

Data Selection Panel

Name of Image Matrix

Name of Variable Matrix

Select Data

Select Variables

This tutorial contains navigation buttons that enable you to move throughout the tutorial.

Please use the navigation buttons and not the page up/page down or arrow keys to navigate through the tutorials.

This is the 'Next' button. It takes you to the next frame or stop point.



This is the 'Previous' button. It takes you to the previous frame or stop point.



This is the 'Go to frame' button. It takes you to a specified frame.

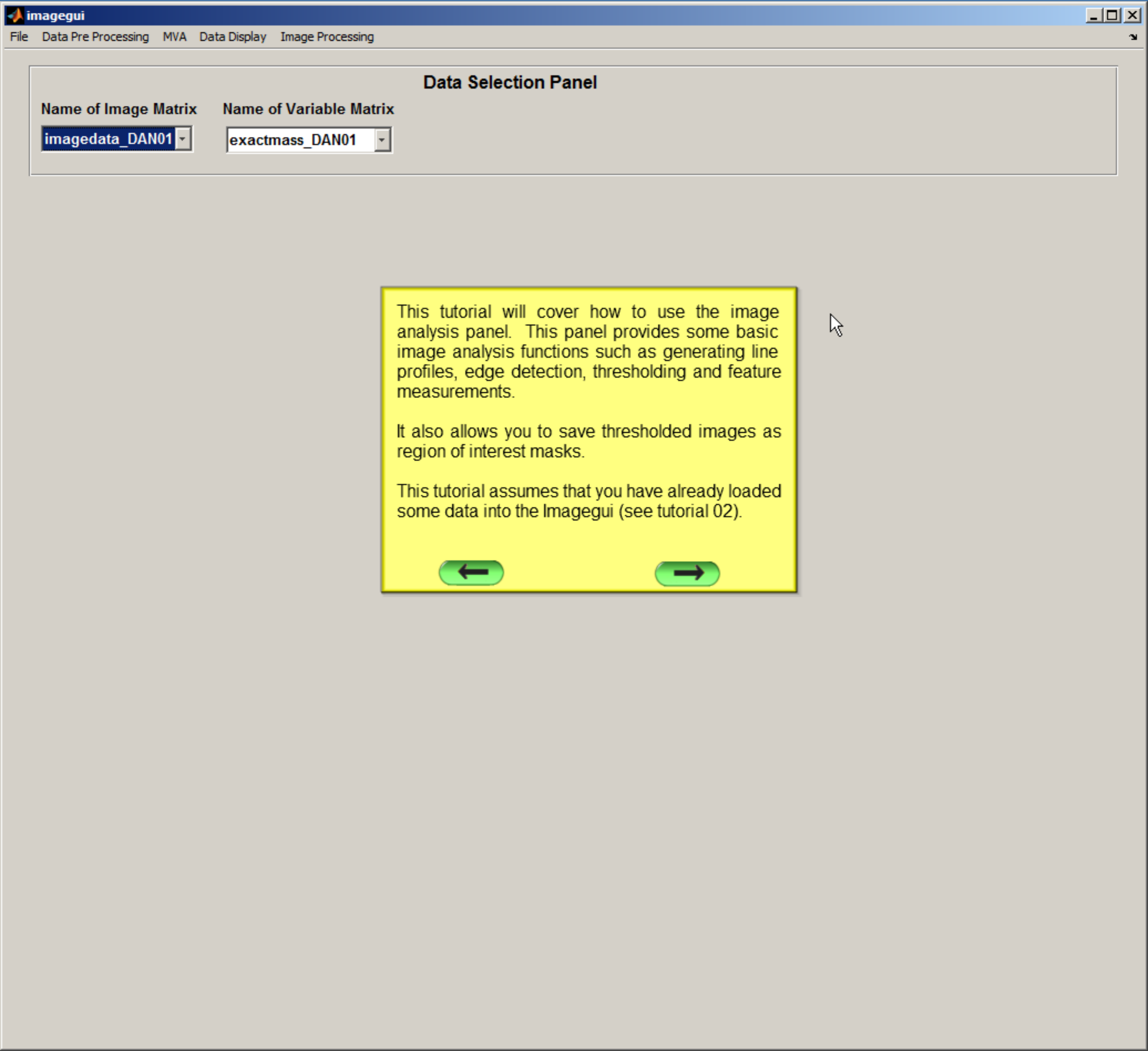


This is the 'Go to URL' button. It takes you to a website link.



Press the 'Next' button below to start this tutorial.





Data Selection Panel

Name of Image Matrix

Name of Variable Matrix

imagedata_DAN01

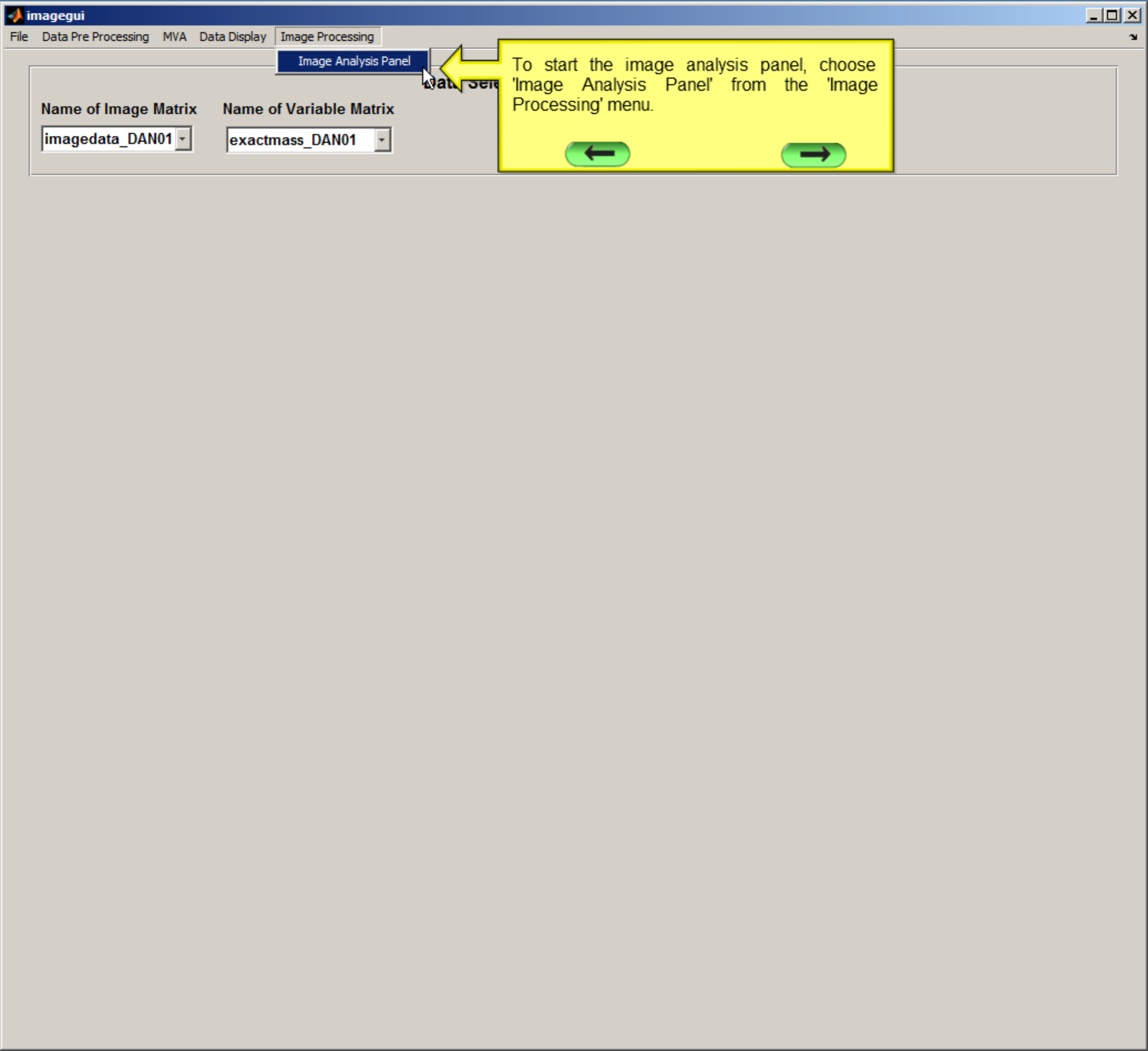
exactmass_DAN01

This tutorial will cover how to use the image analysis panel. This panel provides some basic image analysis functions such as generating line profiles, edge detection, thresholding and feature measurements.

It also allows you to save thresholded images as region of interest masks.

This tutorial assumes that you have already loaded some data into the Imagegui (see tutorial 02).





Name of Image Matrix

Name of Variable Matrix

imagedata_DAN01

exactmass_DAN01

To start the image analysis panel, choose 'Image Analysis Panel' from the 'Image Processing' menu.



Data Selection Panel

Name of Image Matrix

Name of Variable Matrix

imagedata_DAN01

exactmass_DAN01

Load Selected Data

Image:

none

Variables

none

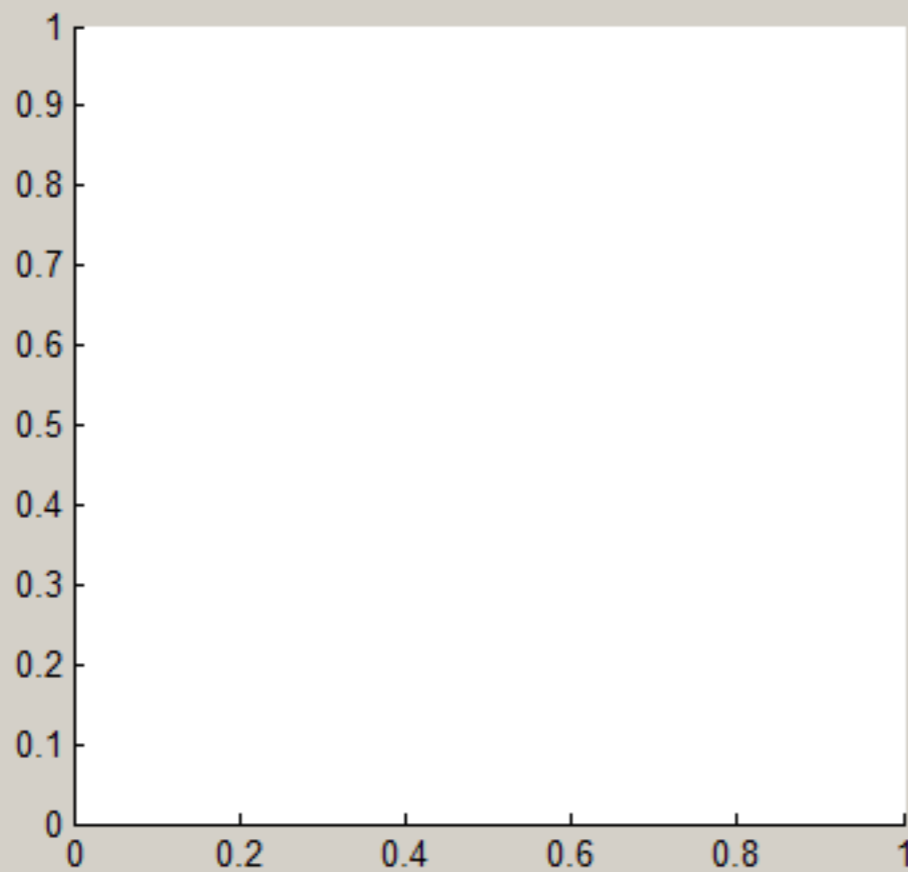
Choose the peak(s) you want to plot from the list on the left and then choose an image processing function from the menu below.

Make sure the desired data is selected in the drop down menus above and then press the 'Load Selected Data' button.



Variable List

Empty list box for variable selection.



Choose one...

Close Panel

Data Selection Panel

Name of Image Matrix

Name of Variable Matrix

imagedata_DAN01

exactmass_DAN01

Load Selected Data

Image: **imagedata_DAN01**

Variables **exactmass_DAN01**

Which Image to measure on?

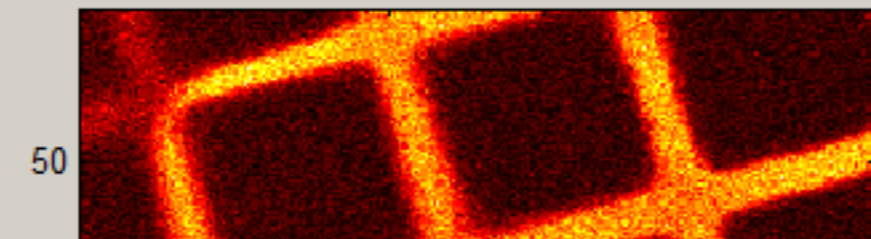
Choose one...

Measure

Choose the peak(s) you want to plot from the list on the left and then choose an image processing function from the menu below.

Variable List

15.9971
25.0051
26.0054
31.9732
32.9727
34.9663
42.0052
58.9992
63.9539
71.0156
79.9478
96.9589
104.959
152.948
196.926
228.915
249.099



You can display the peak area image from any peak or combination of peaks by clicking on them in this list. To select multiple peaks you can left click and drag up or down, or shift-left click, or ctrl-left click on the peaks you want to display.

If multiple peaks are selected the displayed image will be the sum of all selected peaks.



Choose one...

Close Panel

Data Selection Panel

Name of Image Matrix

Name of Variable Matrix

imagedata_DAN01

exactmass_DAN01

Load Selected Data

Image: **imagedata_DAN01**

Variables **exactmass_DAN01**

Choose the peak(s) you want to plot from the list on the left and then choose an image processing function from the menu below.

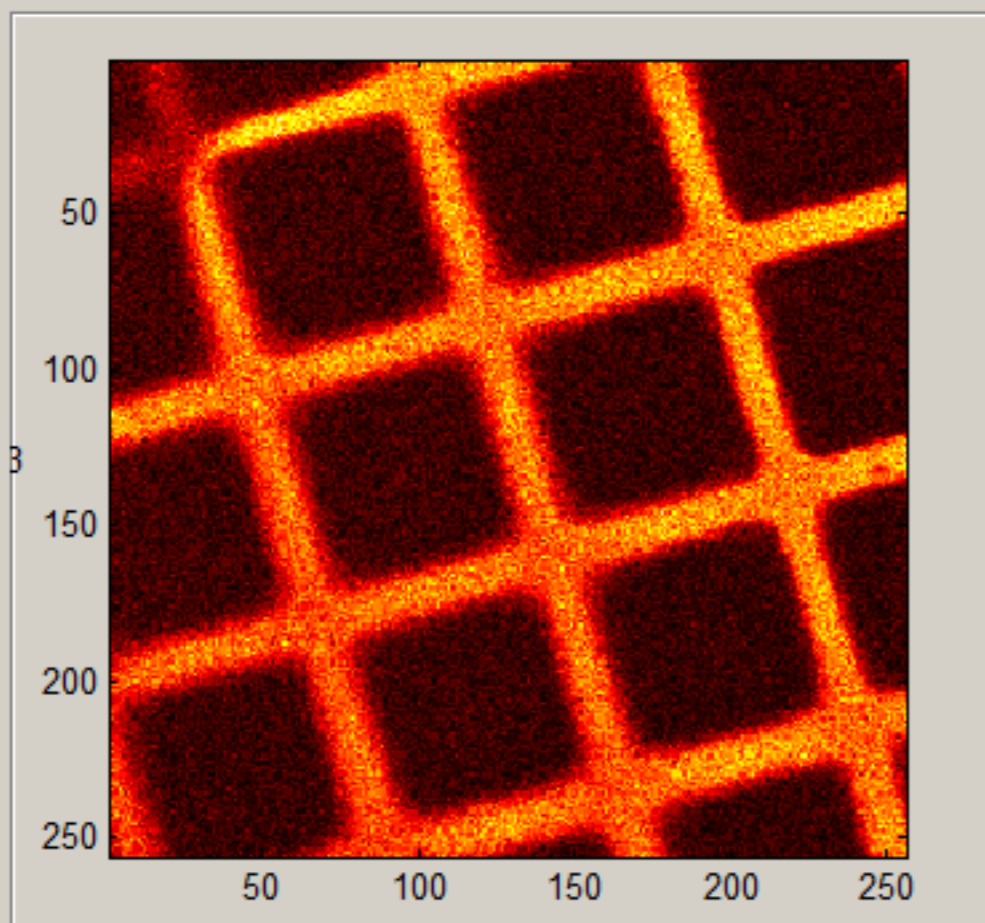
Which Image to measure on?

Choose one...

Measure

Variable List

15.9971
25.0051
26.0054
31.9732
32.9727
34.9663
42.0052
58.9992
63.9539
71.0156
79.9478
96.9589
104.959
152.948
196.926
228.915
249.099



Choose one...
Choose one...
Line Profile
Y Area Profile
X Area Profile
Trace Edges
Threshold image

Once you have selected something to display this menu become active. It enables the controls for creating a line profile, generating a Y or X area profile, tracing edges, or thresholding an image.



Data Selection Panel

Name of Image Matrix

Name of Variable Matrix

imagedata_DAN01

exactmass_DAN01

Load Selected Data

Image: **imagedata_DAN01**

Variables **exactmass_DAN01**

Which Image to measure on?

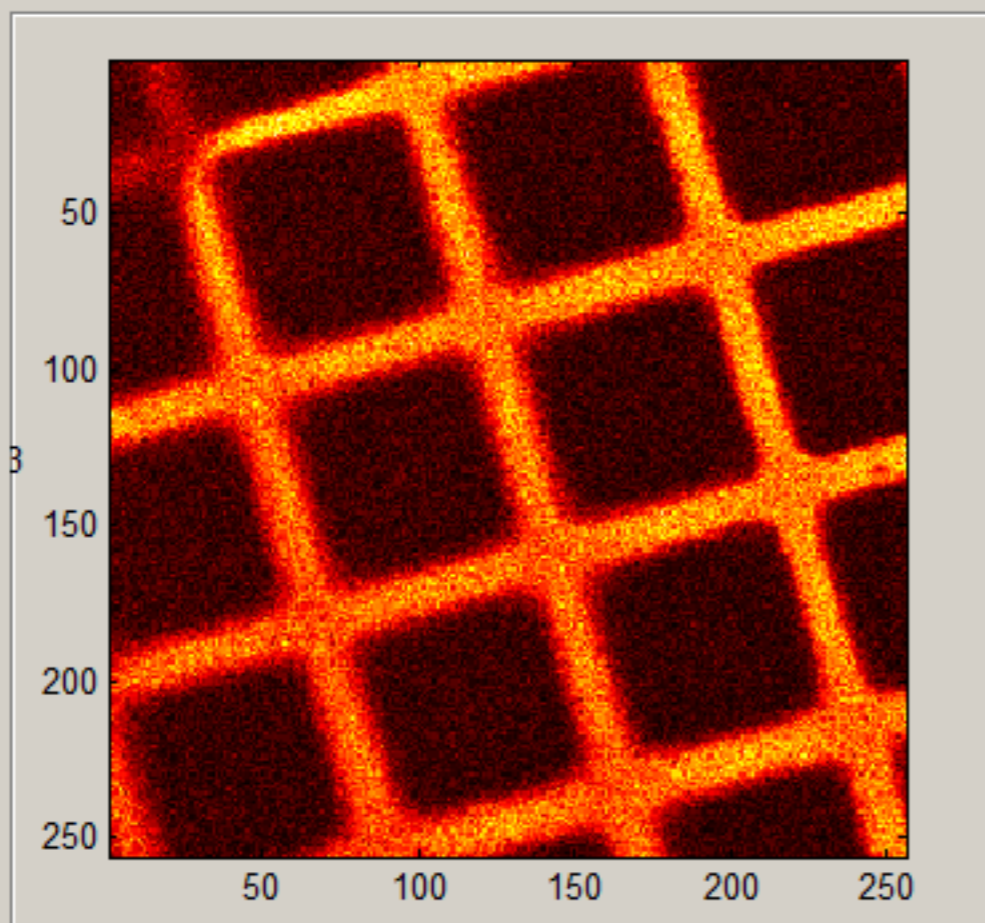
Choose one...

Measure

Choose the peak(s) you want to plot from the list on the left and then choose an image processing function from the menu below.

Variable List

15.9971
25.0051
26.0054
31.9732
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34.9663
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58.9992
63.9539
71.0156
79.9478
96.9589
104.959
152.948
196.926
228.915
249.099



- Choose one...
- Choose one...
 - Line Profile**
 - Y Area Profile
 - X Area Profile
 - Trace Edges
 - Threshold image

First let's look at creating a line profile.



Data Selection Panel

Name of Image Matrix

imagedata_DAN01

Name of Variable Matrix

exactmass_DAN01

Load Selected Data

Image: **imagedata_DAN01**

Variables **exactmass_DAN01**

Choose the peak(s) you want to plot from the list on the left and then choose an image processing function from the menu below.

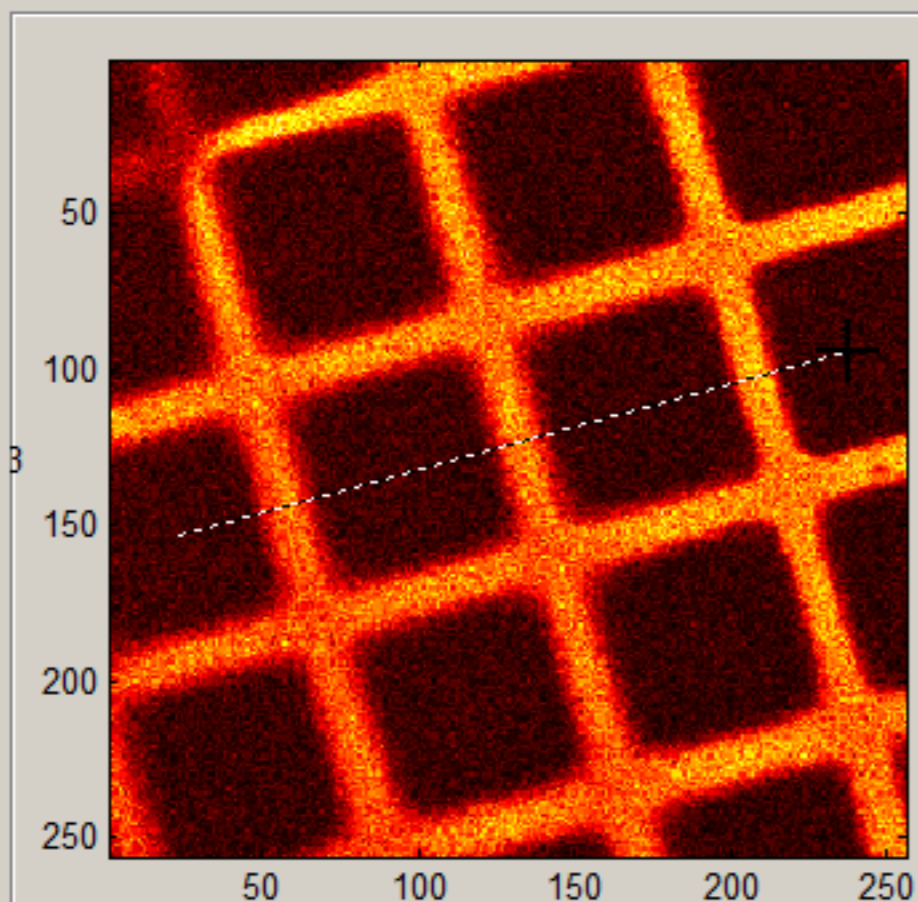
Which Image to measure on?

Choose one...

Measure

Variable List

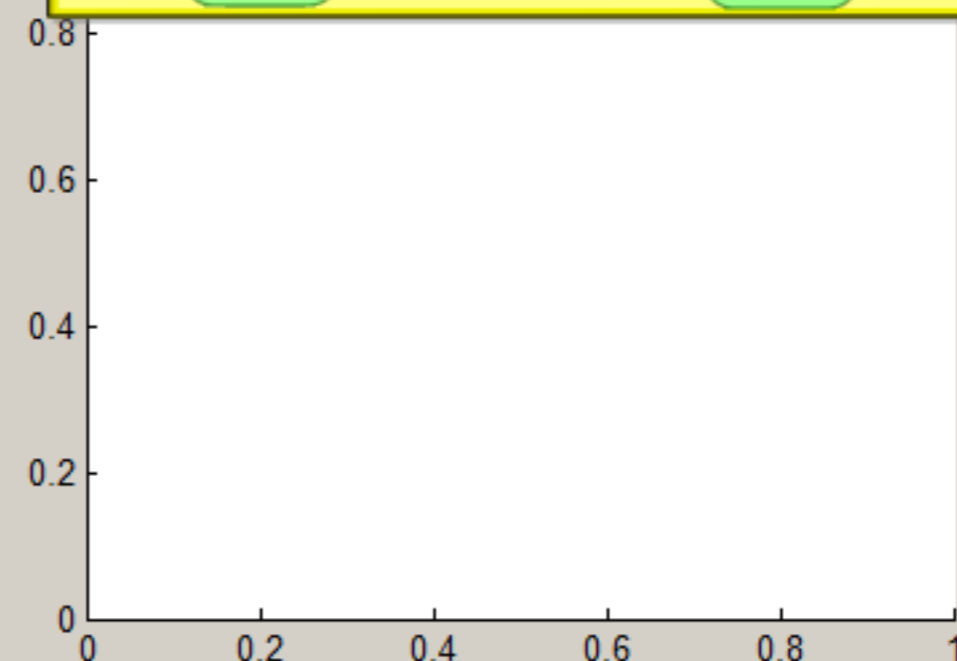
15.9971
25.0051
26.0054
31.9732
32.9727
34.9663
42.0052
58.9992
63.9539
71.0156
79.9478
96.9589
104.959
152.948
196.926
228.915
249.099



Line Profile

Close Panel

Left click and drag a line across the features where you want to create the line profile. Double click to exit line drawing mode and create the line profile.



Create ext Figure

Save Plot to File

Data Selection Panel

Name of Image Matrix

Name of Variable Matrix

imagedata_DAN01

exactmass_DAN01

Load Selected Data

Image: **imagedata_DAN01**

Variables **exactmass_DAN01**

Choose the peak(s) you want to plot from the list on the left and then choose an image processing function from the menu below.

Which Image to measure on?

Choose one...

Choose one...

Original image

Upper right image

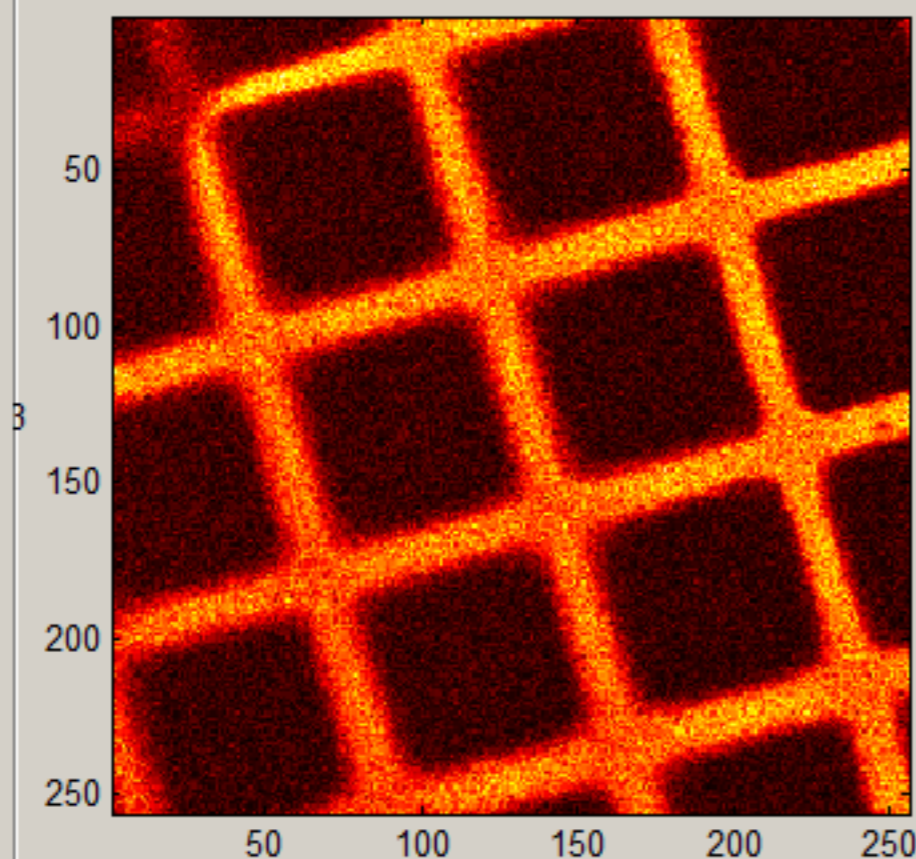
Lower right image

The line profile is generated in the lower right box. Let's measure the size of the lines in the profile. For this we will use the measurement tools. First choose which image you want to measure on.



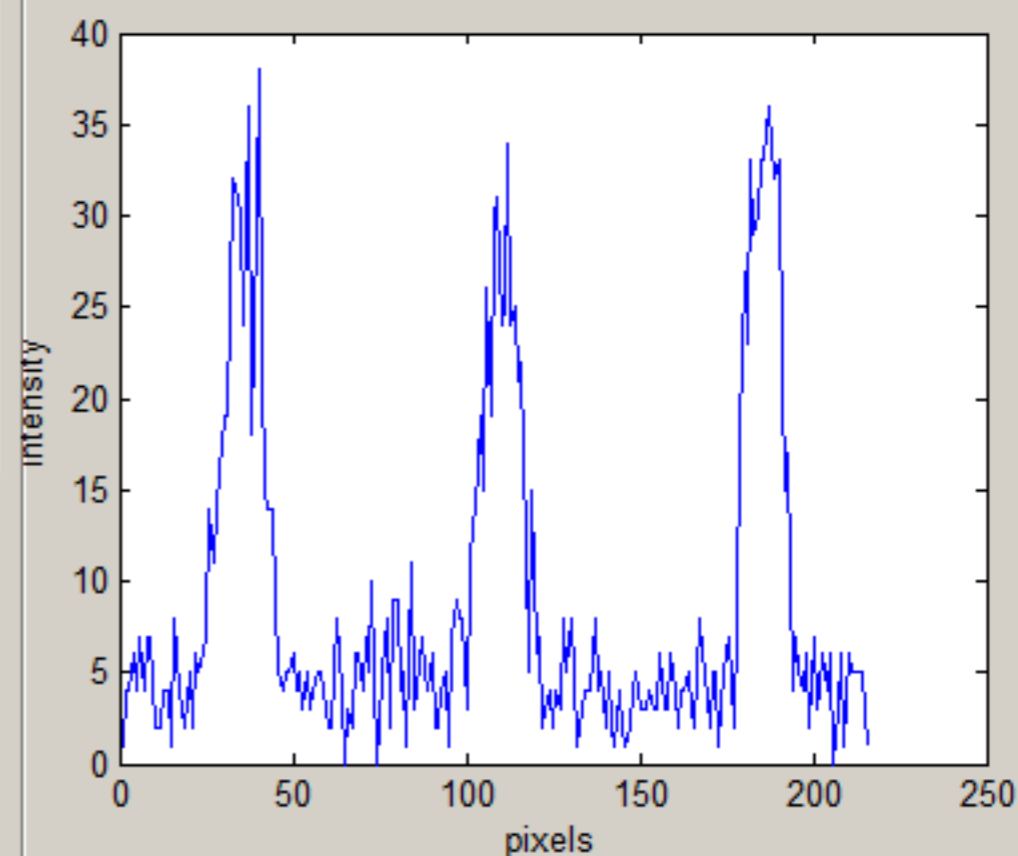
Variable List

15.9971
25.0051
26.0054
31.9732
32.9727
34.9663
42.0052
58.9992
63.9539
71.0156
79.9478
96.9589
104.959
152.948
196.926
228.915
249.099



Choose one...

Close Panel



Create ext Figure

Save Plot to File

Data Selection Panel

Name of Image Matrix

imagedata_DAN01

Name of Variable Matrix

exactmass_DAN01

Load Selected Data

Image: imagedata_DAN01

Variables exactmass_DAN01

Choose the peak(s) you want to plot from the list on the left and then choose an image processing function from the menu below.

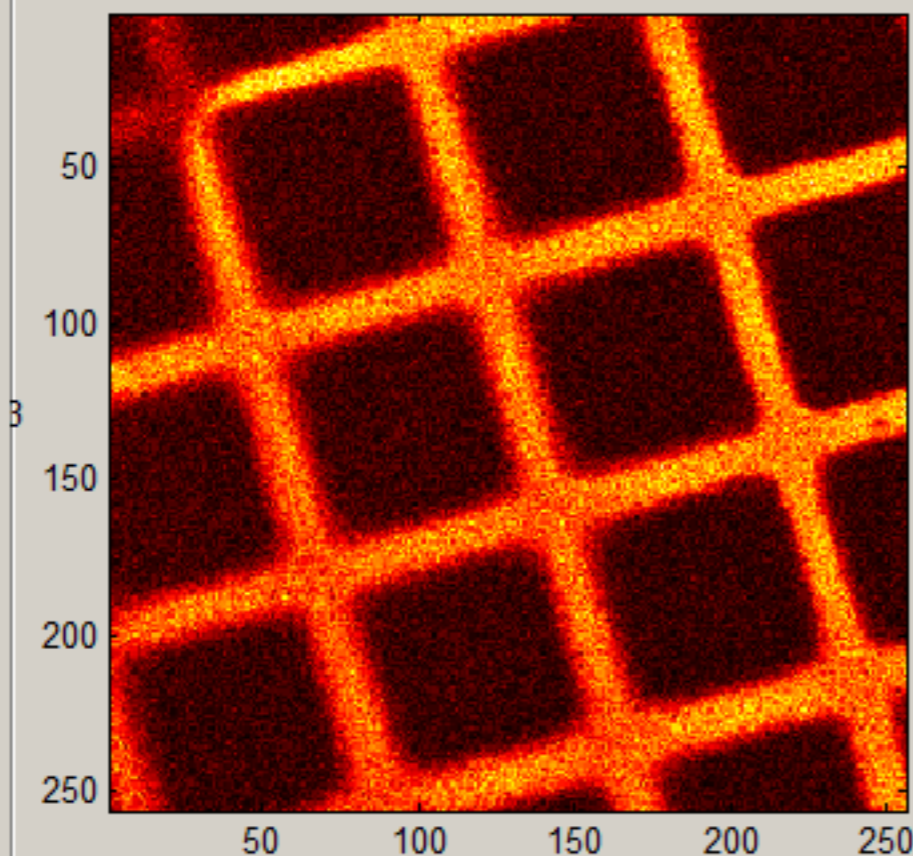
Which Image to measure on?

