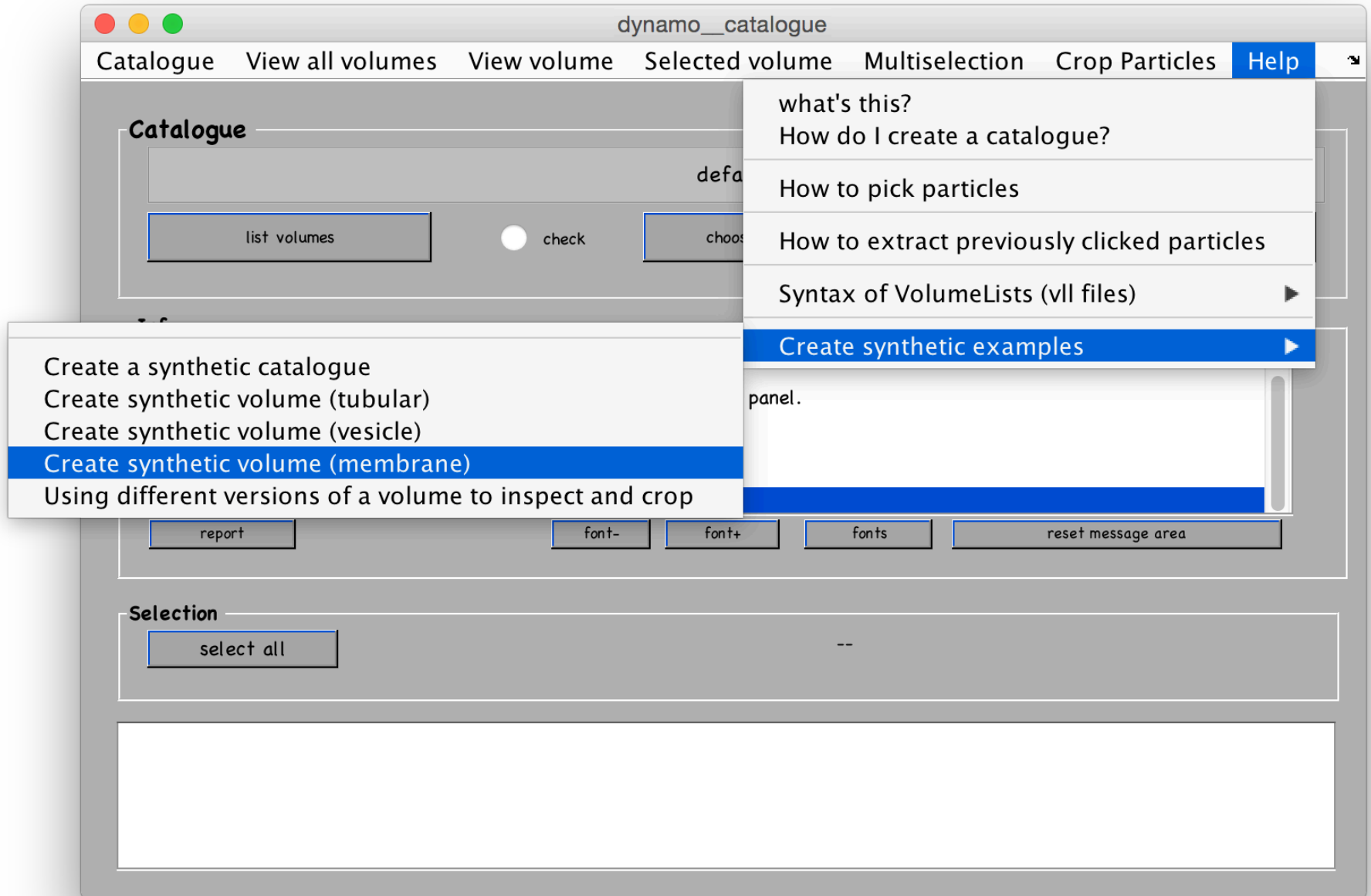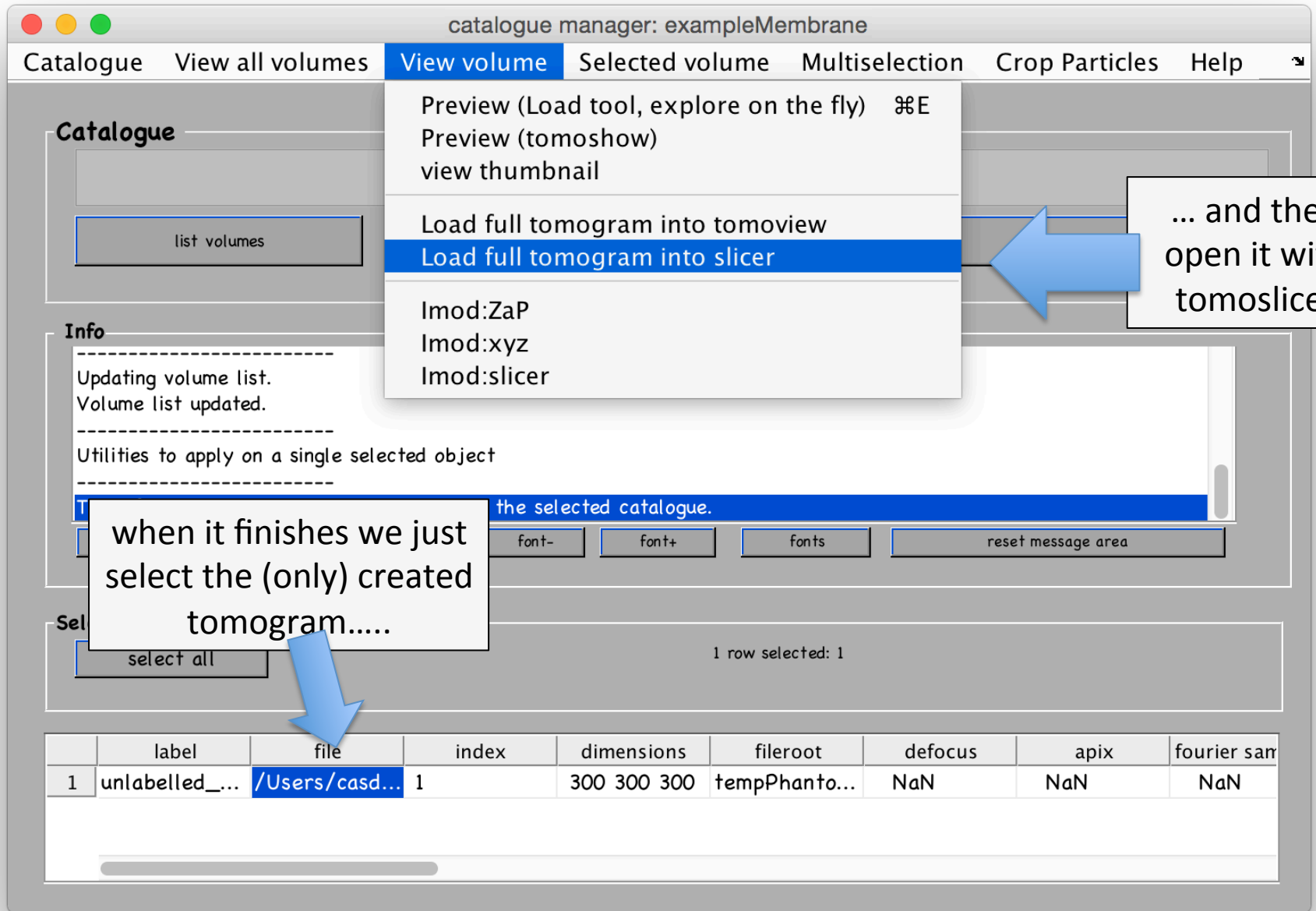# Model management with *Dynamo*:
