Optica Software

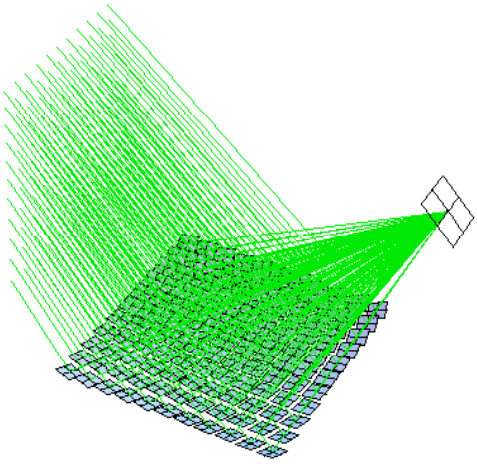
Optica3 is our premier optical design package. It requires ***Mathematica*** and is installed as a ***Mathematica*** Add-On package. Key features are:

- Sequential and non-sequential ray tracing in three-dimensional space
- Custom interactive dynamic interfaces that can run stand-alone under *Mathematica 6* or the free Wolfram Research *Mathematica 6 Player.*
- Generalized language for describing optical systems in three-dimensional space
- Optional GUI for defining optical systems and components, Library of optical components and optical materials
- Powerful visualization capabilities, Real-time controls, Input of CAD (STL format) models into system functions
- Viewable source code, Seamless integration with *Mathematica*
- Analytic parametric descriptions of optical surface shapes, Symbolic parametric descriptions of optical surface shapes, Optical Component Functions
- Optimization of arbitrary system parameters
- Gaussian Beams, custom light sources, Randomized light sources and Monte Carlo ray-tracing
- Energy calculations: including gain, absorption, and Lambertian scattering, Intensity plots at any surface, Amplitude and optical path length ( phase) information
- Modulation Transfer Function ( MTF), Geometric Point Spread Function, Modulation Transfer Function, Coherent Transfer Function, Pupil Function, Seidel aberrations
- Gradient Index optics, Gratings, Eye Model, Fresnel-flattened lenses and mirrors, Linear polarisers, birefringent optics, retardation plates
- Interference calculations, Wavefront calculations, Holographic diffraction gratings, Zernike-polynomial fit of wave front

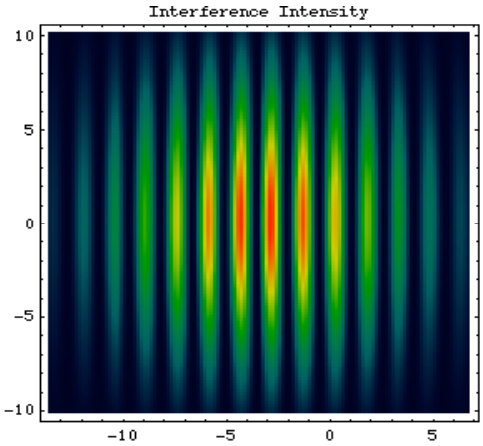
User research areas include: Laser Design, X-ray optics, Solar Applications, Medical/Bio Physics, Lens Design, Optics Courseware, Space Sciences, Atmospheric Instruments, Interferometry, Spectroscopy, Holography, Lithography, Microscopy, Gem Design, Vision Systems, Lamp Design, Antenna Design

For more details see the Optica Software website at

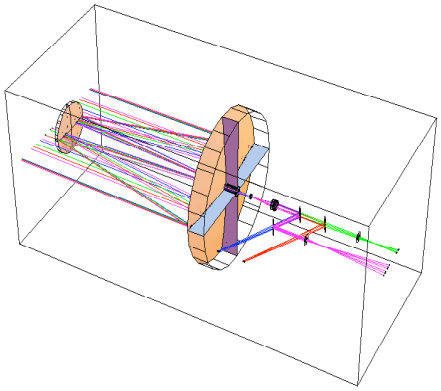
http://www.opticasoftware.