Choose one...
Choose one...
Original image
Upper right image
Lower right image

Here we want to choose the lower right image.

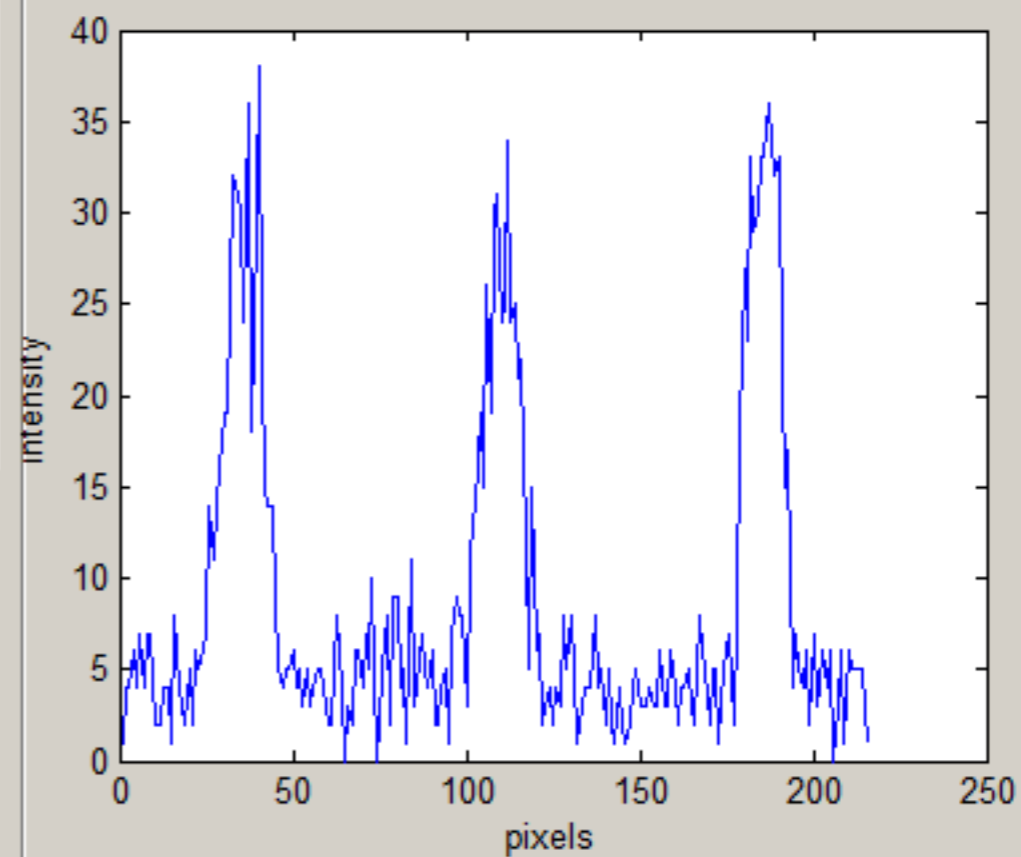
Variable List

15.9971
25.0051
26.0054
31.9732
32.9727
34.9663
42.0052
58.9992
63.9539
71.0156
79.9478
96.9589
104.959
152.948
196.926
228.915
249.099



Choose one...

Close Panel



Create ext Figure

Save Plot to File

Data Selection Panel

Name of Image Matrix

Name of Variable Matrix

imagedata_DAN01

exactmass_DAN01

Load Selected Data

Image: **imagedata_DAN01**

Variables: **exactmass_DAN01**

Choose the peak(s) you want to plot from the list on the left and then choose an image processing function from the menu below.

Which Image to measure on?

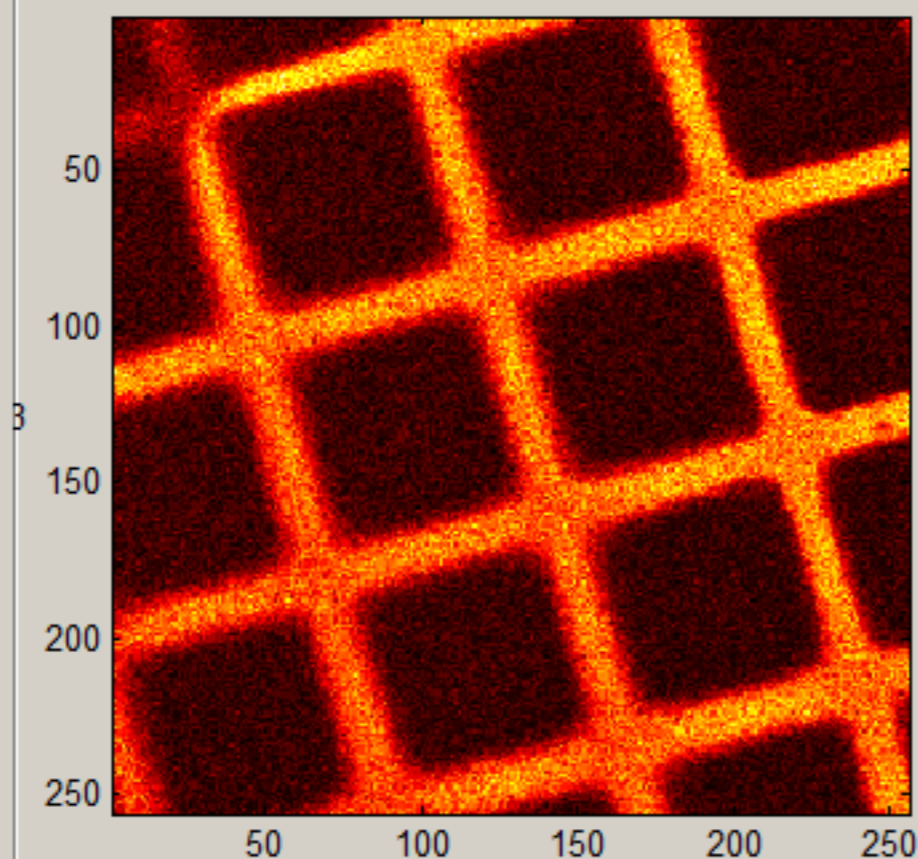
Lower right image

Measure

Now press the measure button.

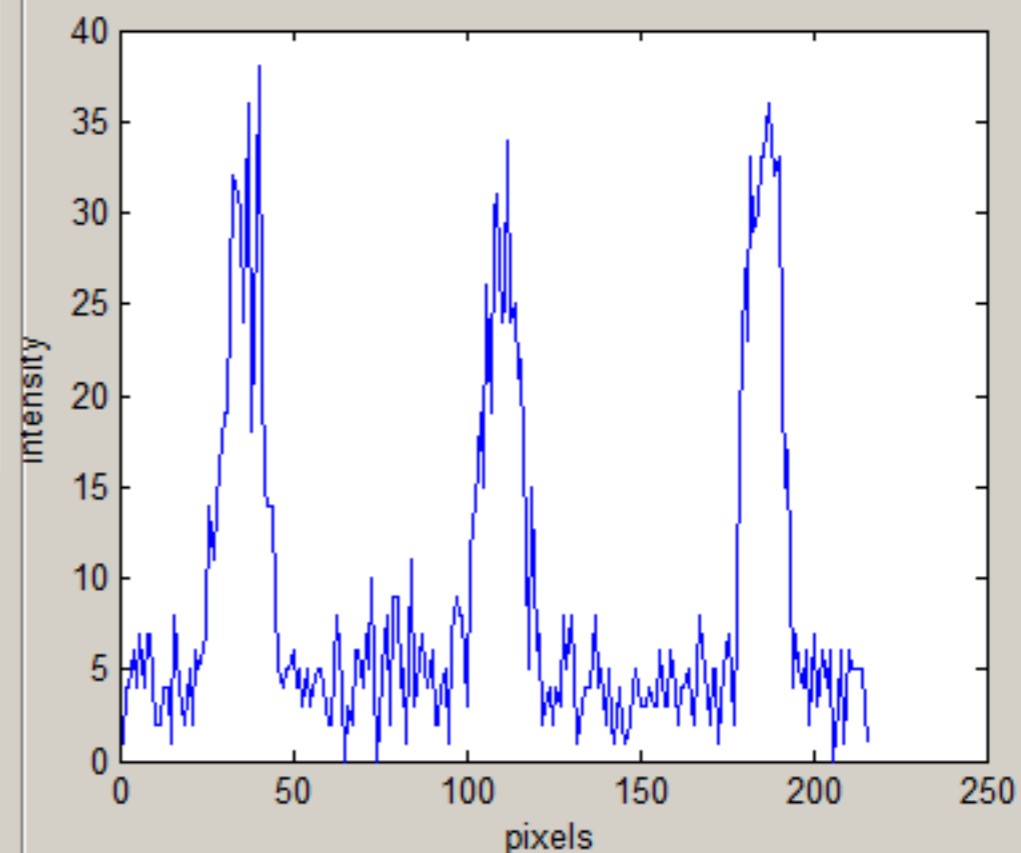
Variable List

15.9971
25.0051
26.0054
31.9732
32.9727
34.9663
42.0052
58.9992
63.9539
71.0156
79.9478
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152.948
196.926
228.915
249.099



Choose one...

Close Panel



Create ext Figure

Save Plot to File

Data Selection Panel

Name of Image Matrix

Name of Variable Matrix

imagedata_DAN01

exactmass_DAN01

Load Selected Data

Image: **imagedata_DAN01**

Variables **exactmass_DAN01**

Which Image to measure on?

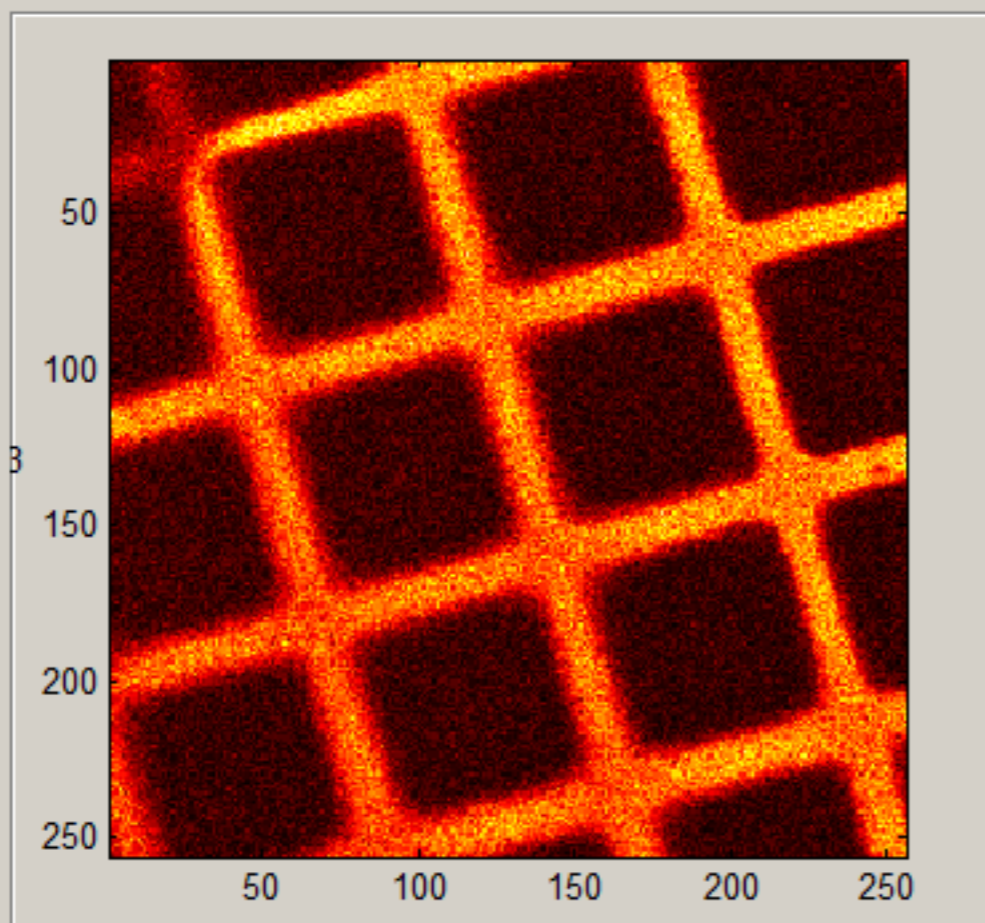
Lower right image

Measure

Choose the peak(s) you want to plot from the list on the left and then choose an image processing function from the menu below.

Variable List

15.9971
25.0051
26.0054
31.9732
32.9727
34.9663
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58.9992
63.9539
71.0156
79.9478
96.9589
104.959
152.948
196.926
228.915
249.099

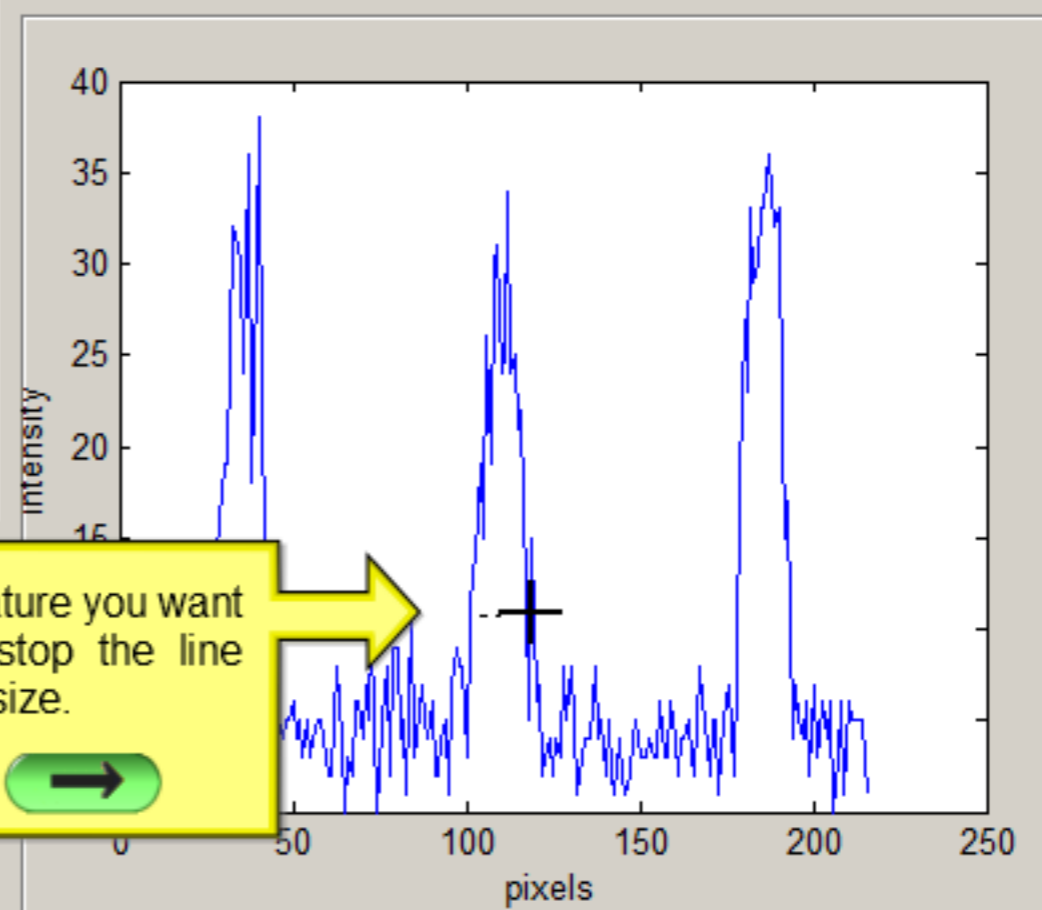


Choose one...

Left click and drag across the feature you want to measure. Double click to stop the line drawing mode and calculate the size.



Close Panel



Create ext Figure

Save Plot to File

Data Selection Panel

Name of Image Matrix

Name of Variable Matrix

imagedata_DAN01

exactmass_DAN01

Load Selected Data

Image: **imagedata_DAN01**

Variables: **exactmass_DAN01**

Choose the peak(s) you want to plot from the list on the left and then choose an image processing function from the menu below.

Which Image to measure on?

Lower right image

Measure

16.9231

Pixels

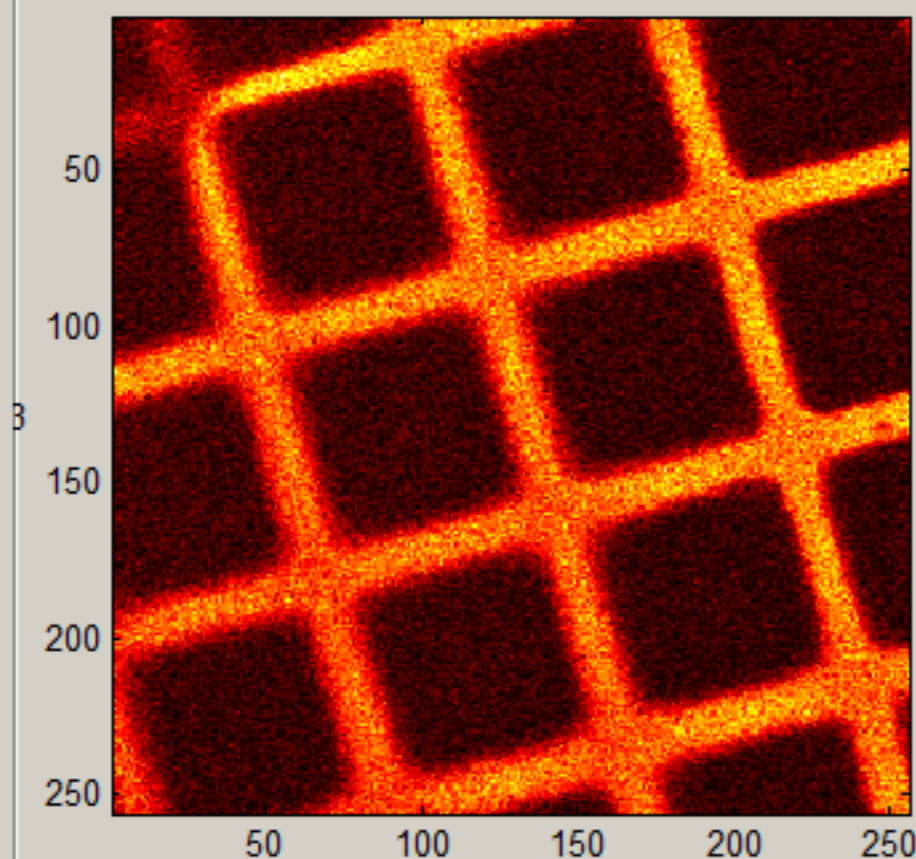
The size of the feature is shown here. In this case it is displayed in pixels since we are using the default display mode for the Imagegui.

NOTE: There are way too many significant figures displayed. I will fix this soon.



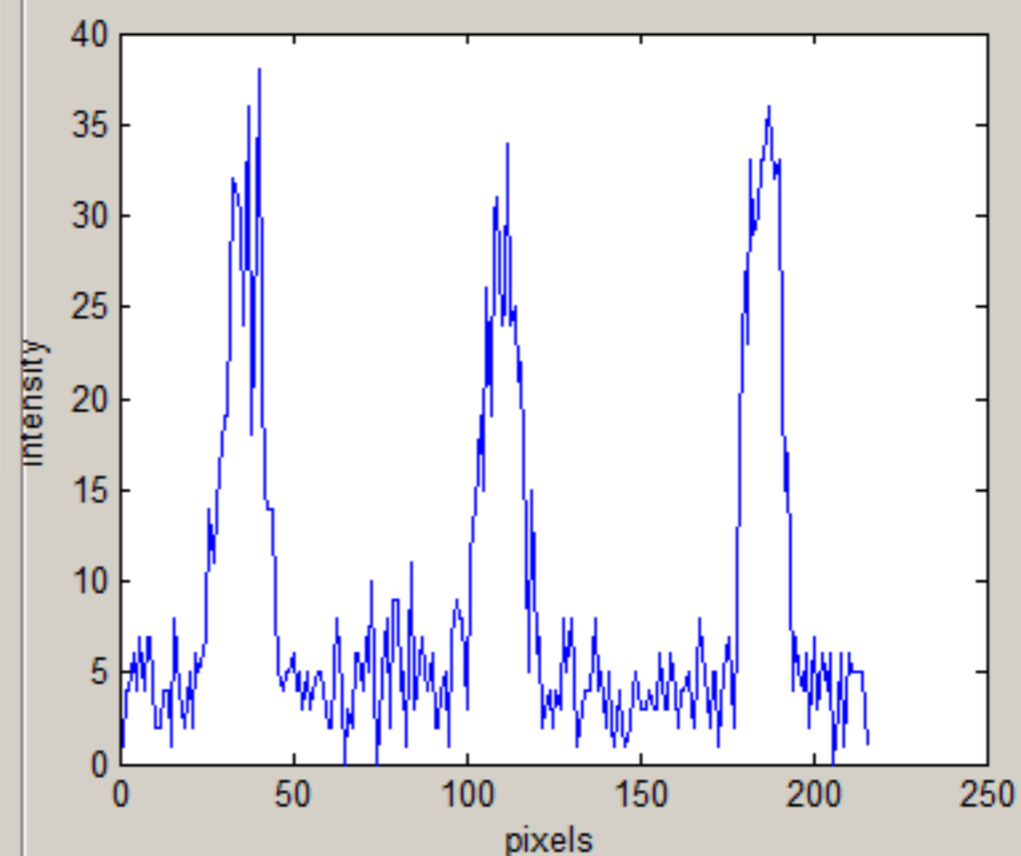
Variable List

15.9971
25.0051
26.0054
31.9732
32.9727
34.9663
42.0052
58.9992
63.9539
71.0156
79.9478
96.9589
104.959
152.948
196.926
228.915
249.099



Choose one...

Close Panel



Create ext Figure

Save Plot to File

Name of Image Matrix

imagedata_DAN01

Load Selected

Image: imagedata_DAN01
Variables: exactmass_DAN01

Choose the peak(s) you want to plot from the list on the left and then choose an image processing function from the menu below.

- Plot Image Data
- Plot image peak ratio
- Image Overlay
- PCA
- MAF
- PC Data Browser
- Scalebar Tools
- Image Properties**
- Plot Psuedo Spectrum

Data Selection Panel

Matrix

1

vvmo
Low

Measure

16.9231

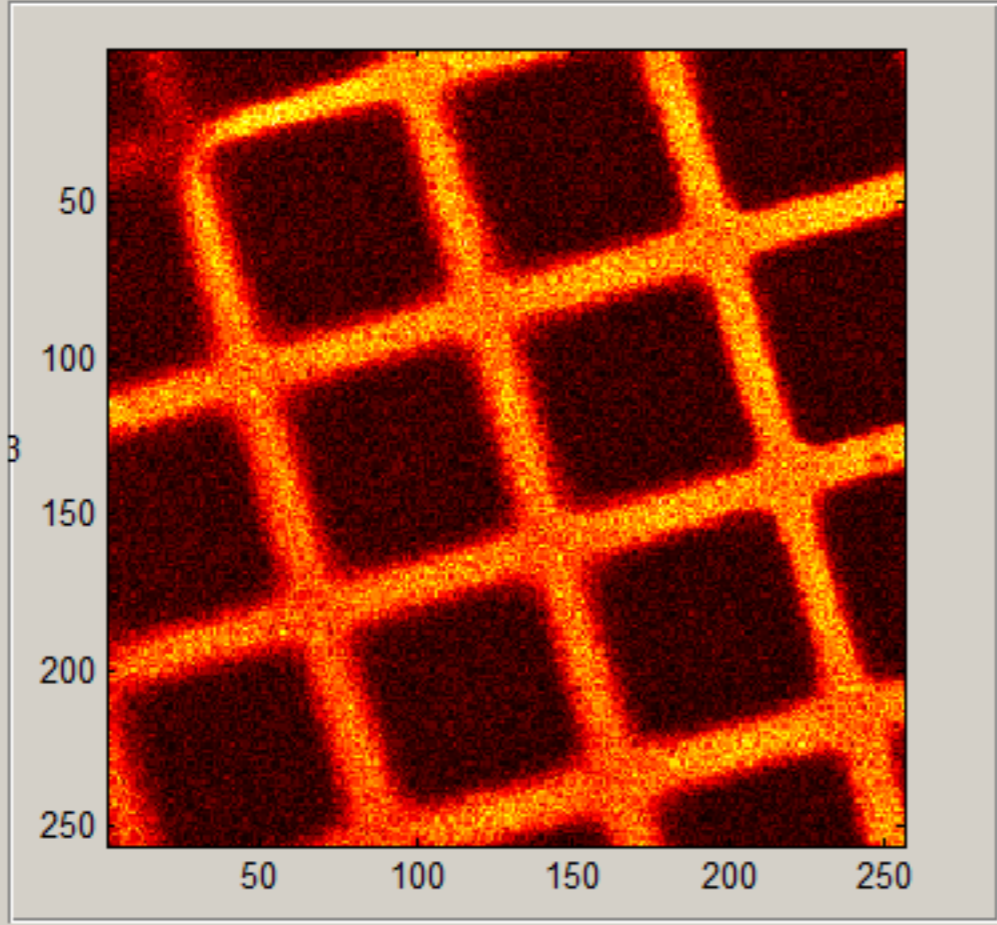
Pixels

Let's open the image properties panel and switch to the micron display mode. Choose 'Image Properties' from the 'Data Display' menu.



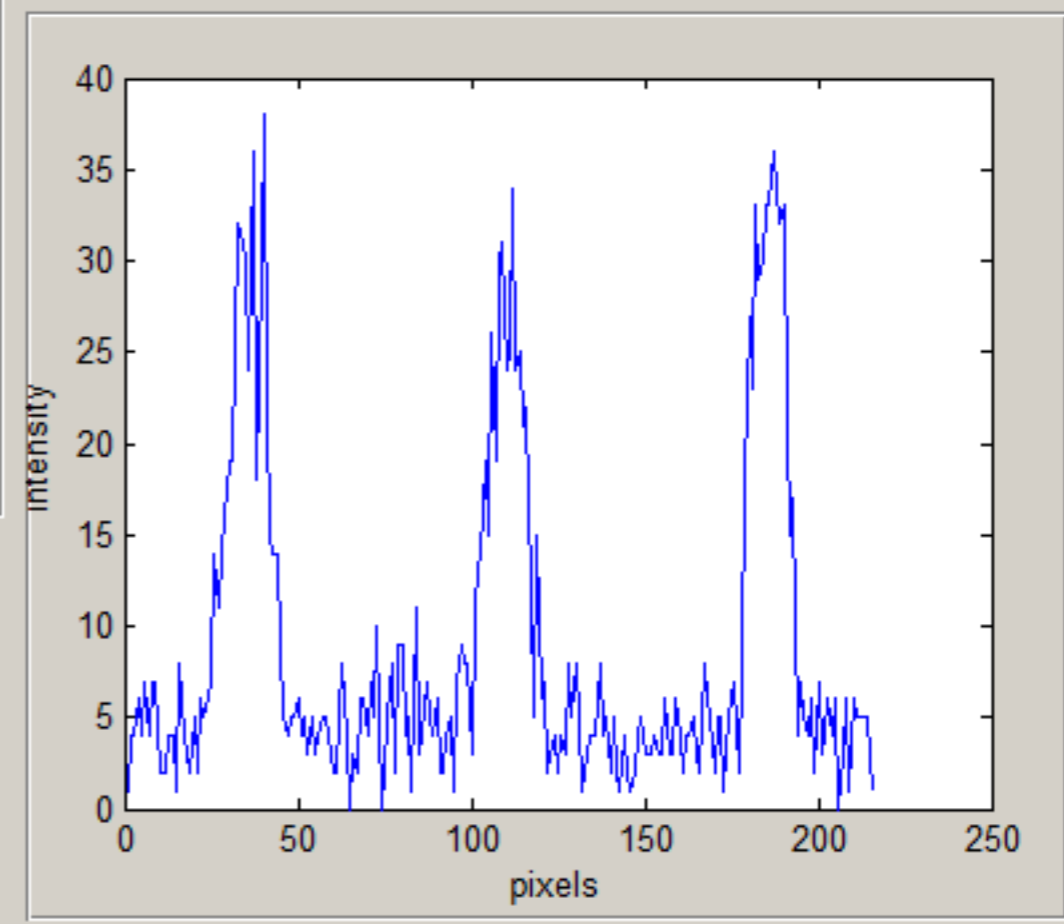
Variable List

- 15.9971
- 25.0051
- 26.0054
- 31.9732
- 32.9727
- 34.9663
- 42.0052
- 58.9992
- 63.9539
- 71.0156
- 79.9478
- 96.9589
- 104.959
- 152.948
- 196.926
- 228.915
- 249.099



Choose one...

Close Panel



Create ext Figure

Save Plot to File

Data Selection Panel

Name of Image Matrix

Name of Variable Matrix

imagedata_DAN01

exactmass_DAN01

Figure Label Options

Figure Title

Add Title

Remove Title

X-Axis Label

Add X Label

Rem X Label

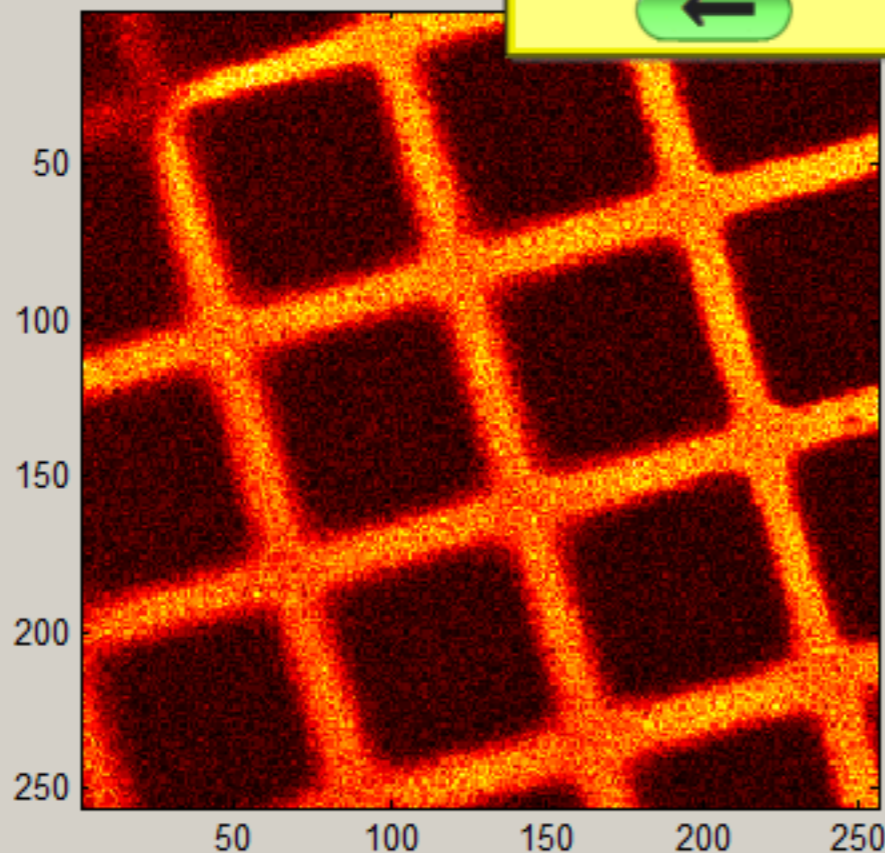
Y-Axis Label

Add Y Label

Rem Y Label

Variable List

15.9971
25.0051
26.0054
31.9732
32.9727
34.9663
42.0052
58.9992
63.9539
71.0156
79.9478
96.9589
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152.948
196.926
228.915
249.099



Choose one...

Image Properties

Legend Maker for RGB Plots

Label 1

Color 1

☐ Use Label 1

Enter the image size in microns for X and Y and check the 'Use micron scale' box.

In this case the image is 100 microns x 100 microns.