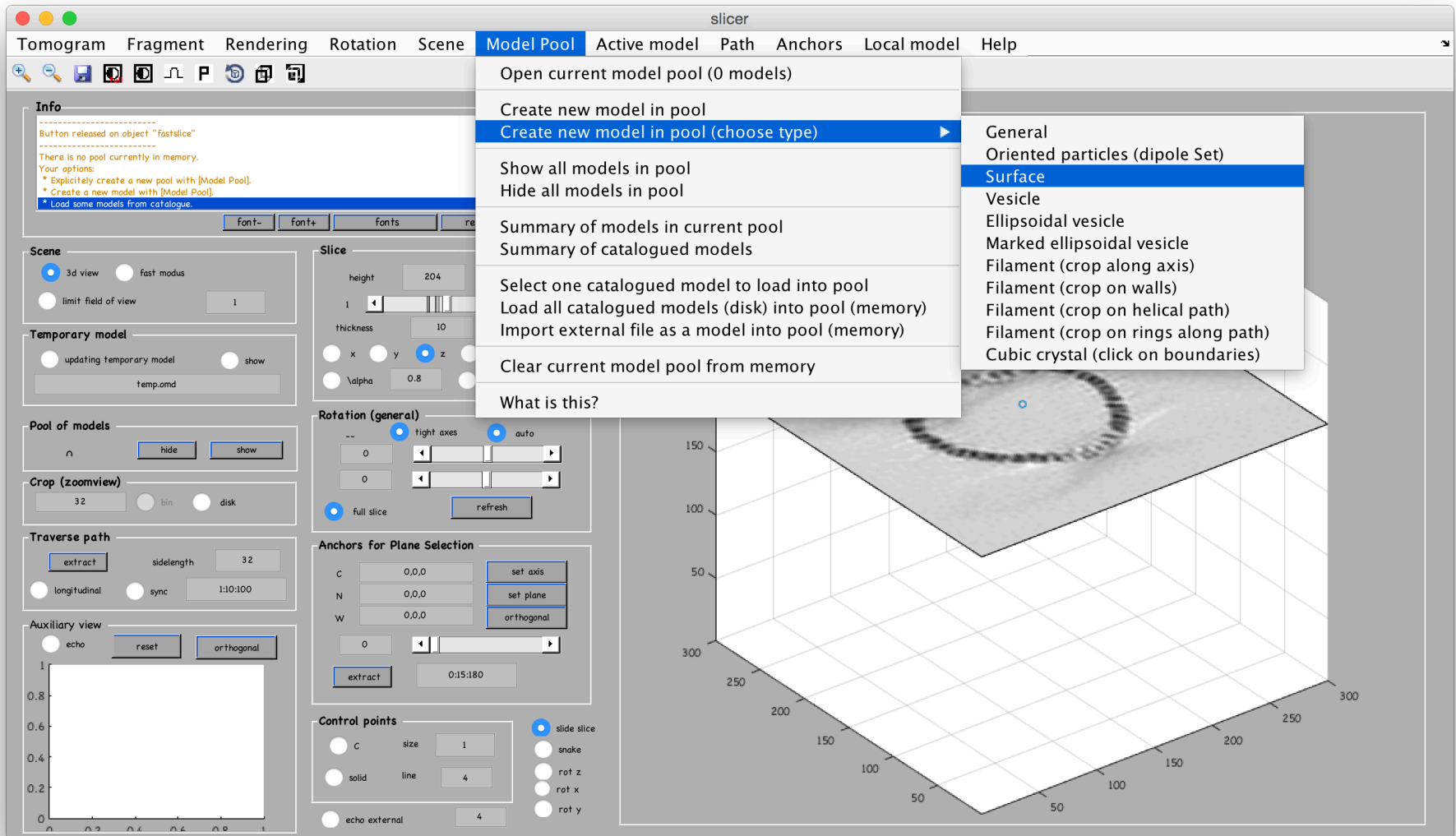## Membrane geometry:
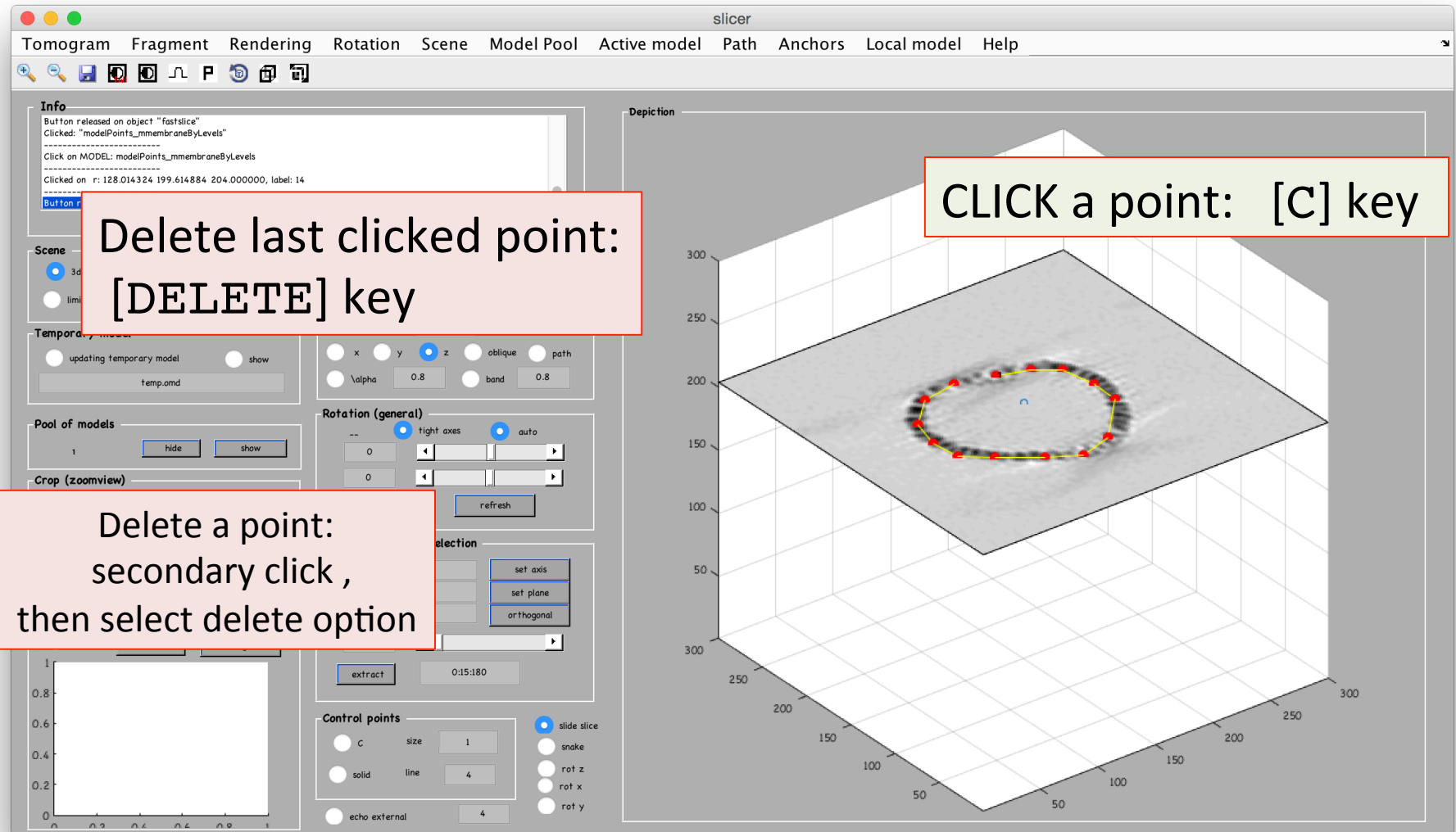
we open dcm

