About Synopsys Optical Solutions

Design Better Optical Systems, Faster

Synopsys' Optical Solutions Group is a leading developer of optical design and analysis tools that model all aspects of light propagation, enabling users to produce accurate virtual prototypes leading to manufacturable optical systems.

Our innovative software packages include CODE V® imaging design software, LightTools® illumination design software, and the LucidShape® products for automotive lighting. We are integrated with RSoft™ Photonic Device Tools for streamlined, multi-domain co-simulations of nano-textured optical structures and diffraction analysis. We offer precision light scattering measurements and equipment for high-accuracy optical product simulations and visualizations.

Our History

- In October 2010, Synopsys acquired Optical Research Associates (ORA®), representing Synopsys' initial move into the optics industry and aligning with the company's strategy to expand its total addressable market into areas that are naturally adjacent to traditional EDA. With the CODE V and LightTools software products, Synopsys continued ORA's long history as an innovator in the development of optical design and analysis software. The Engineering Services group of consultants is the largest independent supplier of optical systems design.
- In May 2012, Synopsys acquired RSoft Design Group. With the RSoft products, Synopsys augmented the CODE V and LightTools product lines to provide a full spectrum of photonic and optical design solutions.
- In February 2014, Synopsys acquired Brandenburg GmbH, maker of the LucidShape line of CAD software for the design and simulation of automotive and general lighting. The LucidShape products further strengthened Synopsys' existing lighting design and simulation portfolio by offering a more complete set of optical tools for automotive lighting customers.
- In February 2018, Synopsys acquired PhoeniX B.V., a global supplier of photonic integrated chip (PIC) design solutions. With the PhoeniX OptoDesigner tools, Synopsys became the leading provider of PIC design automation solutions. Synopsys is accelerating the adoption of photonic and PIC technologies with a comprehensive Photonic Solutions portfolio.
- In November 2020, Synopsys acquired Light Tec, a global provider of optical scattering measurements and measurement equipment. The combination of Synopsys' optical design software tools with Light Tec's solutions expanded customer access to precision light scattering data for materials and media used in optical systems.

Products and Services

CODE V Optical Design Software

CODE V is used for the optimization, analysis, and tolerancing of image-forming optical systems and free-space photonic devices. CODE V combines superior engineering capabilities with the control and access of an intuitive user interface. Its many unique capabilities include the most powerful local and global optimization for optics, MTF-based tolerancing, environmental analysis, partial coherence analysis, gradient index and DOE/HOE support, polarization ray tracing, and lens cost appraisal. And it's easy to share CODE V's optimization and analytic capabilities with other scientific and engineering applications through its COM interface, enabling a seamless, end-to-end design solution. As the industry-standard design and analysis software for optical engineers worldwide, CODE V is unmatched in function, quality, accuracy, ease of use, and technical support.

LightTools Illumination Design Software

LightTools is a complete optical design and analysis software product featuring virtual prototyping, simulation, optimization, and photorealistic renderings of precision illumination applications. Its robust 3D modeling technology delivers the inherent accuracy required to simulate ray paths of light as they travel through and within optical elements and mechanical structures. The fully integrated system optimization tool improves the performance of virtually any type of illumination system, dramatically reducing the time required to finalize a design. From LCD displays to vehicle lighting to projector systems, LightTools supports all aspects of illumination design projects.

LucidShape Automotive Lighting Design Software

The LucidShape product family provides a complete set of design and analysis tools for automotive lighting. With dedicated algorithms optimized for automotive applications, LucidShape facilitates the design of automotive forward, rear and signal lighting and reflectors. In addition, the LucidDrive tool provides night driving simulations that generate nearly photorealistic lighting scenes in real time, w1 d-[(The L)21.9 (ucidShaPsMC /P s i>>B2. e /Psting .4 (uciiD3ac
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