**List of bundle and hedgeHog objects generated with Mathematica Notebook BirefrObjectGenerator[month]2023.nb**

with the following optical settings in mind:

Number of microlenses: various

Pixels per microlens: 17

Number of voxels per microlens (supersampling): 1 or 3

Magnification: 60

NA of objective: 1.2

Wavelength of light: 0.55 µm

camera pixel size: 6.5 µm

refractive index of medium: water n=1.35

**bundleX.h5 -> bundleBir[radius=2.5, length=7, Δn=0.01, theta=-90°, azim=0°]**

Volume shape [X,Y,Z]: [15,51,51], bundle off center.

Additional information in: bundlesMay25.docx,

**bundleXX.h5 -> bundleBir[radius=2.5, length=7, Δn=-0.01, theta=-90°, azim=0°]**

Volume shape: [15,51,51], bundle off center.

Additional information in: bundlesMay25.docx,

**bundleXXX.h5 -> bundleBir[radius=2.5, length=7, Δn=0.01, theta=90°, azim=0°]**

Volume shape: [15,51,51], bundle off center.

Additional information in: bundlesMay25.docx,

**bundleZ.h5 -> bundleBir[radius=2.5, length=7, Δn=0.01, theta=0°, azim=90°]**

Volume shape: [15,51,51], bundle off center.

Additional information in: bundlesMay25.docx,

**bundleZZ.h5 -> bundleBir[radius=2.5, length=7, Δn=-0.01, theta=0°, azim=90°]**

Volume shape: [15,51,51], bundle off center.

Additional information in: bundlesMay25.docx,

**bundleZZZ.h5 -> bundleBir[radius=2.5, length=7, Δn=0.01, theta=0°, azim=-90°]**

Volume shape: [15,51,51], bundle off center.

Additional information in: bundlesMay25.docx,

**bundleY.h5 -> bundleBir[radius=2.5, length=7, Δn=0.01, theta=0°, azim=0°]**

Volume shape: [15,51,51], bundle off center.

**bundleYZ.h5 -> bundleBir[radius=2.5, length=7, Δn=0.01, theta=0°, azim=45°]**

Volume shape: [15,51,51], bundle off center.

**HedgeHogs:**

**A graph of a rectangular object with a shadow

Description automatically generatedhedgeHog1\_GT.h5 ->** **bundleBir[radius=0.5, length=5, ∆n=0.01, theta, azim];** hedgeHog1 has 6 bundles placed symmetrically to the volume center {8,31,31} and bundles extend in the X-, Y-, Z-directions**;**

Volume shape: [15, 61, 61], intended for super sample = 1

Additional information: none

A graph of a diagram

Description automatically generated with medium confidence**hedgeHog2\_GT.h5 ->** **bundleBir[radius=0.5, length=5, ∆n=0.01, theta, azim];** hedgeHog2 has 8 bundles placed symmetrically to the volume center {8,31,31} and bundles extend to the corners of a cube;Volume shape: [15, 61, 61], intended for super sample = 1

Additional information in: hedgeHogsJuly26.docx

**hedgeHog2N3\_GT.h5 ->** **bundleBir[radius=0.5, length=5, ∆n=0.01, theta, azim];**

The noise in voxels that originally had zero birefringence is now N3: RandomVariate[NormalDistribution[0,0.0002]]

**hedgeHog3\_GT.h5 ->** **bundleBir[radius=1.5, length=15, ∆n=0.01, theta, azim];**

hedgeHog3 has 6 bundles placed symmetrically to the volume center {23,92,92} and bundles extend in the X-, Y-, Z-directions;

Volume shape: [45, 183, 183], intended for super sample = 3;

Additional information: none

**hedgeHog3B\_GT.h5 ->** **bundleBir[radius=0.5, length=15, ∆n=0.01, theta, azim];**

hedgeHog3B has thinner bundles than hedgeHog3

**hedgeHog4\_GT.h5 ->** **bundleBir[radius=1.5, length=15, ∆n=0.01, theta, azim];**

hedgeHog4 has 8 bundles placed symmetrically to the volume center {23,92,92} and bundles extend to the corners of a cube;

Volume shape: [45, 183, 183], intended for super sample = 3;

Additional information in: hedgeHogsJuly26.docx, hedgeHogsJuly31.docx

**hedgeHog4B\_GT.h5 ->** **bundleBir[radius=0.5, length=15, ∆n=0.01, theta, azim];**

hedgeHog4B has thinner bundles than hedgeHog4.

**hedgeHog5\_GT.h5 ->** **bundleBir[radius=2.5, length=25, ∆n=0.01, theta, azim];**

hedgeHog3 has 6 bundles placed symmetrically to the volume center {38, 153, 153} and bundles extend in the X-, Y-, Z-directions;

Volume shape: [75, 305, 305], intended for super sample = 5;

Additional information: none

**hedgeHog5B\_GT.h5 ->** **bundleBir[radius=0.5, length=25, ∆n=0.01, theta, azim];**

hedgeHog5B has thinner bundles than hedgeHog5

**hedgeHog6\_GT.h5 ->** **bundleBir[radius=2.5, length=25, ∆n=0.01, theta, azim];**

hedgeHog6 has 8 bundles placed symmetrically to the volume center {38, 153, 153} and bundles extend to the corners of a cube;

Volume shape: [75, 305, 305], intended for super sample = 5;

Additional information in: hedgeHogsJuly26.docx

**hedgeHog6B\_GT.h5 ->** **bundleBir[radius=0.5, length=25, ∆n=0.01, theta, azim];**

hedgeHog4B has thinner bundles than hedgeHog4.