



IN THIS ISSUE:

- #01 Corning selects Optiwave
- #02 Multicore and Multiprocessor Simulation Power
- #03 Introducing OptiSPICE
- #04 Passive Optical Networks – Simulation and Validation
- #05 Optical Fiber and Grating Design
- #06 FDTD Simulation Trends - Innovation through Simulation
- #07 Electro-optic design using OptiBPM
- #08 Optiwave Empowers Canadian Photonic Research

#01 CORNING SELECTS OPTIWAIVE

CORNING

Corning Incorporated a leading manufacturer of keystone components that enable high-technology systems, has competitively selected Optiwave's optical communication system design suite, OptiSystem, to meet their optical link design operations.

#02 MULTICORE AND MULTIPROCESSOR SIMULATION POWER



The leap from single-core to multi-core and multiprocessor technology has permanently altered the course of computing as we know it, enabling increased productivity, powerful energy-efficient performance, and leading-edge advanced computing experiences.

Optiwave software products take advantage of these new computing hardware technologies, enabling simulations speeds which rival cluster computing platforms. As the only photonic design software provider to offer multicore and multiprocessor support, users can now benefit from the very best in commercially available hardware and software.

OPTIWAIVE SOFTWARE PRODUCTS



OptiSpice
Optoelectronic Circuit Design Software



OptiSystem
Optical Communication System and Amplifier Design Suite



OptiFDTD
Finite-Difference Time-Domain Simulation Design



OptiBPM
Waveguide Optics Design Software



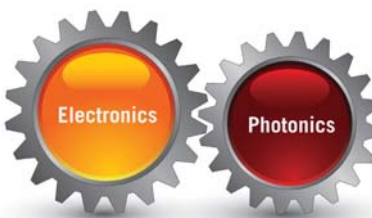
OptiGrating
Optical Grating Design Software



OptiFiber
Optical Fiber Design Software



OptiPerformer
Freeware – Optical System Design Software



Optiwave introduces a new software tool that addresses the growing demand for electronic and optical design in one platform. OptiSPICE is the only product of its kind, empowering engineers with a tool to meet the growing need for the design of complex optoelectronic devices.

Traditional optoelectronic design involves design of the optical part by optical engineers and the electrical part by electrical engineers. The optical and electrical designs are then typically put together by a team of experts trained in aspects concerning both domains. The process is expensive and time consuming.

OptiSPICE can significantly reduce product development costs through its comprehensive design environment to co-simulate optical and electrical circuits in one simulation engine. The product produces self-consistent solutions of optoelectronic circuits that contain feedback spanning both optical and electrical parts.

Supporting a wide variety of electrical circuit elements such as diodes, transistors, BJTs and MOSFETS along with optical components such as laser diodes, optical fibers and photodiodes; OptiSPICE will provide transient time domain, small-signal frequency, and noise analysis.

"OptiSPICE is an industry first," said Jan Jakubczyk, President and CEO of Optiwave Systems. "There is a growing need for electronic engineers to work with optical components in today's marketplace and this is the only tool available which meets product development requirements."

Optiwave will release OptiSPICE in the first half of 2008.



OptiSystem
Optical Communication System
and Amplifier Design Suite

OptiSystem is a comprehensive optical communication system and verification suite which is gaining popularity in the optical networking industry. Optiwave welcomes new OptiSystem customers Northrop Grumman, Raytheon, and Tyco Electronics.

The latest edition of OptiSystem has rapidly evolved to meet the simulation demands and design challenges of developing next-generation networks. Ethernet passive optical networks (EPON) are an emerging access network technology that provides a low-cost method of deploying optical access lines between a carrier's central office (CO) and a customer site. EPON network technology has become an increasingly popular research area as such networks provide higher bandwidth at lower costs.

The comprehensive design environment of OptiSystem can simulate emerging PON technologies, such as the various optical code-division multiple-access (OCDMA) techniques for OCDMA-PON architectures. The robust simulation environment enables users to plan, test and simulate optical links in the physical layer of a variety of passive optical networks: BPON, EPON, GPON.

"Modeling PON technologies in OptiSystem is important for our customers as this is the direction the industry is taking in terms of meeting specific research demands," notes Dr. Marcio Freitas, Senior Research Scientist. "OptiSystem is the best simulation environment which has the flexibility to provide users with a comprehensive features set and visualization tools to address current industry demands."