Set Image size (microns)

X (horizontal)

100

Y (vertical)

100

☒ Use micron scale

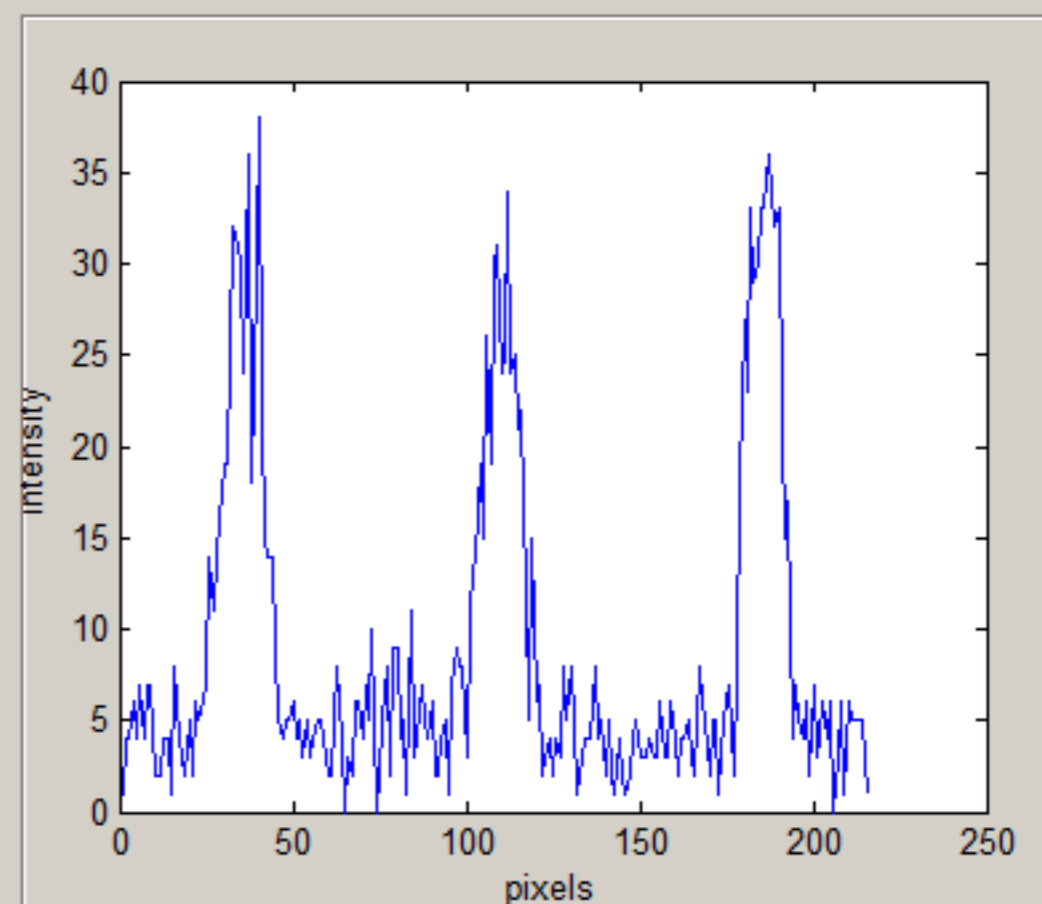
Colormap Changer

Choose new colormap

Choose on...

Close Panel

Close Panel



Create ext Figure

Save Plot to File

Data Selection Panel

Name of Image Matrix

imagedata_DAN01

Name of Variable Matrix

exactmass_DAN01

Figure Label Options

Figure Title

Add Title

Remove Title

X-Axis Label

Add X Label

Rem X Label

Y-Axis Label

Add Y Label

Rem Y Label

Image Properties

Legend Maker for RGB Plots

Label 1

Color 1

☐ Use Label 1

Label 2

Color 2

☐ Use Label 2

Label 3

Color 3

☐ Use Label 3

Set Image size (microns)

X (horizontal)

100

Y (vertical)

100

☒ Use micron scale

Colormap Changer

Choose new colormap

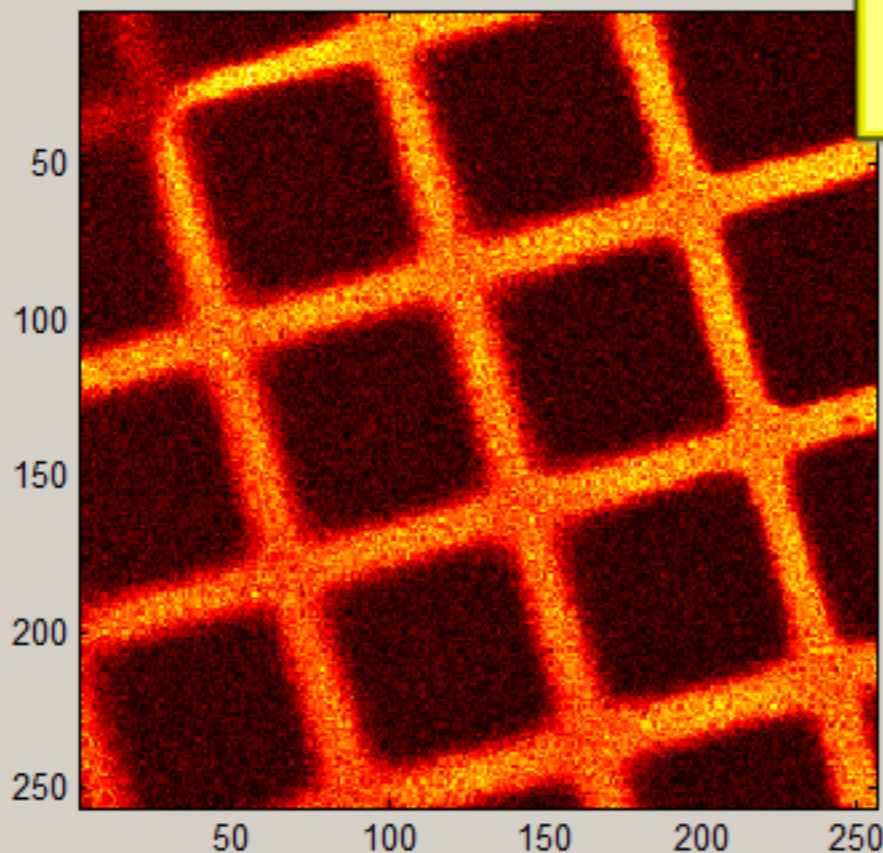
Choose on...

Press the 'Close Panel' button.

Close Panel

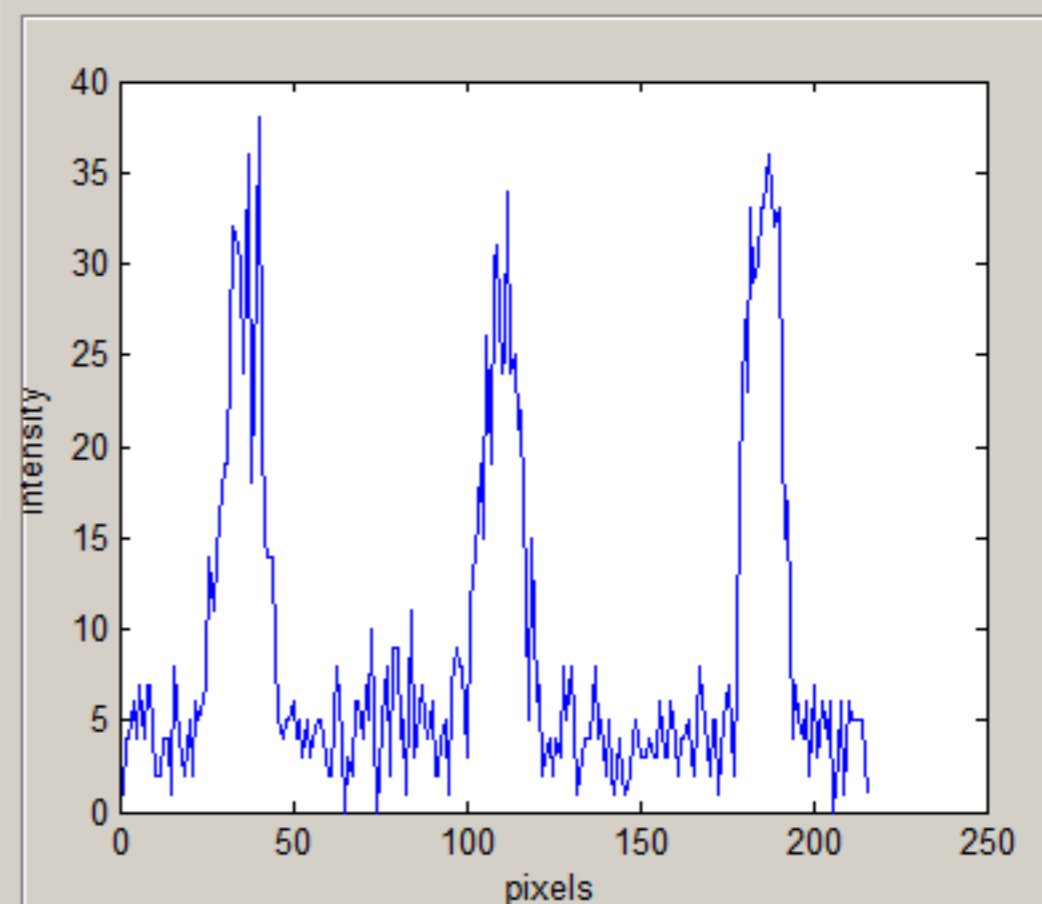
Variable List

15.9971
25.0051
26.0054
31.9732
32.9727
34.9663
42.0052
58.9992
63.9539
71.0156
79.9478
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152.948
196.926
228.915
249.099



Choose one...

Close Panel



Create ext Figure

Save Plot to File

Data Selection Panel

Name of Image Matrix

Name of Variable Matrix

imagedata_DAN01

exactmass_DAN01

Load Selected Data

Image: **imagedata_DAN01**

Variables: **exactmass_DAN01**

Choose the peak(s) you want to plot from the list on the left and then choose an image processing function from the menu below.

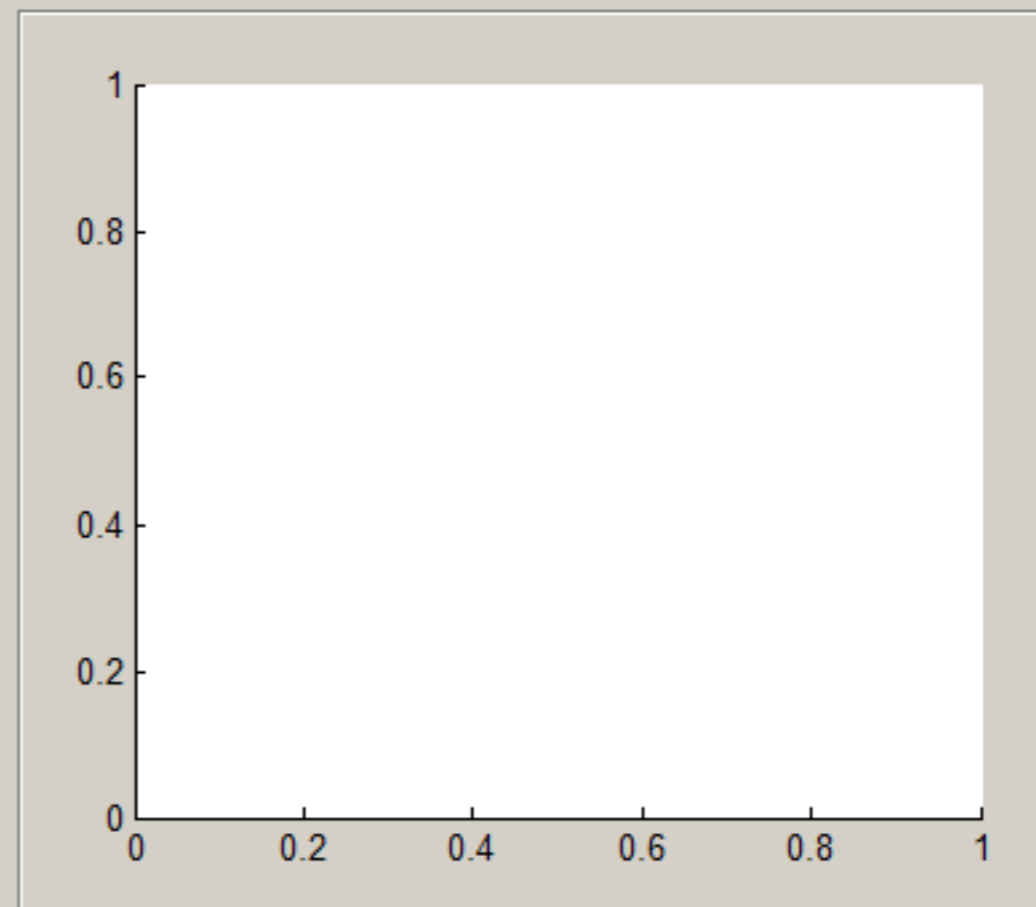
Which Image to measure on?

Lower right image

Measure

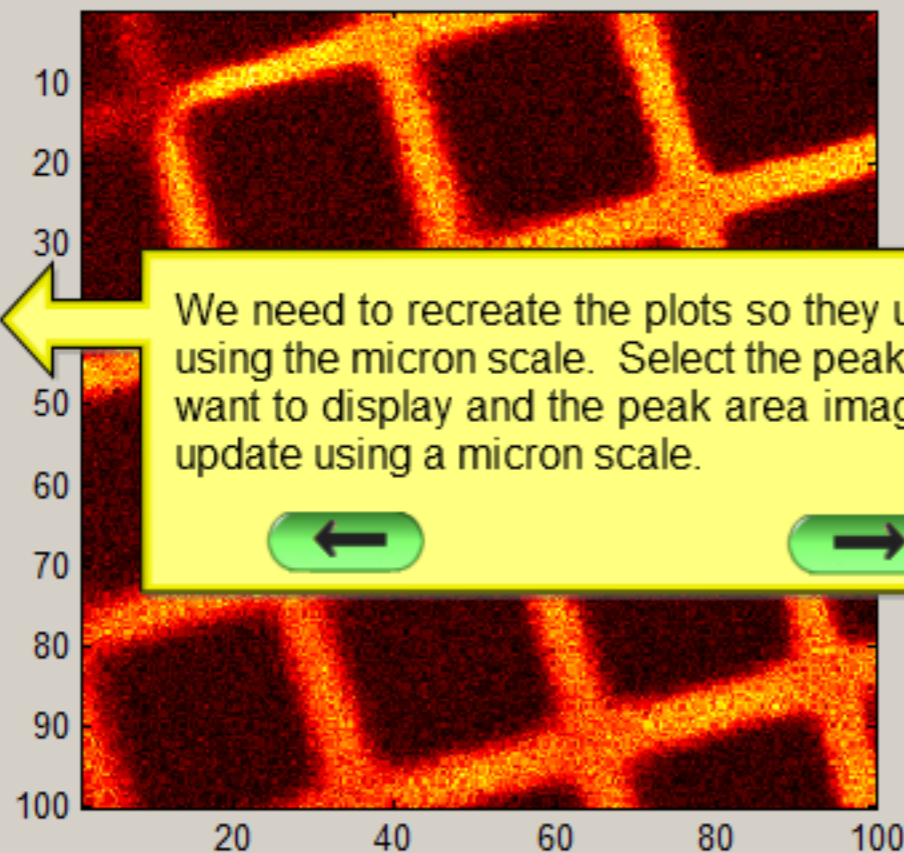
16.9231

Pixels



Variable List

15.9971
25.0051
26.0054
31.9732
32.9727
34.9663
42.0052
58.9992
63.9539
71.0156
79.9478
96.9589
104.959
152.948
196.926
228.915
249.099

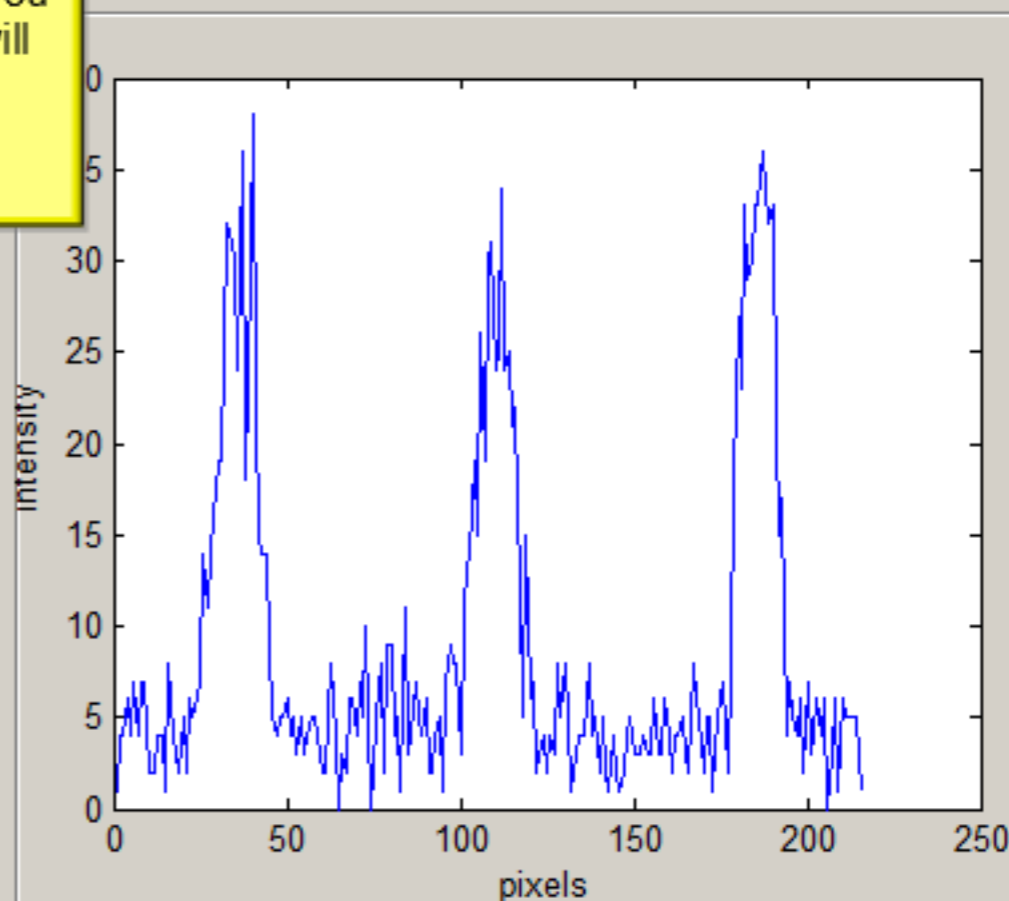


We need to recreate the plots so they update using the micron scale. Select the peak(s) you want to display and the peak area image will update using a micron scale.



Choose one...

Close Panel



Create ext Figure

Save Plot to File

Data Selection Panel

Name of Image Matrix

imagedata_DAN01

Name of Variable Matrix

exactmass_DAN01

Load Selected Data

Image: **imagedata_DAN01**

Variables **exactmass_DAN01**

Choose the peak(s) you want to plot from the list on the left and then choose an image processing function from the menu below.

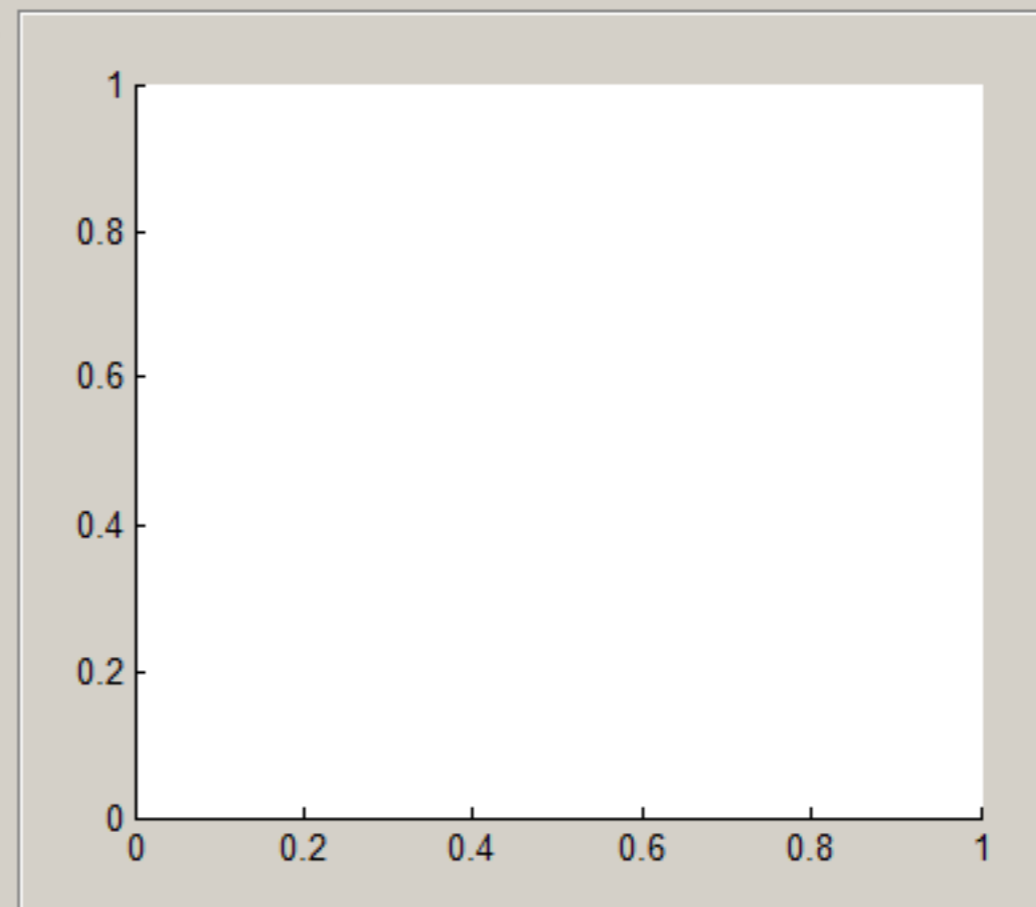
Which Image to measure on?

Lower right image

Measure

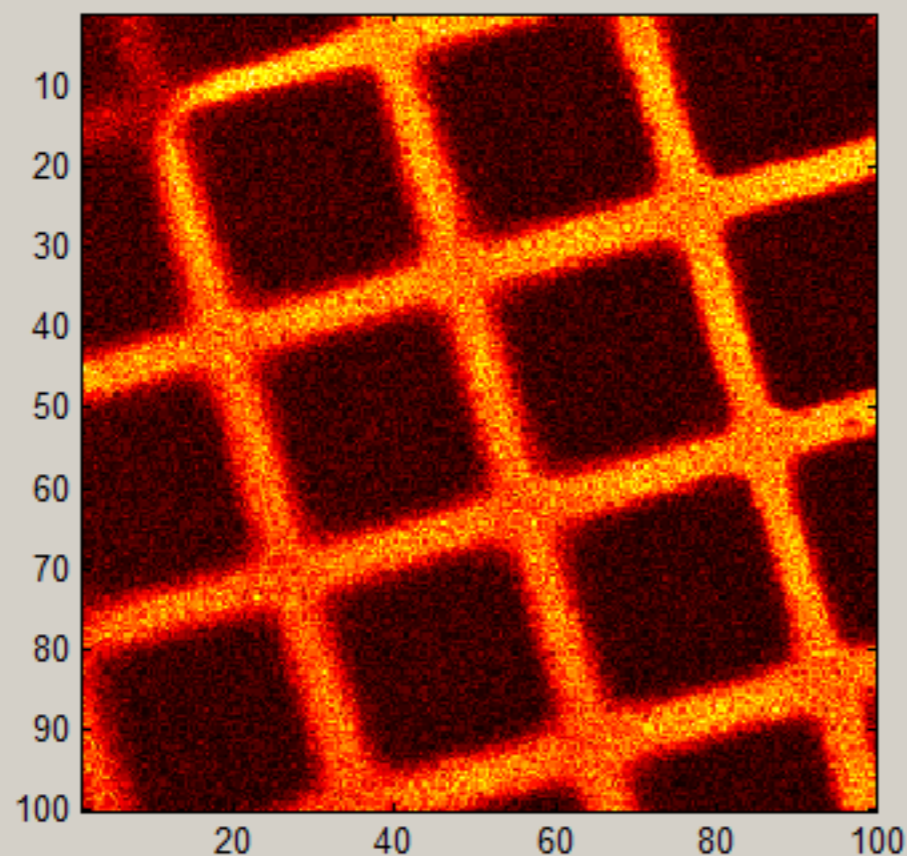
16.9231

Pixels



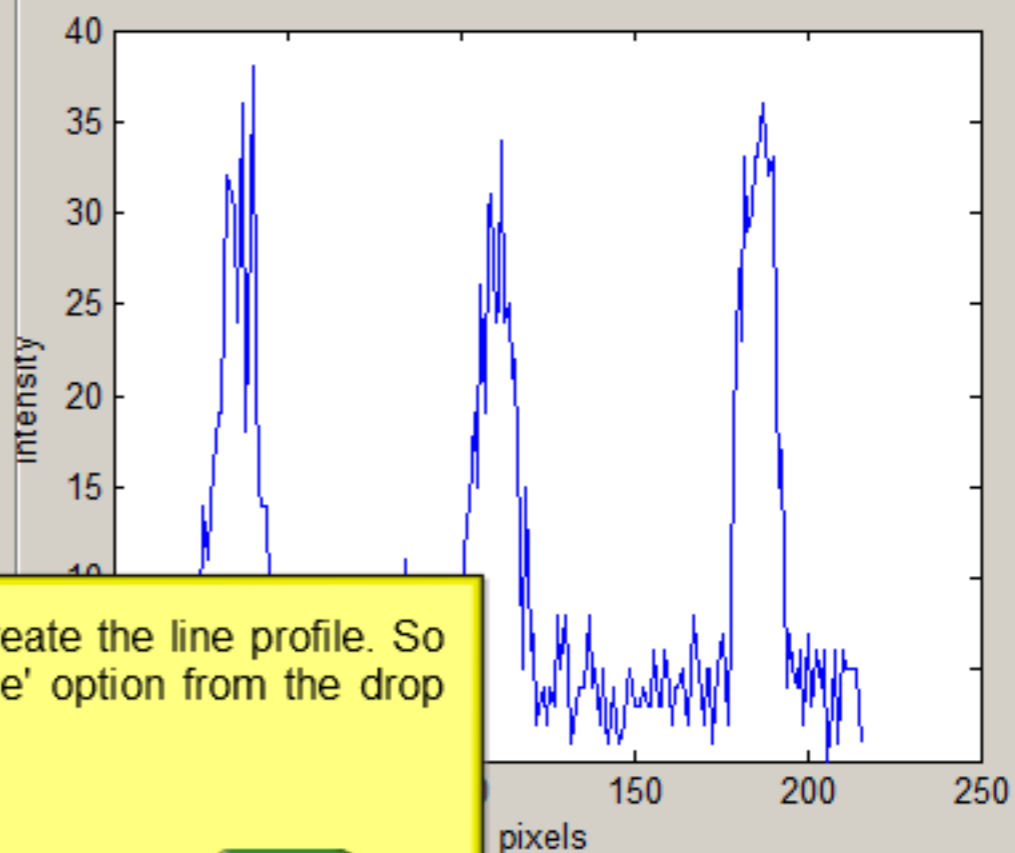
Variable List

15.9971
25.0051
26.0054
31.9732
32.9727
34.9663
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58.9992
63.9539
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228.915
249.099



Choose one...
Choose one...
Line Profile
Y Area Profile
X Area Profile
Trace Edges
Threshold image

We also need to recreate the line profile. So select the 'Line Profile' option from the drop down menu.



Create ext Figure

Save Plot to File

Data Selection Panel

Name of Image Matrix

Name of Variable Matrix

imagedata_DAN01

exactmass_DAN01

Load Selected Data

Image: **imagedata_DAN01**

Variables **exactmass_DAN01**

Choose the peak(s) you want to plot from the list on the left and then choose an image processing function from the menu below.

Which Image to measure on?

Lower right image

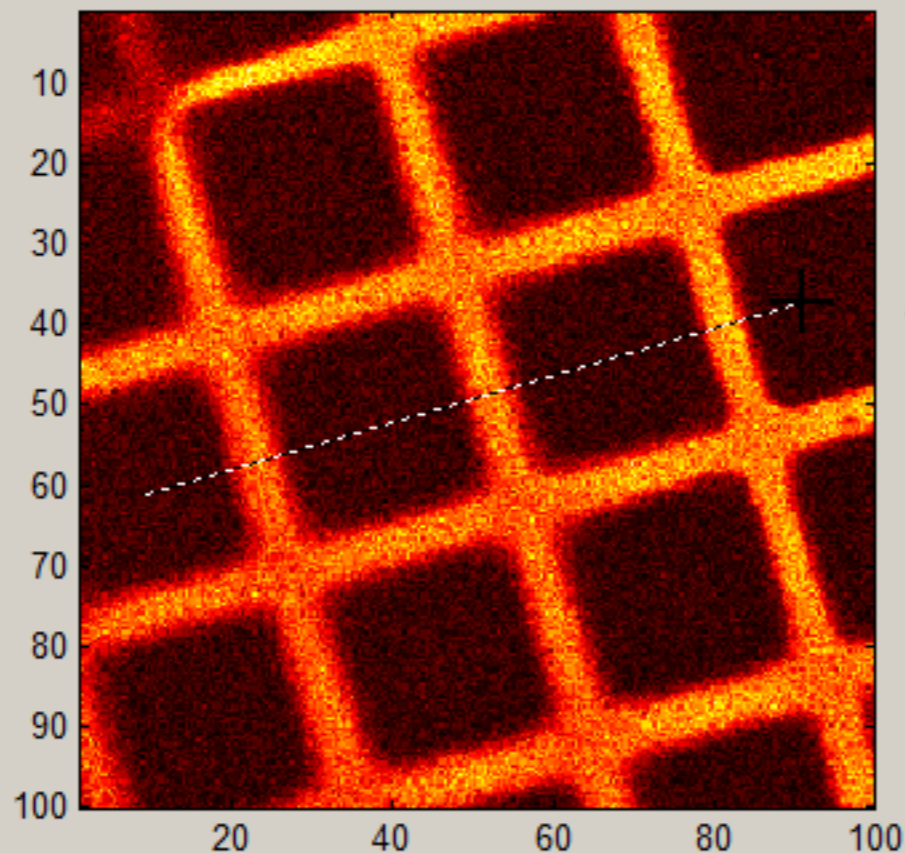
Measure

16.9231

Pixels

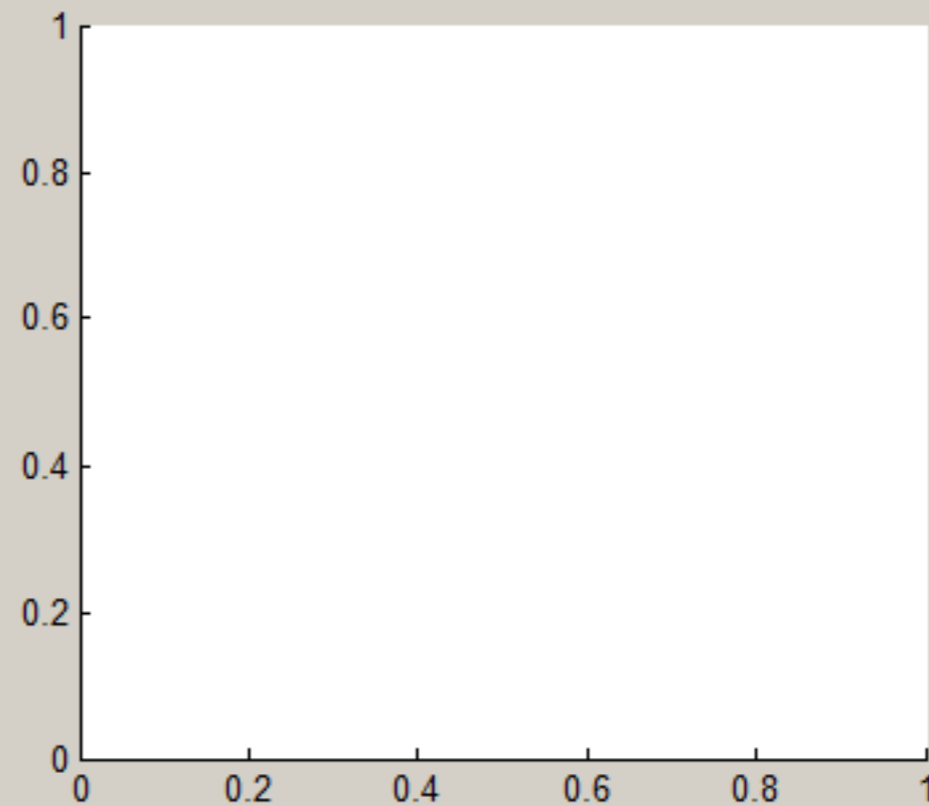
Variable List

15.9971
25.0051
26.0054
31.9732
32.9727
34.9663
42.0052
58.9992
63.9539
71.0156
79.9478
96.9589
104.959
152.948
196.926
228.915
249.099

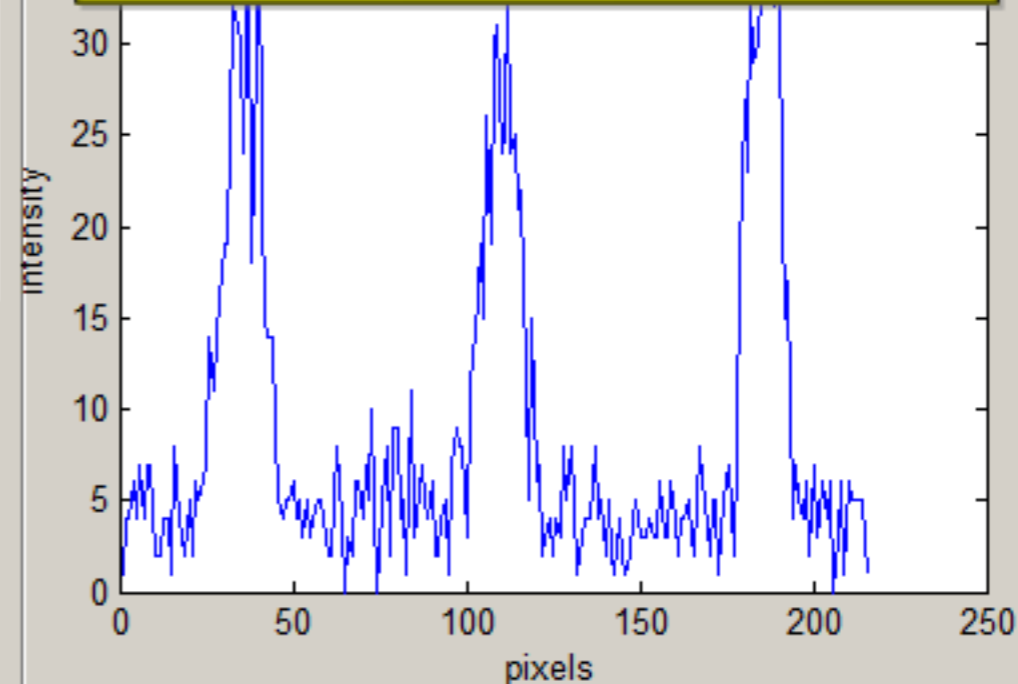


Line Profile

Close Panel



Draw the line as before and double click to create the line profile.