We create a synthetic tomogram (which is automatically saved into a catalogue)

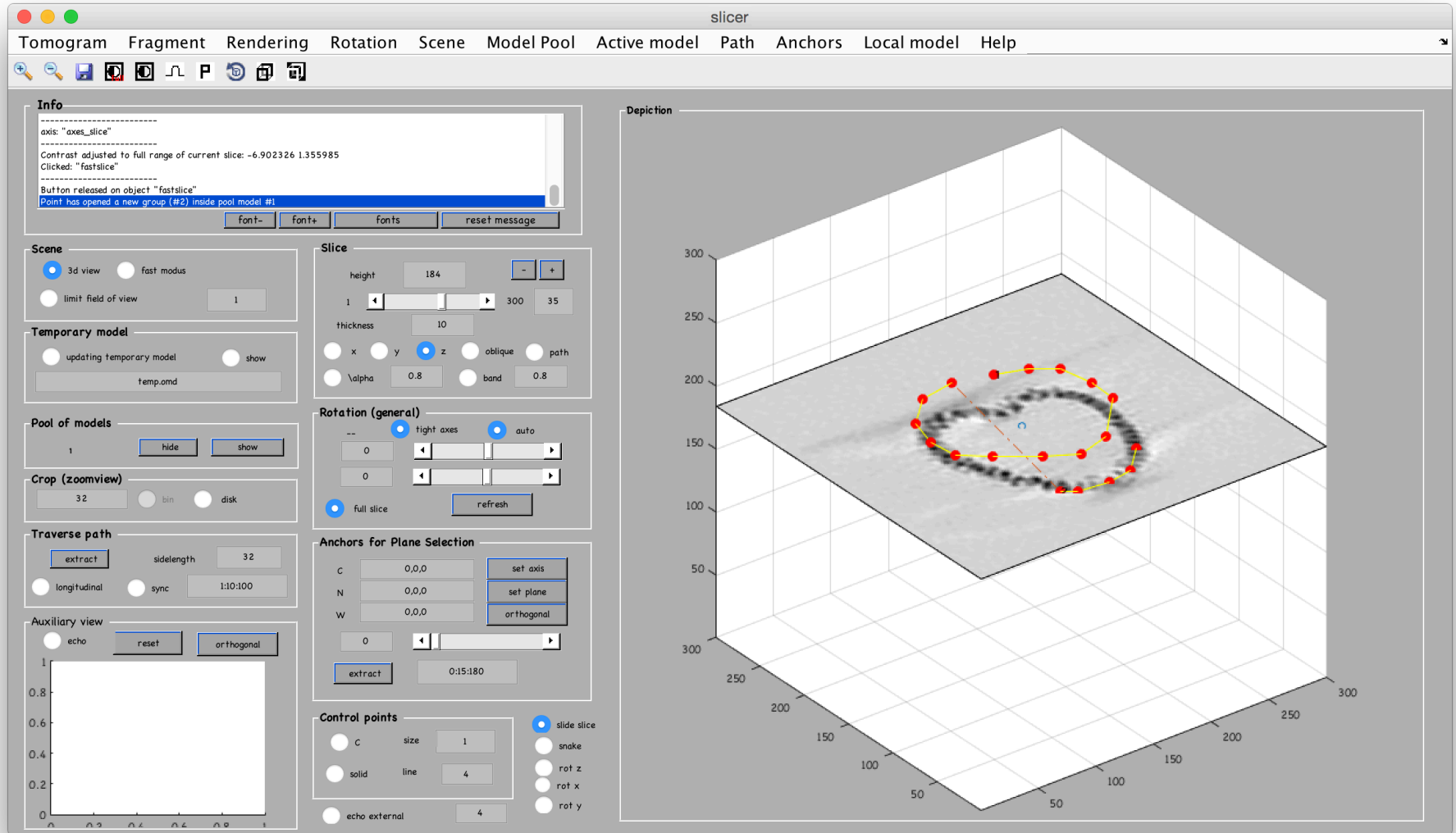# And we generate a model of type membrane

