Optica Software ™

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

Optica Software News

The Barnhart family has a second child!

Claire Barnhart (3), with Alan Daniel Barnhart born March 29th weighing 8 lbs, 9 oz, 21 ¼ inches long. Donald, mom, and baby are all healthy and doing well.

Site Licenses

Optica Software site licenses are attractively priced and eliminate the hassle of complicated site license administration. Whether you are interested in licensing Optica Software products for use within an academic institution, commercial, government, or non-profit organization, we have designed a site license to fit your needs and your budget. Pricing is determined by the number of users you specify. You can always purchase additional user packs as you increase the number of users.

Select your type of organization from the list below to request information on pricing and policies:

Schools: for a single department within a college or university or for use throughout the entire college or university campus.

Commercial

Government

Non-profit organizations

We are offering **20% off *Rayica*™ and *LensLab*™** now through May 28, 2006 if you order online. 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).

Real Time Sliders Are Coming!

Using the GUIKit of *Mathematica*®, we are working on an exciting new way to display your optical system **in real-time** as a "SliderWindow".

Here, each user-defined parameter becomes a slider bar that you can drag to change its value. The SliderWindow enables the user to quickly visualize how changes to different system parameters will affect the outcome of the optical model. This also opens the door to novice users that have no working knowledge of *Mathematica*® or our software to be able to quickly evaluate and explore a previously created SliderWindow model. We will release a preliminary version of SliderWindow to our registered Annual Support Plan users.
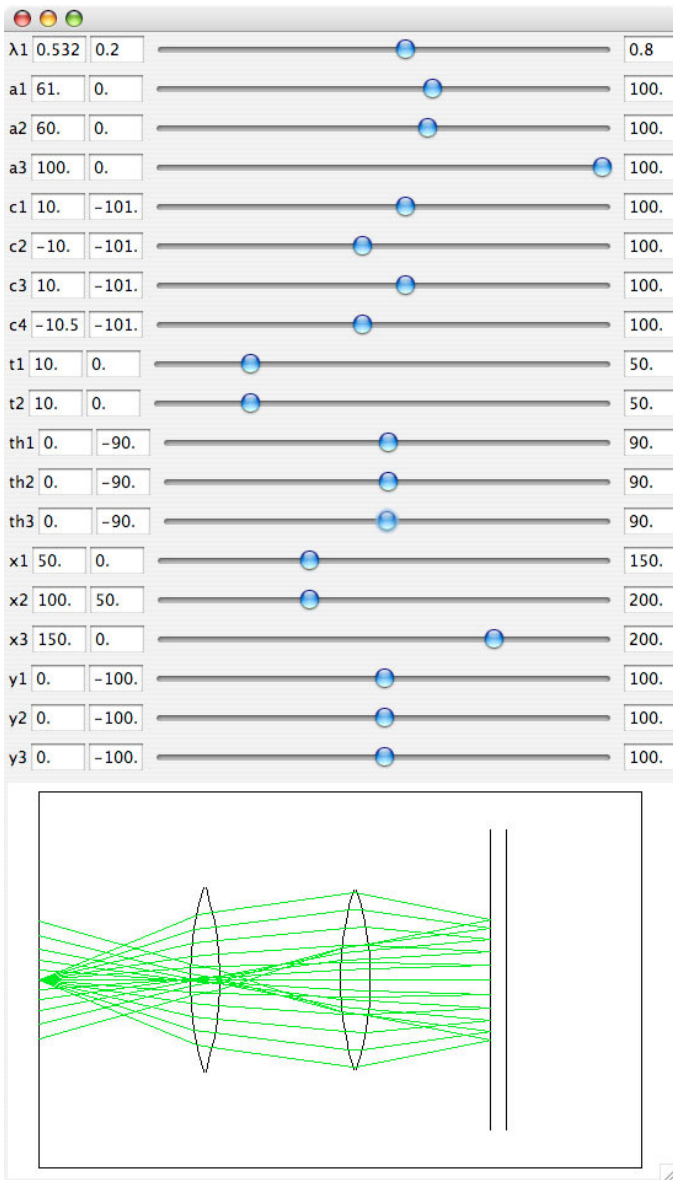
Figure 1 slider values:

Parameter	Value	Min	Max
λ1	0.532	0.2	0.8
a1	61.	0.	100.
a2	60.	0.	100.
a3	100.	0.	100.
c1	10.	-101.	100.
c2	-10.	-101.	100.
c3	10.	-101.	100.
c4	-10.5	-101.	100.
t1	10.	0.	50.
t2	10.	0.	50.
th1	0.	-90.	90.
th2	0.	-90.	90.
th3	0.	-90.	90.
x1	50.	0.	150.
x2	100.	50.	200.
x3	150.	0.	200.
y1	0.	-100.	100.
y2	0.	-100.	100.
y3	0.	-100.	100.

Figure 1. Starting configuration of optical system.

