

Optica News

We are now taking orders for *LensLab*TM to be delivered later this month. *LensLab* contains features of the original OpticaTM product as well as new enhancements, such as a Modulation Transfer Function, but is priced for amateur astronomers and experimental hobbyists. *LensLab* does not have advanced functions included with *Rayica*TM and *Wavica*TM, making it less expensive.

Other Services

We are an integrated source for systems design, modeling, and manufacturing. We have in-house expertise specializing in designing optical systems, mechanical systems, electronic systems, prototype assembly and product fabrication. Please visit the **About Us** section of our website at www.opticasoftware.com for more details.

We recently asked for your assistance in completing our website survey. As our way of saying thank you we are selecting one completed survey each month and awarding a copy of our software to the person who completed it. Our recipient for May 2005 is: **Myung Kim**, Professor, University of South Florida. Please continue to fill out this survey for your chance to win.

User Tips

User Testimonials

“*Rayica*TM and *Mathematica*[®] give you unprecedented power for analyzing your optical system. Every calculation tool in *Mathematica* is at your disposal without leaving your ray-tracing environment. Integration, derivatives, matrix multiplication, Fourier transforms, complex analysis...the possibilities are endless.” (Damon Diehl, Ph.D. – ASE Optics, Inc.)

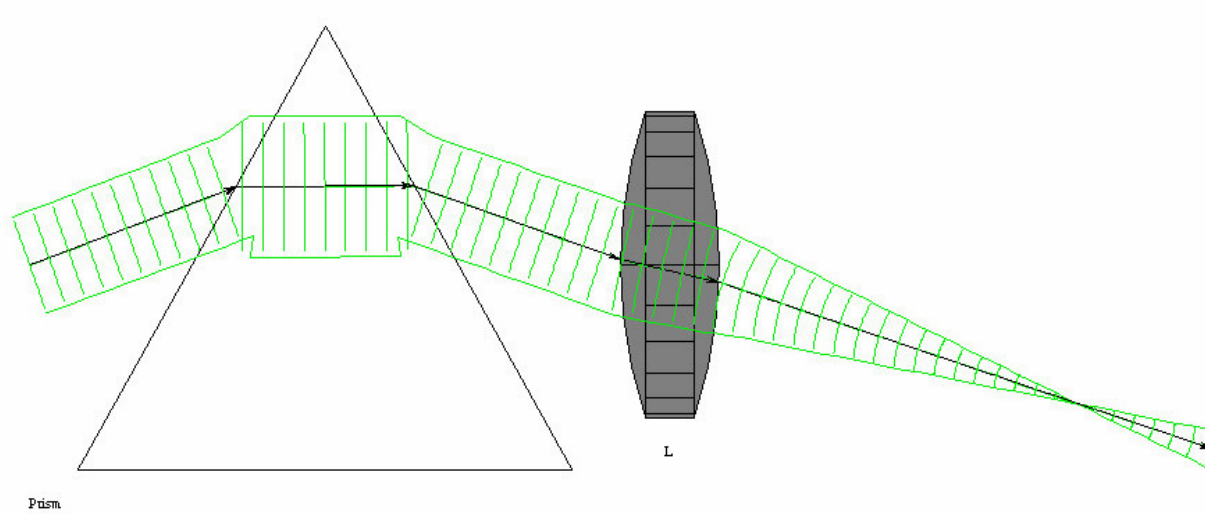


Figure 1: This figure shows a Gaussian-beam “wave trace” by *Wavica*.

Discounts

If you are a former Optica user and wish to upgrade to *Rayica* or *Wavica* products we are currently offering special pricing, please contact us to take advantage of this special offer. You must provide your original Optica license number in order to qualify.

Do you have multiple users at your site that could use our software? We offer site licenses for organizations with multiple users. Your facility could receive an extra discount if you also have a Mathematica site license. Please call or email Optica Software support for more information.

Notes from the Developer

Both *Rayica* and *Wavica* have extensive capabilities for modeling Gaussian beams in three-dimensional space. In both *Rayica* and *Wavica*, this is accomplished with the GaussianBeam function. To use GaussianBeam, you can either specify the starting spot size and divergence angle of the beam or indicate the complex beam parameter. You can also model astigmatic beams by providing two values for each beam parameter.

In *Rayica*, the GaussianBeam function constructs a ray-trace model of a Gaussian beam light source. Because rays are modeled as straight lines while Gaussian beams actually follow a curved shape through space, GaussianBeam actually has two different ray-trace settings for the "near-field" and "far-field" ray-trace behavior of the beam. In particular, with the FarField->True setting, the generated rays are most accurate for distances far away from the beam waist. However, if you wish to model GaussianBeams having proportionately large spot-sizes or very small divergences, then FarField->False setting is more accurate.