We click points along the set that we are interested in covering with crop pints

CLICK a point: [C] key

Delete last clicked point:
[DELETE] key

Delete a point:
secondary click ,
then select delete option

Move into another plane and keep on clicking
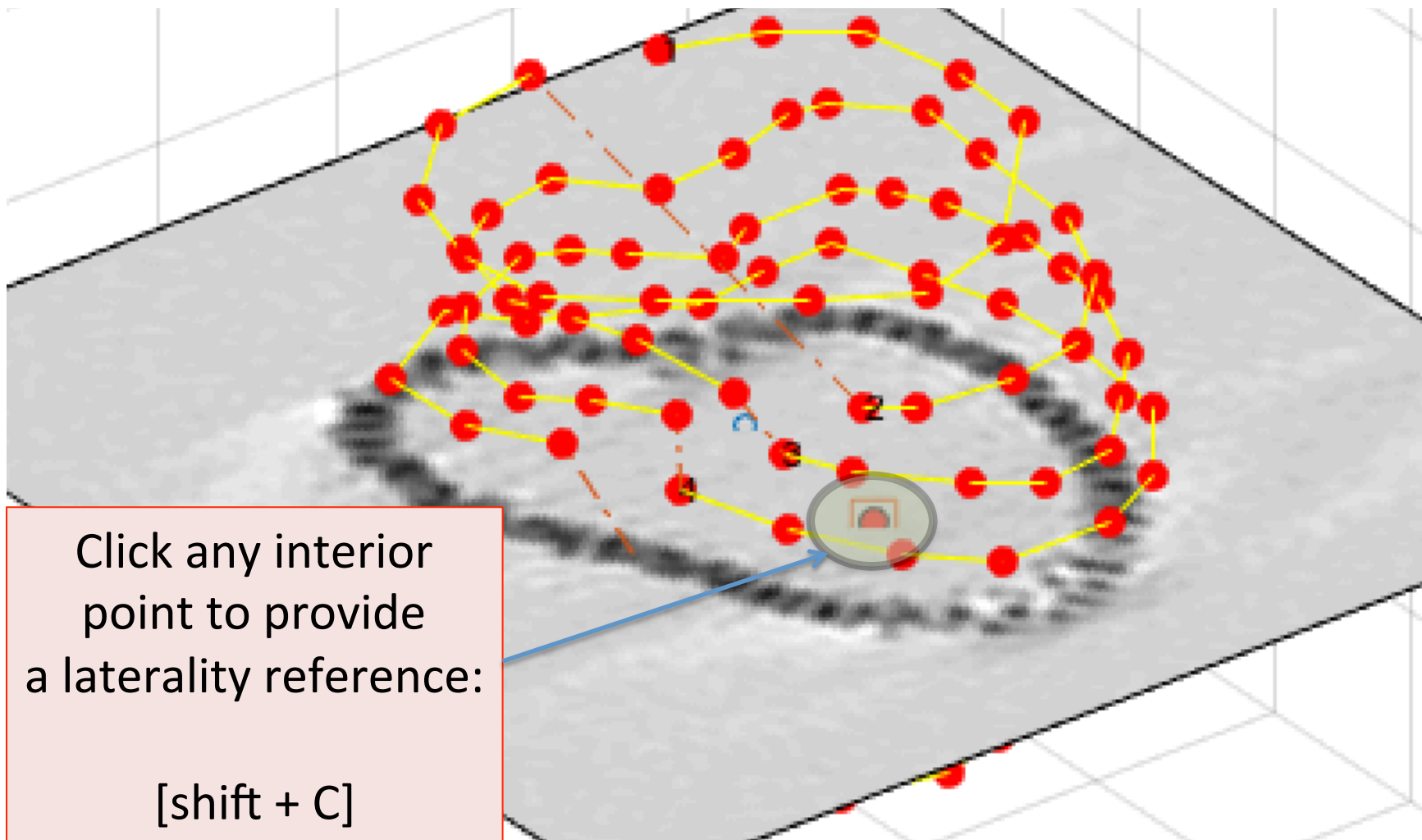
Click any interior
point to provide
a laterality reference:

[shift + C]

… and open the workflow
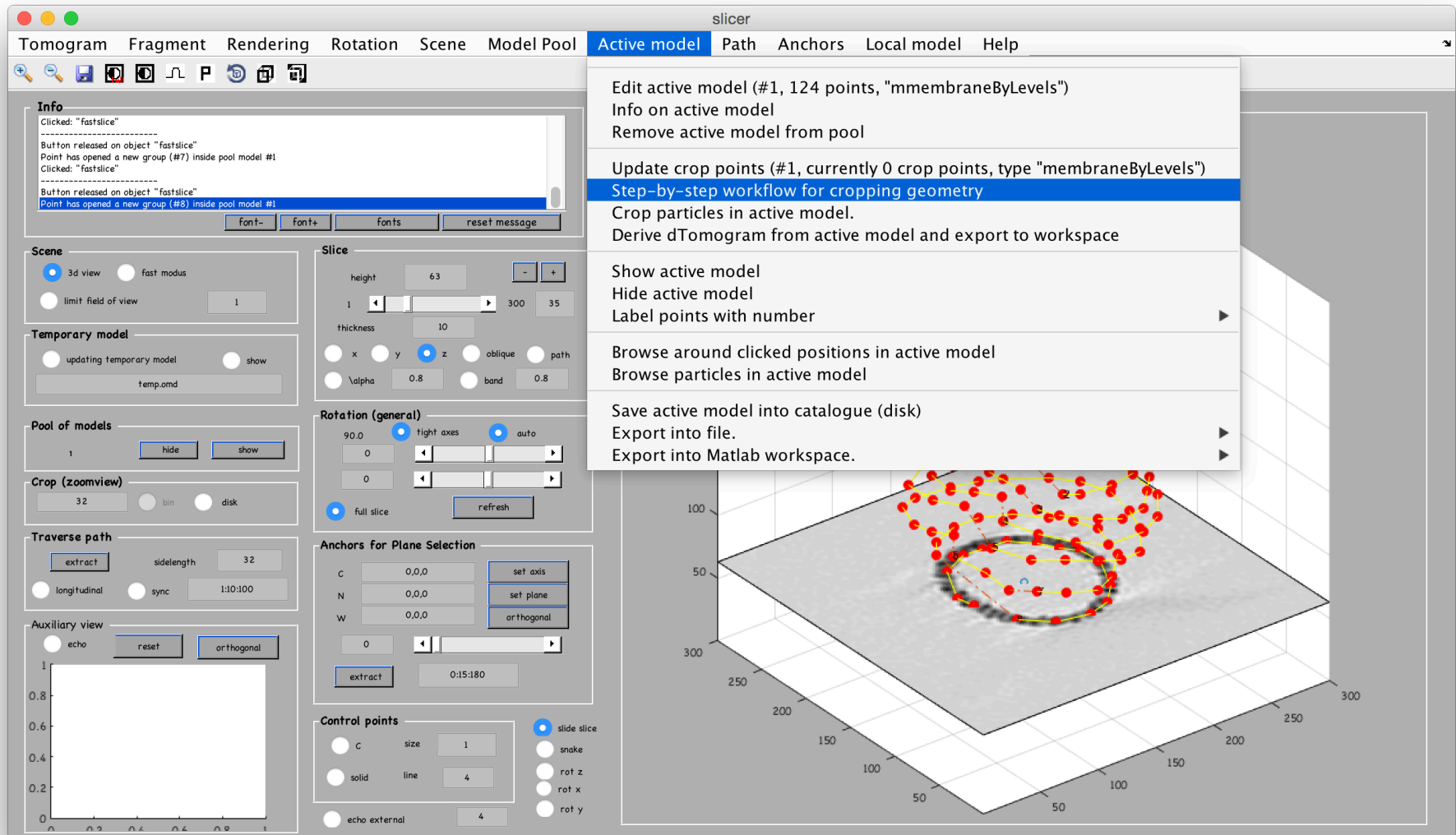
Workflow to define crop positions on model "mmembraneByLevels"

Save

Creates equally distributed control points   View

interval between control points	20

control points: 0

---

create a mesh for depiction   View

mesh parameter (depiction)	5
allowed triangle max on depiction	100000

#Depiction triangles: 0

---

refine the depiction mesh   View

subdivision steps	2

fine crop positions on model "mmembraneByLevels"