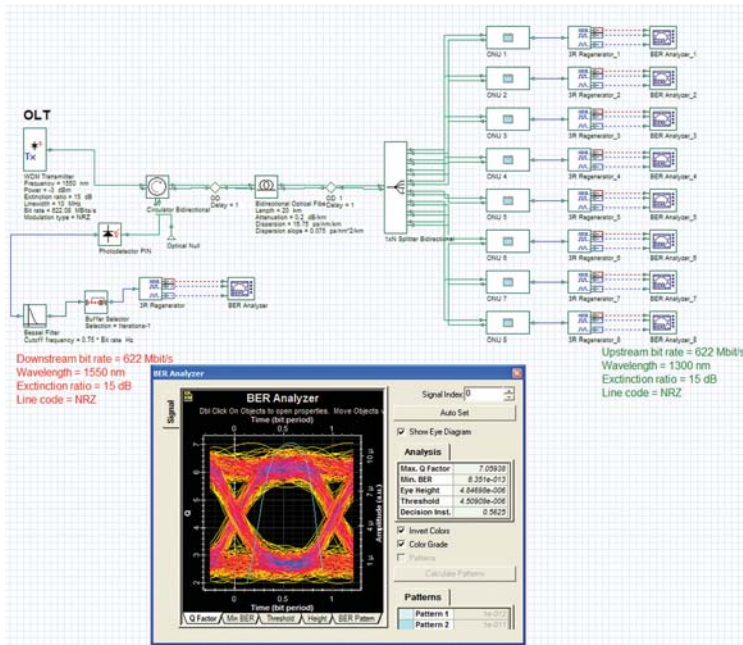
The straight-forward approach of this powerful design tool makes easier the

layout design allowing the user to focus on the advanced aspects of the optical communication system design. The capacity of dynamic and automatic creation of multiple ports components integrated with its bi-directionality becomes a formidable asset to design WDM-PON systems that may reach a large number of optical network units in a FTTx access network.

Co-simulation integration with MATLAB and Simulink enables fast and flexible

development of new algorithms that ultimately empower users to create new solutions for their designs. The OptiSystem-Simulink co-simulation creates new possibilities like the use of Simulink models in the EDFA power transients control analysis.

Four-Wave Mixing, Stimulated Brillouin Scattering, Self-Phase Modulation, Cross-Phase Modulation, and Stimulated Raman Scattering are all included with the optical fiber models of OptiSystem.



BPON – Broadband optical access systems based on Passive Optical Network.

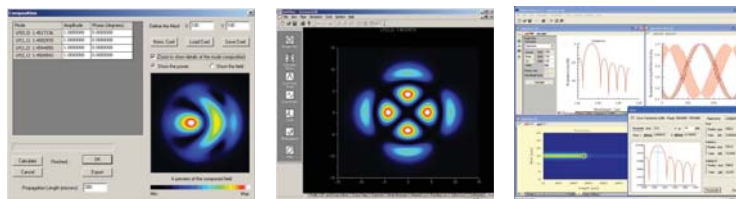
#05 OPTICAL FIBER AND GRATING SIMULATION TOOLS



OptiGrating
Optical Grating Design Software



OptiFiber
Optical Fiber Design Software



As optical communication systems become more complex in nature, researchers are investigating ways to lower development costs. Current research trends are renewing interest in the design of optical fiber and gratings using simulation design tools.

Of particular interest is OptiFiber, a powerful fiber design software tool which uses numerical mode solvers and other models specialized to fibers for calculating

dispersion, losses, birefringence, and PMD. OptiFiber can also calculate fiber modes in the cylindrical geometry of optical fibers and estimates losses from coupling, bending, splicing, or from the materials of the fiber.

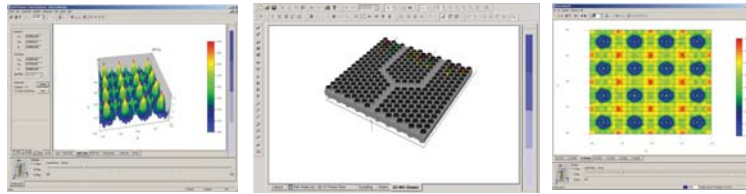
Complementing OptiFiber is OptiGrating, a user-friendly design tool used for modeling integrated and fiber optical devices that incorporate optical gratings. Design and analyze gratings on fibers or waveguides with

the Coupled Mode Theory. Find reflection and transmission spectra of short or long period gratings. Observe light propagation in the gratings, and analyze pulse propagation. Solve reflection grating inverse problems by the layer peeling technique.