Create ext Figure

Save Plot to File

Data Selection Panel

Name of Image Matrix

Name of Variable Matrix

imagedata_DAN01

exactmass_DAN01

Load Selected Data

Image: **imagedata_DAN01**

Variables: **exactmass_DAN01**

Choose the peak(s) you want to plot from the list on the left and then choose an image processing function from the menu below.

Which Image to measure on?

Lower right image

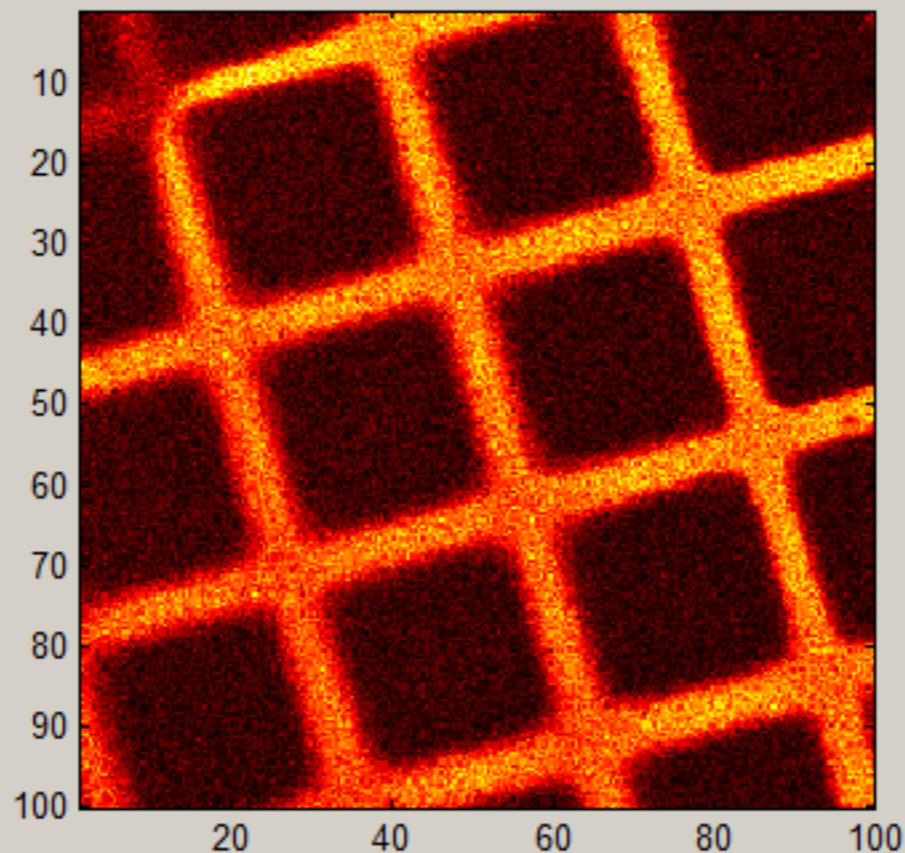
Measure

16.9231

Pixels

Variable List

15.9971
25.0051
26.0054
31.9732
32.9727
34.9663
42.0052
58.9992
63.9539
71.0156
79.9478
96.9589
104.959
152.948
196.926
228.915
249.099

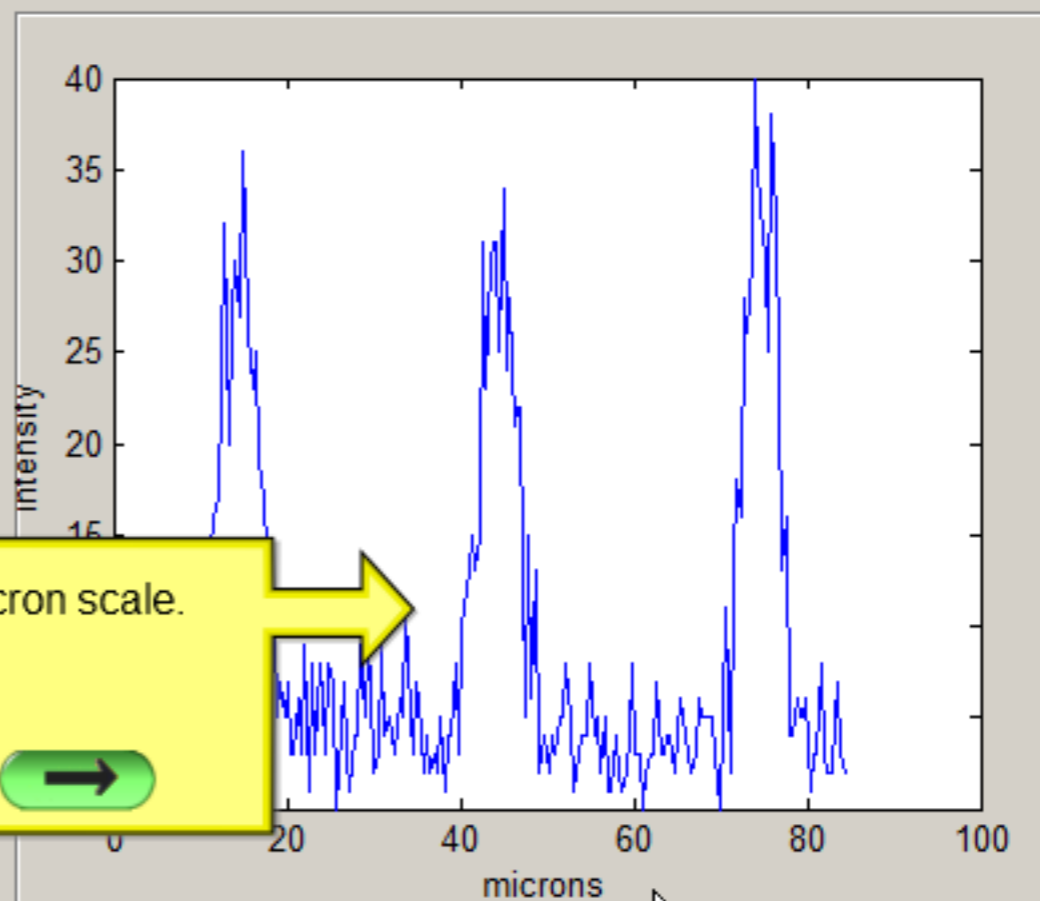
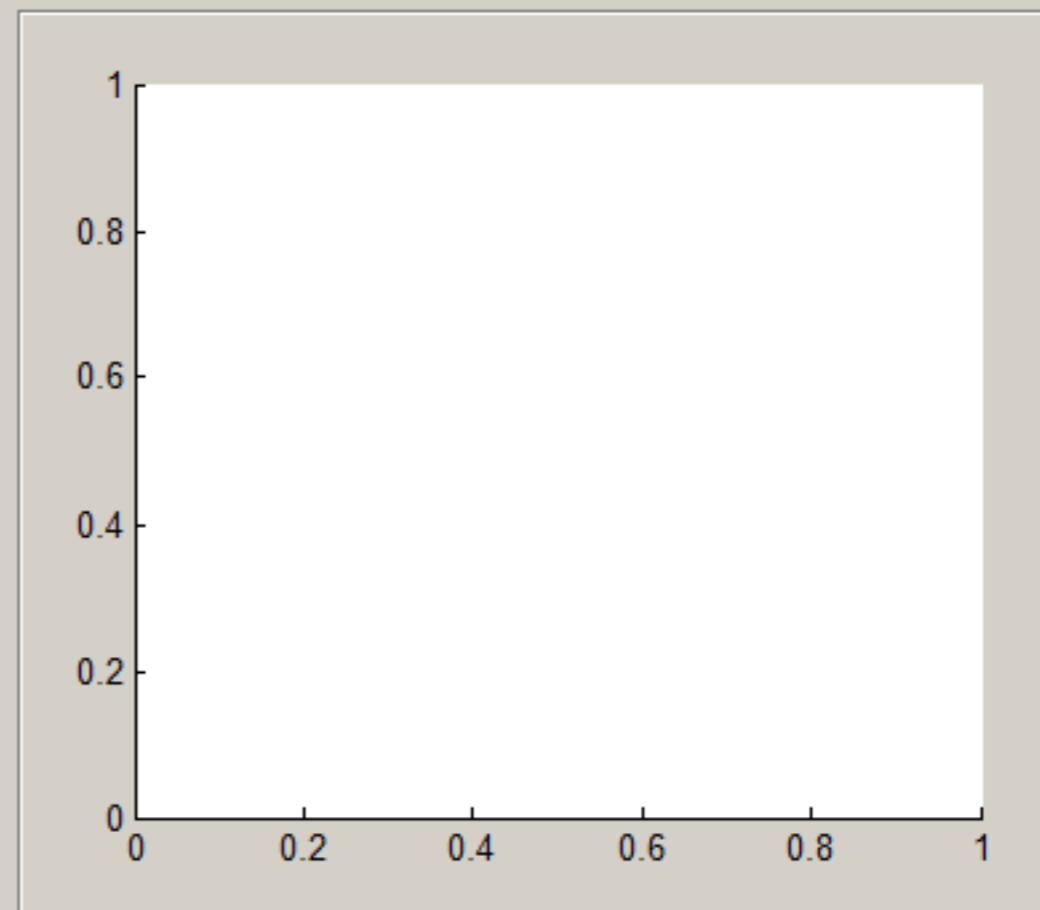


Choose one...

The profile is updated using a micron scale.



Close Panel



Create ext Figure

Save Plot to File

Data Selection Panel

Name of Image Matrix

Name of Variable Matrix

imagedata_DAN01

exactmass_DAN01

Load Selected Data

Image: **imagedata_DAN01**

Variables: **exactmass_DAN01**

Choose the peak(s) you want to plot from the list on the left and then choose an image processing function from the menu below.

Which Image to measure on?

Lower right image

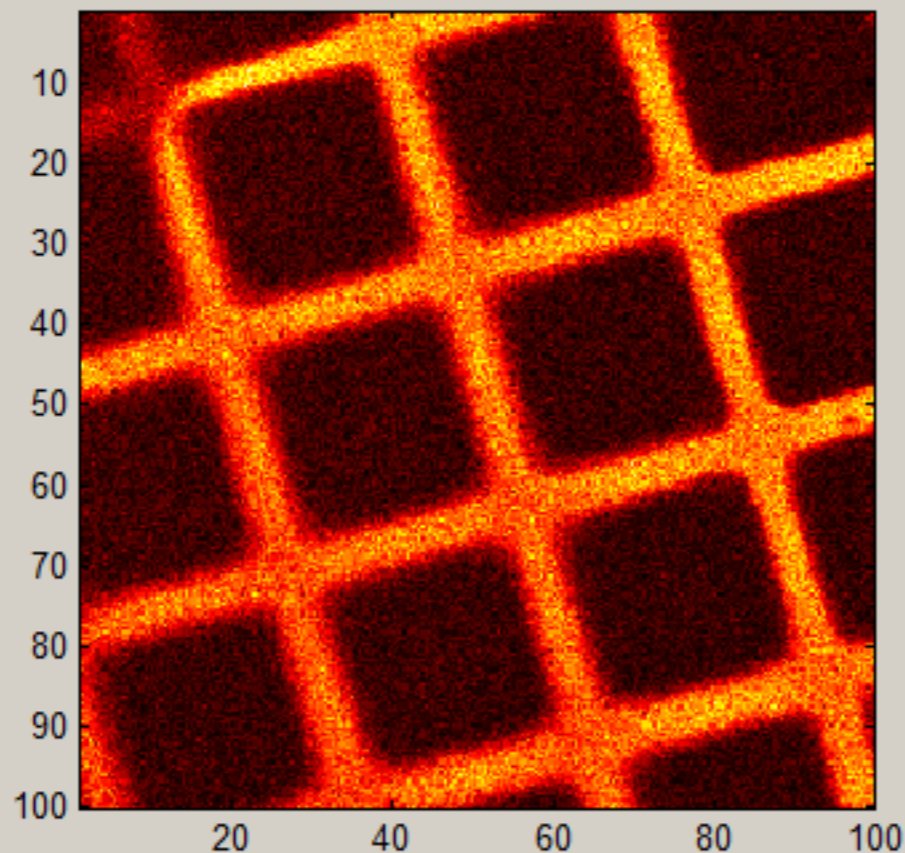
Measure

Pixe

Now we can remeasure the feature of interest.

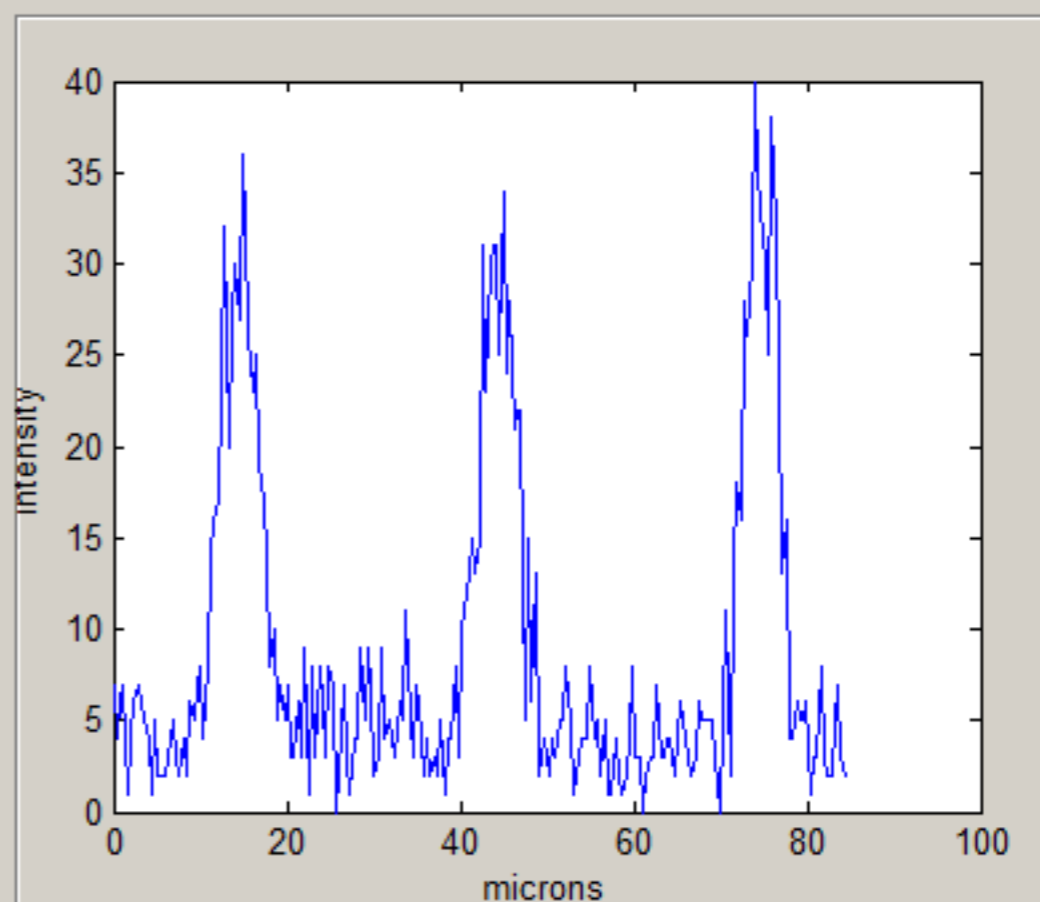
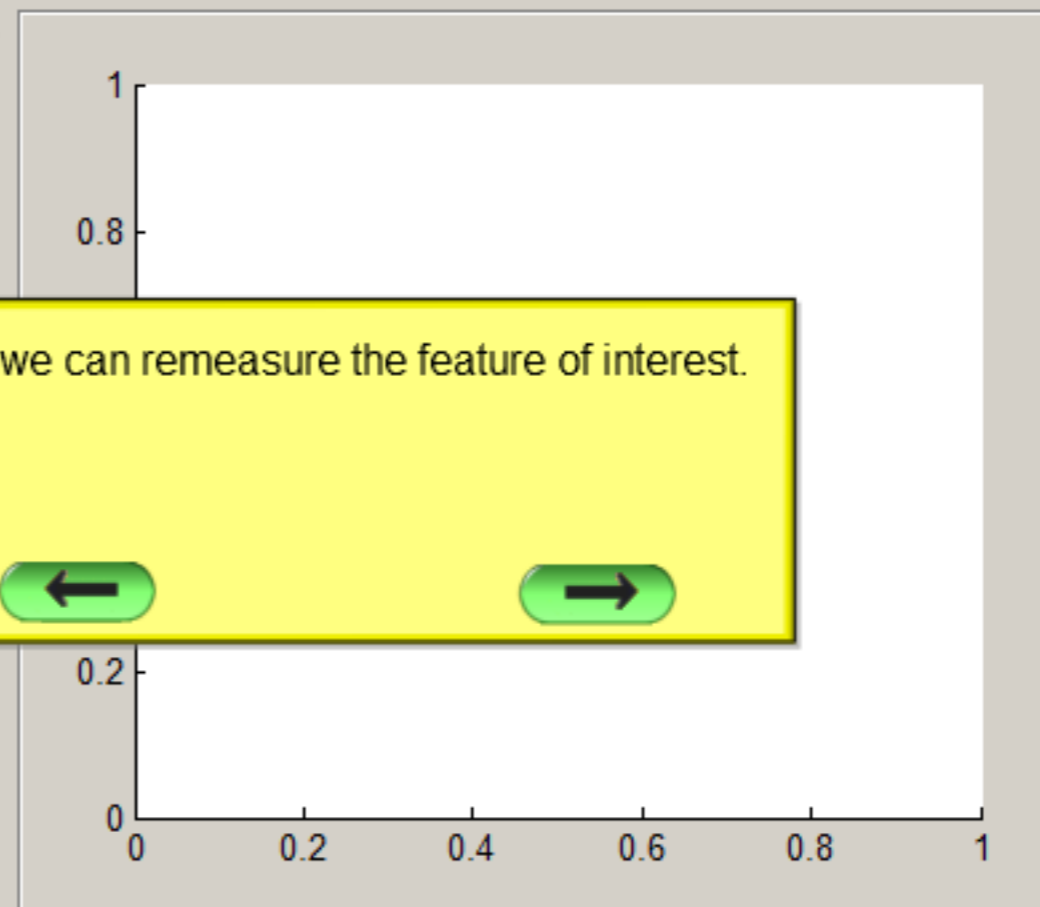
Variable List

15.9971
25.0051
26.0054
31.9732
32.9727
34.9663
42.0052
58.9992
63.9539
71.0156
79.9478
96.9589
104.959
152.948
196.926
228.915
249.099



Choose one...

Close Panel



Create ext Figure

Save Plot to File

Data Selection Panel

Name of Image Matrix

Name of Variable Matrix

imagedata_DAN01

exactmass_DAN01

Load Selected Data

Image: **imagedata_DAN01**

Variables: **exactmass_DAN01**

Choose the peak(s) you want to plot from the list on the left and then choose an image processing function from the menu below.

Which Image to measure on?

Lower right image

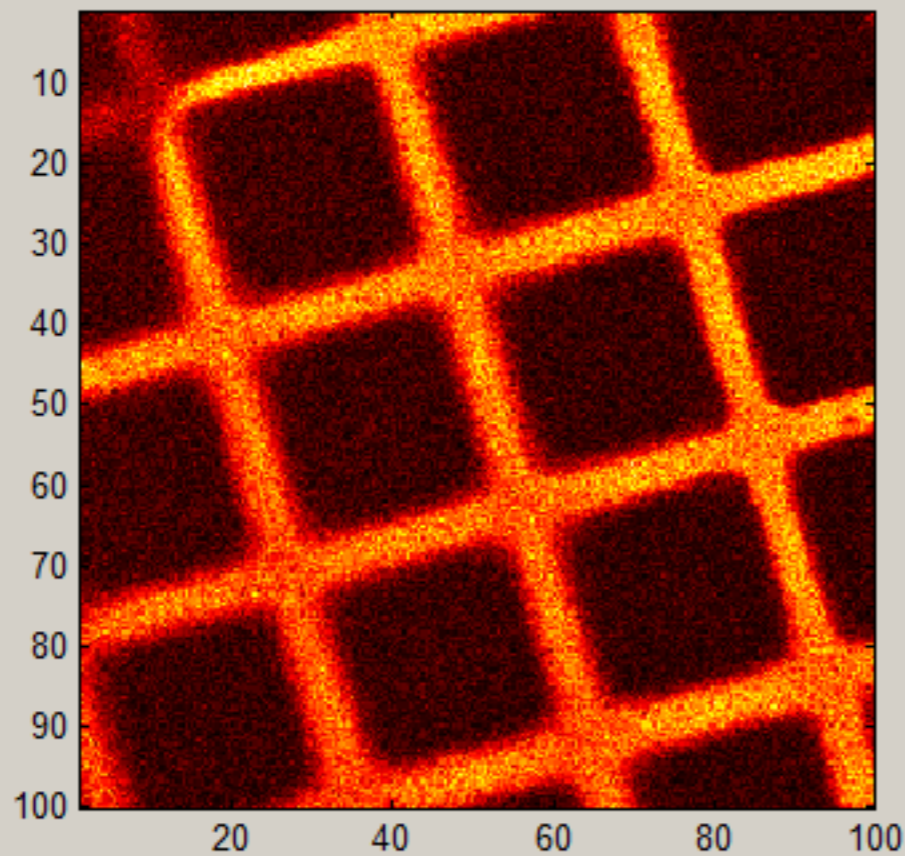
Measure

16.9231

Pixels

Variable List

15.9971
25.0051
26.0054
31.9732
32.9727
34.9663
42.0052
58.9992
63.9539
71.0156
79.9478
96.9589
104.959
152.948
196.926
228.915
249.099

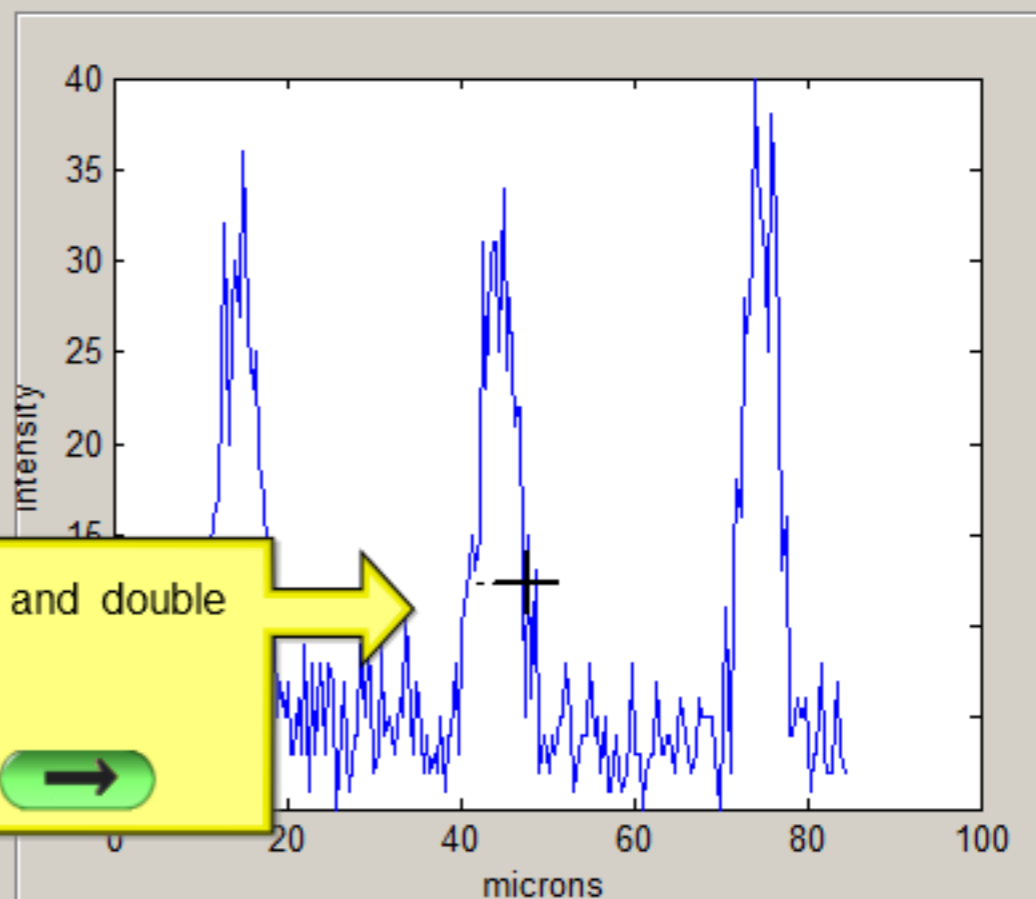
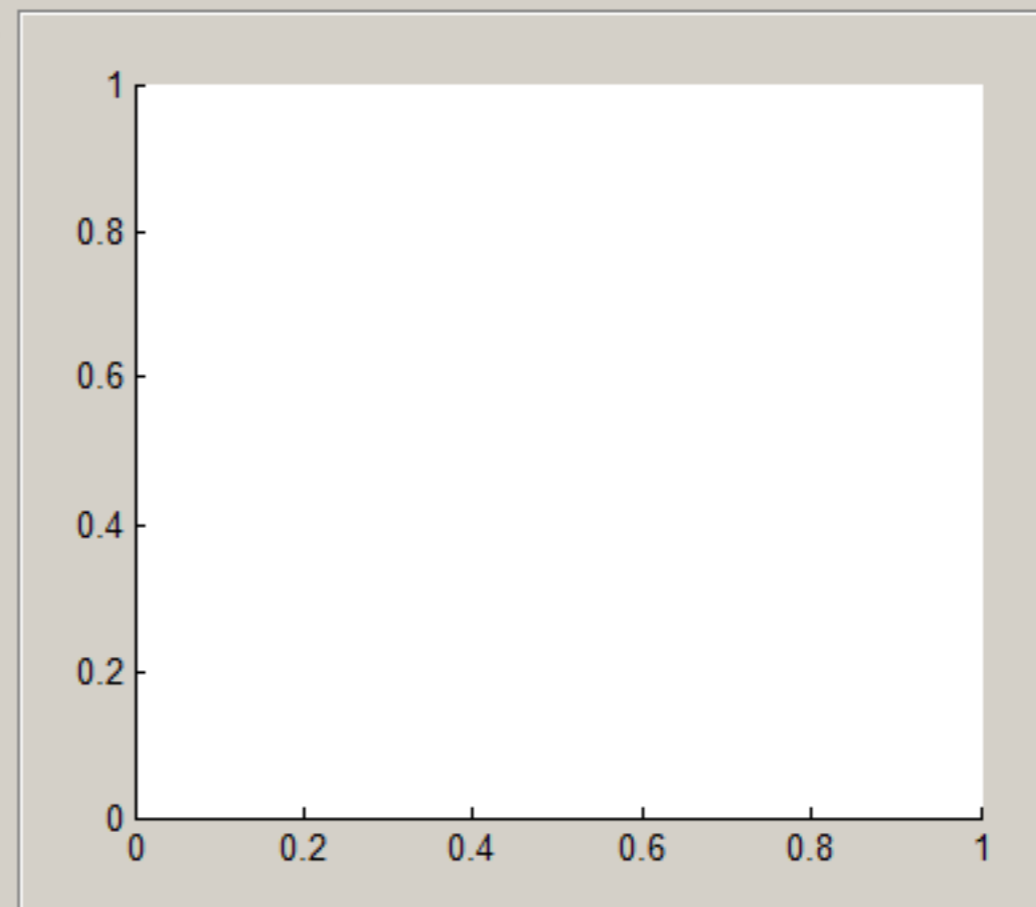


Choose one...

Draw a line across the feature and double click to measure it.



Close Panel



Create ext Figure

Save Plot to File

Data Selection Panel

Name of Image Matrix

Name of Variable Matrix

imagedata_DAN01

exactmass_DAN01

Load Selected Data

Image: **imagedata_DAN01**

Variables: **exactmass_DAN01**

Choose the peak(s) you want to plot from the list on the left and then choose an image processing function from the menu below.

Which Image to measure on?

Lower right image

Measure

6.7692

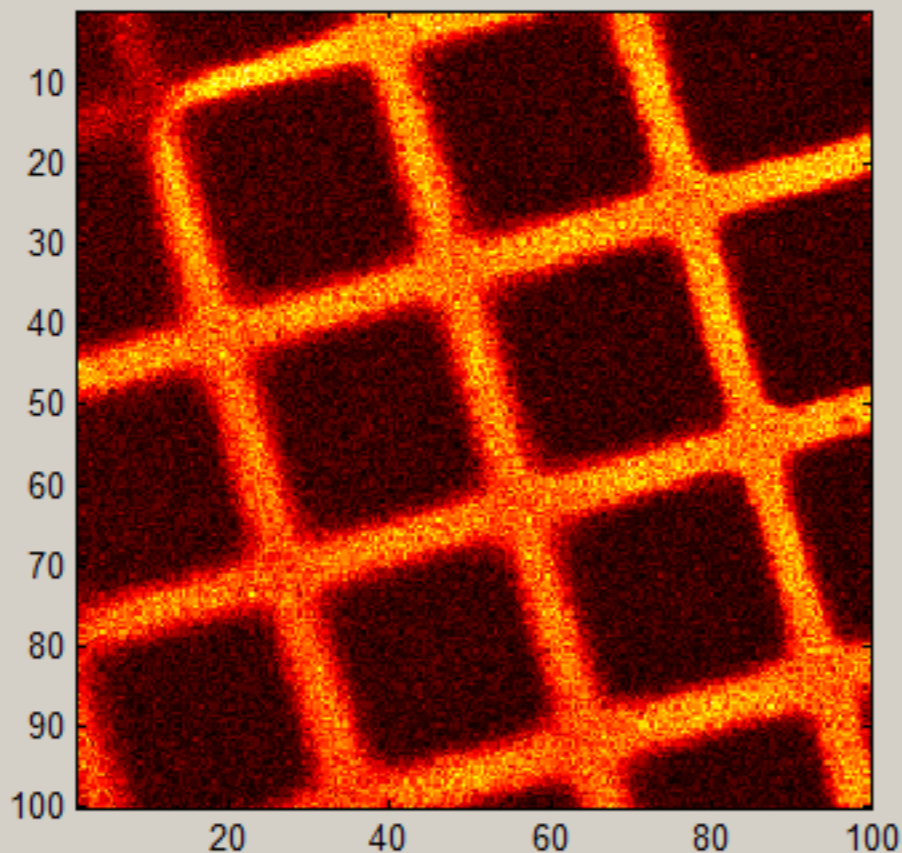
Microns

The measurement is now shown in microns.

NOTE: You can set the image properties panel to use the micron scale before you start the panel. Once it is set, all images will be displayed using microns.

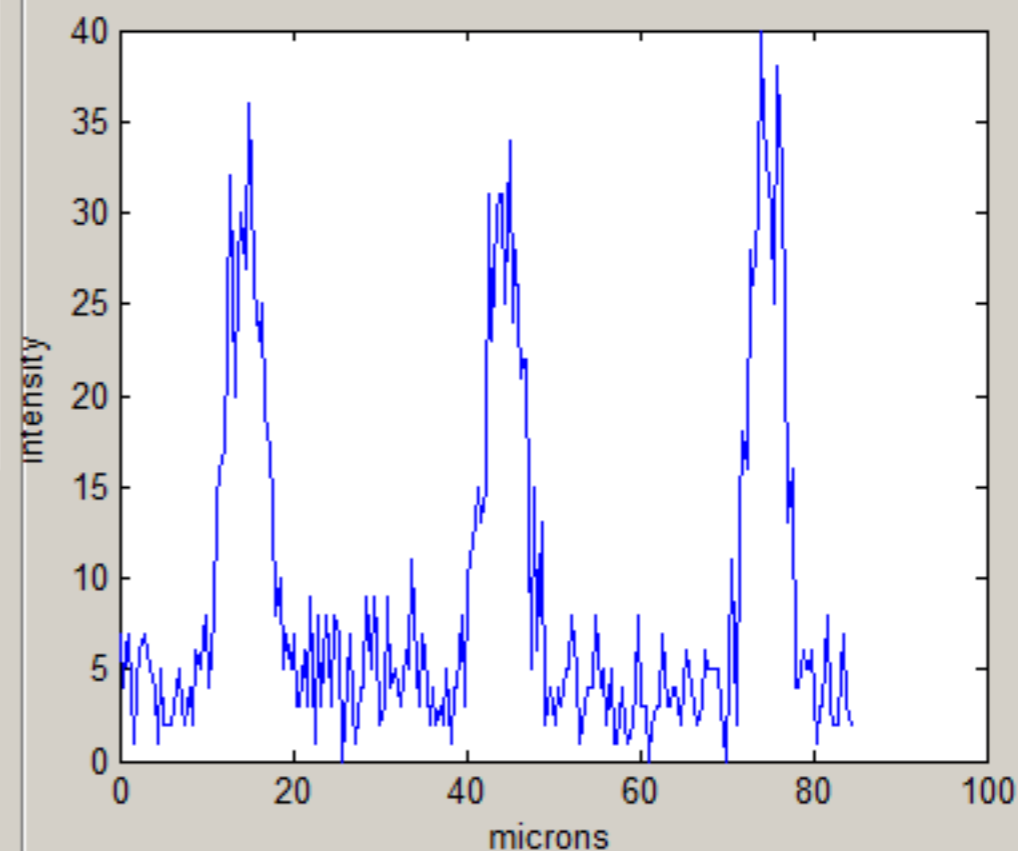
Variable List

15.9971
25.0051
26.0054
31.9732
32.9727
34.9663
42.0052
58.9992
63.9539
71.0156
79.9478
96.9589
104.959
152.948
196.926
228.915
249.099



Choose one...

