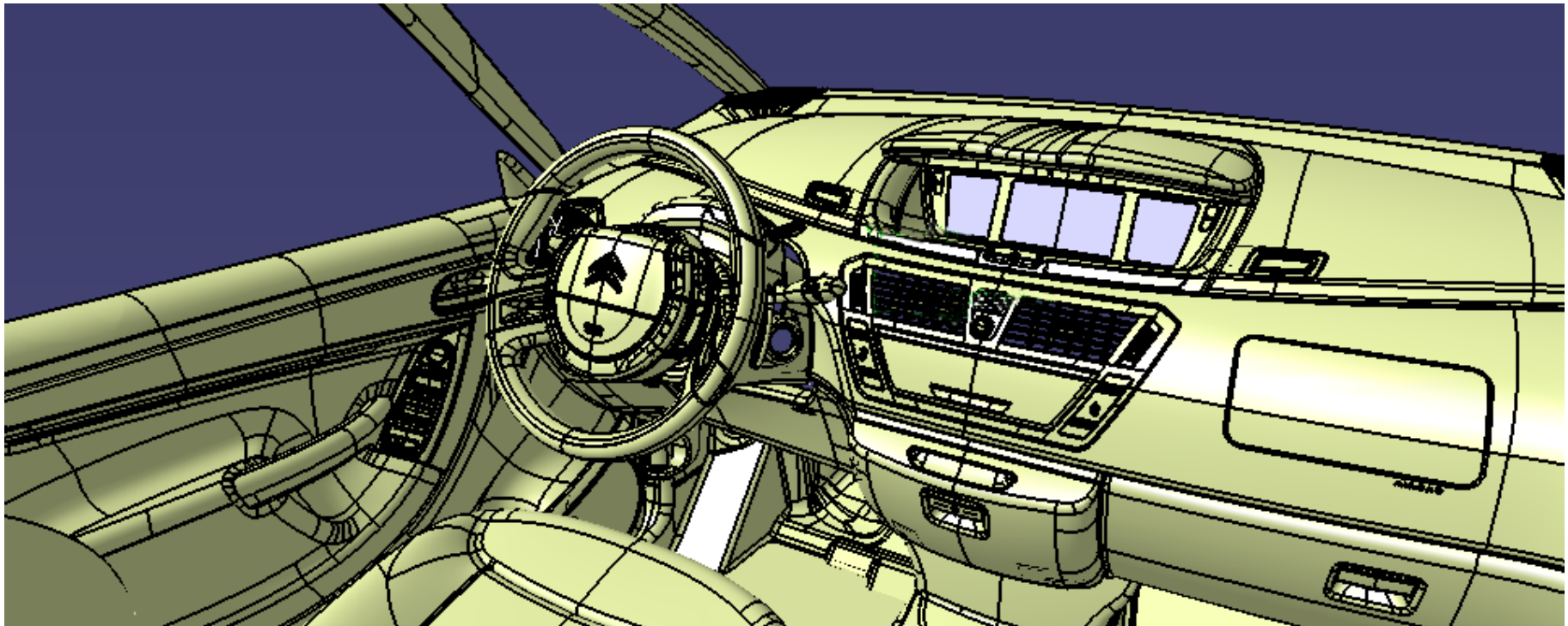
- French company founded in 1989
- Perfecting the art of virtual prototyping
- Dassault Gold Partner since 2000
- 90 people in 8 countries
- Simulation & visualisation software
- Patented material acquisition devices



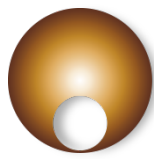
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- The challenge  
how do you get from this .....





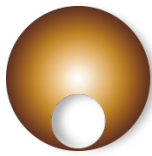


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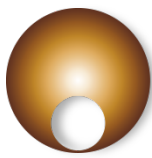
➤ to this ...



