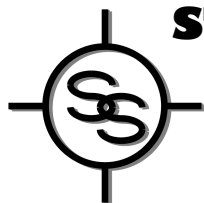
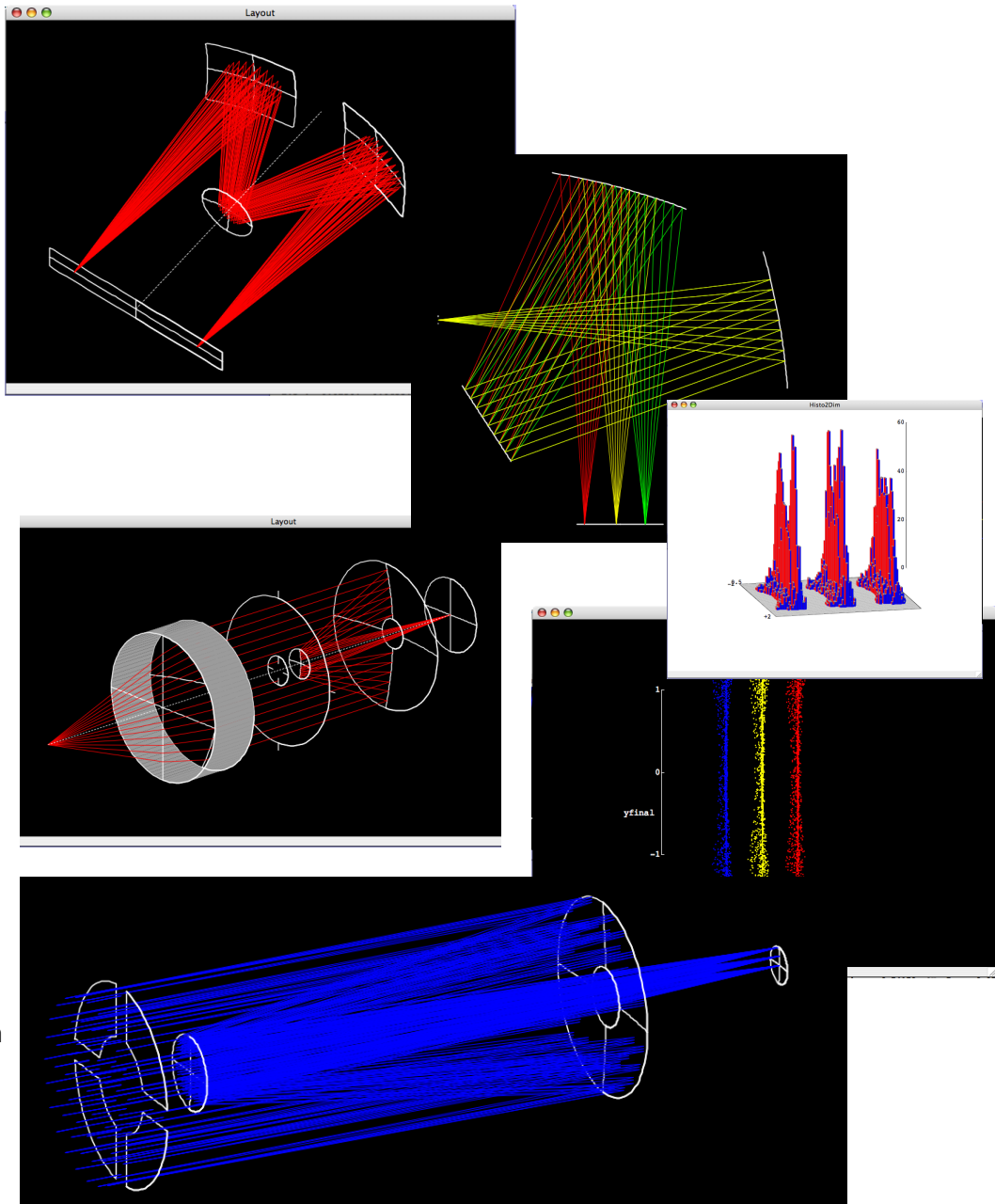


Finally.