Applications include fiber and waveguide sensors, Fiber Bragg reflectors, and Dispersion compensators for fiber communications.



OPTIFDTD
Finite-Difference Time-Domain
Simulation Design Suite



The FDTD (Finite-Difference Time-Domain) modeling method is gaining popularity among photonic researchers as the numerical solver of choice solving both electric and magnetic fields in temporal and spatial domain, using the full vector differential form of Maxwell's coupled curl equations.

Complementing the functionality of the FDTD numerical method is OptiFDTD, a powerful, highly integrated software application for computer-aided design and simulation of advanced passive and non-linear photonic components.

"The next few years will be significant for photonic researchers using the FDTD method to meet their research and development needs," notes Dr. Jiazong Zhang, Product Manager. "Researchers can now purchase affordably priced desktops with multicore and multiprocessor technology which fully realize the potential of using the FDTD method for

complex design requirements. OptiFDTD is a next generation product which is ready to take advantage of all the new computing hardware applications commercially available."

As an award winning photonics design tool, OptiFDTD has matured into a comprehensive simulation design environment. One of the many votes of confidence in OptiFDTD comes from the growing base of research scientists using the product to meet their research and development needs. "We've seen a steady increase in demand for OptiFDTD now that multicore computing hardware is ideal for FDTD type simulations," says Richard Rambaran, Director of Sales and Marketing. "Our customers are impressed with the performance and accuracy of OptiFDTD. We hope to build upon the strengths of the product and add more robust features such as a three-dimensional layout option and heating absorption module, due in 2008."

OptiFDTD applications include: Photonic integrated circuits, photonic band gap devices, optical micro-ring resonators, nano-devices, photonic surface plasmon, optical grating based layouts, diffractive micro-optics elements, nonlinear waveguides, specialized materials and electromagnetic phenomena.

Included with OptiFDTD:

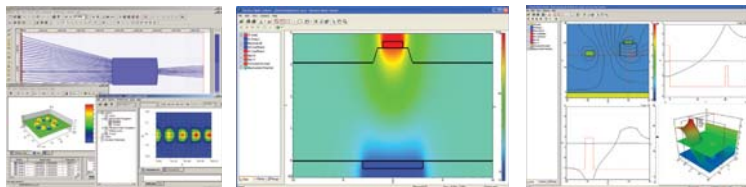
An extensive material library: Lossless and lossy, isotropic/anisotropic, multiple resonance dispersive materials, Drude/Lorentz-Drude, Kerr effects, Raman effects, noble metals and surface plasmon.

Your design interest may include:

Metallic nanostructures, photonic band gap materials and devices, optical micro-ring filters and resonators, grating based waveguides structures, displays.



OPTIBPM
Waveguide Optics Design Software



OptiBPM is Optiwave's comprehensive design suite tailored for the design of complex optical waveguides using the Beam Propagation Method (BPM), which is widely used in numerical simulations of optical waveguides that vary in the propagation direction. For low to medium index contrast, BPM performs fast and accurate two and three-dimensional simulations.

OptiBPM empowers engineers with a comprehensive set of data analysis tools in order to examine computer simulated light field distribution, radiation, and the guided field, simultaneously. Recent new features include meshless fiber vector and LP mode solvers, and advanced parameter optimizers. A good design can be obtained with physical insight and knowledge of basic design principles. However, finding the best design usually

involves a tedious phase of optimization. OptiBPM's optimization algorithms can fully automate this important final step. Optimization engines include the Golden Search for one dimension, Nelder-Mead Simplex and Direction Set methods for multidimensional searches.

A powerful new electro-optic simulation environment is of particular distinction in the latest release. Users now have the ability model the electro-optic effects of electrodes in a wide range of technologies: from the traditional coplanar electrodes on diffused waveguides in LiNbO3, to more experimental polymer or semiconductor waveguides that could include buried electrode ground planes, or electrodes of more general shape.

The electro-optic effect is at the heart of most high speed optical modulator design. To design such a device, OptiBPM models

both electrical and optical effects, so that the optimum interaction can be obtained. In support of electrode design, OptiBPM calculates electrical parameters of electrodes such as electrode capacitance and, for travelling wave electrodes, the electrode transmission line impedance. The electrode travelling wave speed is also calculated so that the electrical signal may be matched to the speed of the light wave for optimum traveling wave electro-optic modulator performance.