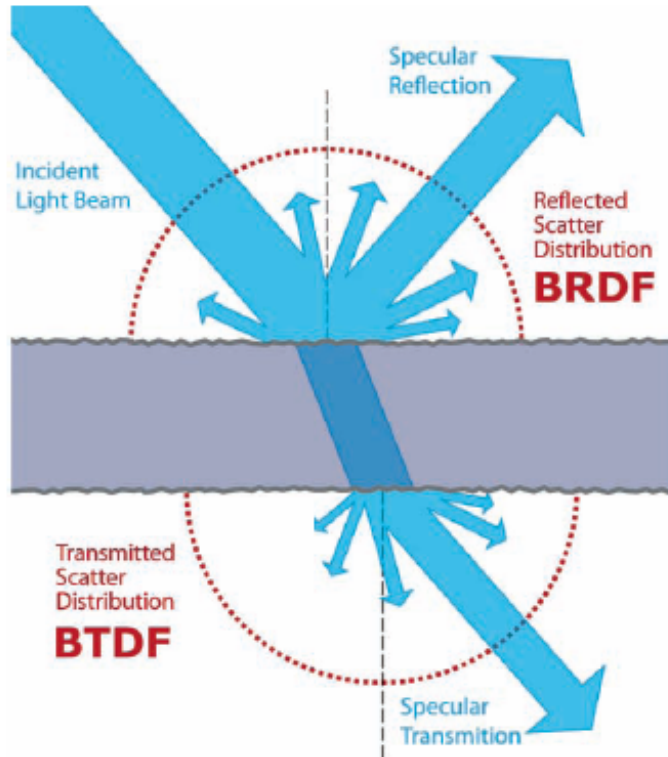


## ➤ The key to realistic representation ...is realistic content definition

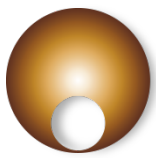
- Colours and materials
- Optical behavior to light
- Physically correct light sources
- Ambient / environment lighting scenario
- Human eye as a sensor