Figure 2 slider values:

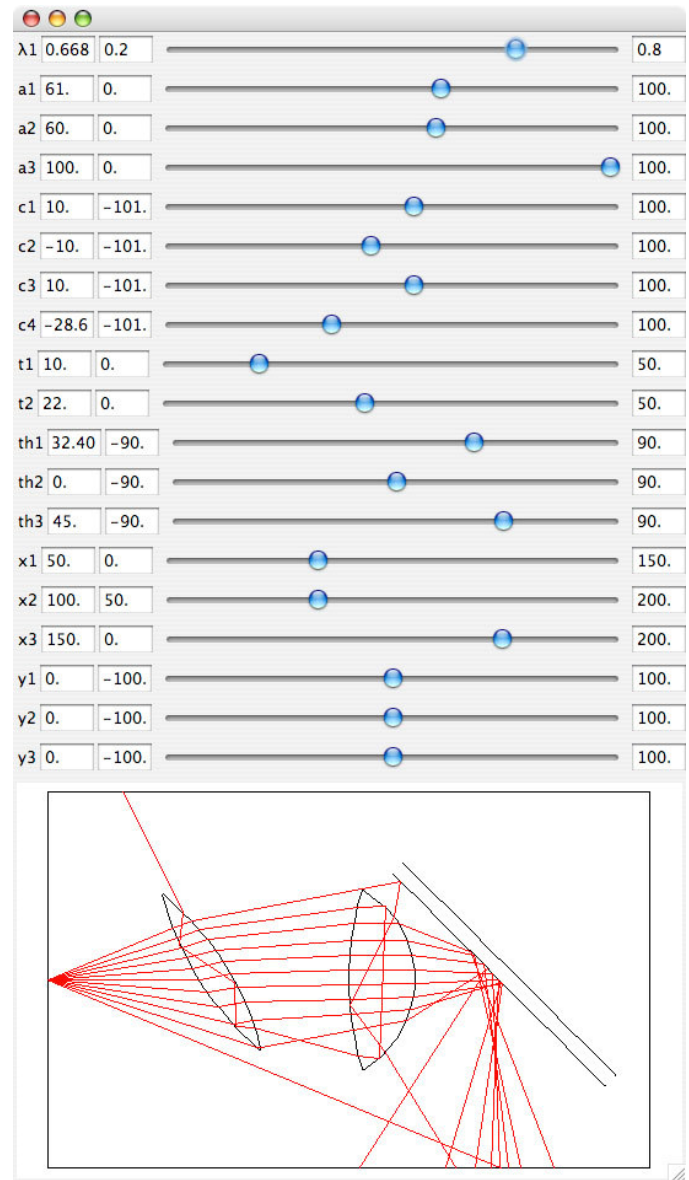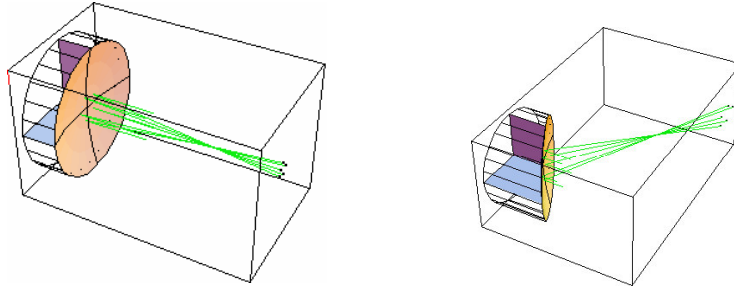| Parameter	Value	Min	Max
λ1	0.668	0.2	0.8
a1	61.	0.	100.
a2	60.	0.	100.
a3	100.	0.	100.
c1	10.	-101.	100.
c2	-10.	-101.	100.
c3	10.	-101.	100.
c4	-28.6	-101.	100.
t1	10.	0.	50.
t2	22.	0.	50.
th1	32.40	-90.	90.
th2	0.	-90.	90.
th3	45.	-90.	90.
x1	50.	0.	150.
x2	100.	50.	200.
x3	150.	0.	200.
y1	0.	-100.	100.
y2	0.	-100.	100.
y3	0.	-100.	100.

Figure 2. Changed configuration of optical system.

GUI Reports: The Parabolic Mirror Example

The graphics above show the output from a parabolic mirror example and an off-axis parabolic mirror example. The OffAxis -> {100,0} option is needed to create the off-axis parabolic mirror example. The *LensLab*™ *and Rayica*™ script for this off-axis parabolic mirror is as follows:

DrawSystem[{
Move[CircleOfRays[20,NumberOfRays->5], {0,-100},180],
Move[ParabolicMirror[100,100,10], OffAxis -> {100,0}], {-50,0} ,180],
Boundary[{-150,-150-100},{100,100,100}]}];

Using the *Rayica*™ and *LensLab*™ GUI in development we can recreate this example easily by selecting component dialogs from the main menu bar. After inputing values for focallength, aperture, thickness and off-axis, a button can be clicked to recreate the script. You can then view the component or send the script over to the optical system table in the main menu. The EditRow button can be clicked to make changes to the settings. The component dialogs show all the defaults for options, so users can opt to make changes if needed.