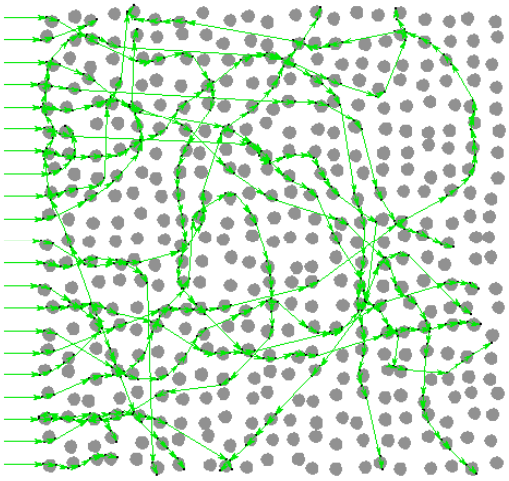
Solar Arrays



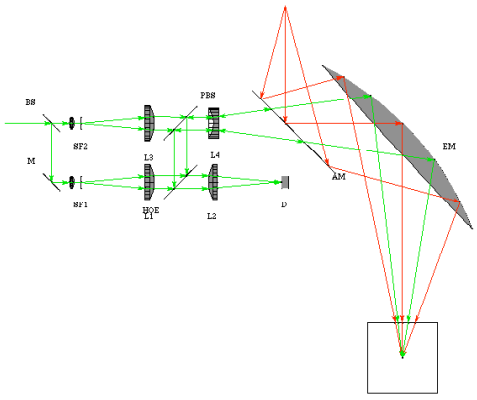

Interference calculations



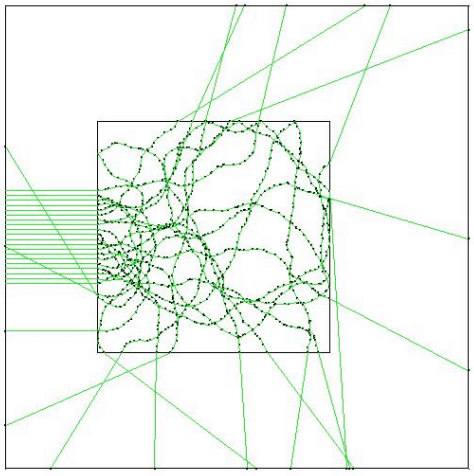