## ➤ The key to material definition ...is a spectral, physics based approach

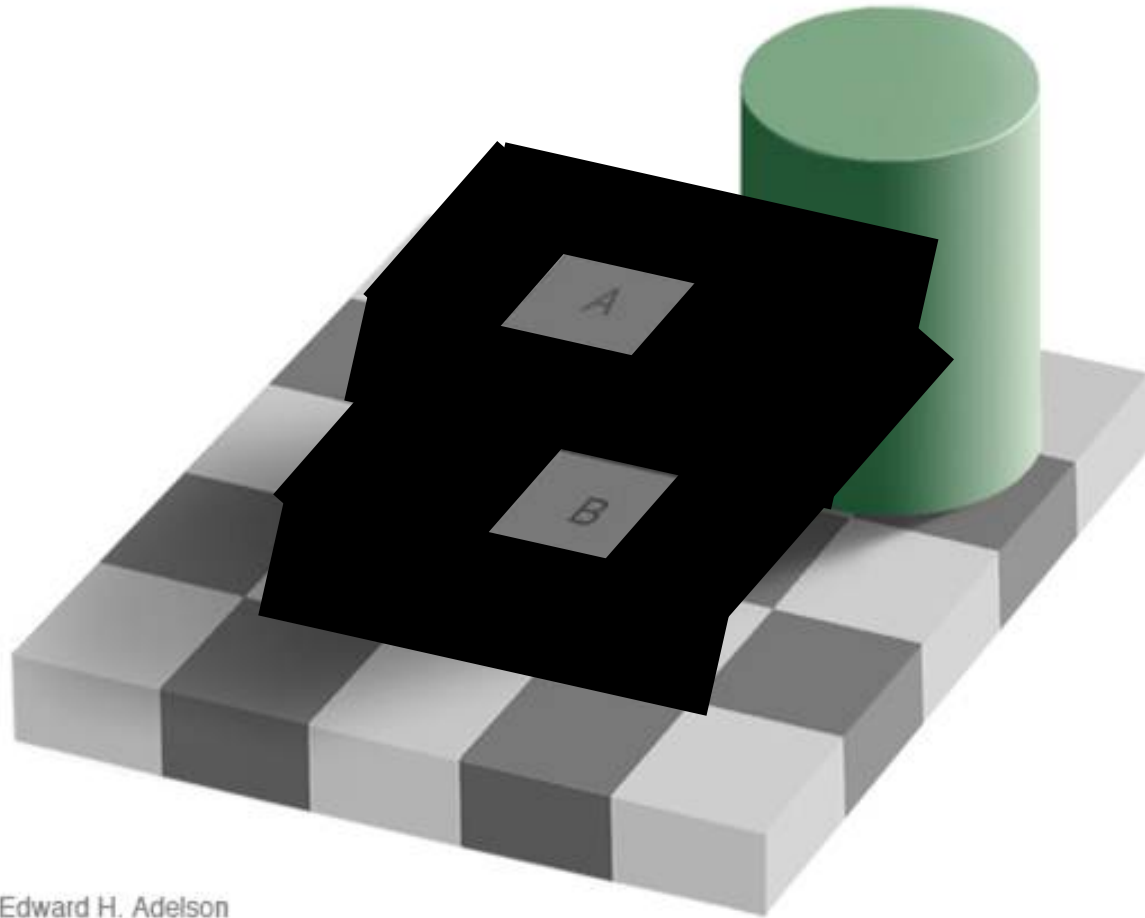


*“The BRDF is the “Bidirectional Reflectance Distribution Function”. It gives the reflectance of a target as a function of illumination geometry and viewing geometry. The BRDF depends on wavelength and is determined by the structural and optical properties of the surface, such as shadow-casting, multiple scattering, mutual shadowing, transmission, reflection, absorption and emission by surface elements, facet orientation distribution and facet density”*



## ➤ The key to realistic representation

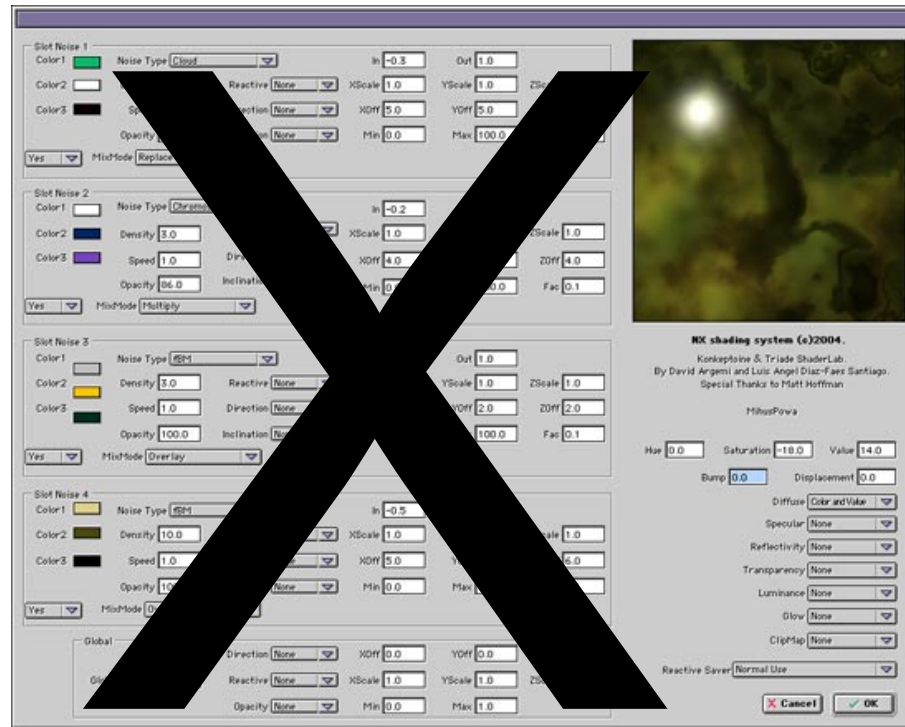
...Why ?

