

\$ = command line prompt at terminal

> = paraview gui

1. Create xdmf files using the h5kapsel2xdmf.script

\$./h5kapsel2xdmf.py data.conf

2. Open Paraview

3. Load Particle Data

> File > Open > data_particle.xdmf

> Apply

4. Load Fluid Data

> File > Open > data_fluid.xdmf

> Apply

5. Draw bounding box

> Sources > Box

X Length = 128

Y Length = 64

Z Length = 32

Center = 64, 32, 16

Representation = Outline

> Apply

6. Fix Particle visualization

In the pipeline browser, select data_particle.xdmf

> Filters > Common > Glyph

Glyph Properties:

Glyph Type = Sphere

Radius = 2

Scale Mode = Off

Scale Factor = 1.0

Uncheck "Mask Points"

Uncheck "Random Mode"

Display:

Coloring = Solid Color (click edit and choose favorite color)

> Apply

7. Add particle orientation vectors

Again, in the pipeline browser, select data_particle.xdmf

> Filters > Common > Calculator

Properties:

Attribute Mode = Point Data

Result Array Name = orientation

In the input field (under the result array name field) type:

$QR_0*iHat + QR_1*jHat + QR_2*kHat$

[QR is the particle orientation matrix, x-axis = (QR_0, QR_1, QR_2),
y-axis = (QR_3, QR_4, QR_5), z-axis = (QR_6, QR_7, QR_8)]

> Apply

8. Visualize orientation vectors

Select Calculator1

> Filters > Common > Glyph

Properties:

Vectors = orientation

Glyph Type = 2D Glyph

Scale Mode = Off

Scale Factor= 4.0

Uncheck "Mask Points"

Uncheck "Random Mode"

> Apply

9. Compute magnitude of fluid Velocity

select data_particle.xdmf

> Filters > Common > Calculator

Properties:

Attribute Mode = Point Data

Result Array Name= u_mag

In the input field type:

$mag(u)$

> Apply

Display options should now be enabled

Display:

Representation = Volume

Coloring = u_mag

Click on the "Edit" coloring button

In the color map editor, look for

"Rescale to data range over all time steps" options

Accept and Update

10. Save project and exit (you can use same visualization setup again)