Telescopes



Non-sequential ray-tracing

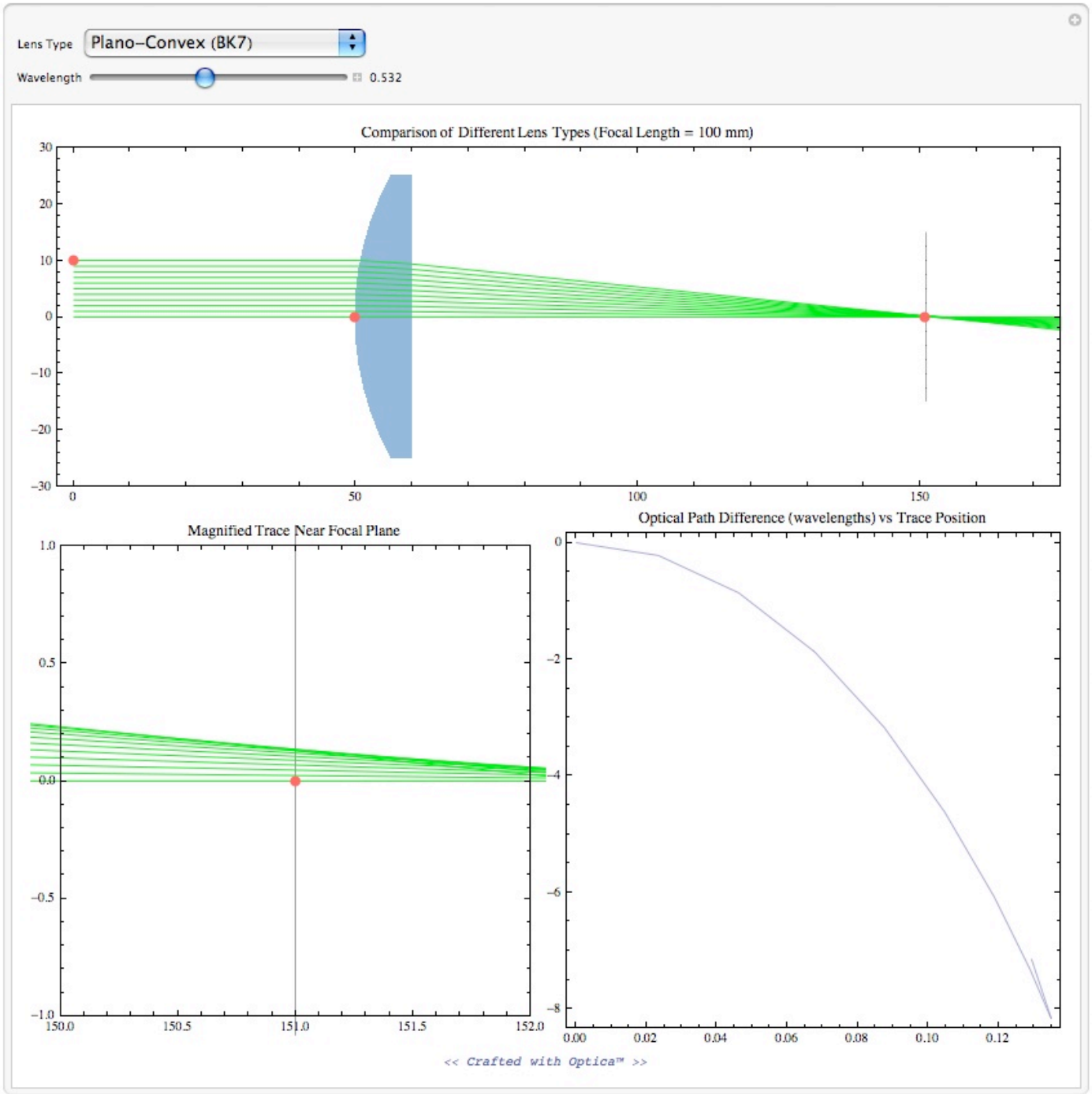


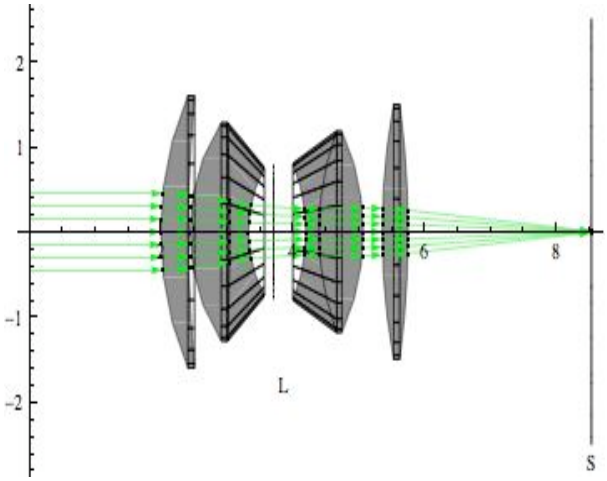

Optical Systems

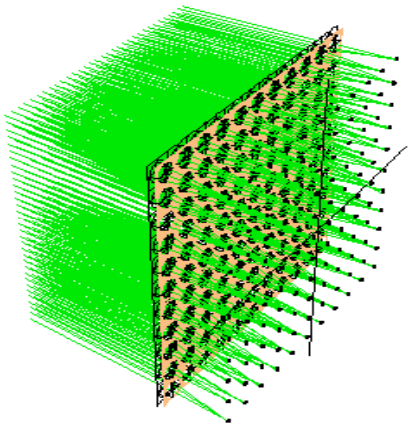