Close Panel



Create ext Figure

Save Plot to File

Data Selection Panel

Name of Image Matrix

Name of Variable Matrix

imagedata_DAN01

exactmass_DAN01

Load Selected Data

Image: **imagedata_DAN01**

Variables **exactmass_DAN01**

Choose the peak(s) you want to plot from the list on the left and then choose an image processing function from the menu below.

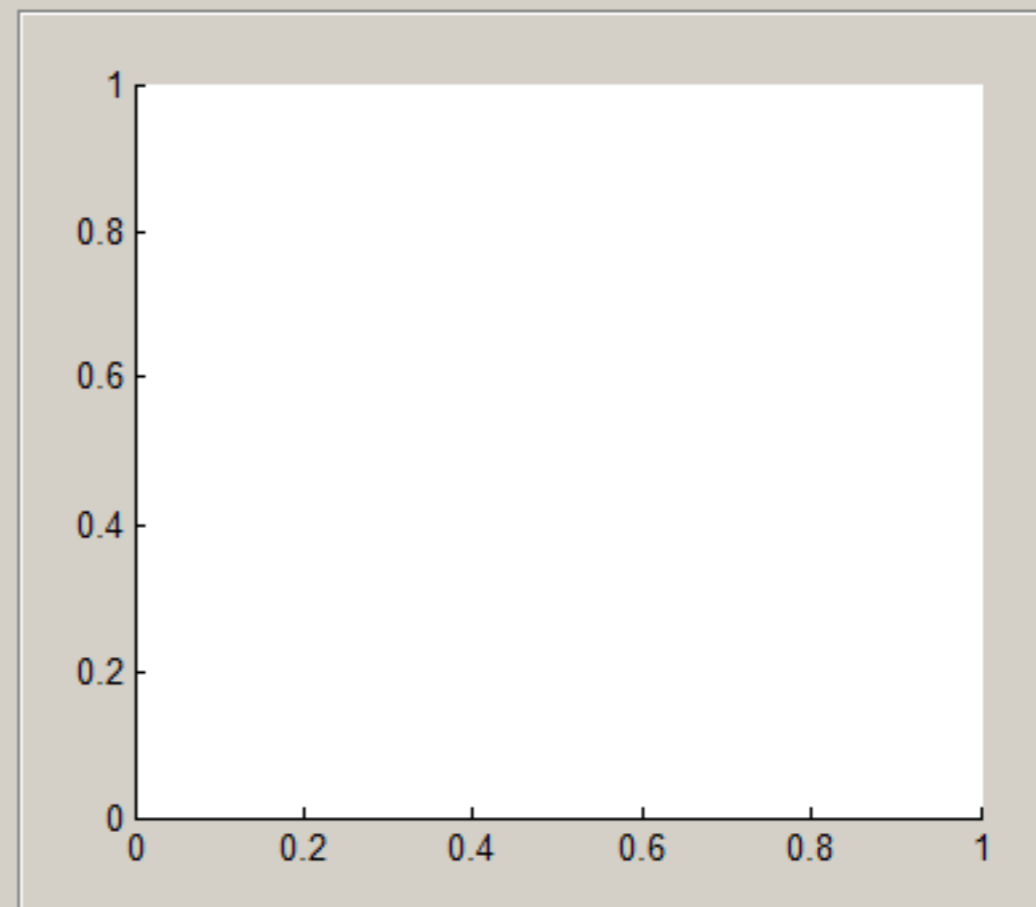
Which Image to measure on?

Lower right image

Measure

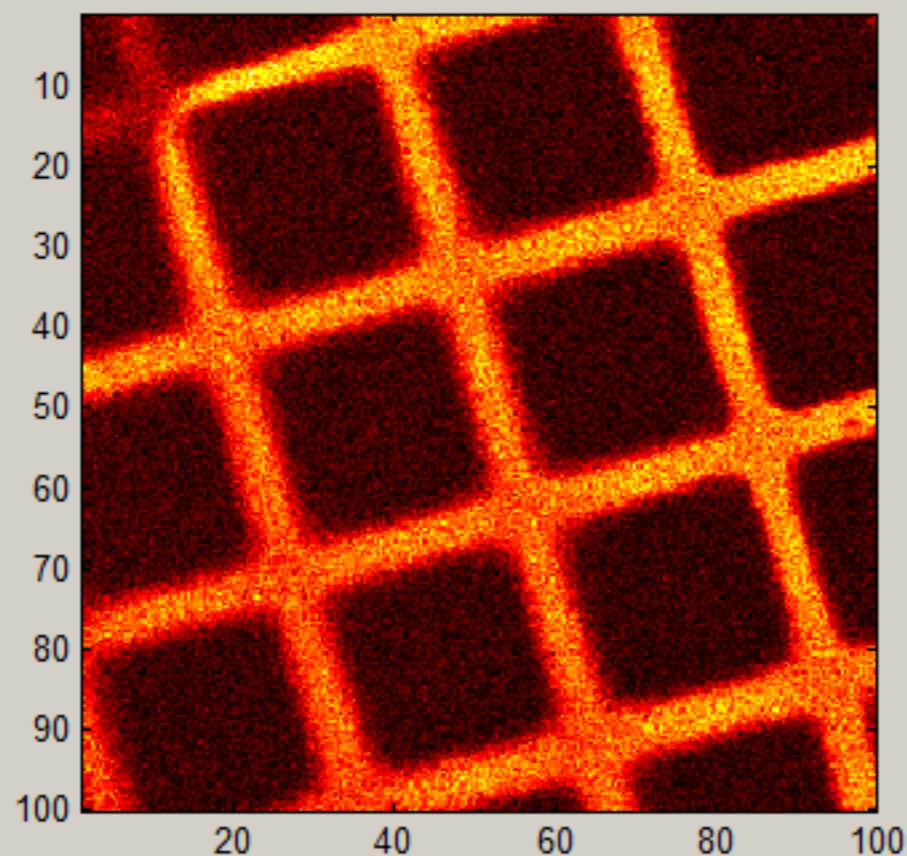
6.7692

Microns



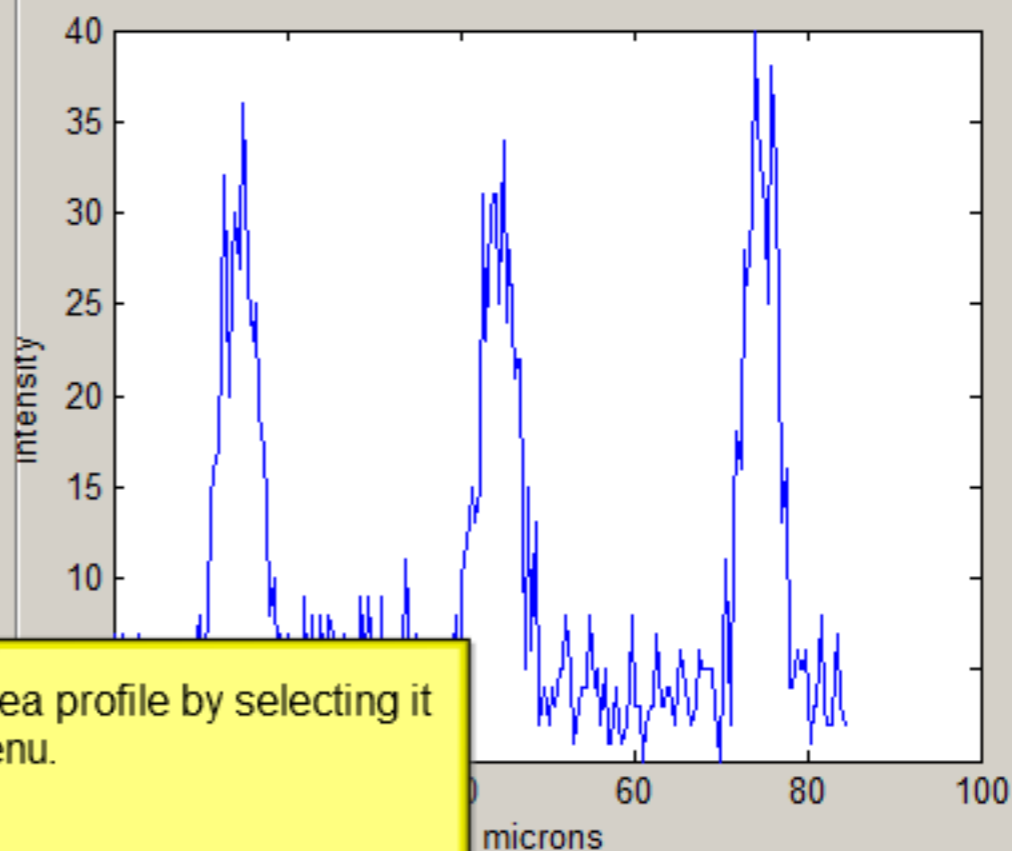
Variable List

15.9971
25.0051
26.0054
31.9732
32.9727
34.9663
42.0052
58.9992
63.9539
71.0156
79.9478
96.9589
104.959
152.948
196.926
228.915
249.099



Choose one...
Choose one...
Line Profile
Y Area Profile
X Area Profile
Trace Edges
Threshold image

Next let's look at a Y area profile by selecting it from the drop down menu.



Save Plot to File

Data Selection Panel

Name of Image Matrix

Name of Variable Matrix

imagedata_DAN01

exactmass_DAN01

Load Selected Data

Image: **imagedata_DAN01**

Variables **exactmass_DAN01**

Choose the peak(s) you want to plot from the list on the left and then choose an image processing function from the menu below.

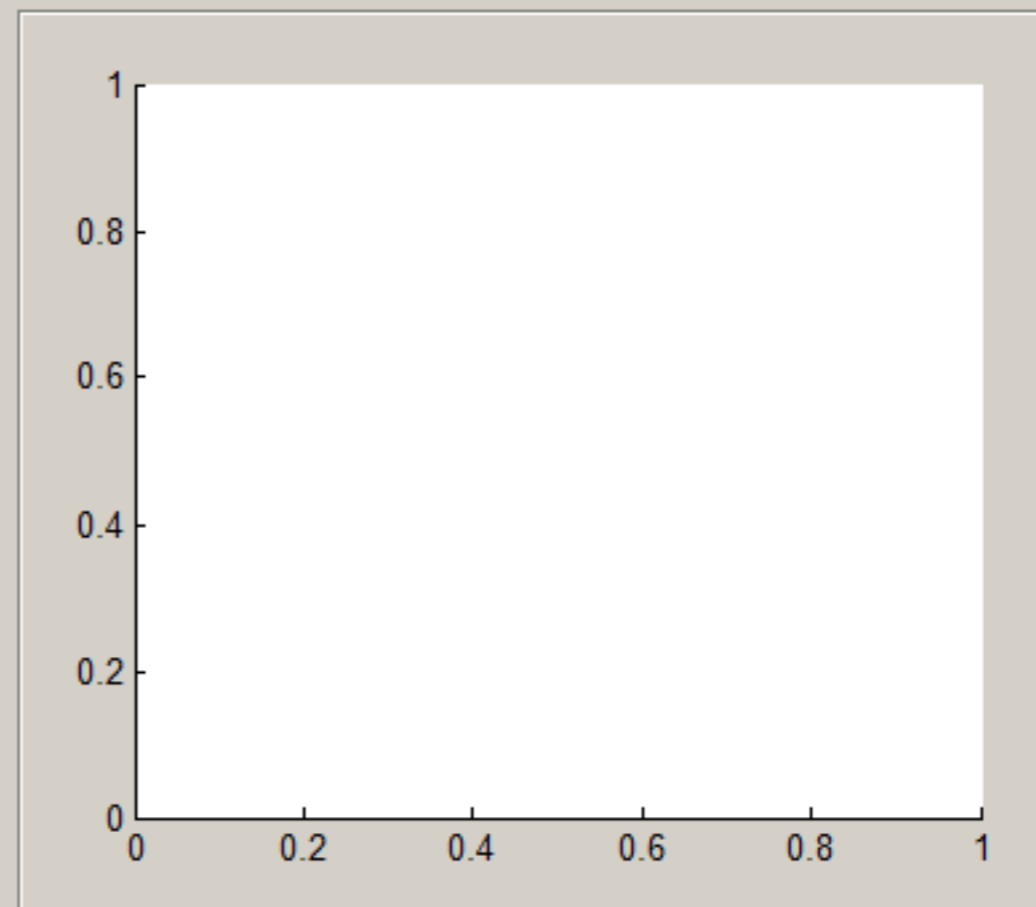
Which Image to measure on?

Lower right image

Measure

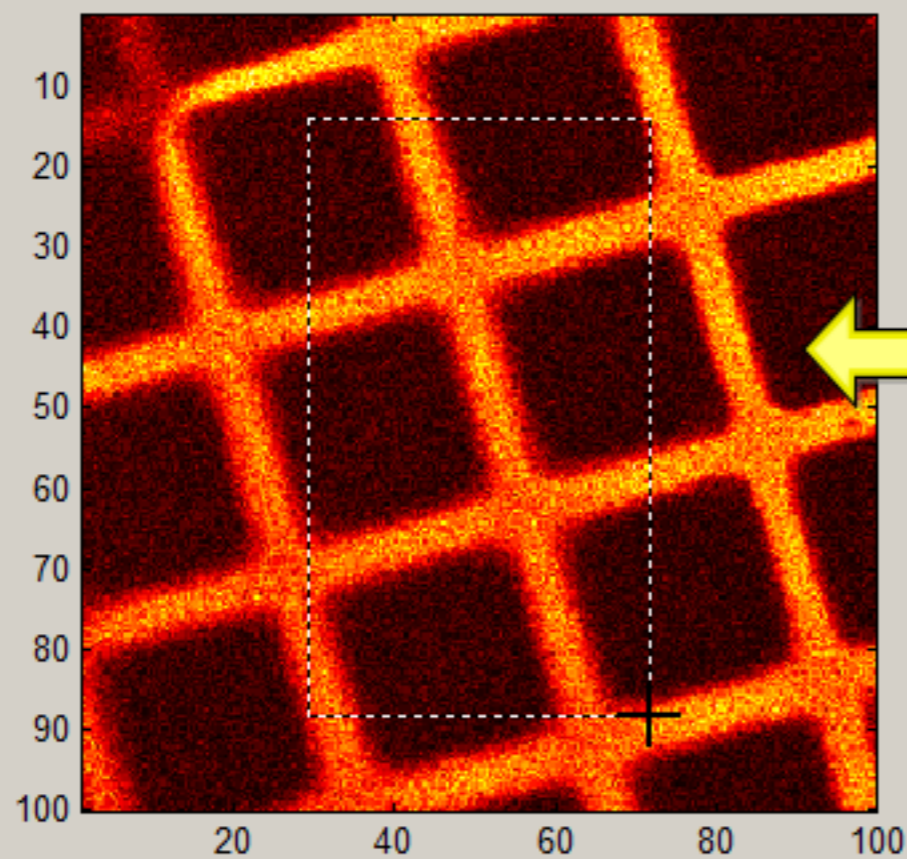
6.7692

Microns



Variable List

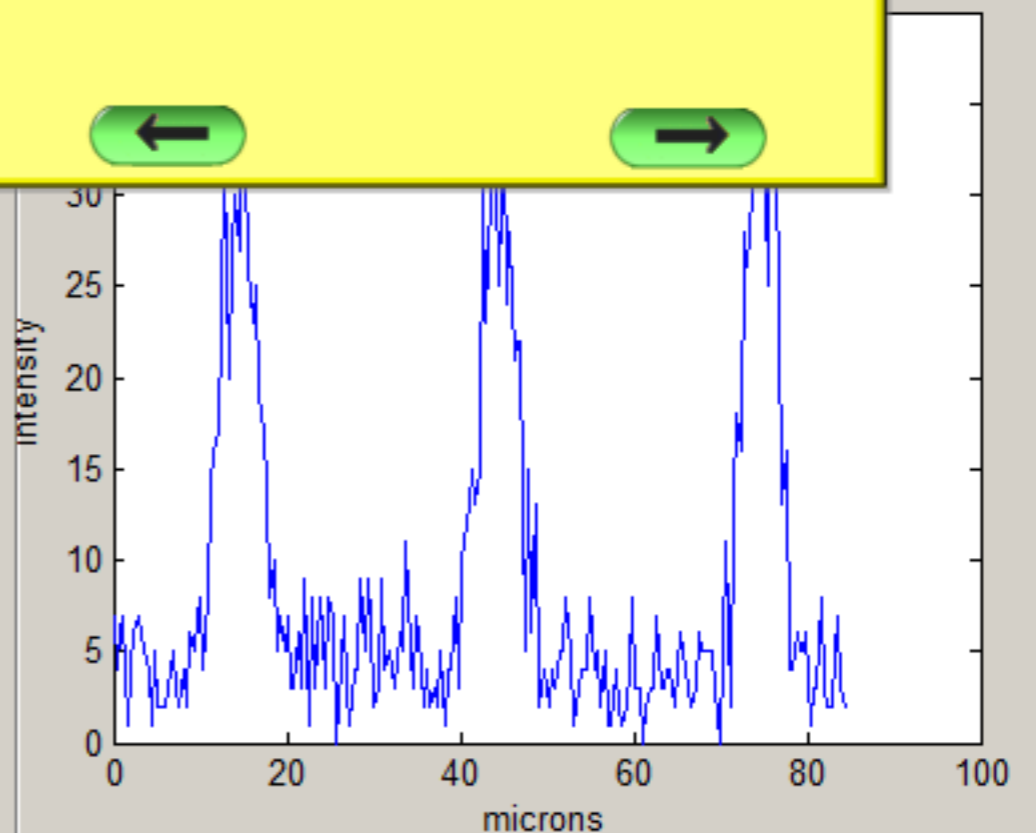
15.9971
25.0051
26.0054
31.9732
32.9727
34.9663
42.0052
58.9992
63.9539
71.0156
79.9478
96.9589
104.959
152.948
196.926
228.915
249.099



Y Area Profile

Close Panel

Left click and drag a rectangle along the Y axis where you want to create a profile.



Create ext Figure

Save Plot to File

Data Selection Panel

Name of Image Matrix

Name of Variable Matrix

imagedata_DAN01

exactmass_DAN01

Load Selected Data

Image: **imagedata_DAN01**

Variables **exactmass_DAN01**

Choose the peak(s) you want to plot from the list on the left and then choose an image processing function from the menu below.

Which Image to measure on?

Lower right image

Measure

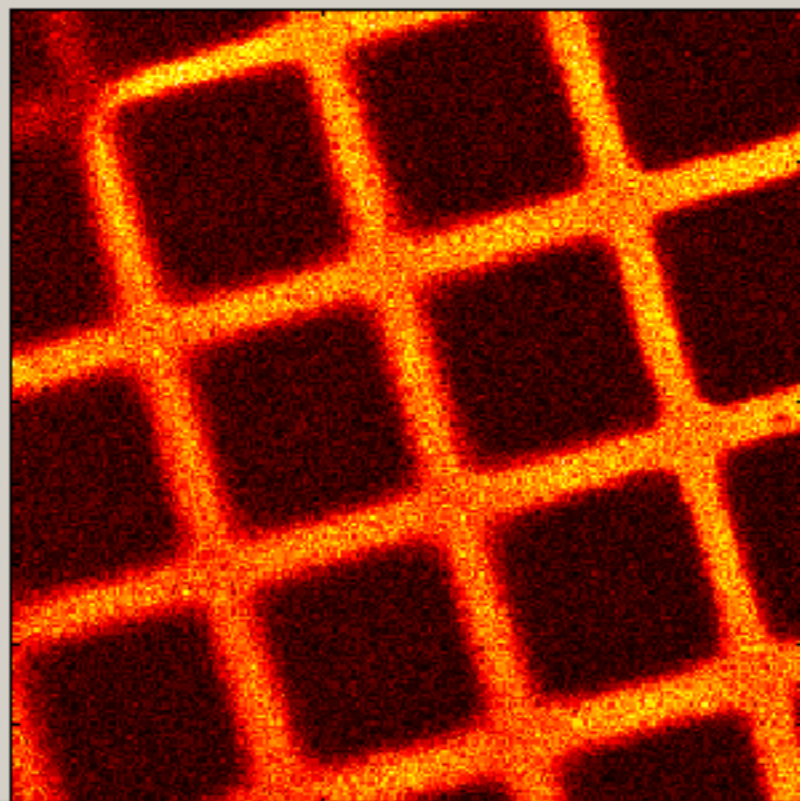
6.7692

Microns

Variable List

15.9971
25.0051
26.0054
31.9732
32.9727
34.9663
42.0052
58.9992
63.9539
71.0156
79.9478
96.9589
104.959
152.948
196.926
228.915
249.099

10
20
30
40
50
60
70
80
90
100

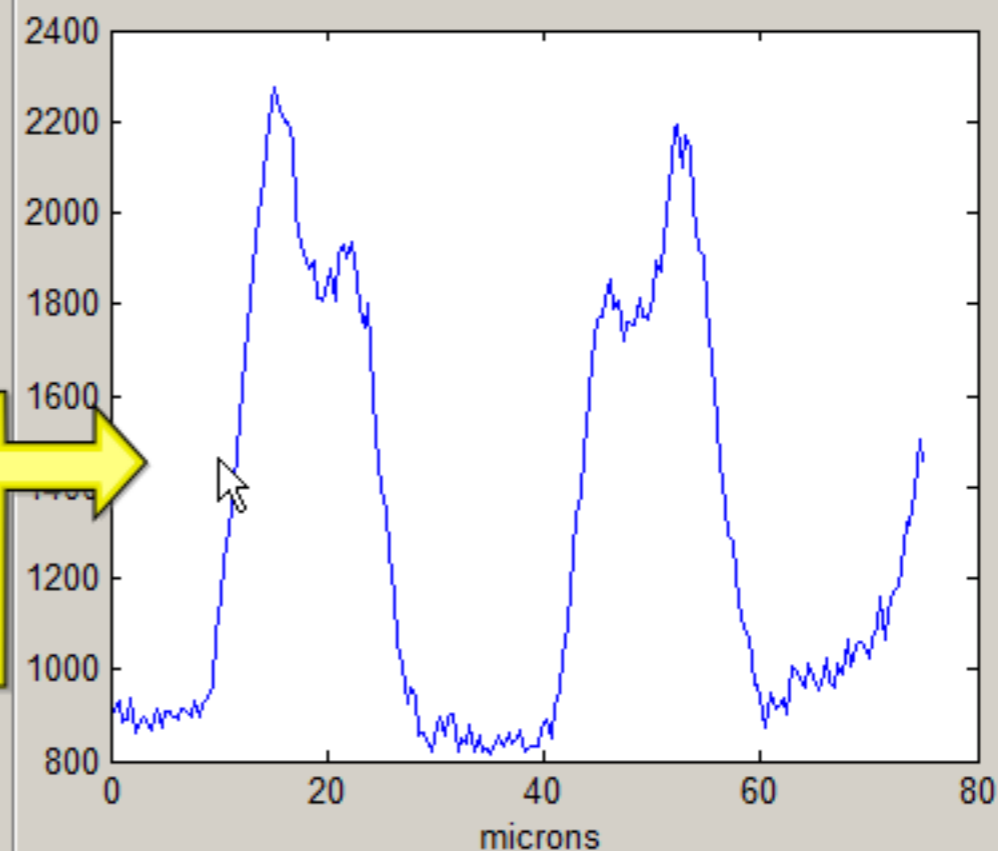
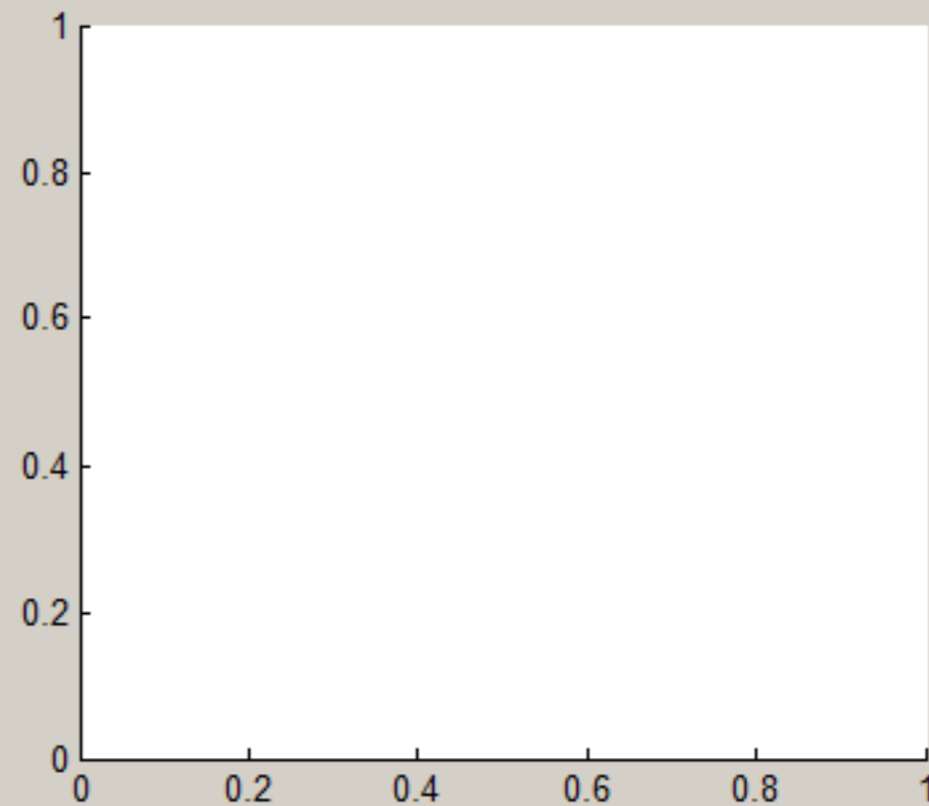


Choose

The profile is shown here. This is a sum along the Y axis of the profile lines within the selected region.



Close Panel



Create ext Figure

Save Plot to File

Data Selection Panel

Name of Image Matrix

Name of Variable Matrix

imagedata_DAN01

exactmass_DAN01

Load Selected Data

Image: **imagedata_DAN01**

Variables **exactmass_DAN01**

Choose the peak(s) you want to plot from the list on the left and then choose an image processing function from the menu below.

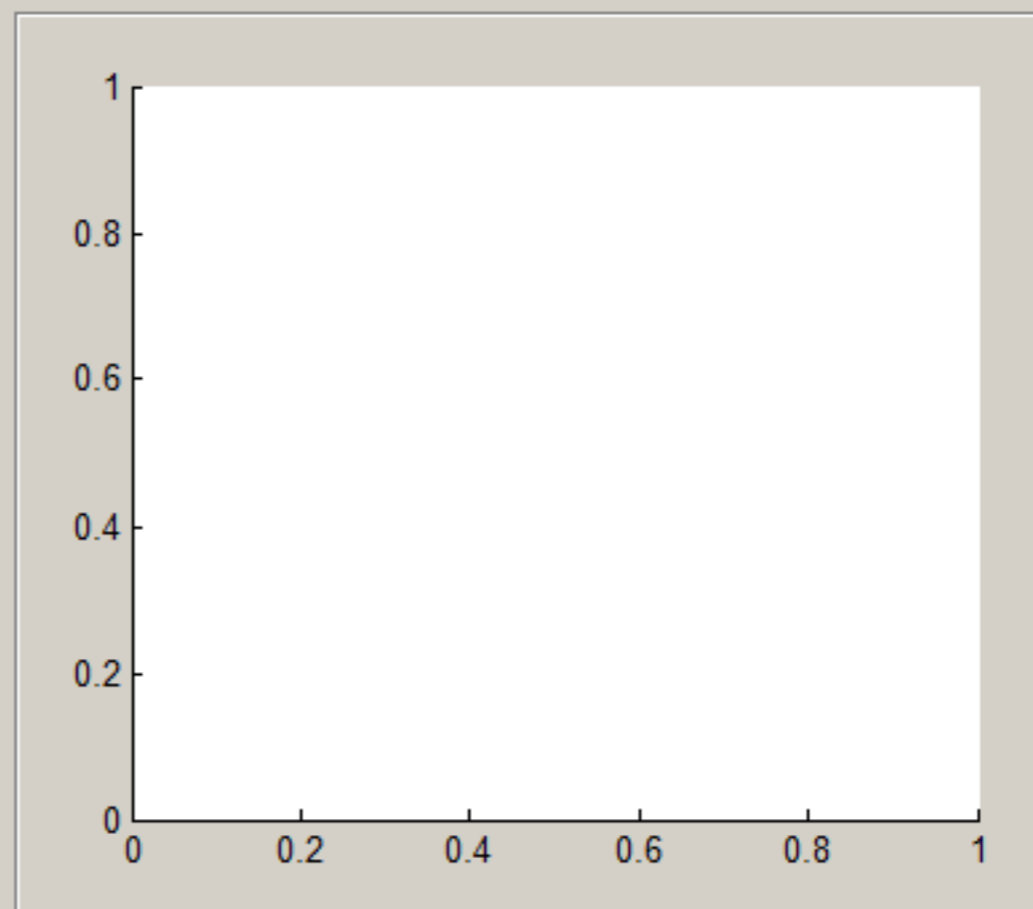
Which Image to measure on?

Lower right image

Measure

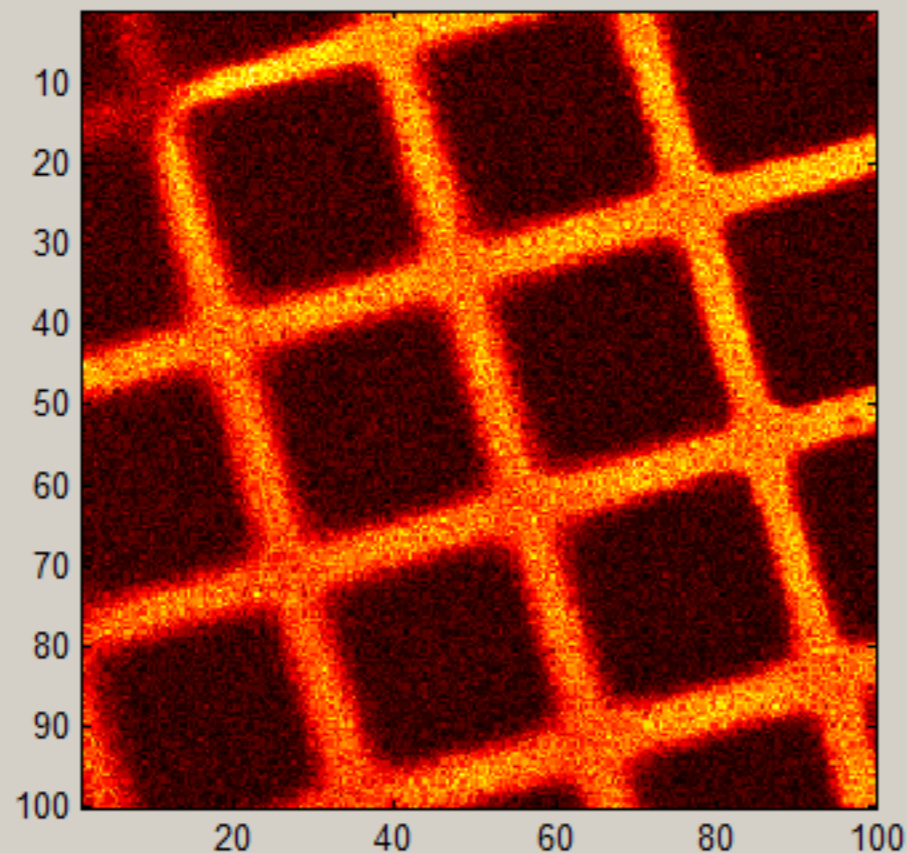
6.7692

Microns



Variable List

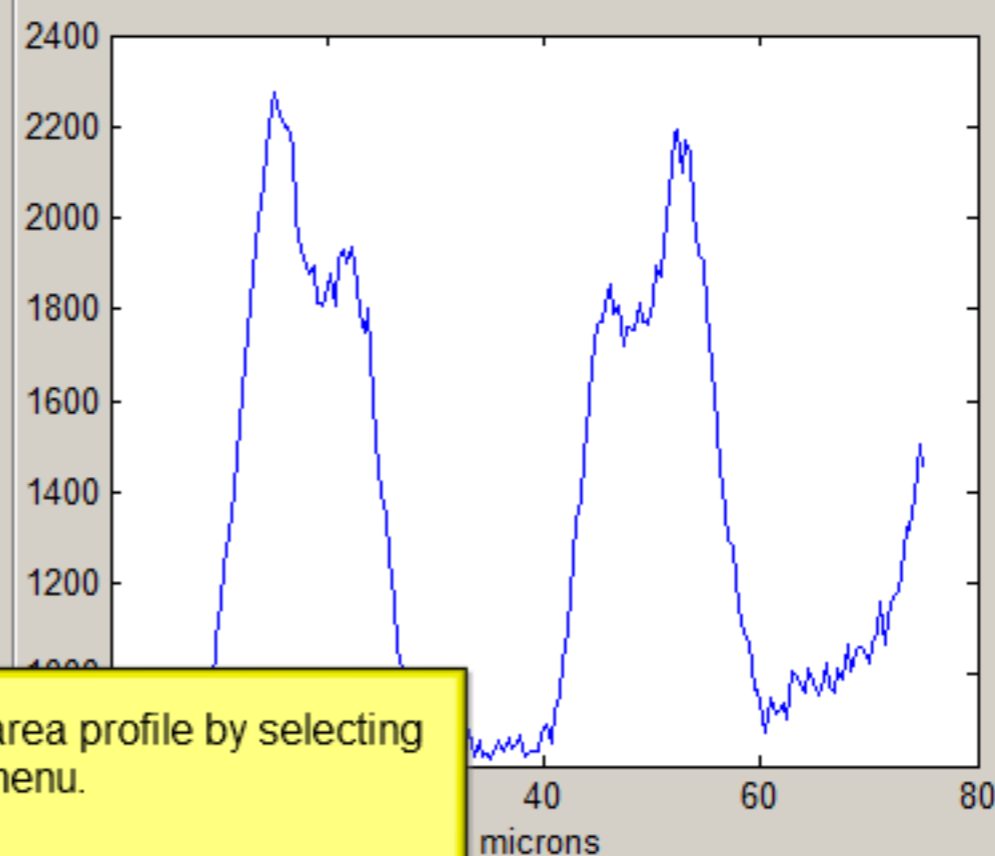
15.9971
25.0051
26.0054
31.9732
32.9727
34.9663
42.0052
58.9992
63.9539
71.0156
79.9478
96.9589
104.959
152.948
196.926
228.915
249.099



Choose one...

