

RSI.009 Investigation of Donut Modes.

Hybrid laser modes are locally polarized. Its generation is illustrated.

Keywords: Polarization, Hybrid Laser Modes, Propagation

Required Toolboxes: Starter Toolbox Basic



Azimuthal Mode: Settings Gaussian Mode 1

Edit Gaussian Wave

Basic Parameters | Spectral Parameters

Spatial Parameters | Polarization | Mode Selection | Sampling

☐ Generate Cross Section

Hermite Gaussian Mode

☐ 1D Gaussian Variation (X-Dimension)

Order: 0 x 1

M² Parameter: 1 x 3

Reference Wavelength (Vacuum): 532 nm

Select Achromatic Parameter:

☐ Waist Radius (1/e²): 100.79 μm x 174.57 μm

☐ Half-Angle Divergence (1/e²): 0.096243° x 0.1667°

☒ Rayleigh Length: 60 mm x 60 mm

Astigmatism

Offset between y- and x-Plane: 0 m

Copy from Calculator | Copy to x- and y-Values

Default Parameters | Ok | Cancel | Help

Edit Gaussian Wave

Basic Parameters | Spectral Parameters

Spatial Parameters | Polarization | Mode Selection | Sampling

Polarization Input

Type of Polarization: Linearly Polarized

Angle: 0°

Normalized Jones Vector

$$\begin{pmatrix} J_x \\ J_y \end{pmatrix} = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

Default Parameters | Ok | Cancel | Help

Azimuthal Mode: Settings Gaussian Mode 2

Edit Gaussian Wave

Basic Parameters | Spectral Parameters

Spatial Parameters | Polarization | Mode Selection | Sampling

☐ Generate Cross Section

Hermite Gaussian Mode

☐ 1D Gaussian Variation (X-Dimension)

Order: 1 x 0

M² Parameter: 3 x 1

Reference Wavelength (Vacuum): 532 nm

Select Achromatic Parameter:

☐ Waist Radius (1/e²): 174.57 μm x 100.79 μm

☐ Half-Angle Divergence (1/e²): 0.1667° x 0.096243°

☒ Rayleigh Length: 60 mm x 60 mm

Astigmatism

Offset between y- and x-Plane: 0 m

Copy from Calculator | Copy to x- and y-Values

Default Parameters | Ok | Cancel | Help

Edit Gaussian Wave

Basic Parameters | Spectral Parameters

Spatial Parameters | Polarization | Mode Selection | Sampling

Polarization Input

Type of Polarization: Linearly Polarized

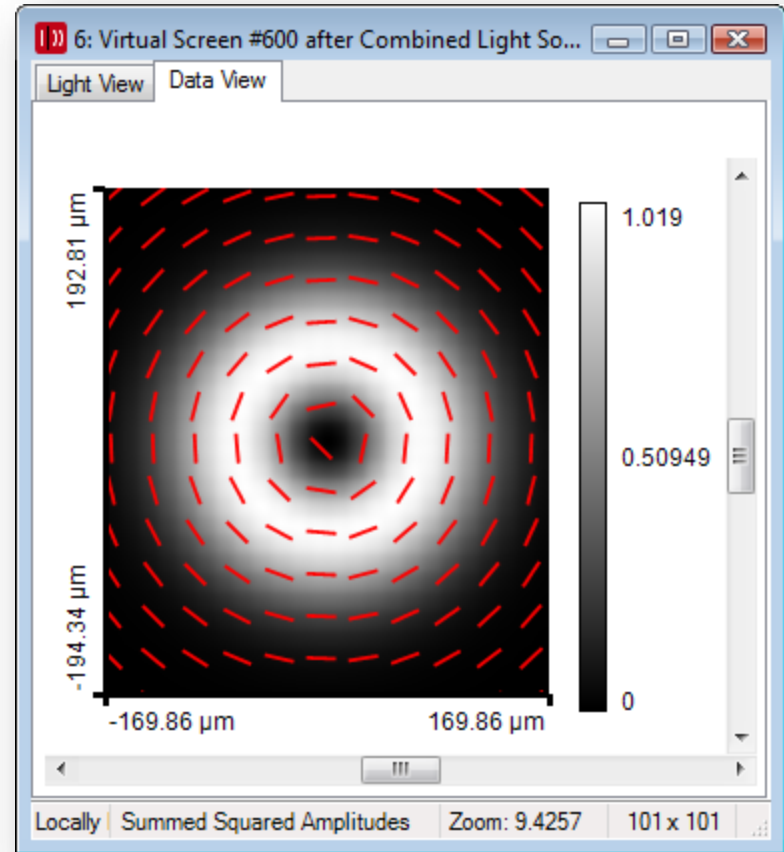
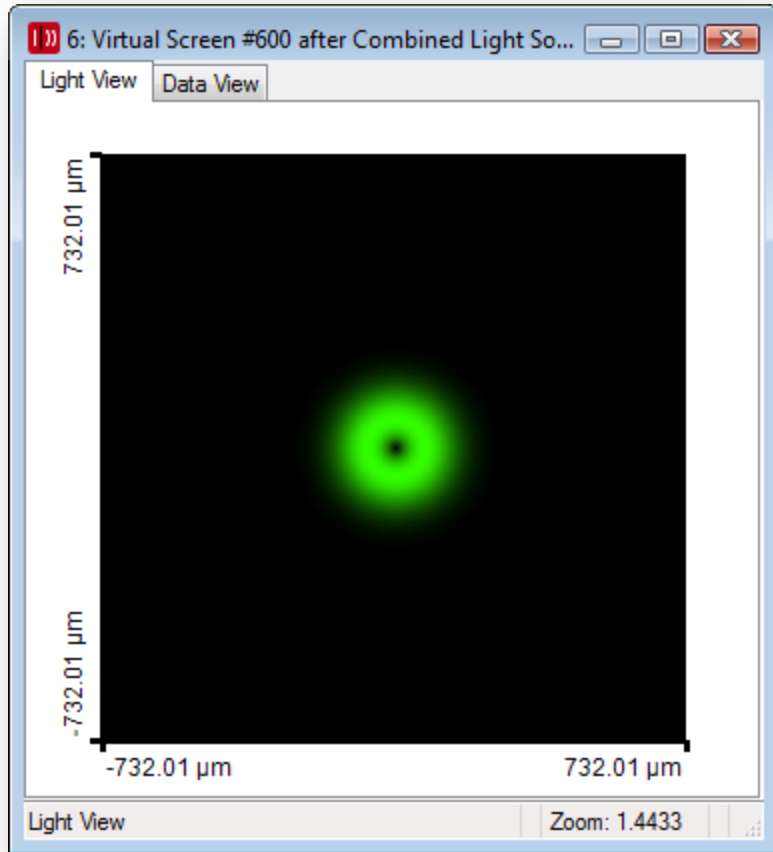
Angle: -90°