Update the control points

Creates equally distributed control points

View

interval between control points   20

control points: 142

Dynamo shows the actual number of generated equally spaced control points

create a mesh for depiction

View

(depiction)   5

allowed triangle max on depiction   100000
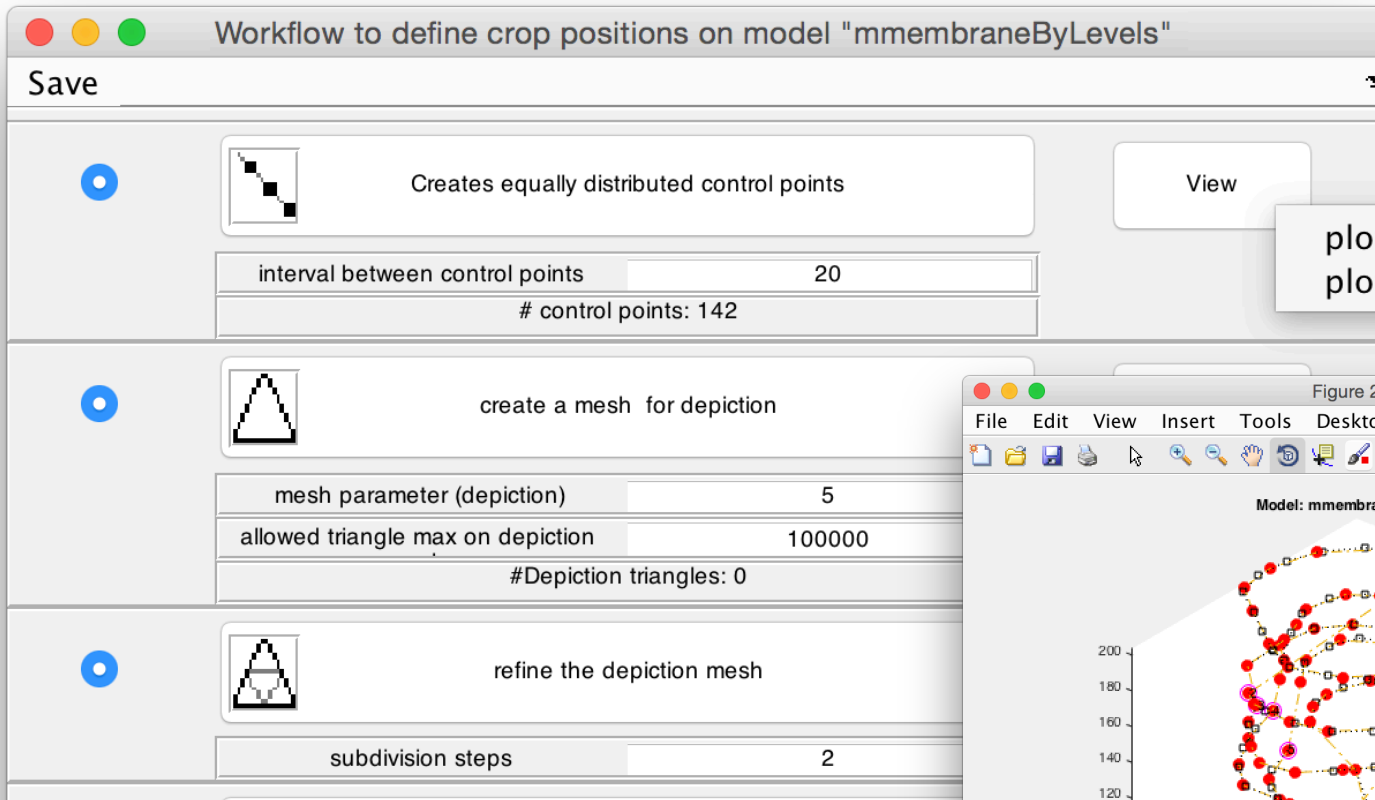
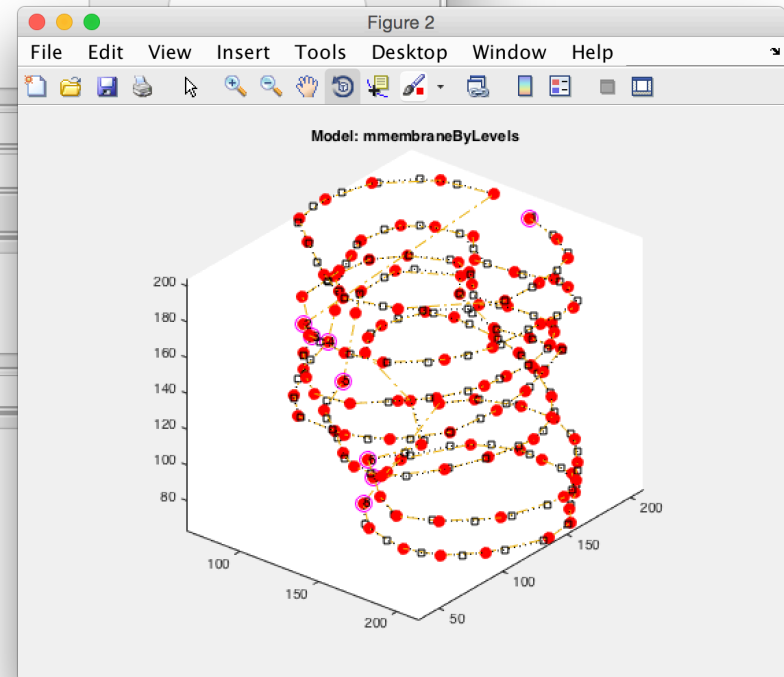#Depiction triangles: 0