Choose one...
Line Profile
Y Area Profile
X Area Profile
Trace Edges
Threshold image

Next let's look at an X area profile by selecting it from the drop down menu.



Save Plot to File

Data Selection Panel

Name of Image Matrix

imagedata_DAN01

Name of Variable Matrix

exactmass_DAN01

Load Selected Data

Image: **imagedata_DAN01**

Variables **exactmass_DAN01**

Choose the peak(s) you want to plot from the list on the left and then choose an image processing function from the menu below.

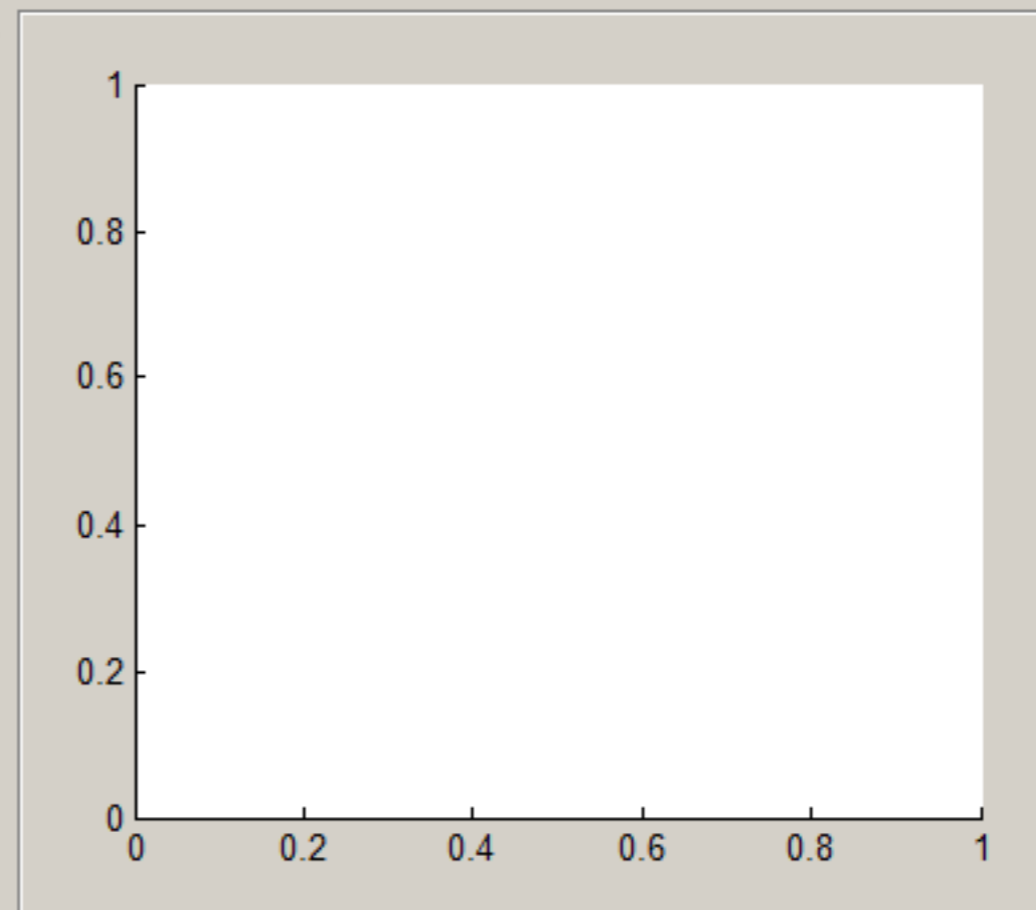
Which Image to measure on?

Lower right image

Measure

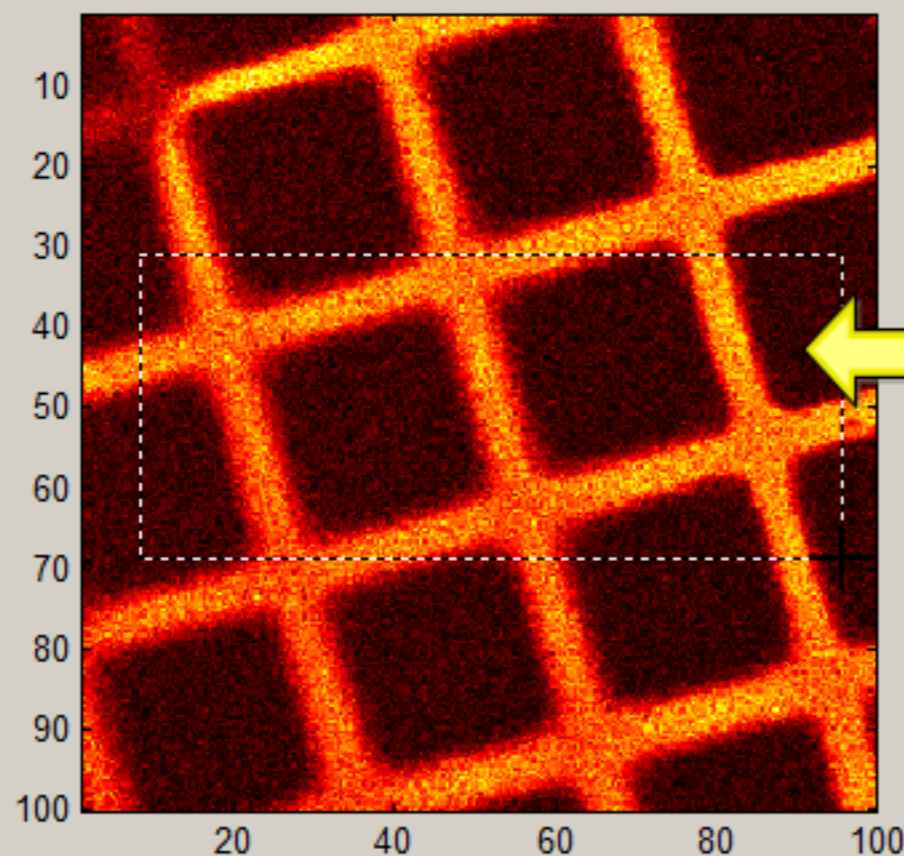
6.7692

Microns



Variable List

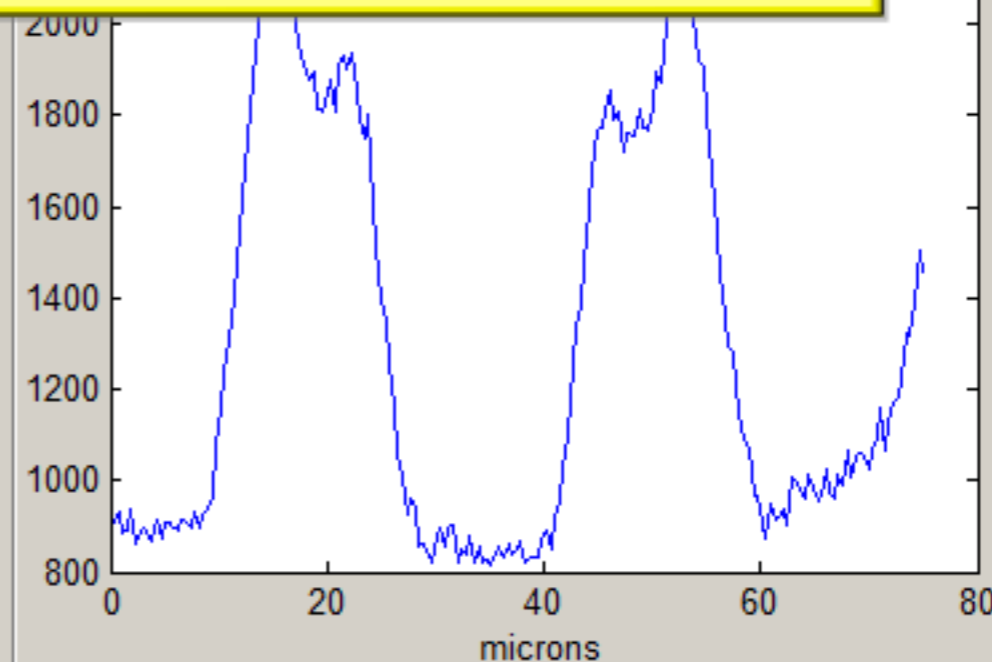
15.9971
25.0051
26.0054
31.9732
32.9727
34.9663
42.0052
58.9992
63.9539
71.0156
79.9478
96.9589
104.959
152.948
196.926
228.915
249.099



X Area Profile

Close Panel

Left click and drag a rectangle along the X axis where you want to create a profile.



Create ext Figure

Save Plot to File

Data Selection Panel

Name of Image Matrix

imagedata_DAN01

Name of Variable Matrix

exactmass_DAN01

Load Selected Data

Image: **imagedata_DAN01**

Variables **exactmass_DAN01**

Choose the peak(s) you want to plot from the list on the left and then choose an image processing function from the menu below.

Which Image to measure on?

Lower right image

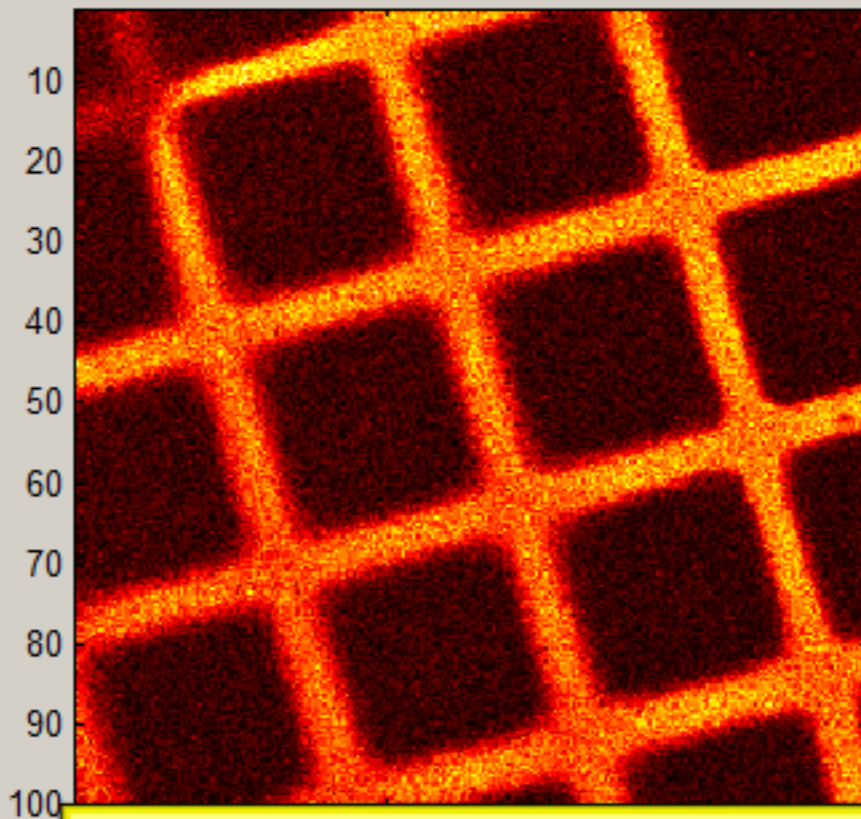
Measure

6.7692

Microns

Variable List

15.9971
25.0051
26.0054
31.9732
32.9727
34.9663
42.0052
58.9992
63.9539
71.0156
79.9478
96.9589
104.959
152.948
196.926
228.915
249.099

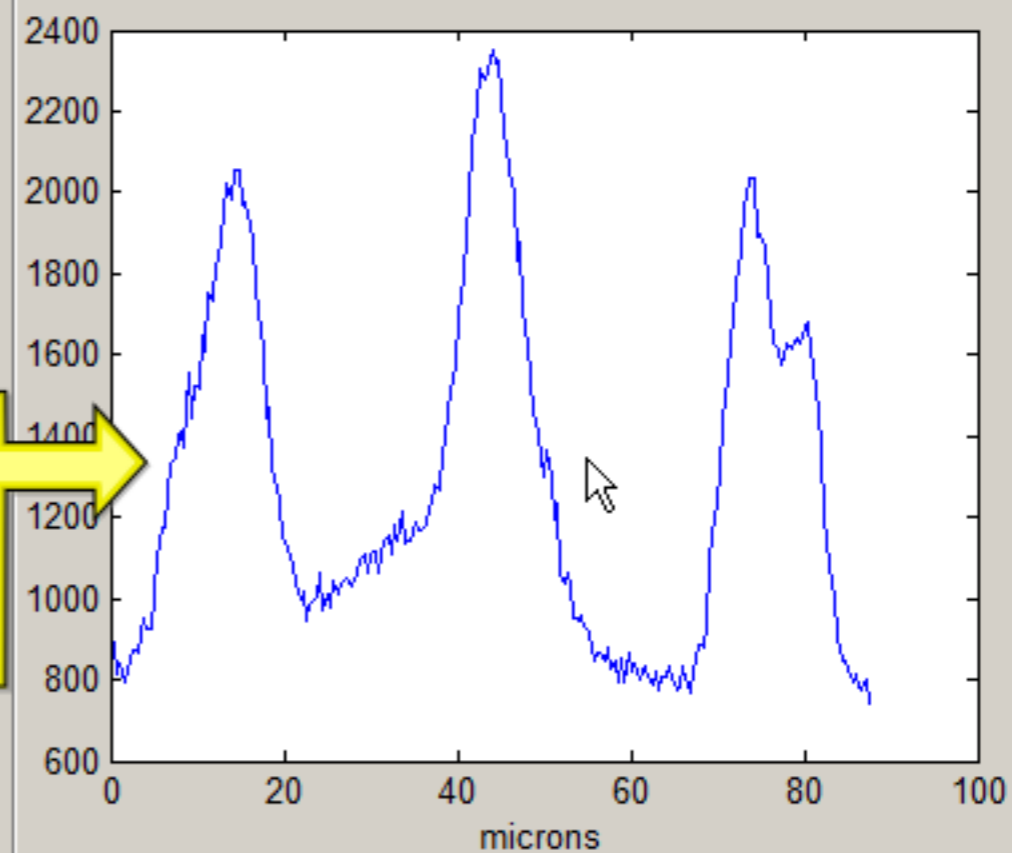
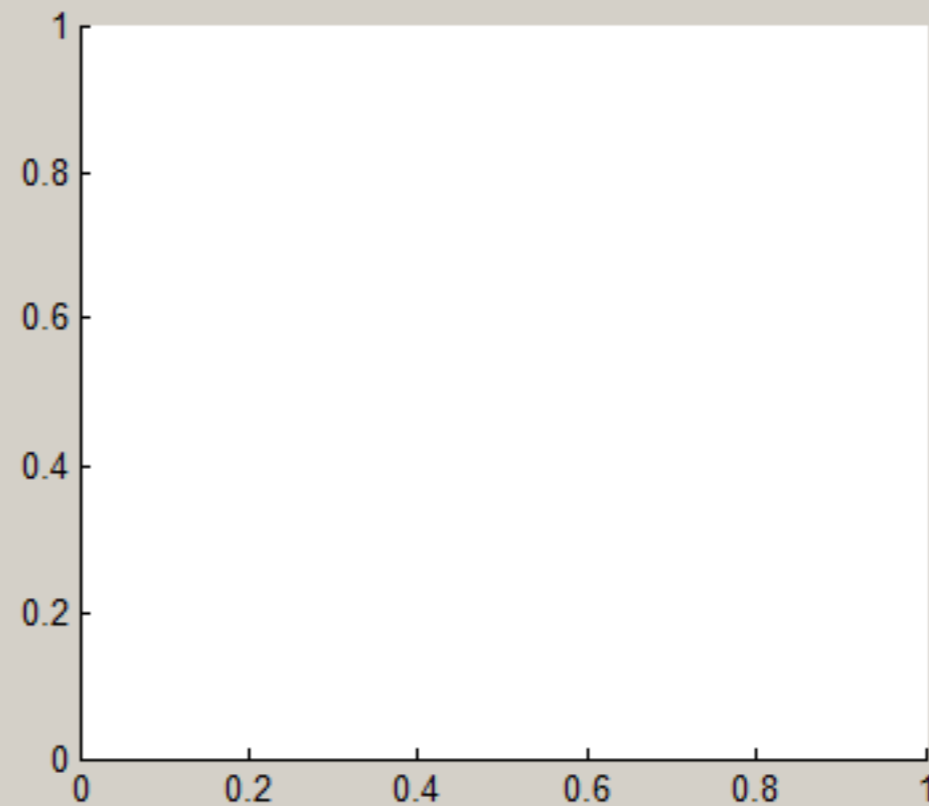


Choose

The profile is shown here. This is a sum along the X axis of the profile lines within the selected region.



Close Panel



Create ext Figure

Save Plot to File

Data Selection Panel

Name of Image Matrix

Name of Variable Matrix

imagedata_DAN01

exactmass_DAN01

Load Selected Data

Image: **imagedata_DAN01**

Variables: **exactmass_DAN01**

Choose the peak(s) you want to plot from the list on the left and then choose an image processing function from the menu below.

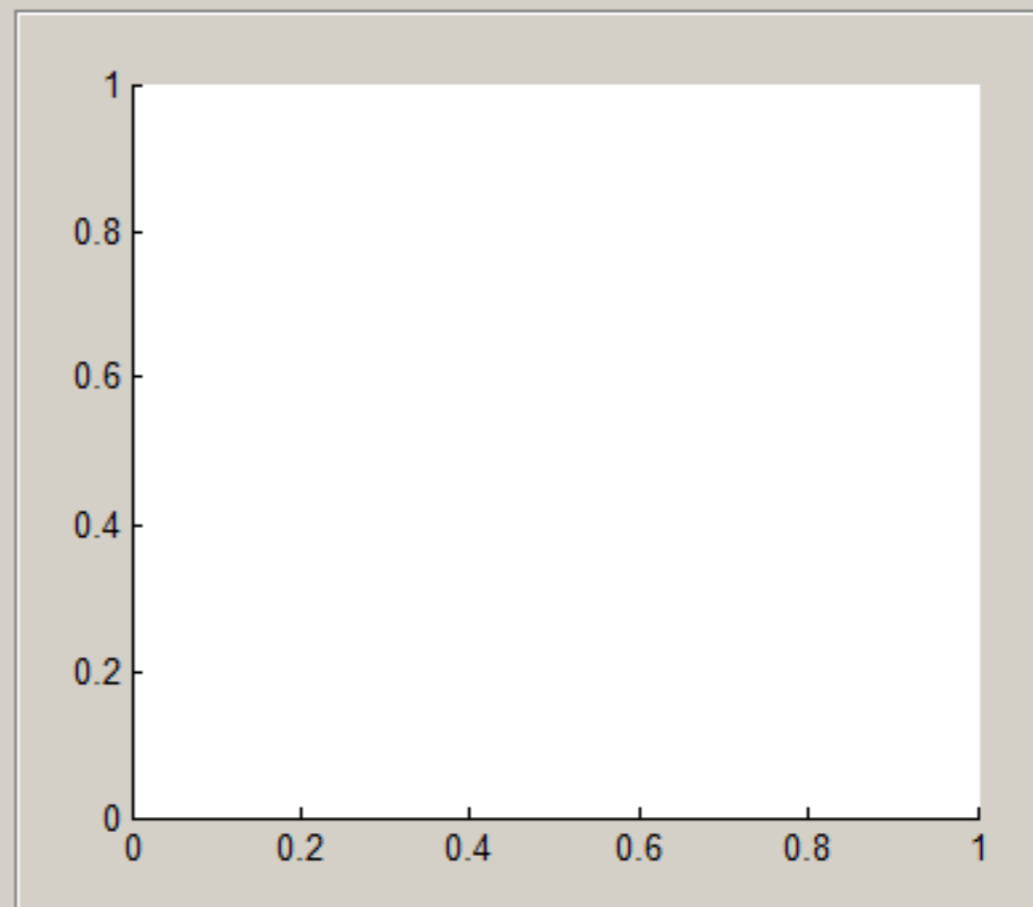
Which Image to measure on?

Lower right image

Measure

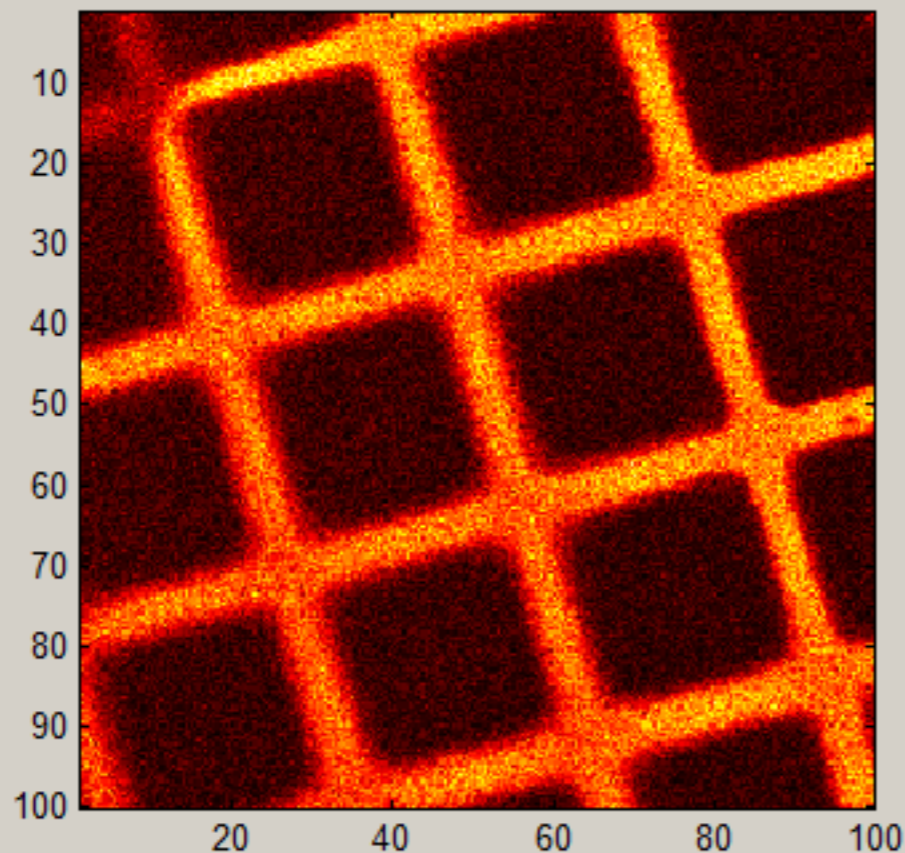
6.7692

Microns



Variable List

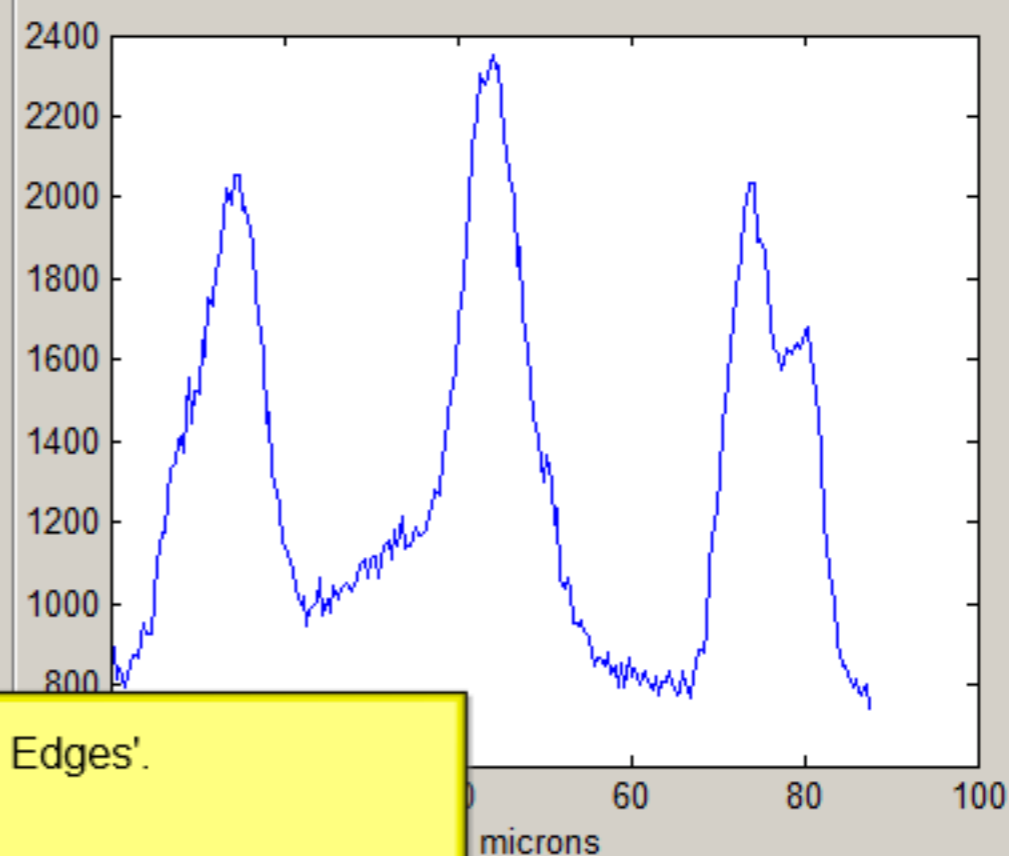
15.9971
25.0051
26.0054
31.9732
32.9727
34.9663
42.0052
58.9992
63.9539
71.0156
79.9478
96.9589
104.959
152.948
196.926
228.915
249.099



Choose one...

Choose one...
Line Profile
Y Area Profile
X Area Profile
Trace Edges
Threshold image

Next, let's select 'Trace Edges'.



Save Plot to File

Data Selection Panel

Name of Image Matrix

imagedata_DAN01

Name of Variable Matrix

exactmass_DAN01

Load Selected Data

Which Image to measure on?

Lower right image

Image:
Variables

Choose the peak(s) you want to measure from the list on the left. You can also choose an image processing menu below.

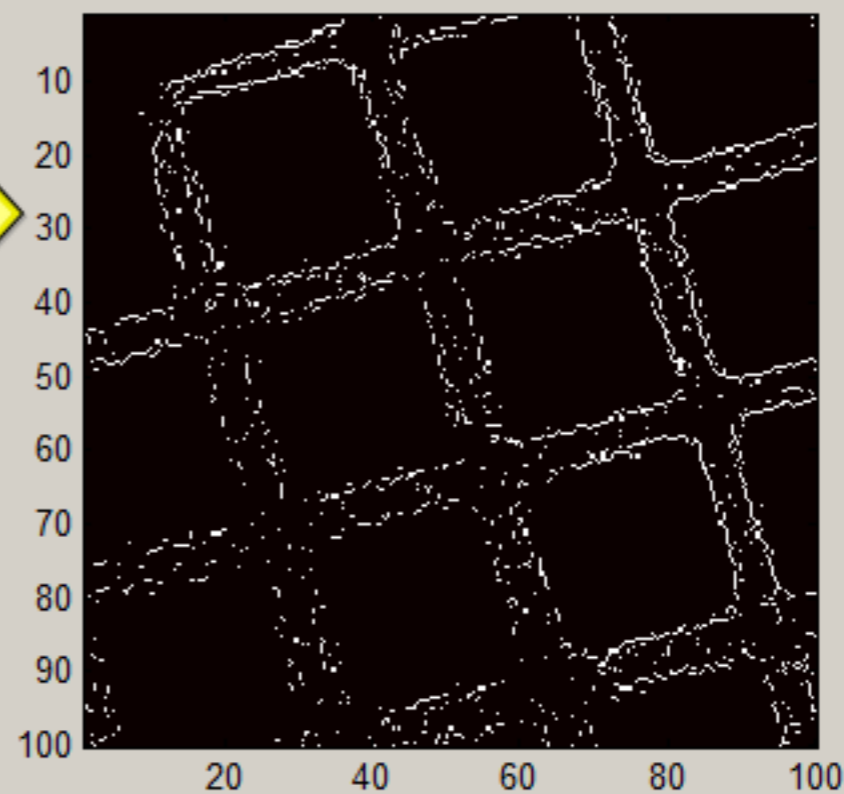
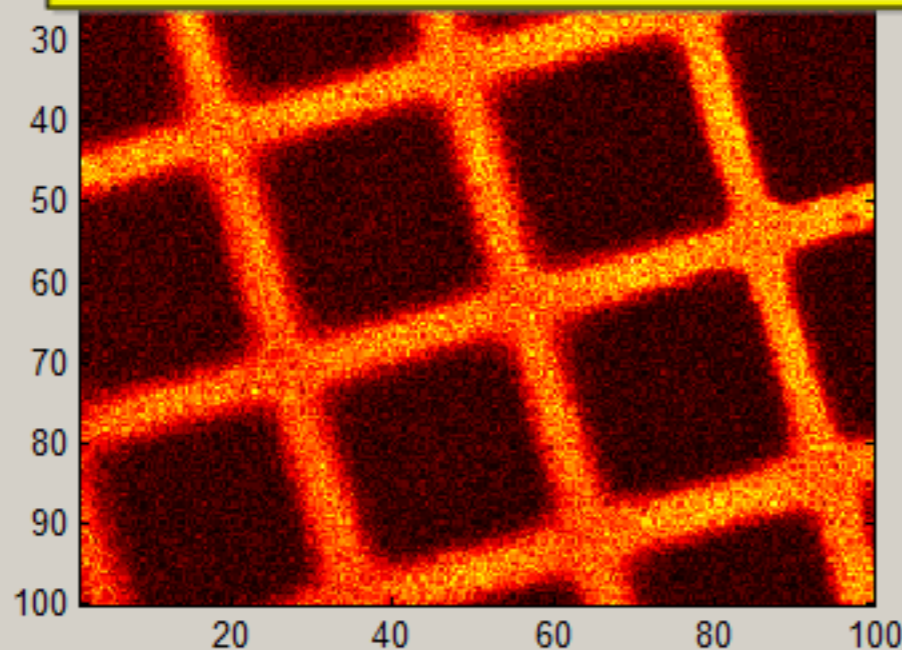
Variable List

15.9971
25.0051
26.0054
31.9732
32.9727
34.9663
42.0052
58.9992
63.9539
71.0156
79.9478
96.9589
104.959
152.948
196.926
228.915
249.099

The edge trace image is shown here.

You can create an external Matlab figure from this image or save it using the buttons below this box.

There are several methods of edge detection available. Each has its advantages and disadvantages. Let's change to the 'Canny' algorithm by selecting it from the drop down menu below.



Create ext Figure

Save Plot to File

Trace Edges

Choose an edge detection method from the menu below (default = Sobel)

Sobel

Sobel

Prewitt

Roberts

Close Panel

Data Selection Panel

Name of Image Matrix

imagedata_DAN01

Name of Variable Matrix

exactmass_DAN01

Load Selected Data

Which Image to measure on?

Lower right image

Image:

Variables

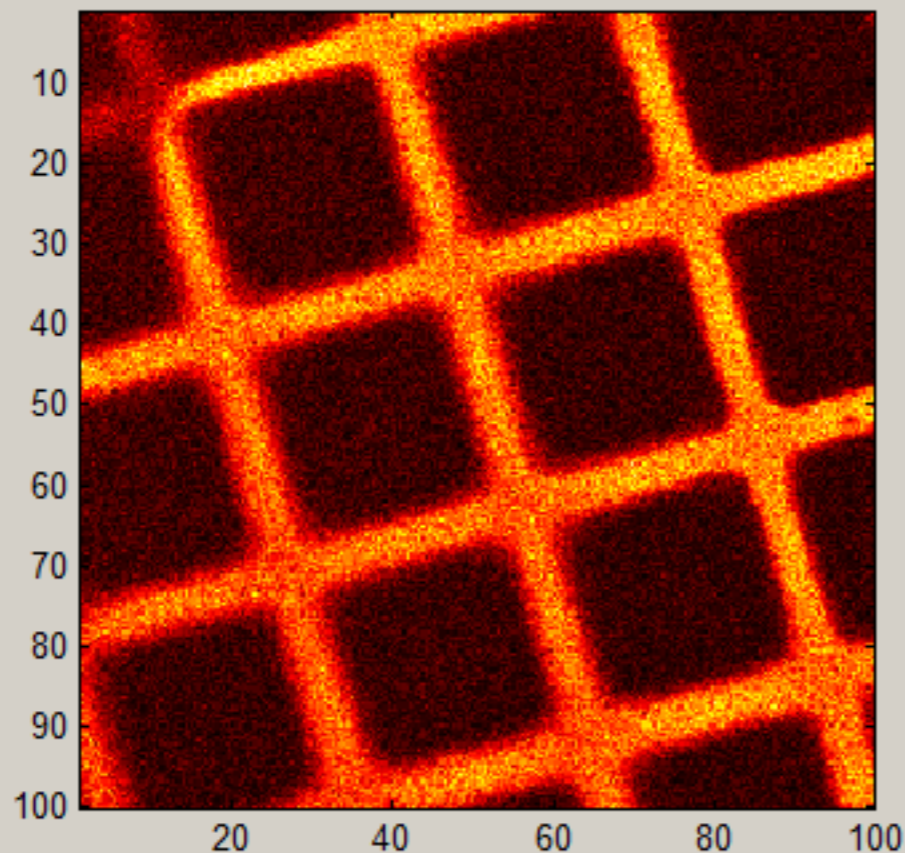
Choose the peak(s) you want to measure from the list on the left. You can also choose an image processing method from the menu below.