Your design interest may include:

Channel waveguides, rib or ridge waveguides, buried waveguides or waveguides from a diffused process. Facilitates the design of splitters, combiners, couplers, modulators and multiplexers.



CMC Microsystems Inc. has competitively selected OptiBPM, Optiwave's waveguide optics design suite, to meet their growing need for photonic design tool accessibility in Canadian Universities. CMC delivers innovative and cost-effective services to a growing community of photonic researchers that connect universities across Canada, and presently involves over 2,900 faculty and graduate students.

"We are delighted that CMC Microsystems has selected Optiwave to meet their infrastructural demands to empower Canadian

Universities with commercial grade products to meet their simulation design requirements," notes Dr. Jan Jakubczyk, President and CEO of Optiwave Systems Inc.

Building on a track record of more than 20 years, CMC develops and delivers national research infrastructure to universities from coast to coast, enabling researchers and developers to design, manufacture and test their concepts for future applications in many industrial sectors. In 2007, the organization launched a Canada-wide initiative to bring world-class test tools and techniques online for researchers at Canadian universities with the first testing "collaboratory" of its kind anywhere in the world. Valued at CDN \$23 million, the National Microelectronics and Photonics Testing Collaboratory (NMPTC) will enable university researchers to access some of the best available resources to test and

validate high-performance microelectronics and photonics designs at the levels of speed and complexity that these technologies make possible.

"OptiBPM delivers significant features which make it the first choice for photonic researchers," says Dr. Steven Dods, Product Manager for OptiBPM. "Data interface functionality with a variety of design tools such as Code V, DW-2000 and ZEMAX makes OptiBPM the ideal design environment for collaborative research efforts. OptiBPM is the perfect match for the research community environment at CMC, and we are proud to be a part of it."

UPCOMING TRADE SHOWS

Photonics West 08

Booth #435 (Main Hall)

January 22-24

San Jose Convention Center

San Jose, California, USA

OFC NFOEC 08

Booth #626 (Hall B)

February 26-28

San Diego Convention Center

San Diego, California, USA

PHOTONICS NORTH 08

June 02-04

Montréal, Québec, Canada

Hilton Montréal Bonaventure

CIOE 08

September 06-09

Shenzhen Convention and Exhibition Center

Shenzhen, China

ECOC 08

Booth #363

September 22-24

Expo Centre, Brussels, Belgium

GLOBAL DISTRIBUTION NETWORK

EUROPE • JAPAN • CHINA • INDIA • SINGAPORE • MALAYSIA • SOUTH KOREA • TAIWAN • BRAZIL • MIDDLE EAST



SALES HEADQUARTERS

(North America)

Optiwave Systems Inc.

7 Capella Court
Ottawa, ON, Canada
K2E 7X1

Tel. 613-224-4700
Toll Free. 866-576-6784
Fax: 1-613-224-4706
www.optiwave.com

OPTIWAVE EUROPE
www.optiwave.eu

OPTIWAVE SINGAPORE
sales@goldlite.com.sg

OPTIWAVE MALAYSIA
sales@Kabex.com.my

OPTIWAVE JAPAN

Cybernet Systems Co. Ltd.

Nissay Otowa Bldg. 2-15-6 Otsuka
Bunkyo-Ku, Tokyo 112-0012
Tel: +81 3 5978 2481
optsales@cybernet.co.jp
www.cybernet.co.jp/optiwave/

OPTIWAVE INDIA

Advanced Micronic Devices Limited

907, Kailash Building, 26 K.G.Marg
New Delhi - 110 001
Tel. 91-011 - 41521740
www.amdlsed.com/cae.html
delhi@amdcorp.com

OPTIWAVE CHINA

Infotek Information Systems

Room F1, 10th Floor
No. 1800 Zhongshan Road (W.)
ZhaoFeng Universe Building,
Shanghai, China
www.infotek.com.cn

OPTIWAVE TAIWAN

Infotek Information Systems

6Fl., No. 112, Yi-An Rd.,
Junghe City
Taipei, Taiwan 235
Tel. +886-2-32332748
infotek@infotek.com.tw



THE ONLY PHOTONIC DESIGN SIMULATION ENVIRONMENT YOU WILL EVER NEED