This is one way to use the GUI; however, you can also input variable names for components or values previously defined in your *Mathematica* notebook, and component dialogs and system tables. You can also input or change the table and script areas directly.
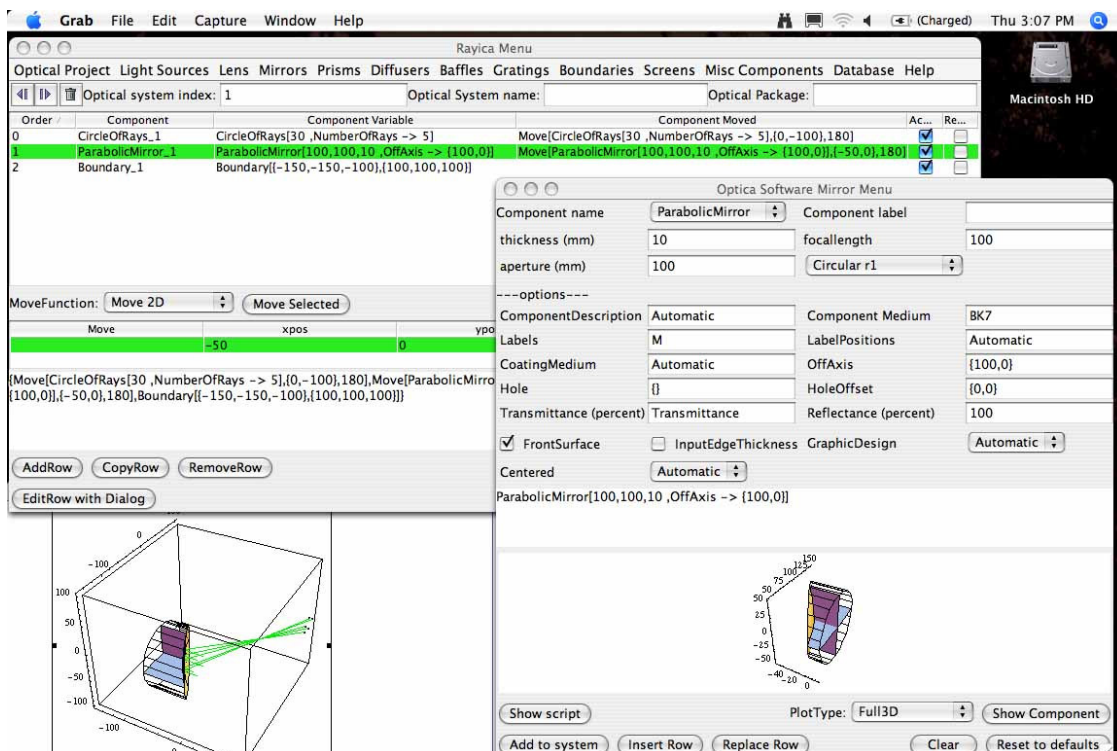
Q&A Mailbox

Q: Can you model Gaussian beams in the *Rayica*™ and *Wavica*™ package? How does this work?

A: *Rayica* and *Wavica* both model Gaussian beams using the built-in GaussianBeam function. However, *Rayica* and *Wavica* use GaussianBeam in very different ways. In *Rayica*, GaussianBeam is used to generate a ray-trace representation of a Gaussian beam. In *Wavica*, however, the GaussianBeam function is used find an analytical model for Gaussian beam propagation through an optical system. The GaussianBeam function lets you define either the starting spot size and divergence of the beam or the starting complex beam parameter.

Donald Barnhart, Ph.D. – Optica Software Lead Developer
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CLEO 2006

We are scheduled to attend the upcoming **CLEO/QELS** conference in Long Beach, California where you can visit us at **booth T41**. 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 during your visit.

Our online survey recipient for **April 2006** is **Gustaw Szawiola,** from **The Poznan University of Technology - Poland,** 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.

Our lead developer Donald Barnhart will be giving a demonstration and presentation the afternoon of May 22nd at the **Jet Propulsion Laboratory** in Pasadena, California. If you are interested in attending, please contact us for time and location.

OPTICA SOFTWARE NEWSLETTER ARCHIVES

Issue	Topic
May 2005	GRINLens
June 2005	GaussianBeam function
July 2005	Custom surface shapes/parametric surface functions
August 2005	Annual support plans
September 2005	Using FindIntensity for radiometric calculations
October 2005	LED Optics
November 2005	Calculation of numerical aperture for uncoventional light collection geometries
December 2005	Negative refractive index
January 2006	Turning letters into lenses
February 2006	Graphical User Interface/Modeling ideal lenses
March 2006	Modeling the human eye

Exhibit Event Schedule

CLEO/QELS Conference
Long Beach, CA
May 21-26, 2006
CLEO/QELS Exhibit
Booth #T41

International Optical Design Conference
Vancouver, BC Canada
June 4-8, 2006-01-18
International Optical Design Conference Exhibit

Optics & Photonics
San Diego, CA
August 13-17, 2006
Optics & Photonics Exhibit

Frontiers in Optics
Rochester, NY
October 10-11, 2006
Frontiers in Optics Exhibit