User Defined Ray Trace Behaviors

**With Optica3 you can create custom interfaces containing multiple graphics.**

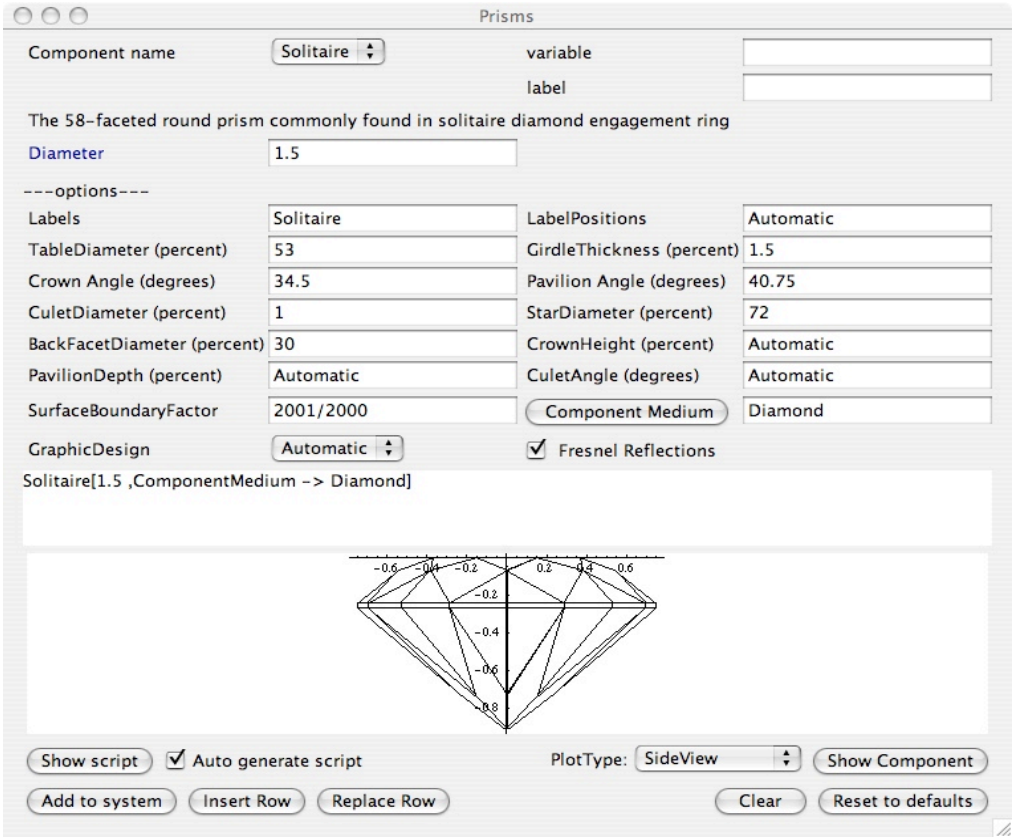