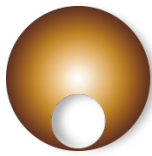


Edward H. Adelson



## ➤ Making the complex ...simple ...no need to build shaders ...



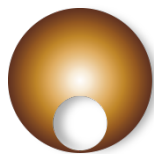


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## ➤ Making the complex ...simple ...very simple

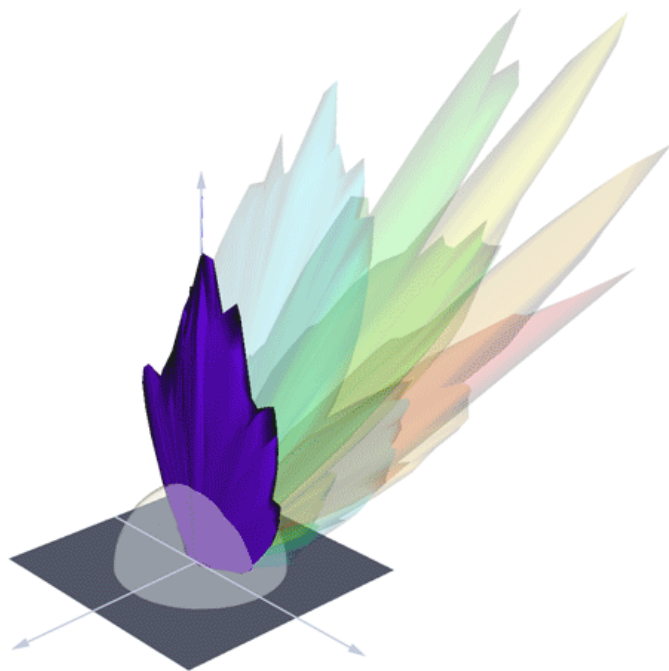
OMS2 teaser

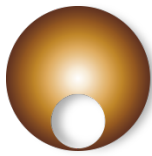


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## ➤ Making the complex ...simple ...very simple

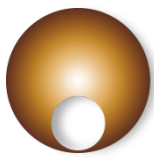




## ➤ **The key to realistic representation** **...is the input**

- **Captures full BRDF information**
  - Optical measurement system to capture all instances
- **Fast, accurate, repeatable**
  - Instant acquisition, instant library creation
- **Simple point and click technology**
  - Ideal for non experts, no tuning or setting of parameters
- **Portable**
  - Handheld to enable in-situ measurements

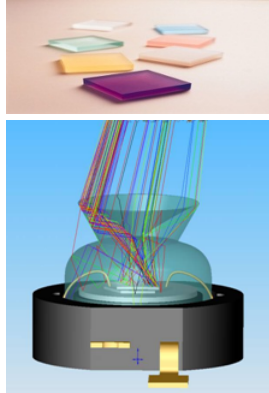




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## ➤ Creating the perfect virtual product



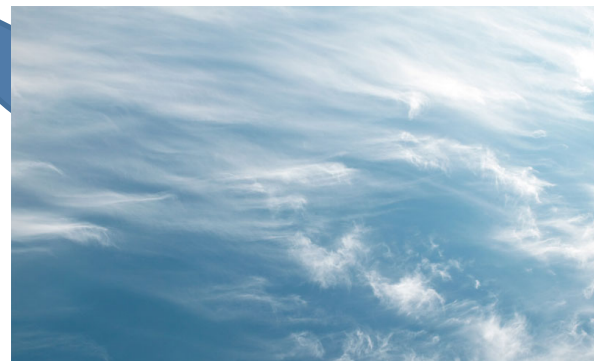
**Capture**



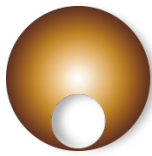
**Simulate / visualize**



**Apply to geometry**



**Place in context**

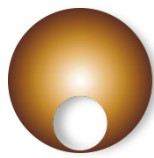


## ➤ **Creating the perfect virtual product**

### **...an end to end solution**

- **Drag and drop into session**
  - Optical properties extension of CATIA material library
- **Fully compatible with OPTIS technology**
  - Simulation and visualization suites
- **Virtual reality center ready**
  - Real time immersive solutions from OPTIS





