SYNOPSYS®

Everything you need to enable innovation in optical design

Automotive, AR/VR, Mobile Devices, Healthcare, Imaging Lenses, Lighting, Displays

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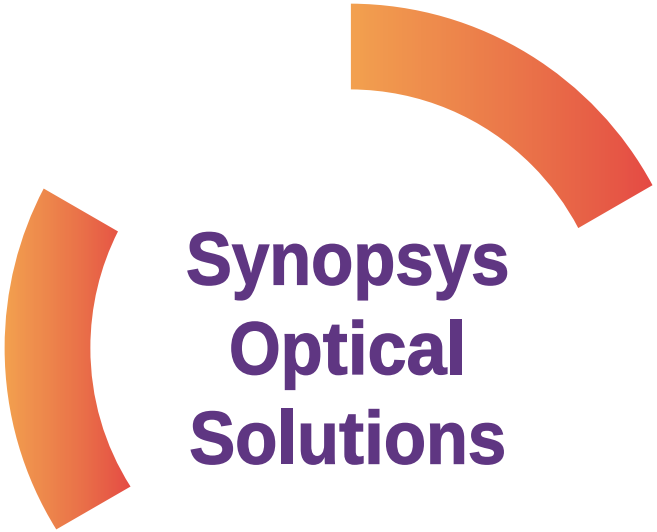
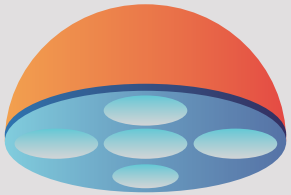
Learn more

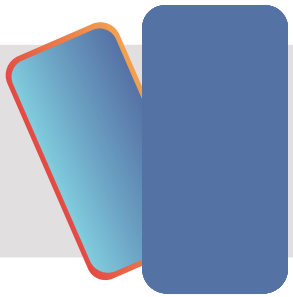
Everything You Need to Enable Innovation in Optical Design

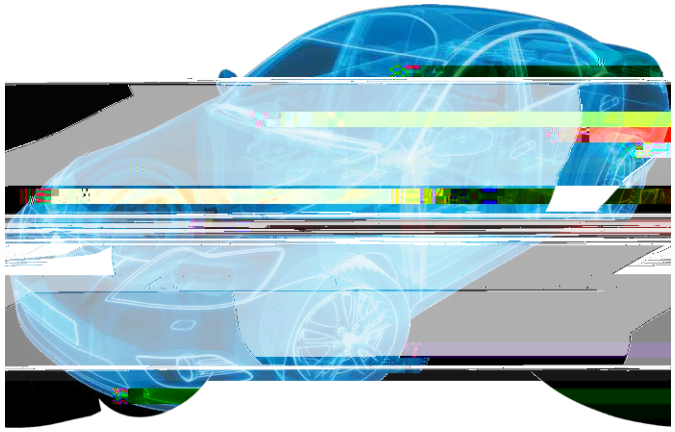
CODE V

Must-Have Lens Design Software









BSDF data can be measured by the equipment and applied in simulation software to improve simulation accuracy

VR / AR / MR

Lens Designs

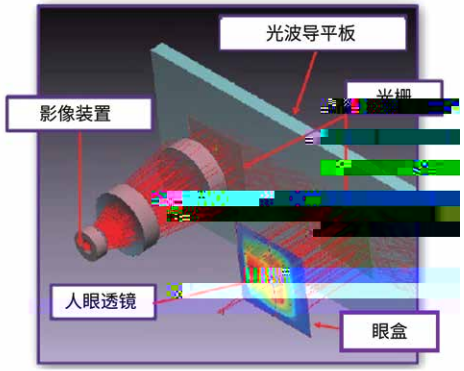
CODE V

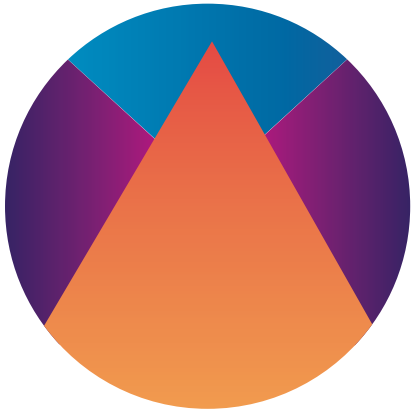
A wide range of lenses including aspheric lenses, Fresnel lenses, freeform lenses, DOEs, and pancake lenses can be designed with CODE V

Waveguide and Diffracted Gratings

LightTools x RSoft x CODE V

AR design of diffracted grating and waveguide includes CODE V for imaging design and RSoft for gratings design. System analysis can be performed when both results are imported into LightTools. For multi-grating design, the parameters in the RSoft ARCE ĭkdr b`m ad hmsdfq`sdc `mc nosh l hydc hm KhfgsSnnkr-





Optical Path Design and Moiré Pattern /Stray Light Analysis

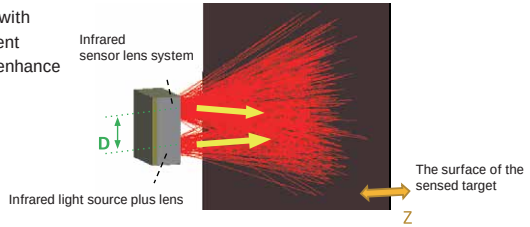
LightTools x CODEV

Optical path design and stray light analysis for various types of devices can be performed by CODE V and LightTools