In this case the 'Canny' algorithm worked better to detect the edges of the lines. You will have to play with the different methods to see which one works best for your image.



Variable List

15.9971
25.0051
26.0054
31.9732
32.9727
34.9663
42.0052
58.9992
63.9539
71.0156
79.9478
96.9589
104.959
152.948
196.926
228.915
249.099

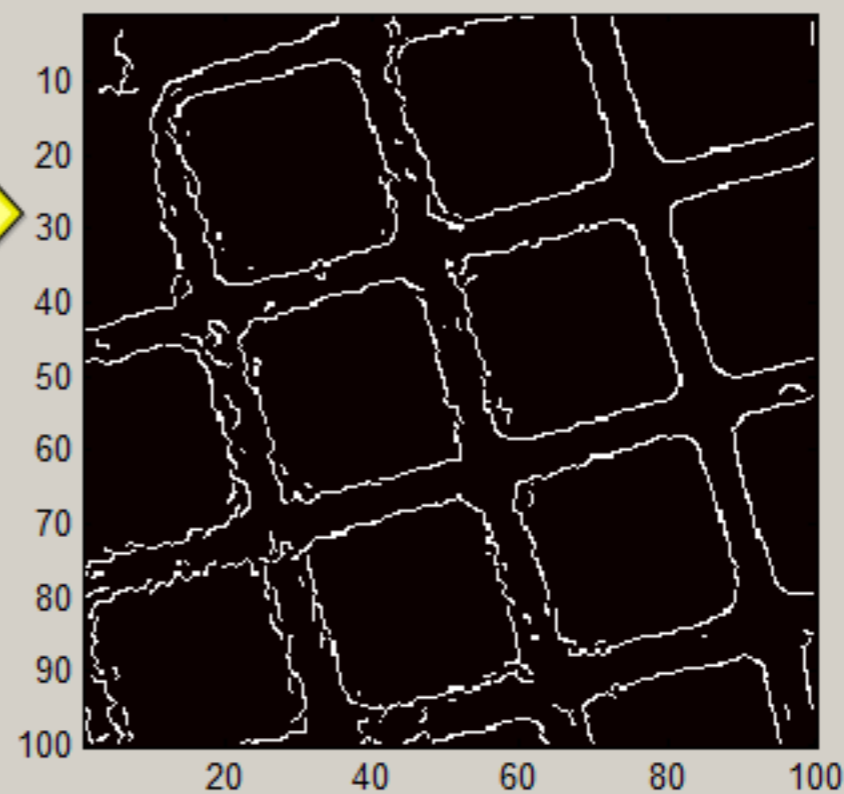


Trace Edges

Choose an edge detection method from the menu below (default = Sobel)

Canny

Close Panel



Create ext Figure

Save Plot to File

Data Selection Panel

Name of Image Matrix

Name of Variable Matrix

imagedata_DAN01

exactmass_DAN01

Load Selected Data

Image: **imagedata_DAN01**

Variables: **exactmass_DAN01**

Choose the peak(s) you want to plot from the list on the left and then choose an image processing function from the menu below.

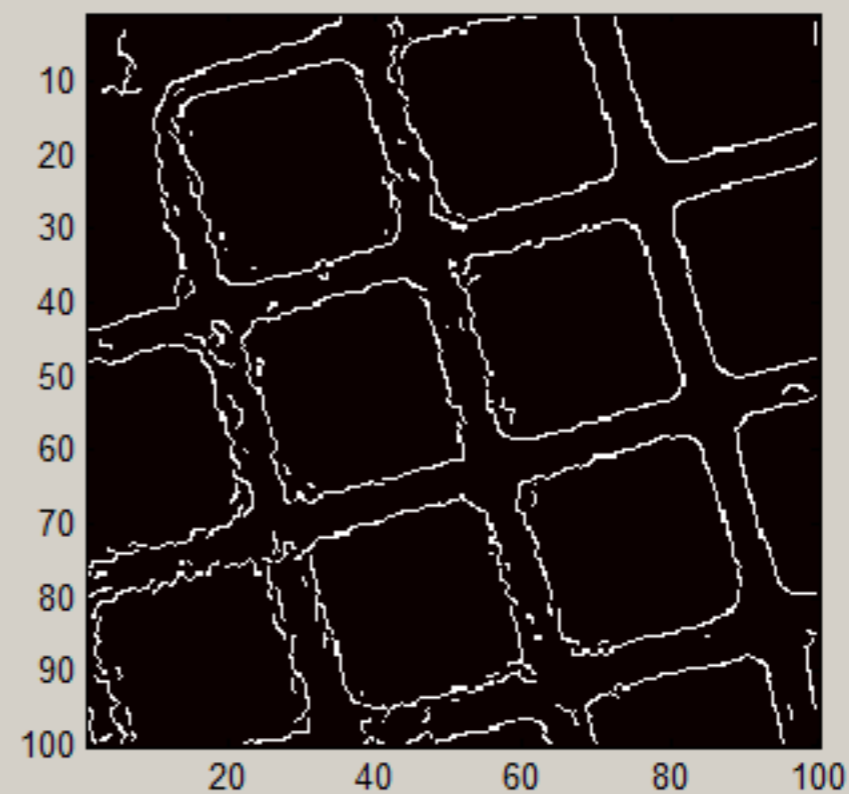
Which Image to measure on?

Lower right image

Measure

6.7692

Microns

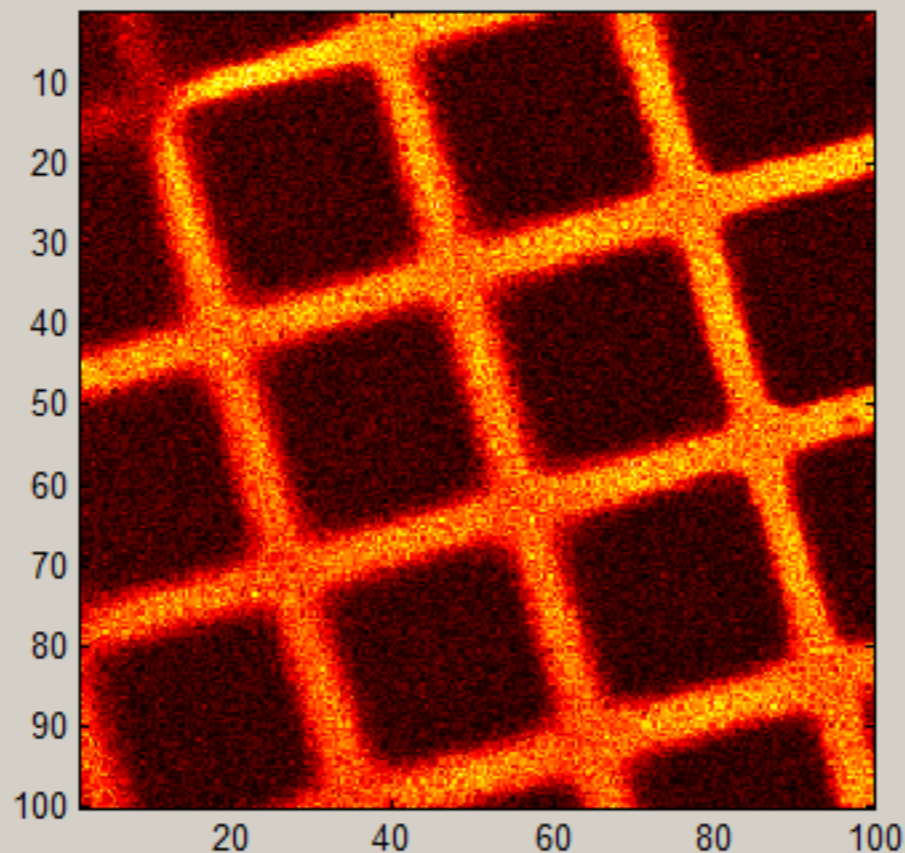


Create ext Figure

Save Plot to File

Variable List

15.9971
25.0051
26.0054
31.9732
32.9727
34.9663
42.0052
58.9992
63.9539
71.0156
79.9478
96.9589
104.959
152.948
196.926
228.915
249.099



Trace Edges

Choose one...

Line Profile

Y Area Profile

X Area Profile

Trace Edges

Threshold image

Choose from the n

od ob

Next, let's select 'Threshold Image'.



Data Selection Panel

Name of Image Matrix

imagedata_DAN01

Name of Variable Matrix

exactmass_DAN01

Load Selected Data

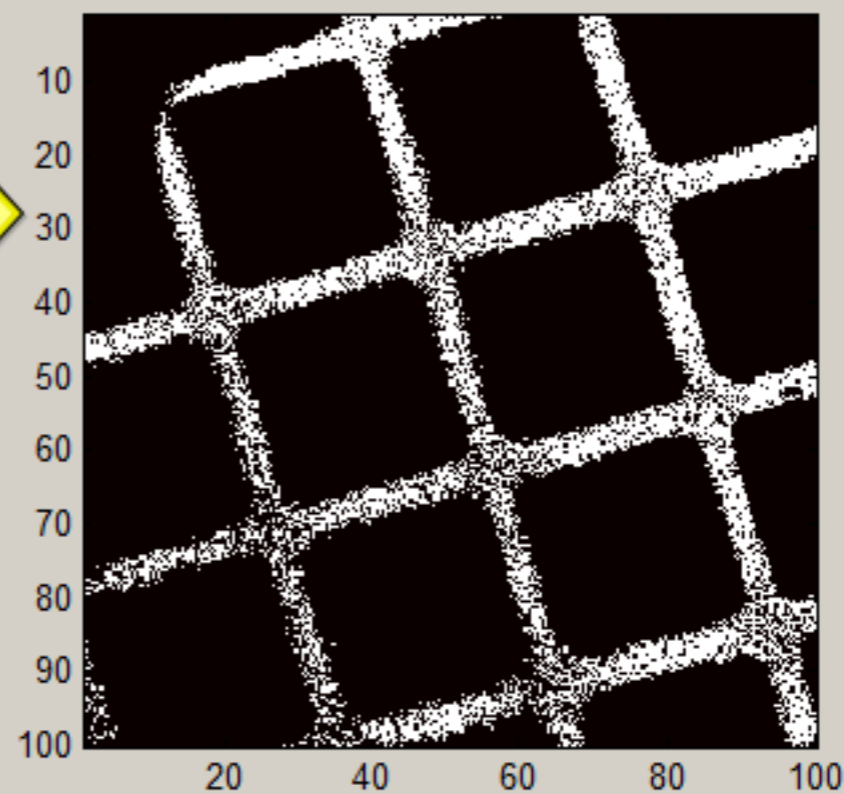
Which Image to measure on?

Lower right image

Image:
Variables

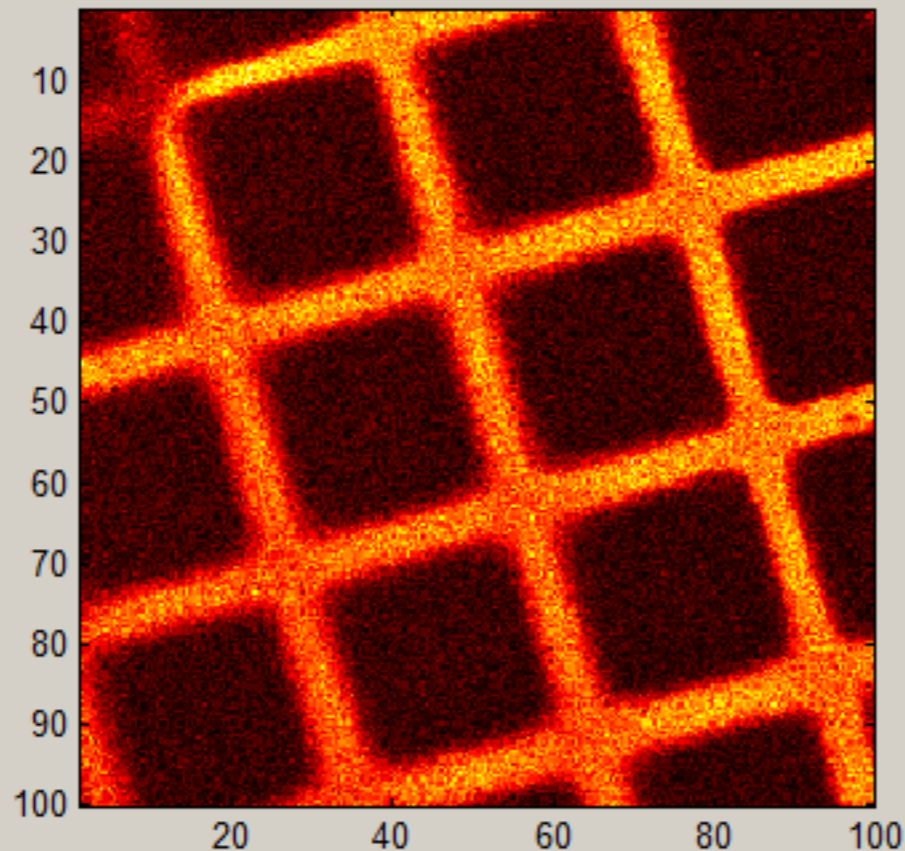
Choose the peak(s) you want to measure from the list on the left. Then select an image processing method from the menu below.

The thresholded image will appear here. When you first select the thresholding option it defaults to 'Manual' mode. Here you can adjust the slider at the bottom of the page to change how the image is thresholded.



Variable List

15.9971
25.0051
26.0054
31.9732
32.9727
34.9663
42.0052
58.9992
63.9539
71.0156
79.9478
96.9589
104.959
152.948
196.926
228.915
249.099



Threshold image

Choose a thresholding method from the menu below

Manual

Manual

Mean Thresholding

Intermean Thresholding

Otsu Thresholding

Invert thresholded image

☐

Close Panel

Name for ROI Mask

Save ROI Mask

Data Selection Panel

Name of Image Matrix

Name of Variable Matrix

imagedata_DAN01

exactmass_DAN01

Load Selected Data

Image: **imagedata_DAN01**

Variables: **exactmass_DAN01**

Choose the peak(s) you want to plot from the list on the left and then choose an image processing function from the menu below.

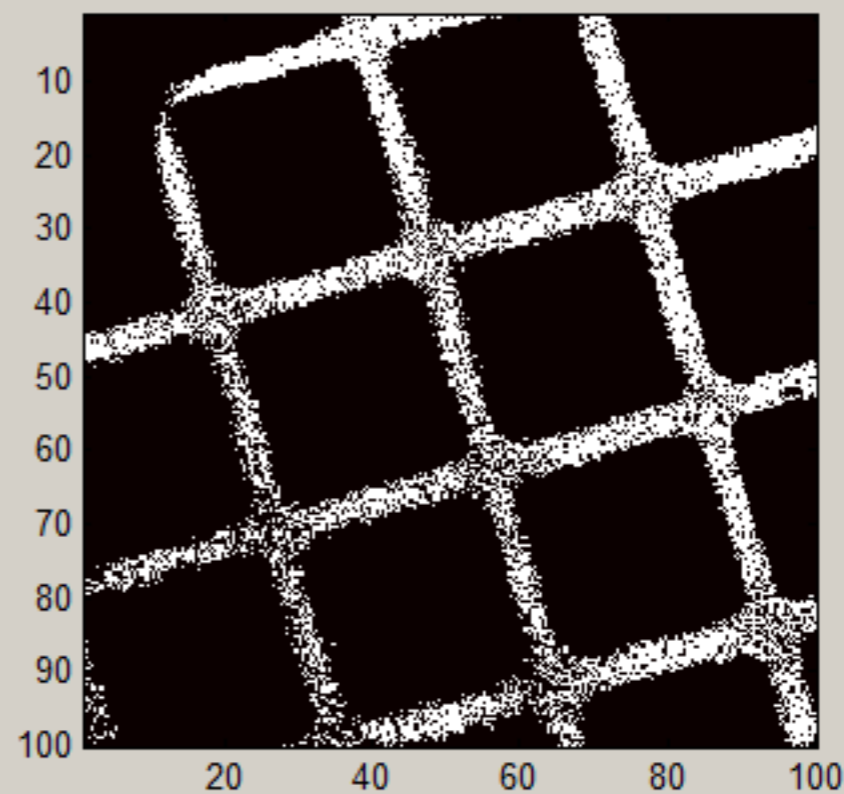
Which Image to measure on?

Lower right image

Measure

6.7692

Microns

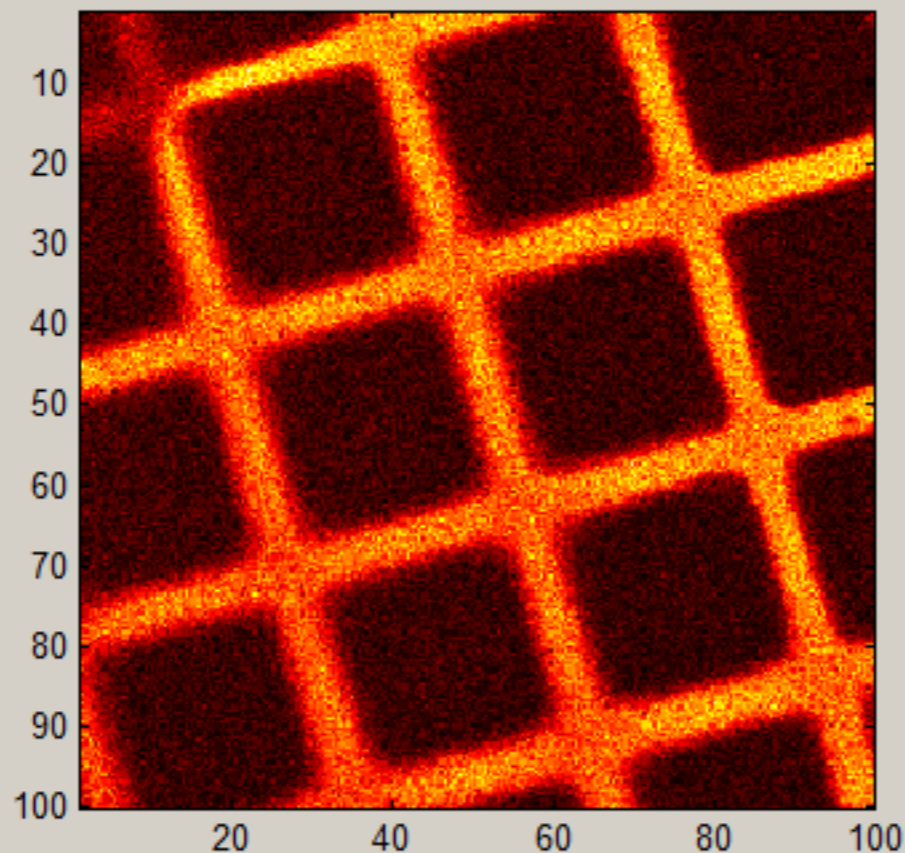


Name for ROI Mask

Save ROI Mask

Variable List

15.9971
25.0051
26.0054
31.9732
32.9727
34.9663
42.0052
58.9992
63.9539
71.0156
79.9478
96.9589
104.959
152.948
196.926
228.915
249.099



Threshold image

Choose a thresholding method from the menu below

Manual

Invert threshold

Manual

Mean Thresholding

Intermean Thresholding

Otsu Thresholding

Let's switch to 'Mean Thresholding'.



Data Selection Panel

Name of Image Matrix

imagedata_DAN01

Name of Variable Matrix

exactmass_DAN01

Load Selected Data

Which Image to measure on?

Lower right image

Image:

Variables

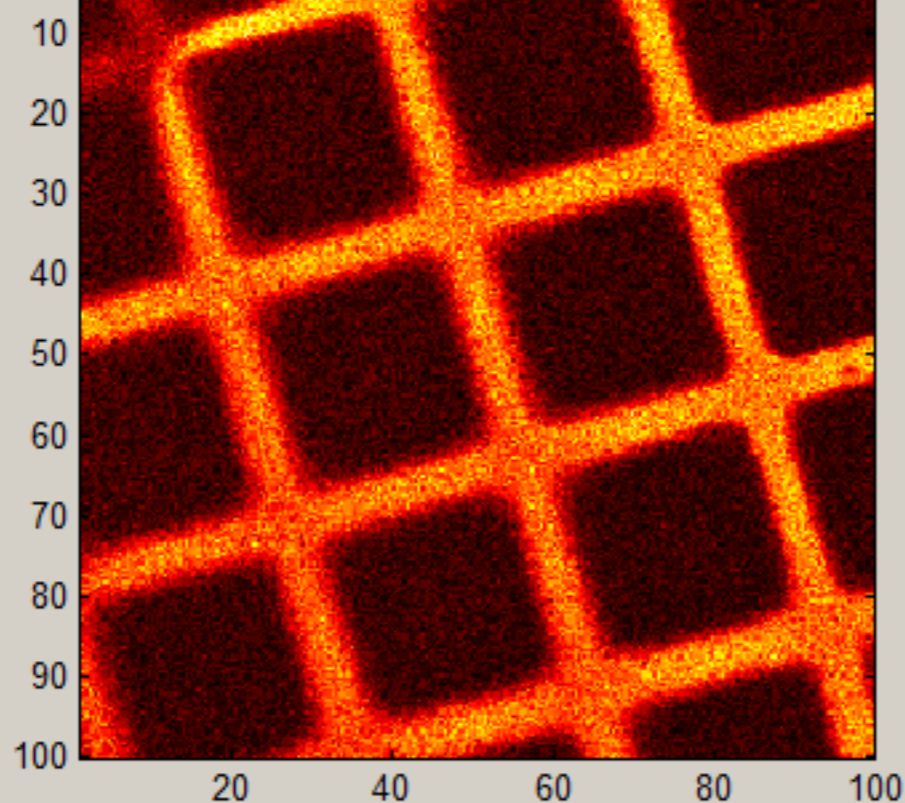
Choose the peak(s) you want to measure from the list on the left. You can select multiple peaks. Once selected, the image processing menu below.

Once selected the image is updated using the new method the thresholding level is also updated on the slider below. However, unless you are in manual mode you cannot adjust the slider value manually.



Variable List

15.9971
25.0051
26.0054
31.9732
32.9727
34.9663
42.0052
58.9992
63.9539
71.0156
79.9478
96.9589
104.959
152.948
196.926
228.915
249.099



Threshold image

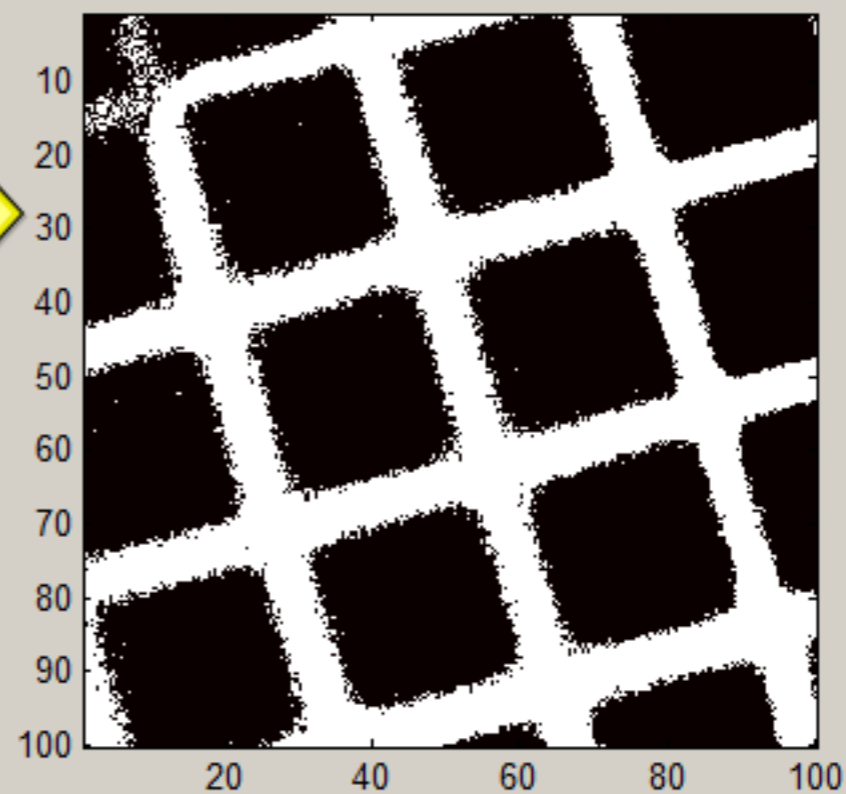
Choose a thresholding method from the menu below

Mean Thresho...

Invert thresholded image ☐

Close Panel

0 0.24 1



Name for ROI Mask

Save ROI Mask

Data Selection Panel

Name of Image Matrix

imagedata_DAN01

Name of Variable Matrix

exactmass_DAN01

Load Selected Data

Image: **imagedata_DAN01**

Variables: **exactmass_DAN01**

Choose the peak(s) you want to plot from the list on the left and then choose an image processing function from the menu below.

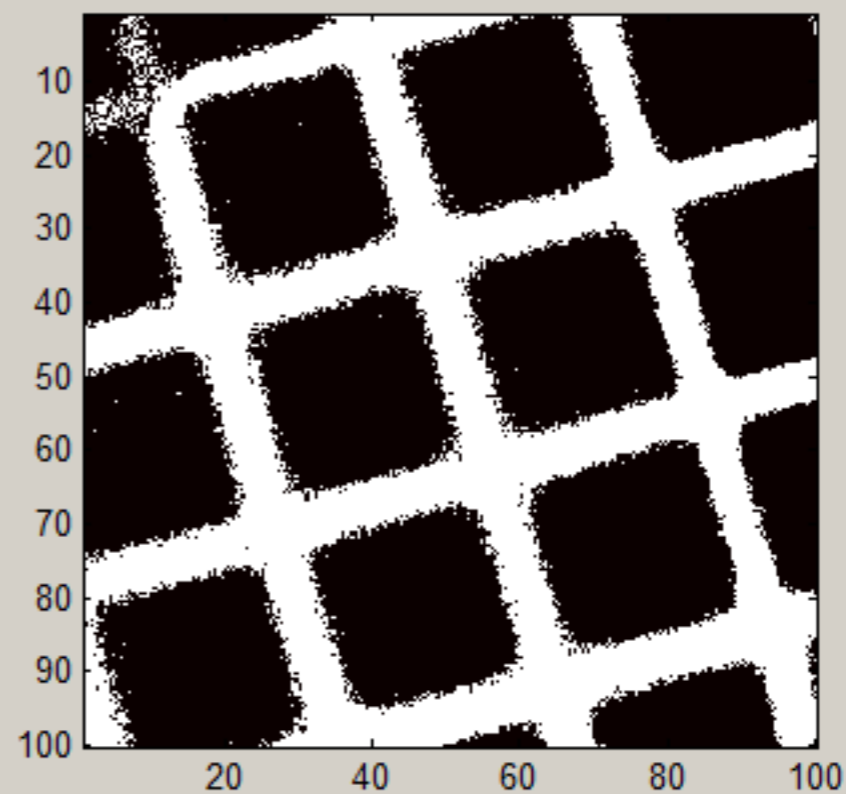
Which Image to measure on?

Lower right image

Measure

6.7692

Microns

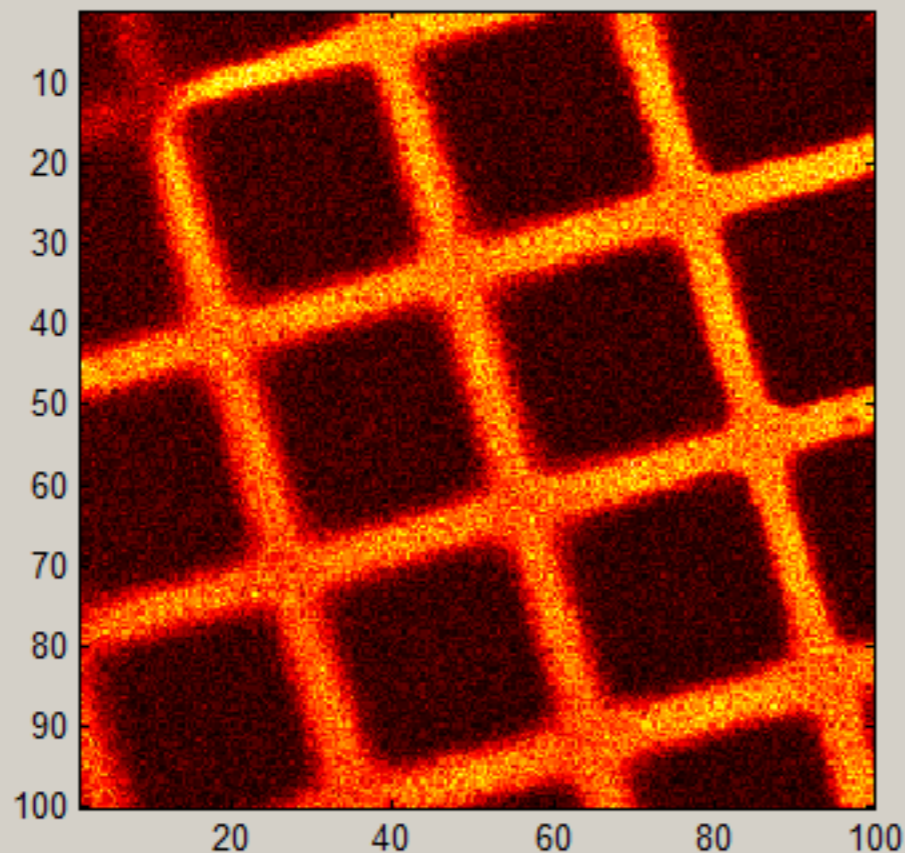


Name for ROI Mask

Save ROI Mask

Variable List

15.9971
25.0051
26.0054
31.9732
32.9727
34.9663
42.0052
58.9992
63.9539
71.0156
79.9478
96.9589
104.959
152.948
196.926
228.915
249.099



Threshold image

Choose a thresholding method from the menu below

Mean Thresho...

Manual

Mean Thresholding

Intermean Thresholding

Otsu Thresholding

Invert threshold

Let's switch back to 'Manual' mode.



Data Selection Panel

Name of Image Matrix

Name of Variable Matrix

imagedata_DAN01

exactmass_DAN01

Load Selected Data

Image: **imagedata_DAN01**

Variables: **exactmass_DAN01**

Choose the peak(s) you want to plot from the list on the left and then choose an image processing function from the menu below.

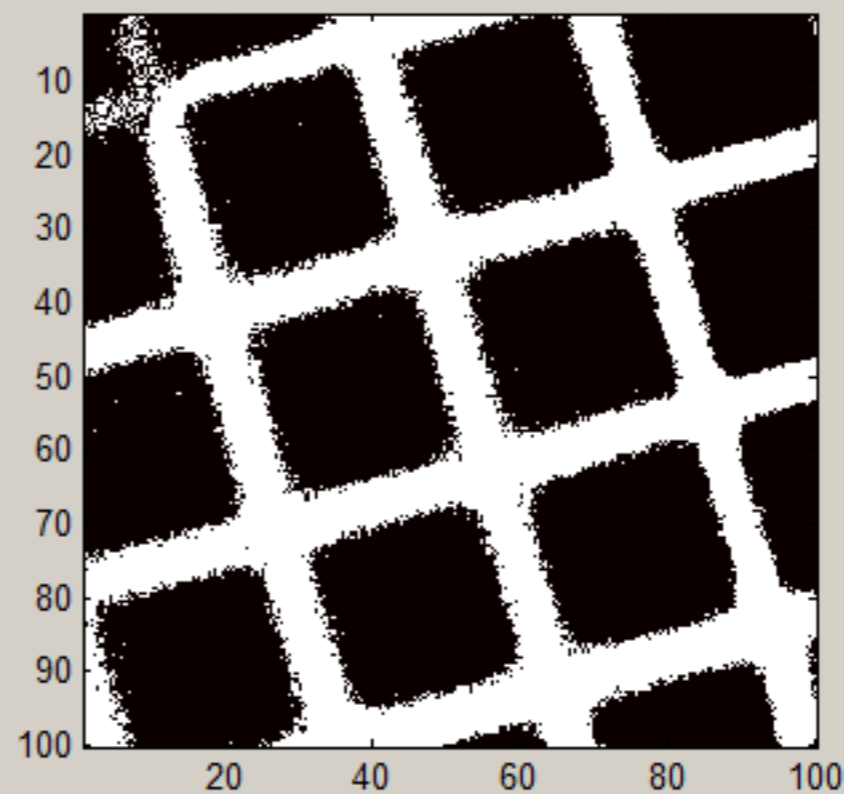
Which Image to measure on?