Thanks to Java® technology, we now offer all the traditional capabilities of our BEAM FOUR optical ray tracer in a format that runs on just about any platform. Unix, Linux, Solaris, MS-Windows, Mac OS --- all support Java and all run our new Beam Four Java Edition. Visit our website for full details, and try it out. BEAM FOUR is free and Open Source at GitHub.

Features:

- Lenses
- Mirrors
- Prisms
- Irises
- Gratings
- HOEs
- Conic surfaces
- Toric surfaces
- Polynomials
- Zernikes
- WFE
- diagnostics
- Programmable Plots
- MultiPlots
- Maps
- Layouts with mouse zoom, pan, and twirl
- Autoadjust via L-M least sq
- 3D diagnostics
- Refraction via
 - * table lookups
 - * positive
 - * negative too!
- Stereo displays!
- Compatible with older B4
- CAD output files
- Plain text files
- Easy input and output to/from spreadsheets



STELLAR SOFTWARE

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=====BEAM FOUR JAVA EDITION=====

Program Description --
+ Sequential: user-specified surface sequence

Host requirements --
+ Java Run Time Environment 1.8.0 or higher

Optical System Definition --
+ Sequential list of optically active surfaces

Ray Definition --
+ Cartesian coordinates and direction cosines

Refractive Media
+ Table driven up to 200 glasses/table
+ Up to 25 wavelengths per table
+ Unlimited number of tables
+ Handles negative refraction indices correctly

Ray Variables --
+ Lab frame; individual surface frame

Solution Method --
+ Three-dimensional ray intercept solver
+ Analytic for conics
+ Numerical for higher surfaces

Output Functions --
+ Text -- screen, printer, clipboard
+ Graphics -- screen, printer, clipboard

Accuracy --
+ Double precision, 14 digits
+ Accuracy is maintained at grazing incidence

Surface Profiles --
+ Flat, spherical, conic sections of revolution;
+ Polynomials of revolution to 14th degree;
+ Cylinders: circular, conic, polynomial;
+ Torics: circular, conic, polynomial;
+ Zernike: terms 0 to 35

Surface Actions --
+ Refraction, reflection, iris, phantom
+ Arrays of mirrors, irises, lenses
+ Fresnel lenses & mirrors
+ Diffraction gratings, transmission & reflection
+ Ideal Retroreflectors
+ Holographic optical elements

Coordinate Breaks --
+ Labframe X, Y, Z, tilt, pitch, roll

Optical Complexity --
+ Up to 99 successive surfaces

Ray Configurations --
+ Up to 1000 rays per table

Table Editor --
+ Includes all table editing functions
+ All popular file systems are supported
+ ASCII data format, all products, all platforms
+ Built in text mode editing too

File Manager --
+ Fetch, directory display, save, warn if unsaved

Monte Carlo Ray Generator --
+ Provides an unlimited number of ray starts
+ Pseudorandom ray coordinates

Layout Graphics --
+ Shows surfaces, rays, media;
+ Any view direction (elevation & azimuth)

Plots --
+ All ray variables accessible
+ Spot diagrams, diagnostic plots
+ Multiplots too!

Distribution Functions --
+ Line spread function, point spread function,
+ wavefront display, WFE, MTF

Autoadjustment Capability --
+ All optics parameters
+ Ray starts -- positions, directions
+ Merit function: least squares
+ Method: Levenberg Marquardt iterative solver

CAD & Graphics Output file types--
+ Screen bitmap capture
+ 2DDXF
+ 3DDXF
+ Postscript
+ Plotter
+ PNG

Clipboard Interface --
+ Tables: cut, insert, paste, copy, delete
+ Easy exchange with spreadsheets
+ Graphics: copy screen to clipboard