Normalized Jones Vector

$$\begin{pmatrix} J_x \\ J_y \end{pmatrix} = \begin{pmatrix} 0 \\ -1 \end{pmatrix}$$

Default Parameters | Ok | Cancel | Help

Mode 1 + Mode 2 (Combined Light Source)



Radial Mode: Settings Gaussian Mode 1

Edit Gaussian Wave

Basic Parameters | Spectral Parameters

Spatial Parameters | Polarization | Mode Selection | Sampling

☐ Generate Cross Section

Hermite Gaussian Mode

☐ 1D Gaussian Variation (X-Dimension)

Order: 0 x 1

M² Parameter: 1 x 3

Reference Wavelength (Vacuum): 532 nm

Select Achromatic Parameter:

☐ Waist Radius (1/e²): 100.79 μ m x 174.57 μ m

☐ Half-Angle Divergence (1/e²): 0.096243° x 0.1667°

☒ Rayleigh Length: 60 mm x 60 mm

Astigmatism

Offset between y- and x-Plane: 0 m

Copy from Calculator | Copy to x- and y-Values

Default Parameters | Ok | Cancel | Help

Edit Gaussian Wave

Basic Parameters | Spectral Parameters

Spatial Parameters | Polarization | Mode Selection | Sampling

Polarization Input

Type of Polarization: Linearly Polarized

Angle: 90°

Normalized Jones Vector

$$\begin{pmatrix} J_x \\ J_y \end{pmatrix} = \begin{pmatrix} 0 \\ 1 \end{pmatrix}$$

Default Parameters | Ok | Cancel | Help

Radial Mode: Settings Gaussian Mode 2

Edit Gaussian Wave

Basic Parameters | Spectral Parameters

Spatial Parameters | Polarization | Mode Selection | Sampling

☐ Generate Cross Section

Hermite Gaussian Mode

☐ 1D Gaussian Variation (X-Dimension)

Order: 1 x 0

M² Parameter: 3 x 1

Reference Wavelength (Vacuum): 532 nm

Select Achromatic Parameter:

☐ Waist Radius (1/e²): 174.57 μ m x 100.79 μ m

☐ Half-Angle Divergence (1/e²): 0.1667° x 0.096243°

☒ Rayleigh Length: 60 mm x 60 mm

Astigmatism

Offset between y- and x-Plane: 0 m

Copy from Calculator | Copy to x- and y-Values

Default Parameters | Ok | Cancel | Help

Edit Gaussian Wave

Basic Parameters | Spectral Parameters

Spatial Parameters | Polarization | Mode Selection | Sampling

Polarization Input

Type of Polarization: Linearly Polarized

Angle: 0°

Normalized Jones Vector

$$\begin{pmatrix} J_x \\ J_y \end{pmatrix} = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

Default Parameters | Ok | Cancel | Help

Mode 1 + Mode 2 (Combined Light Source)