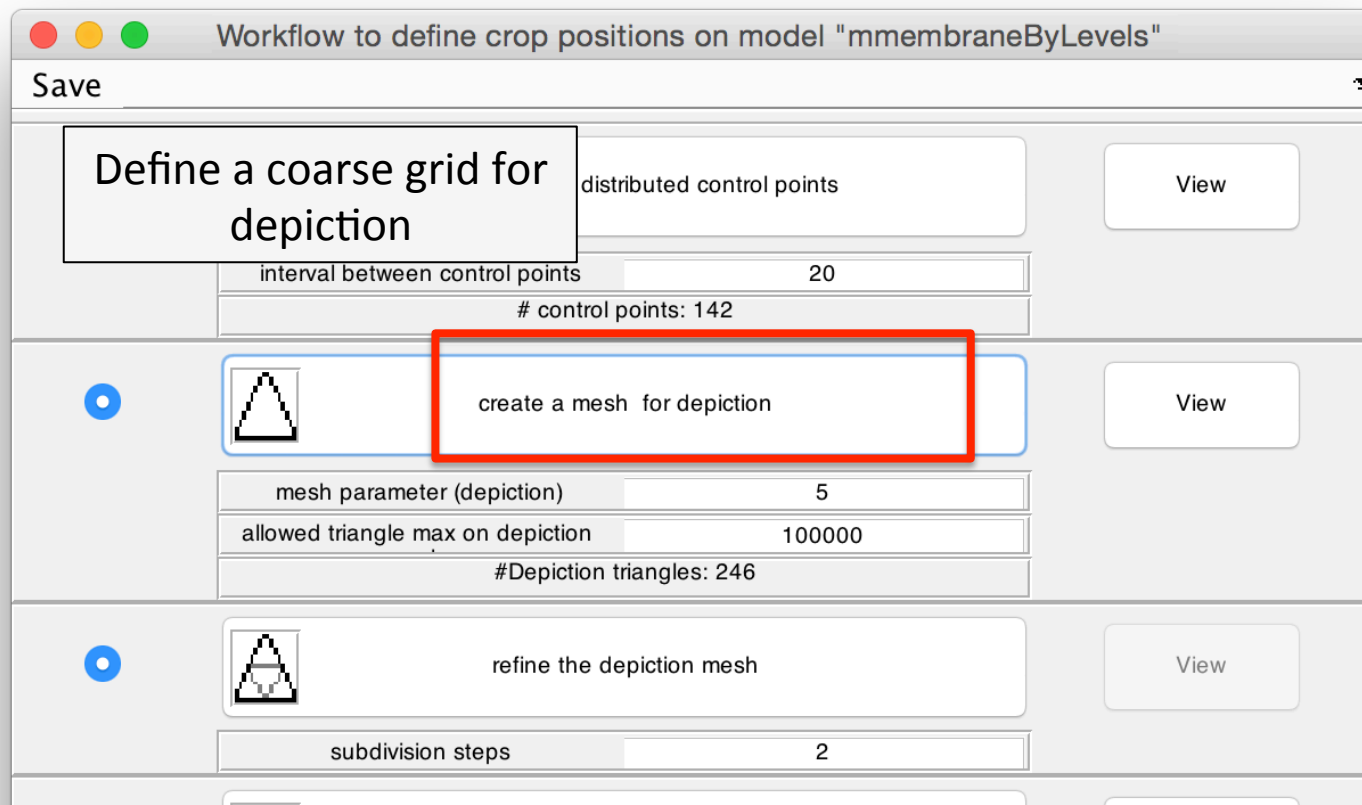refine the depiction mesh

View

subdivision steps   2

Workflow to define crop positions on model "mmembraneByLevels"

Save

Creates equally distributed control points

View

plot points entered by the user
plot computed control points

interval between control points   20
control points: 142

create a mesh for depiction

mesh parameter (depiction)   5
allowed triangle max on depiction   100000
#Depiction triangles: 0

refine the depiction mesh

subdivision steps   2

Figure 2

File   Edit   View   Insert   Tools   Desktop   Window   Help

Model: mmembraneByLevels

You can plot the result of each step
 [secondary click on view]
The plots should update automatically
for each step correction, but NOT for
each parameter change

Workflow to define crop positions on model "mmembraneByLevels"

Save

Define a coarse grid for depiction

distributed control points

View

interval between control points | 20

control points: 142

create a mesh for depiction

View

mesh parameter (depiction) | 5

allowed triangle max on depiction | 100000

#Depiction triangles: 246

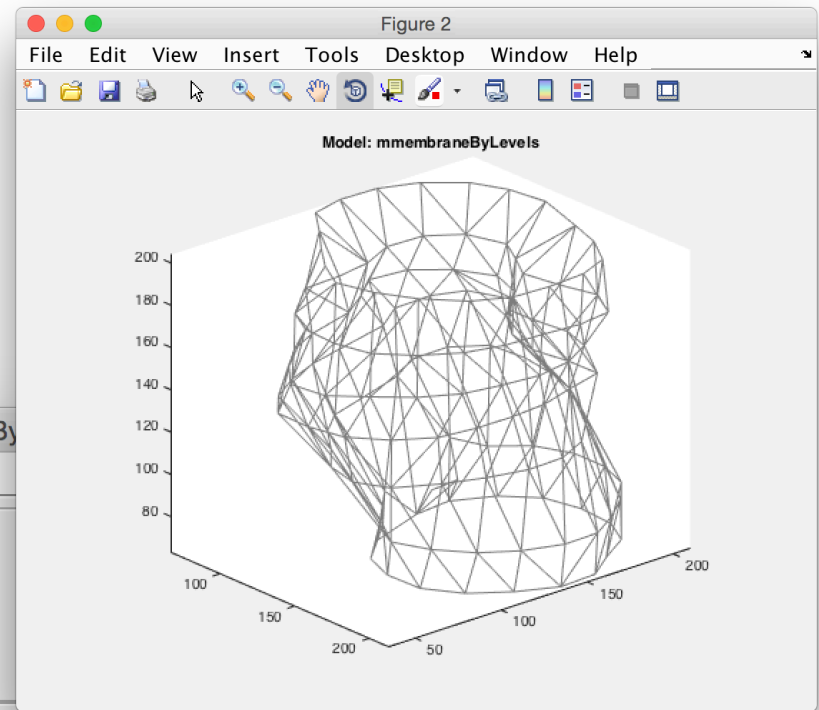refine the depiction mesh

View

subdivision steps | 2

Now we will generate with the "black triangles" a triangulation mesh that will define a support geometry for the membrane.
We want this to be a smooth geometry, so that we will probably need to smoothen it explicitely until it looks good