Infrared Distance Sensor

LightTools

Analyze the detected power with different surfaces and different distances. Design lenses to enhance khfgs bnkkdbshnm deĭbhdmbx



Eye Tracking System

LightTools

Use LightTools to create and simulate eye tracking system models

Coating Design

LightTools x RSoft

LightTools integrates RSoft BSDF for optimization, fully presenting the influence of surface shape on coating performance

In-Display Fingerprint

LightTools x RSoft x CODE V

· Biological tissue modeling
· Fingerprint image simulation

· Diffraction effects by display panels

Structured Light Sensing

LightTools x RSoft x CODE V

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Design of Photoplethysmogram Sensor

LightTools

Provide biological tissue database and human tissue utility, which can simulate skin tissue with the Henyey Greenstein scattering model

Design of Inspection Lens

CODE V

Please refer to P15-16 for the lens design

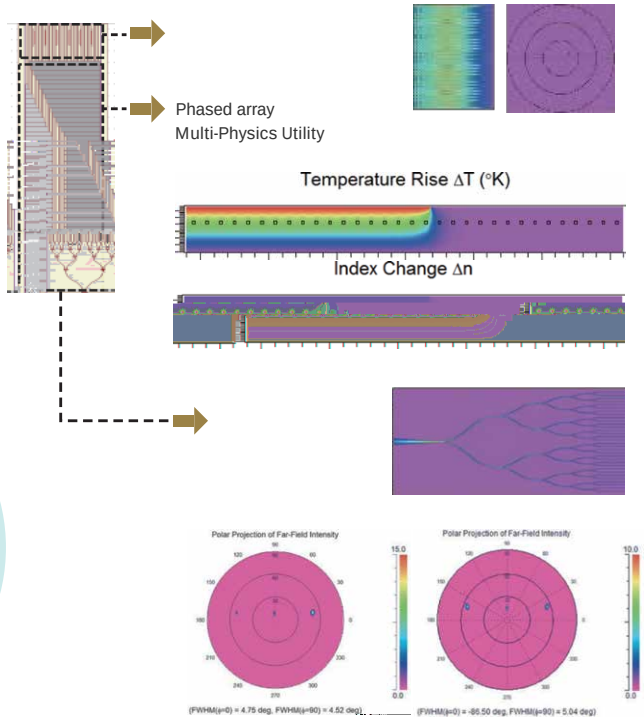
Silicon Photonics Components and Systems

① RSoft

- Design of VCSEL, DFB, DBR, and FP laser
- Analysis of Tapered laser

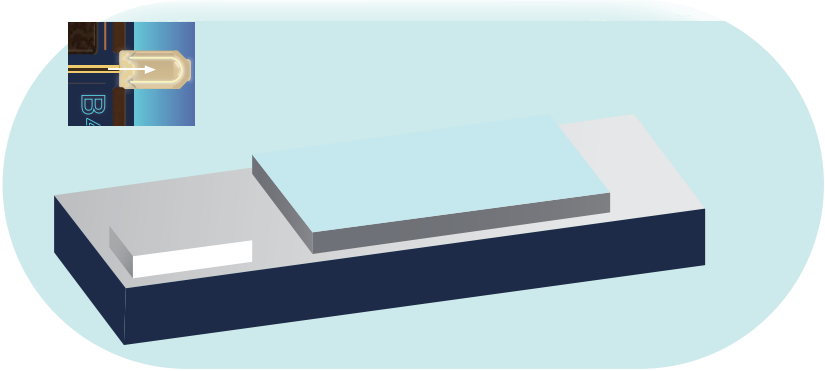
② Design and Optimization of Fiber Coupling — LightTools x CODE V x RSoft

③ LiDAR On-chip — RSoft



① Analysis and Design of Receiver — RSoft

- Design and analysis of APD and PIN structure



④ Analysis and Design of Waveguide — RSoft

Modal analysis of light propagation
Calculation of bending loss
Analysis of tolerance

⑤ Analysis and Design of Modulator — RSoft

Electro-optic modulator
Thermo-optic modulator
Carrier modulator
EAM analysis

Simulation and experiments of S-Device

RSoft simulation

Domains	Applications	Tools
Active/passive device	Fiber optics, waveguides, and laser modulators	RSoft Photonic DeviceTools
Wafer level simulation	Integrated optics/ circuit Communication	PIC Tools -Synopsys OptSim -Synopsys PrimeSim Continuum
System-level simulation	system	Synopsys OptSim
Mechanism analysis	Coupling Lenses Mechanism stray light analysis	CODE V, LightTools
Electrical components	Analysis of electrical characteristics of semiconductor process (EDA)	Sentaurus TCAD

Products used in this solution include RSoft, LightTools, CODE V

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and goals for optical design and monitor them at any time

2

3

Importing CAD

Use CAD models directly for
display and ray tracing

4

6

LED/OLED/Micro LED/Mini LED

Packaging Design

LightTools

Chip Design

Light Guide Systems

LightTools

Support any type of light guide design

Freeform Lens/Reflector

LightTools

Uniformity of wall washer lights

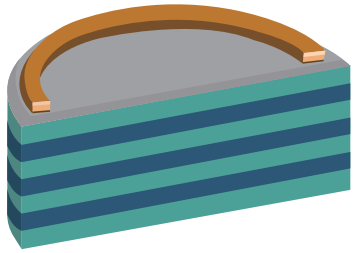
Design of the special light distribution

Image-based lighting

Indoor/Outdoor Lighting Design

LightTools

Special-shaped lamps

Indoor illumination analysis

Street lighting