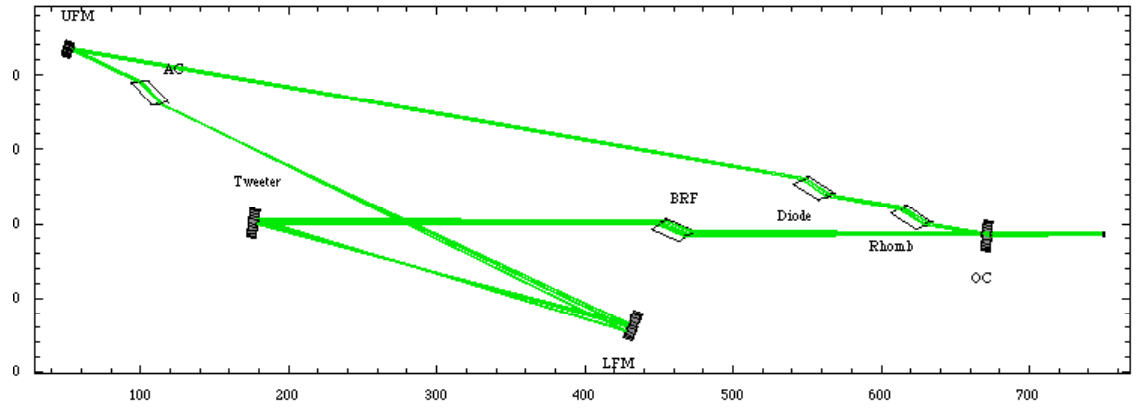



**Lenticular Arrays**

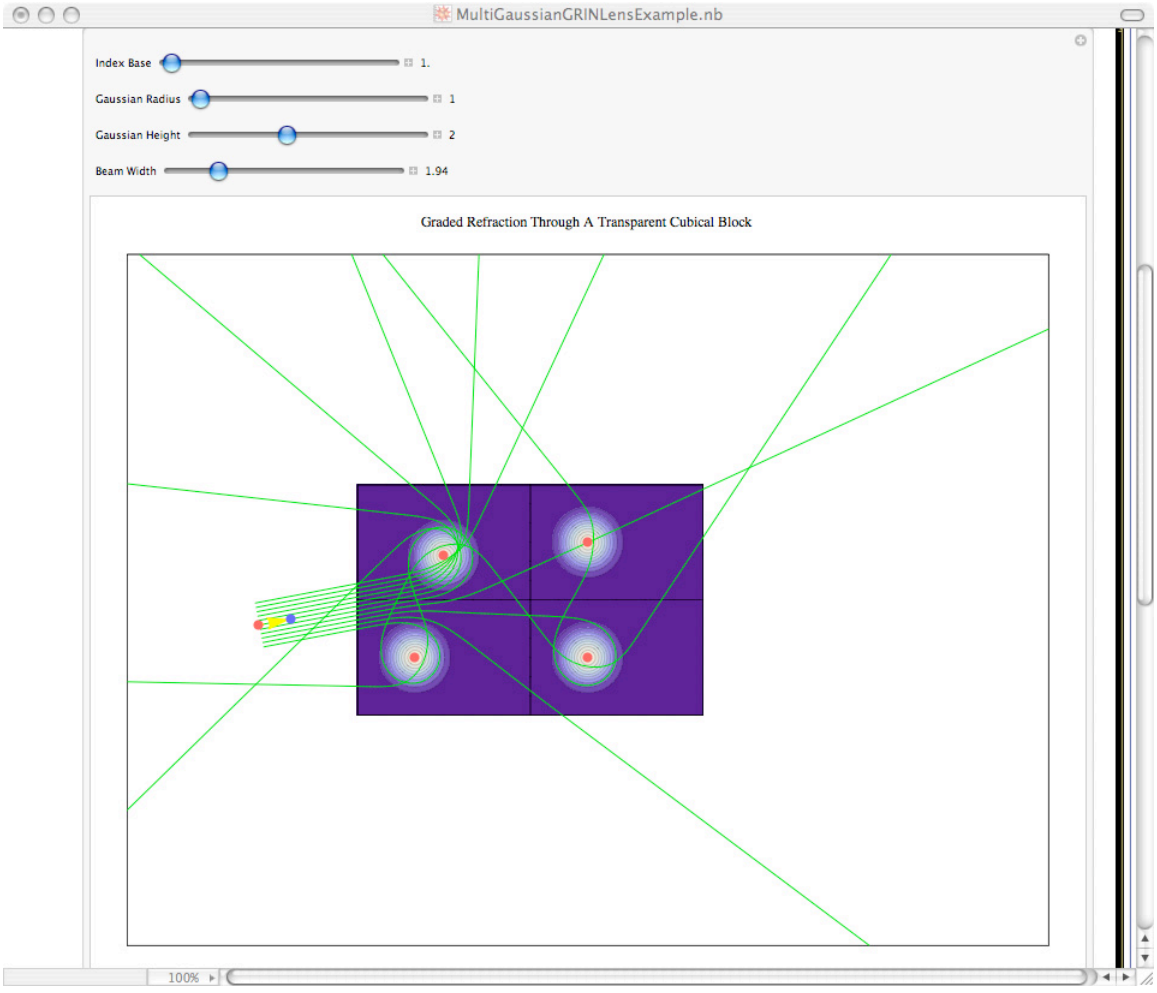
## Camera Lens



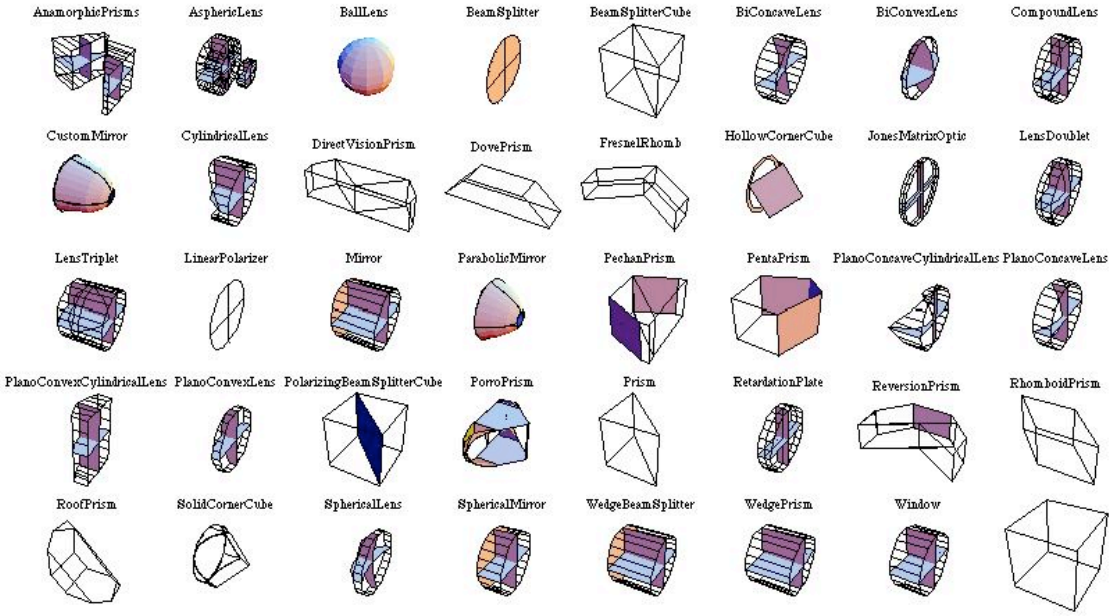