Figure 2

File   Edit   View   Insert   Tools   Desktop   Window   Help

Model: mmembraneByLevels

200

180

160

140

120

100

80

100

150

200

50

100

150

100

150

200

Workflow to define crop positions on model "mmembraneBy

Save

Creates equally distributed control points

interval between control points	20
# control points: 142	

create a mesh for depiction

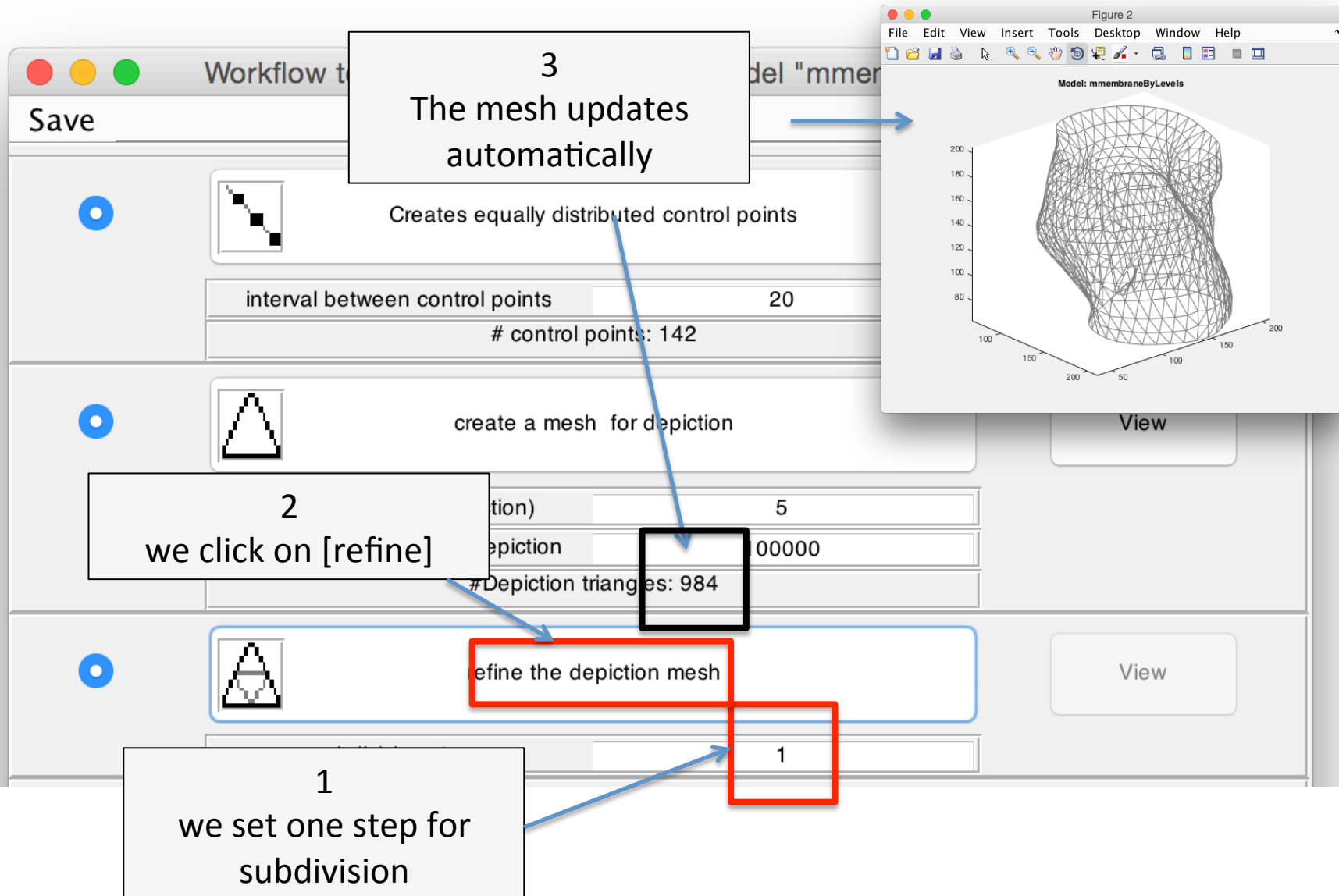| mesh parameter (depiction)	5
allowed triangle max on depiction	100000
#Depiction triangles: 246	

refine the depiction mesh

View

subdivision steps	2

View

plot points entered by the user
plot depiction mesh
plot surface for depiction mesh

This is still too coarse, so we need to refine it

Save

○ Creates equally distributed control points

interval between control points | 20
control points: 142

○ create a mesh for depiction

View

3
The mesh updates automatically

Model: mmembraneByLevels

2
we click on [refine]

...tion) | 5
...epiction | 00000
#Depiction triangles: 984

○ ...efine the depiction mesh

View

1
we set one step for subdivision

... | 1

Now that we have a support geometry, we can move downwards and create actual crop points for the table

Creates a mesh for cropping

mesh parameter (cropping)   10

crop triangles: 244

refine the cropping mesh

subdivision steps   1

create final positions and angles for particle cropping   View

crop points: 244

1
choose the mesh parameter for cropping. It represents the average distance between particles along the mesh that we just defined

4
Generate the table

Creates a mesh for cropping — View

mesh parameter (cropping) 10

crop triangles: 244

refine the cropping mesh

subdivision steps 1

Use the two plotting options

create final positions and angles for particle cropping — View

crop points: 244

**plot table points (crop positions)
plot table points and orientations**

save resulting model into catalogue — View

Controls

execute selection   execute all

… and don't forget to save your work

Figure 2

File   Edit   View   Insert   Tools   Desktop   Window   Help

Model: mmembraneByLevels
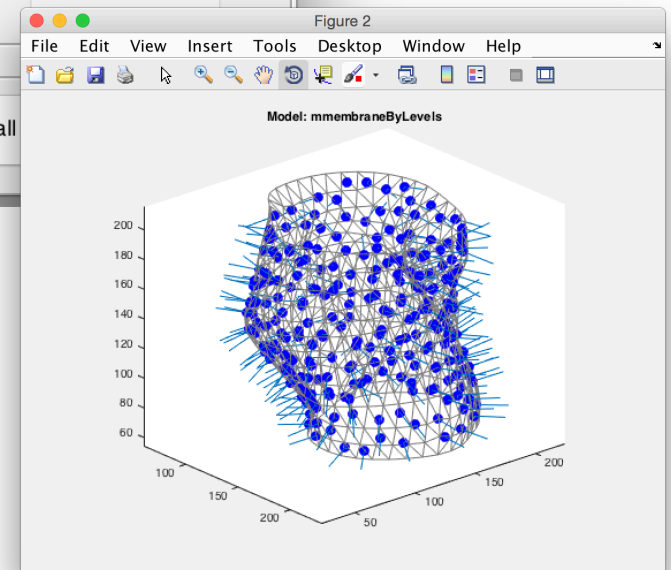
Exercise: crop the particles and show a lateral view of all of them