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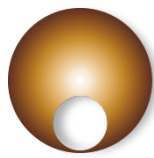
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## ➤ Creating the perfect virtual product

...is it critical? .....YES

**safety | human factors**





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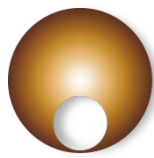
## ➤ Creating the perfect virtual product

...is it critical? .....YES

**Readability | Legibility**







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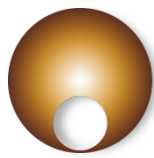
## ➤ Creating the perfect virtual product

...is it critical? .....YES

**Influence of  
light on colour**

**Material  
choice**





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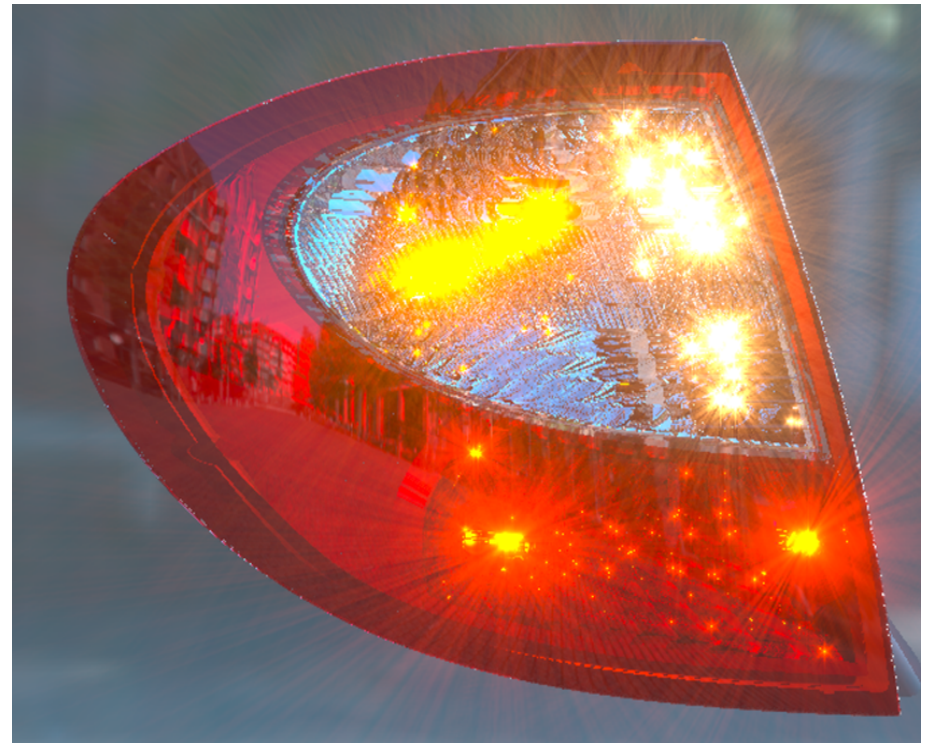
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## ➤ Creating the perfect virtual product

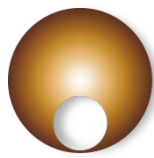
...is it critical? .....YES

Lighting  
performance

Regulation  
checks





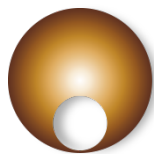


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➤ **Creating the perfect virtual product**  
**...they and many others think so**





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➤ **Thank you for listening**

See & hear more at the OPTIS booth