## GUI menus



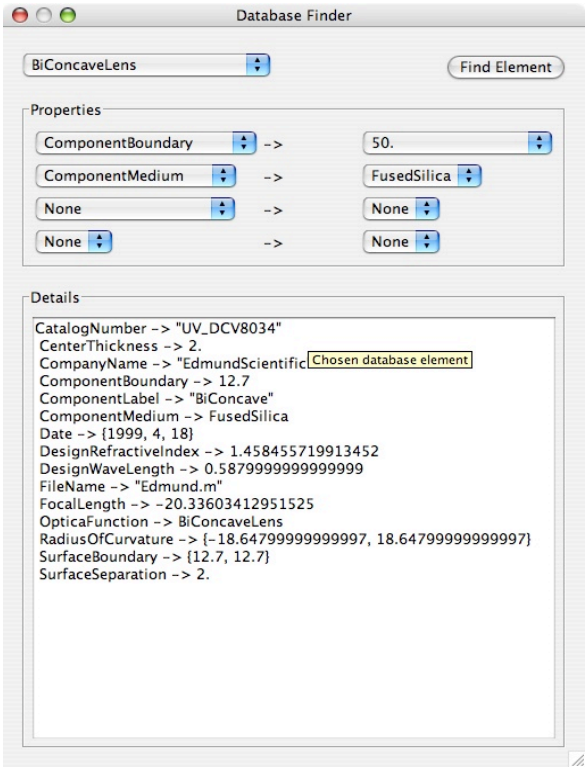

**Laser Systems**




**Gradient Index Lenses**




## Numerous Component Functions




## Database Searches