In *Wavica*, the GaussianTrace function actually models the diffractive behavior of a Gaussian beam as it propagates through an optical system (see Figure 1). GaussianTrace uses the same GaussianBeam function as *Rayica*. In fact, you can perform a Gaussian beam "wave-trace" in *Wavica* while simultaneously calculating the ray-trace model of the system with *Rayica*. From this, you can compare the diffractive solution with the ray-trace solution of your system (see Figure 2).

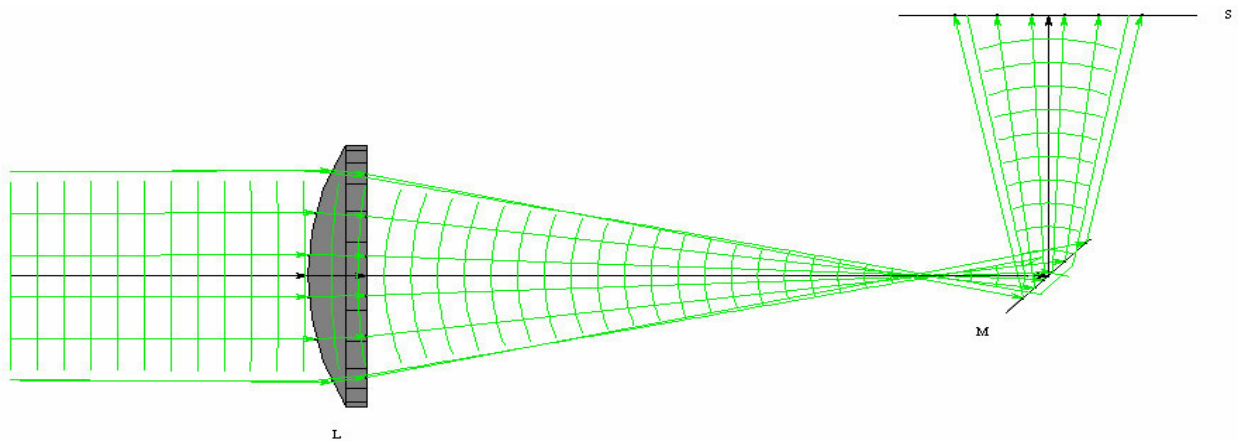
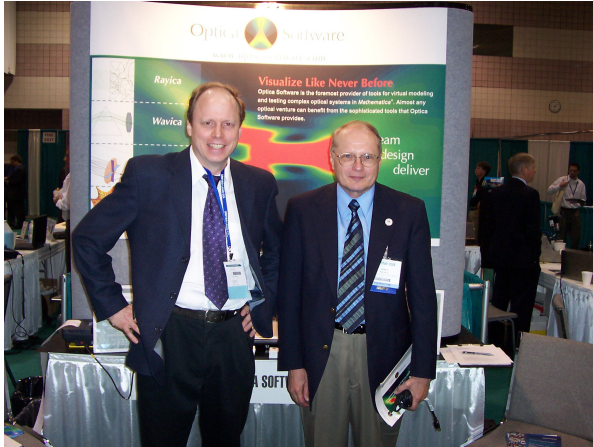


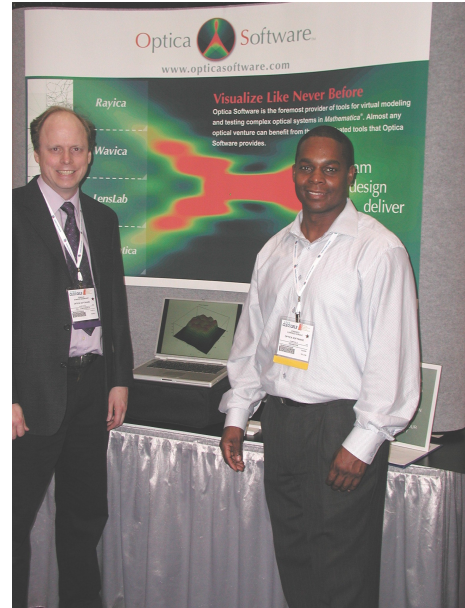
Figure 2: Combined ray trace and wave trace by *Rayica* and *Wavica*.

Events

The pictures below are from the recent conferences we attended. The Optifab 2005 conference (left) was held in Rochester, New York May 3-5, 2005. Rochester is ranked third nationally in the emerging photonics industry. At the CLEO conference (right) held May 23-25, 2005 in Baltimore, Maryland we received some great exposure and were able to meet some of our users face to face. By attending these events we learned a great deal about new developments and things happening in the industry.



Optica Software developer Donald Barnhart with user Dr. James Wyant, Director of the Optical Sciences Center at the University of Arizona at the Optifab conference held in Rochester.



Donald with Sales Executive Lorenzo Kindle at the CLEO 2005 conference held in Baltimore, Maryland.

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