Optica Software News

NEW EYE MODEL ADDED TO PACKAGE

ADDRESSING THE OPTICAL DESIGN AND ANALYSIS NEEDS OF CORPORATE, BUSINESS, EDUCATIONAL, GOVERNMENTAL AND INDIVIDUAL USERS.

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Want new features?

We continually add new features to our software, such as the eye model shown above. If you are an existing user with a current Annual Support Plan (ASP) in place, you may go to our [website](#) and update your software to the most current version. Users with an ASP enjoy access to the support and download areas of our website, which enables them to receive free product upgrades over a 12-month period. Look for Annual Support Plans under the [store tab](#) on our website. Our annual support package also entitles the user to a free home-use license, the most current version of the Rayica™ or Wavica™ product throughout the 12 month support service, top-priority access to our support team, free computer systems transfers, and one hour of consulting service time. [Update](#) your product copy now if it is older than build-date: **March 25, 2006**.
CLEO 2006

We are scheduled to attend the upcoming CLEO/QELS conference in Long Beach, California where you can visit us in **booth T41**. The event draws over 5,000 attendees annually and the exhibit will be held from May 22-24, 2006. Our lead developer Donald Barnhart will be on-site for questions and short demonstrations. Be sure to stop by and pick up an Optica Software mini Frisbee while during your visit.

Our online survey recipient for **March 2006** is **William Qian**, from Omnivision, who won the Rayica-Wavica Bundle with it’s newest features. Please continue to fill out the survey for your chance to win. For more details on how to participate please visit our [homepage](#).

We are offering **20% off Rayica™ and LensLab™** now through May 28, 2006. You may order with ease through our [website store](#) to receive your software today. **Online Special:** Each order placed ONLINE through **April 30, 2006**, will qualify to receive a $25 gift card from Amazon.com (two orders = two gift cards).

**Rayica™** contains all of the original functionality of **Optica™** (version 1) as well as many additional features. In fact, the beta version of Rayica was called Optica 2 (before the separation of our business from Wolfram Research). However, the performance of Rayica has been dramatically improved since Optica 1 such that, for many applications, Rayica now traces rays between 15 and 100 times faster yet consumes only a fraction of the memory for the same calculation.

**USER TESTIMONIAL:** “It is really useful for our optics calculations, especially the ray tracing function. I also like the feature that can combine with the Mathematica® calculation. This is a unique function that other software can not support. Thank you very much!”

**Yung-hsun Wu**
College of Optics & Photonics/CREOL
University of Central Florida

**Consultants Wanted:**

We are seeking users of Rayica and Wavica who may be interested in helping support Optica Software with special projects on a consulting basis. If you are interested, please send a brief description of your experience and expertise to software development.

Development of the **Graphical User Interface (GUI)** is continuing. The figure above shows an example of a nested light source passing through a grating. Two of the component menus are also shown above.
Q&A Mailbox

Q: Does Rayica™ use Mathematica® and is Rayica backward-compatible with the Wolfram version of Optica™?

A: Rayica™ is a direct descendent of Optica™ and uses Mathematica® in the same way. As such, Rayica contains all of Optica's functions and can run all Optica notebooks but Optica cannot run all Rayica's notebooks since many Rayica functions do not exist in Optica. However, there have been some minor syntax changes between the default behavior of some functions in Rayica and Optica, but you can easily switch Rayica's syntax back to the original Optica format if you wish. These changes are well documented at the end of the new Rayica User Guide which you can view on our website.
Seeing the Light:

You can now model the human eye in *Rayica™* and *Wavica™* using our newly added EyeModel function (see figure 2). This function includes wavelength-dependent refraction and a spherical retinal surface as well as diffusely scattered retinal reflections and aspheric shapes for the cornea and lens elements. By default, the EyeModel uses settings given by Navarro (See the OSA paper: "Off-axis aberrations of a wide-angle schematic eye model by Isabel Escudero-Sanz and Rafael Navarro"). However, you can also alter any of the default settings through the options of EyeModel. As inputs, the EyeModel takes the following parameters:

$$\text{EyeModel}[dx, dy, \text{defocusangle}, \text{scatter}, \text{pupilsize}]$$

In particular, a thin-lens defocusing element is located at the pupil position that is governed by the input defocus parameters: $dx$ and $dy$ (given in units of diopters). The defocusangle determines the angle of rotation (degrees) about the pupil center for the defocus effects. The scatter parameter is used to specify the amount of diffuseness of the retina. The pupilsize parameter determines the diameter of the pupil opening. In general, EyeModel is created with spatial units of millimeters. In addition to *Rayica*, the EyeModel function also works with all of *Wavica’s* functions. In particular, in Wavica you can compute the diffractive point spread function of the eye, propagate Gaussian beams through the eye (as shown in Figure 3), and calculate symbolic solutions to the eye.