

Supplementary Document 1
Step by step using the control panels

Step 2

Reconstruction Simulation

Reconstruction settings

Load initial islet **Step 2.3**

Initial islet not loaded

Reconstruction settings

Initial temperature: 1.0

Tolerance parameter: 0.005

Iterations factor: 1

Acceptance factor: 1

Threads: 6

Contact tolerance: 1.0

Step 2.5 OK

Reconstruction Simulation

Reconstruction settings **Step 2.4**

Load initial islet

H51.txt loaded successfully

Reconstruct islet **Step 2.6**

Islet not reconstructed

Reconstruction Log

Step 2.7 Run Abort

Reconstruction Log

```
[Accepted Total] = [161 588]

T = 0.0000000009
Overlapped cells (OC) = 88.000000
[min(OC) max(OC)] = [88.000000 89.000000]
[Accepted Total] = [140 588]

T = 0.0000000005
Overlapped cells (OC) = 86.000000
[min(OC) max(OC)] = [86.000000 88.000000]
[Accepted Total] = [150 588]

T = 0.0000000002
Overlapped cells (OC) = 86.000000
[min(OC) max(OC)] = [86.000000 86.000000]
[Accepted Total] = [151 588]

Computing time: 82 seconds
Please close this window to continue.
```

Run Abort

Step 3

Reconstruction Simulation

Reconstruction settings **Step 3.1**

Load initial islet

H51.txt loaded successfully

Reconstruct islet

Optimization completed

Cell-to-cell contacts **Step 3.2**

Contacts not identified

Step 4

Reconstruction Simulation

Reconstruction settings

Load initial islet

H51.txt loaded successfully

Reconstruct islet

Optimization completed

Cell-to-cell contacts

Contacts identified

Build Network **Step 4.1**

Network not generated

Reconstruction Simulation

Reconstruction settings

Load initial islet

H51.txt loaded successfully

Reconstruct islet

Optimization completed

Cell-to-cell contacts

Contacts identified

Build Network

Network generated

Step 5

Reconstruction | **Simulation**

Intrinsic frequency (Hz) Step 5.2

Constant
 Random

Configure

Initial phase (rad) Step 5.3

Constant
 Random

Configure

Interaction strenght Step 5.4

Configure interactions

Simulation settings Step 5.5

Total time (s)
Time step (s)
Save step

CUDA settings Step 5.6

Blocks
Threads
CUDA Capability

Run Simulation Step 5.7

Configure

Constant frequency

OK

Configure

Constant phase

OK

Interaction strength

Kaa	<input type="text" value="1.0"/>
Kba	<input type="text" value="0.1"/>
Kda	<input type="text" value="1.0"/>
Kab	<input type="text" value="-10.0"/>
Kbb	<input type="text" value="1.0"/>
Kdb	<input type="text" value="1.0"/>
Kad	<input type="text" value="-1.0"/>
Kbd	<input type="text" value="-1.0"/>
Kdd	<input type="text" value="0.0"/>

OK

Simulation log

Step 5.7

Run Abort

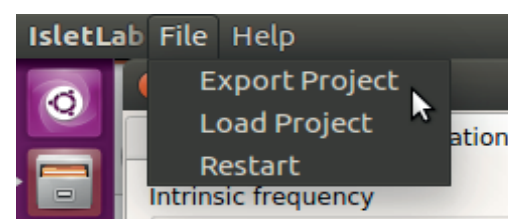
Simulation log

```
t = 19150.000000  
t = 19200.000000  
t = 19250.000000  
t = 19300.000000  
t = 19350.000000  
t = 19400.000000  
t = 19450.000000  
t = 19500.000000  
t = 19550.000000  
t = 19600.000000  
t = 19650.000000  
t = 19700.000000  
t = 19750.000000  
t = 19800.000000  
t = 19850.000000  
t = 19900.000000  
t = 19950.000000  
t = 20000.000000
```

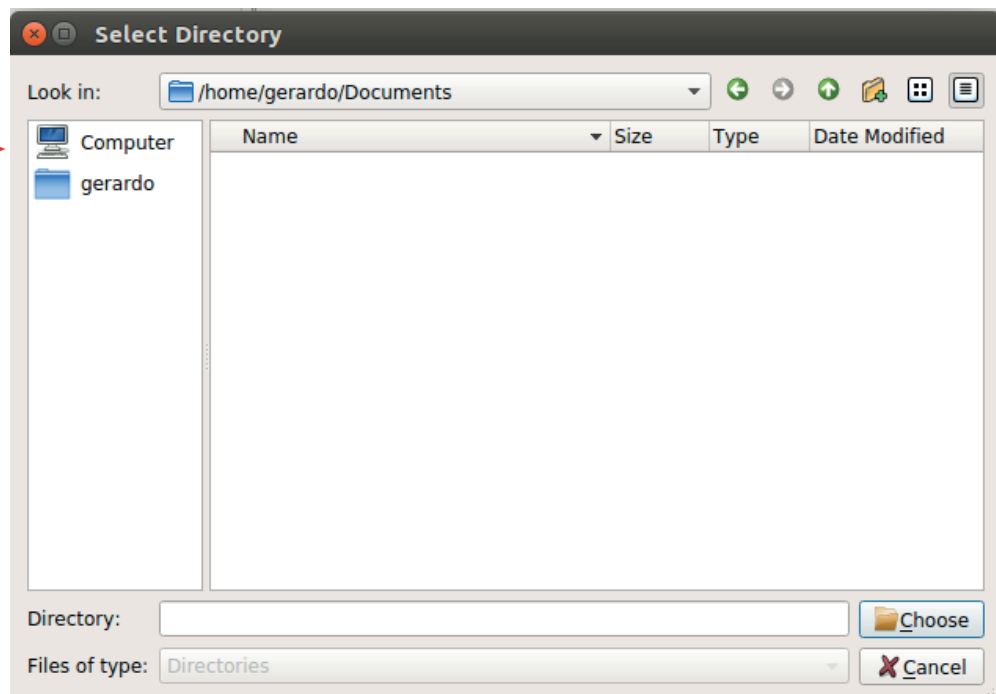
Computing time: 15 seconds
Please close this window to continue.

Run Abort

Step 6



Step 6.1



Step 7