Lower right image

Measure

6.7692

Microns

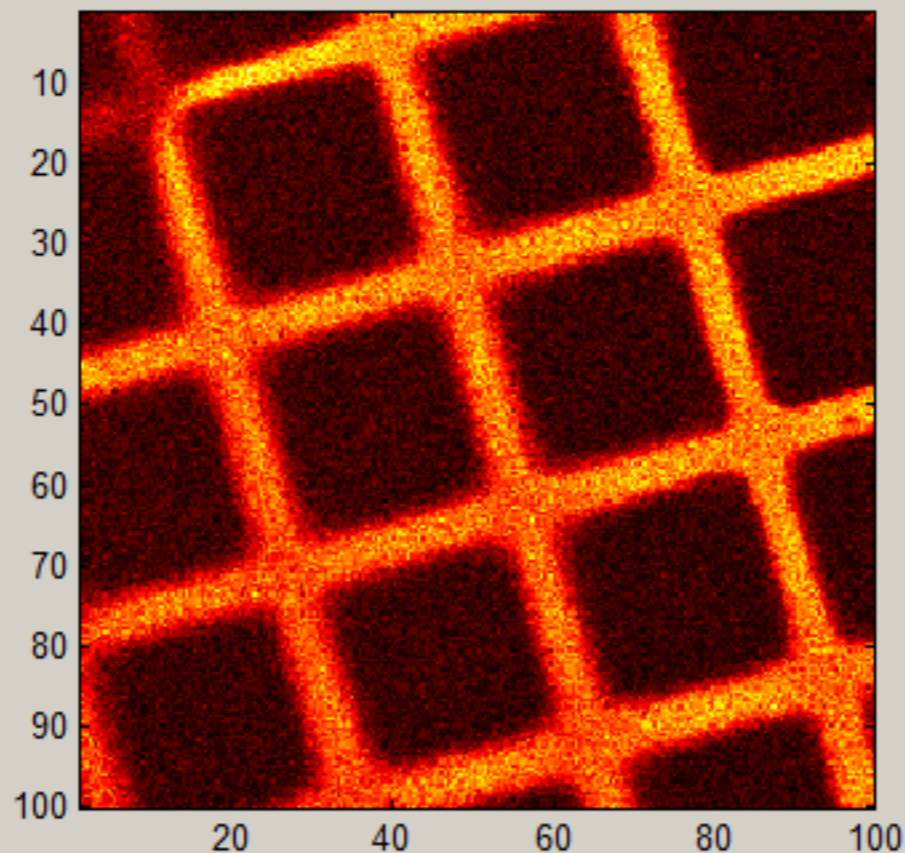


Name for ROI Mask

Save ROI Mask

Variable List

15.9971
25.0051
26.0054
31.9732
32.9727
34.9663
42.0052
58.9992
63.9539
71.0156
79.9478
96.9589
104.959
152.948
196.926
228.915
249.099



Threshold image

Choose a thresholding method from the menu below

Manual

0 0.24 1

We can now adjust the thresholding value.



Data Selection Panel

Name of Image Matrix

Name of Variable Matrix

imagedata_DAN01

exactmass_DAN01

Load Selected Data

Image: **imagedata_DAN01**

Variables: **exactmass_DAN01**

Which Image to measure on?

Lower right image

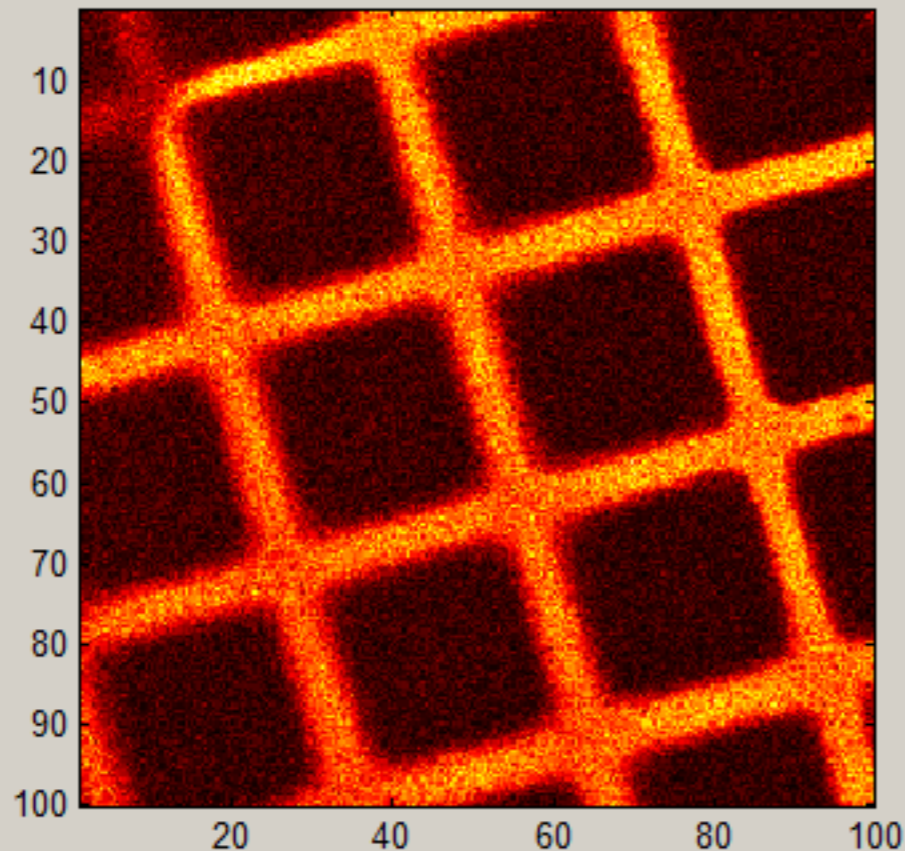
Choose the peak(s) you want to measure from the list on the left. Then, select an image processing method from the menu below.

Changes in the threshold value are updated automatically. Here we changed it from 0.24 to 0.34.



Variable List

15.9971
25.0051
26.0054
31.9732
32.9727
34.9663
42.0052
58.9992
63.9539
71.0156
79.9478
96.9589
104.959
152.948
196.926
228.915
249.099

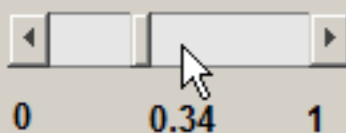


Threshold image

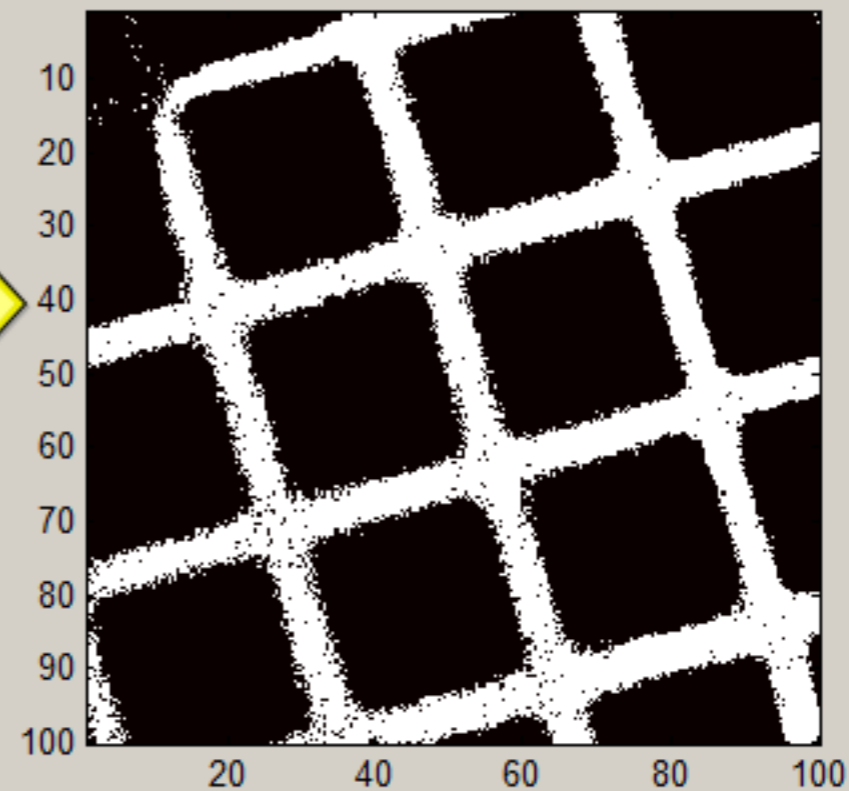
Choose a thresholding method from the menu below

Manual

Invert thresholded image ☐



Close Panel



Name for ROI Mask

Save ROI Mask

Data Selection Panel

Name of Image Matrix

Name of Variable Matrix

imagedata_DAN01

exactmass_DAN01

Load Selected Data

Image: **imagedata_DAN01**

Variables: **exactmass_DAN01**

Choose the peak(s) you want to plot from the list on the left and then choose an image processing function from the menu below.

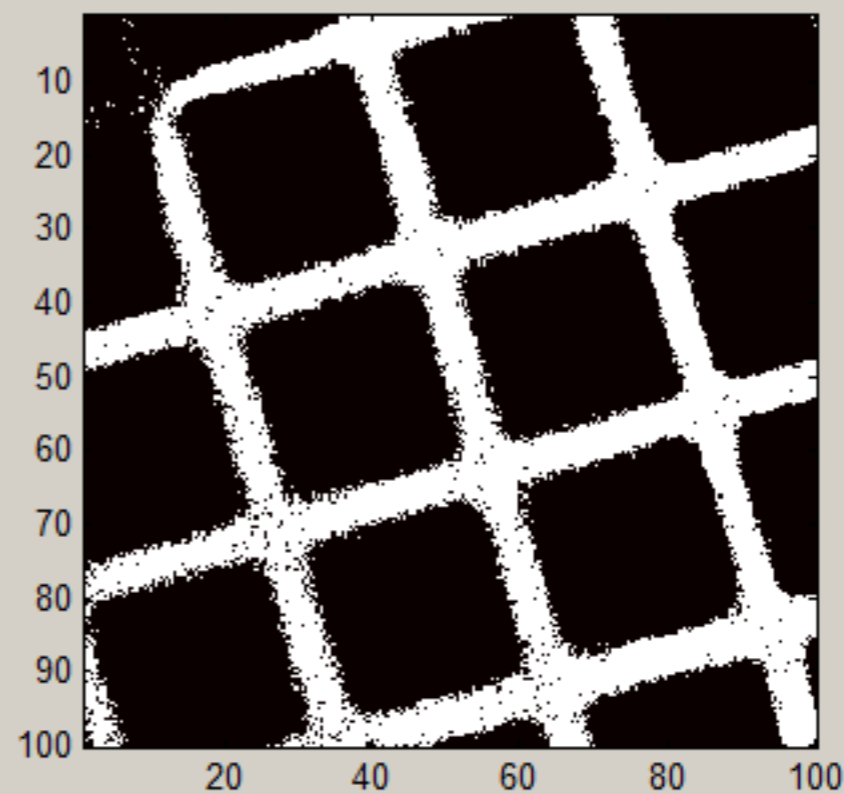
Which Image to measure on?

Lower right image

Measure

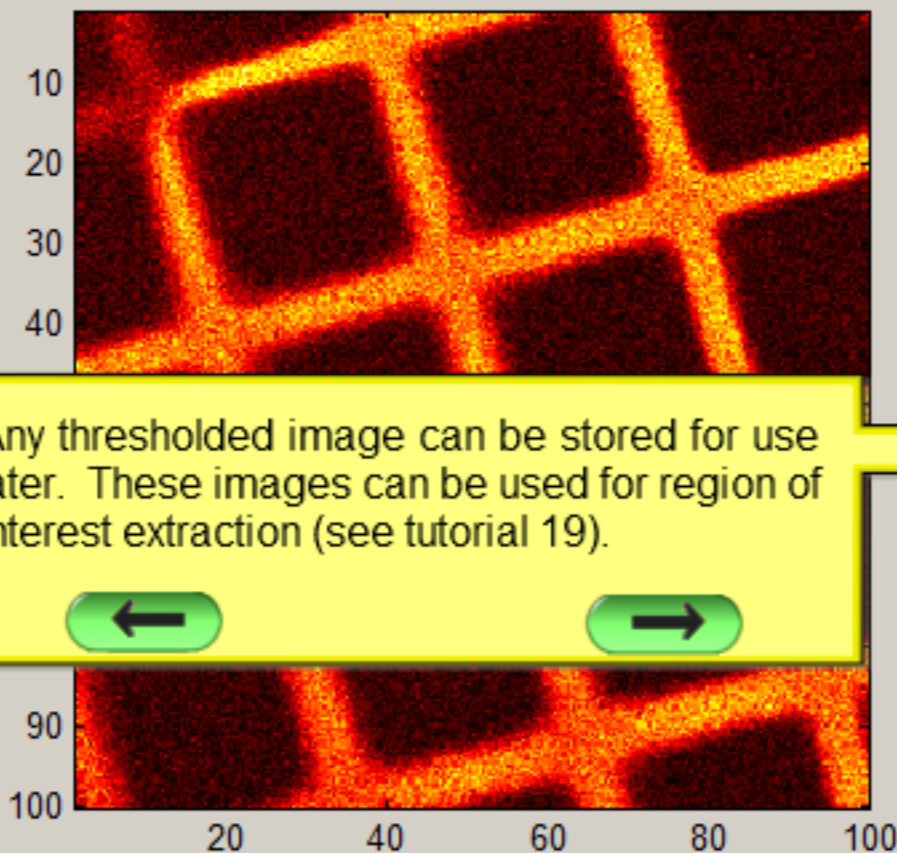
6.7692

Microns



Variable List

15.9971
25.0051
26.0054
31.9732
32.9727
34.9663
42.0052
58.9992
63.9539
71.0156
79.9478
96.9589
104.959
152.948
196.926
228.915
249.099



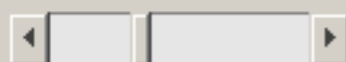
Any thresholded image can be stored for use later. These images can be used for region of interest extraction (see tutorial 19).

Threshold image

Choose a thresholding method from the menu below

Manual

Invert thresholded image ☐



0 0.34 1

Close Panel

Name for ROI Mask

line

Save ROI Mask

Data Selection Panel

Name of Image Matrix

Name of Variable Matrix

imagedata_DAN01

exactmass_DAN01

Load Selected Data

Image: **imagedata_DAN01**

Variables: **exactmass_DAN01**

Choose the peak(s) you want to plot from the list on the left and then choose an image processing function from the menu below.

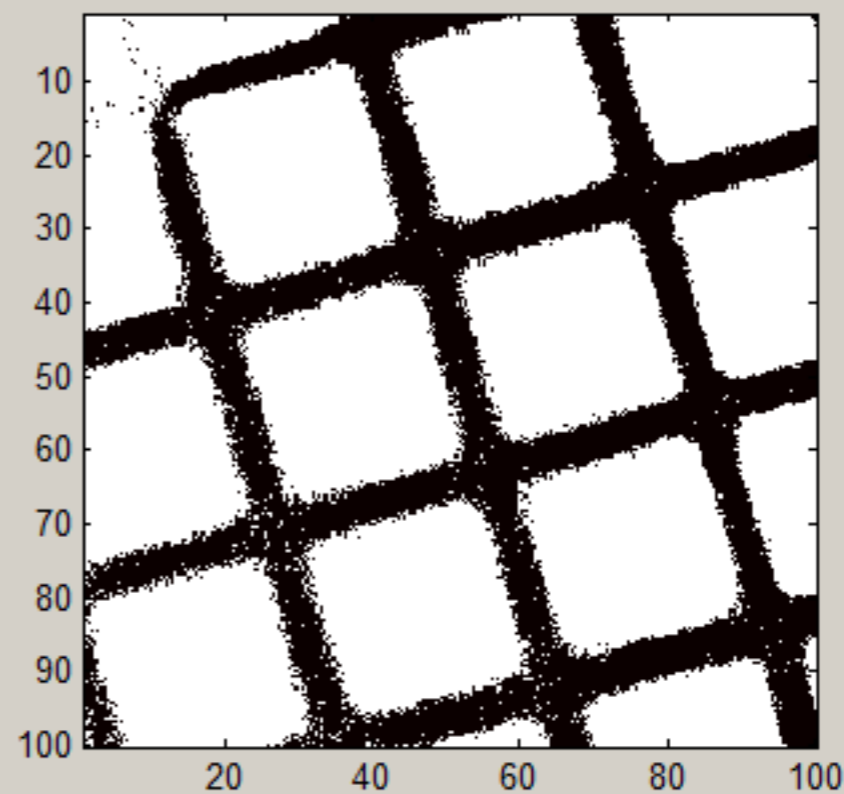
Which Image to measure on?

Lower right image

Measure

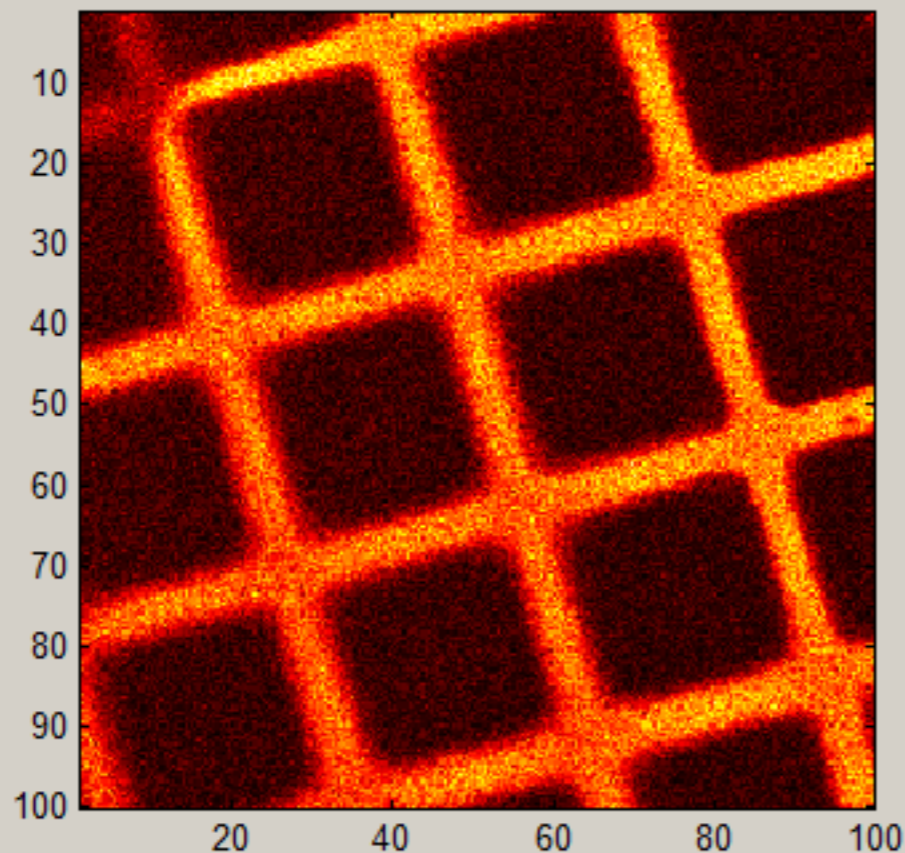
6.7692

Microns



Variable List

15.9971
25.0051
26.0054
31.9732
32.9727
34.9663
42.0052
58.9992
63.9539
71.0156
79.9478
96.9589
104.959
152.948
196.926
228.915
249.099



Threshold image

Choose a thresholding method from the menu below

Manual

0 0.34 1

Invert thresholded image ☒

By checking this box we can invert the thresholded image.

Name for ROI Mask

line

Save ROI Mask

Data Selection Panel

Name of Image Matrix

Name of Variable Matrix

imagedata_DAN01

exactmass_DAN01

Load Selected Data

Image: **imagedata_DAN01**

Variables: **exactmass_DAN01**

Choose the peak(s) you want to plot from the list on the left and then choose an image processing function from the menu below.

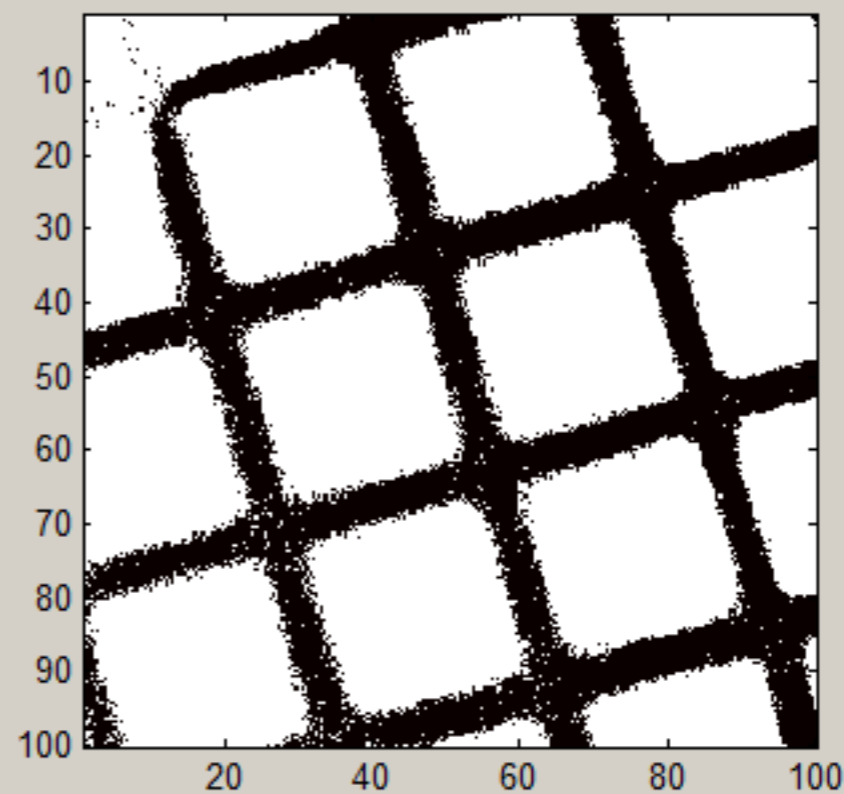
Which Image to measure on?

Lower right image

Measure

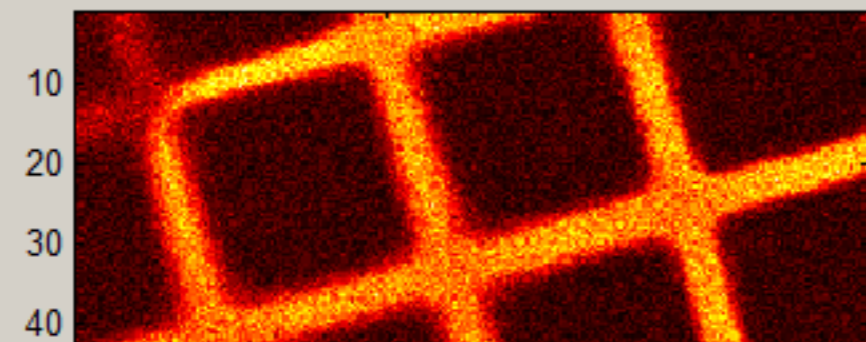
6.7692

Microns

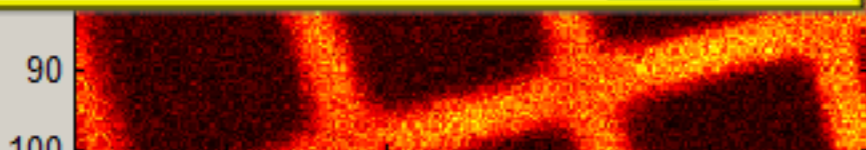


Variable List

15.9971
25.0051
26.0054
31.9732
32.9727
34.9663
42.0052
58.9992
63.9539
71.0156
79.9478
96.9589
104.959
152.948
196.926
228.915
249.099



Then we can give it a new name and save it as a ROI mask.



Threshold image

Choose a thresholding method from the menu below

Manual

Invert thresholded image ☒



0 0.34 1

Close Panel

Name for ROI Mask

squares

Save ROI Mask

Data Selection Panel

Name of Image Matrix

Name of Variable Matrix

imagedata_DAN01

exactmass_DAN01

Load Selected Data

Image: **imagedata_DAN01**

Variables **exactmass_DAN01**

Choose the peak(s) you want to plot from the list on the left and then choose an image processing function from the menu below.

Which Image to measure on?

Lower right image
Choose one...
Original image
Upper right image
Lower right image

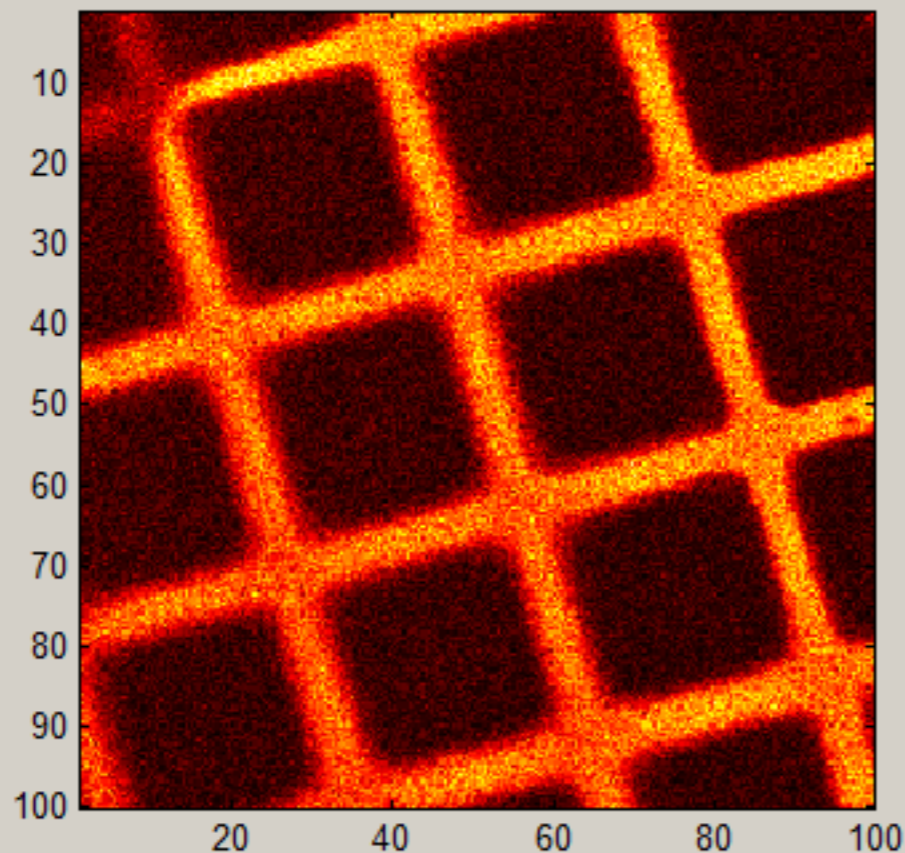
Microns

Now let's measure the size of the squares in the original peak area image. First switch to 'Original Image'.



Variable List

15.9971
25.0051
26.0054
31.9732
32.9727
34.9663
42.0052
58.9992
63.9539
71.0156
79.9478
96.9589
104.959
152.948
196.926
228.915
249.099



Threshold image

Choose a thresholding method from the menu below

Manual

Invert thresholded image ☒



0 0.34 1

Close Panel

Name for ROI Mask

squares

Save ROI Mask

Data Selection Panel

Name of Image Matrix

Name of Variable Matrix

imagedata_DAN01

exactmass_DAN01

Load Selected Data

Image: **imagedata_DAN01**

Variables: **exactmass_DAN01**

Choose the peak(s) you want to plot from the list on the left and then choose an image processing function from the menu below.

Which Image to measure on?

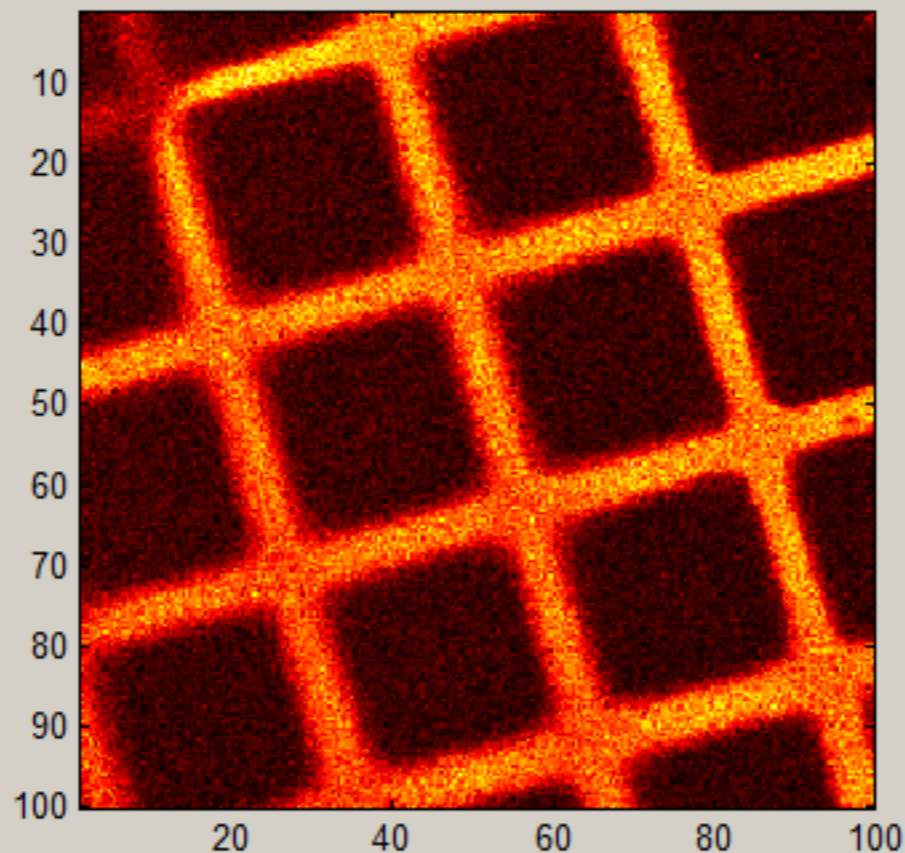
Original image

Measure

Then press the 'Measure' button.

Variable List

15.9971
25.0051
26.0054
31.9732
32.9727
34.9663
42.0052
58.9992
63.9539
71.0156
79.9478
96.9589
104.959
152.948
196.926
228.915
249.099



Threshold image

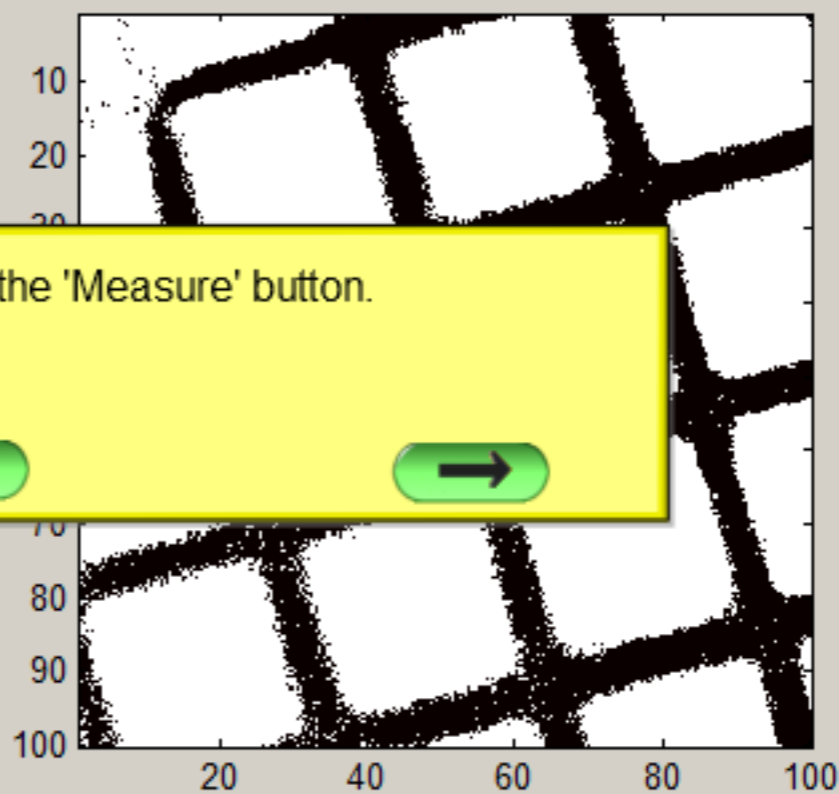
Choose a thresholding method from the menu below

Manual

Invert thresholded image ☒

0 0.34 1

Close Panel



Name for ROI Mask

squares

Save ROI Mask

Data Selection Panel

Name of Image Matrix

Name of Variable Matrix

imagedata_DAN01

exactmass_DAN01

Load Selected Data

Image: **imagedata_DAN01**

Variables: **exactmass_DAN01**

Choose the peak(s) you want to plot from the list on the left and then choose an image processing function from the menu below.

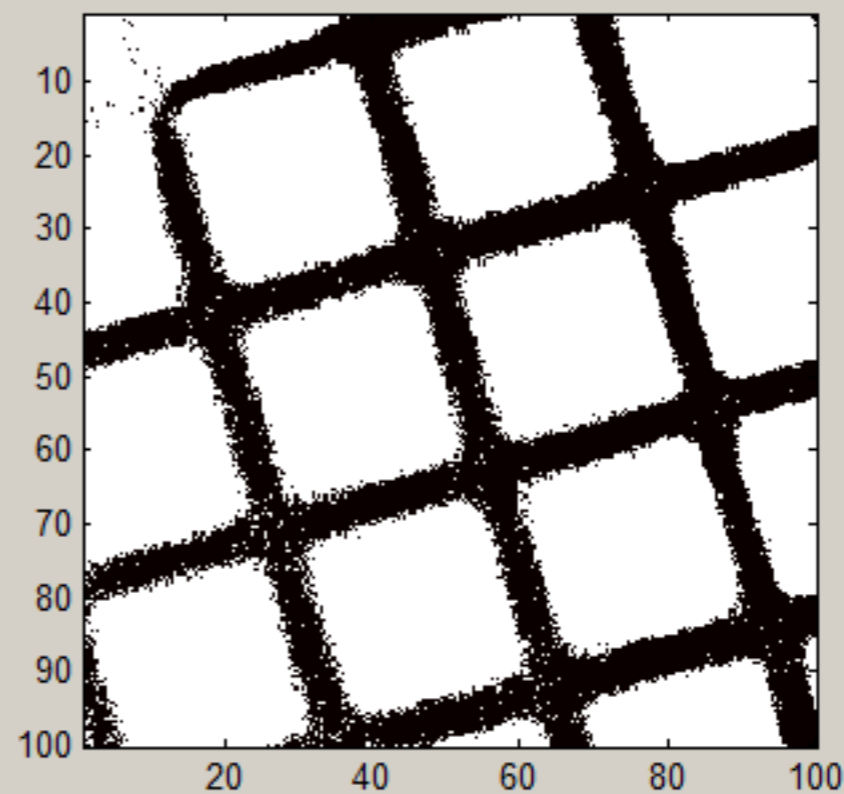
Which Image to measure on?

Original image

Measure

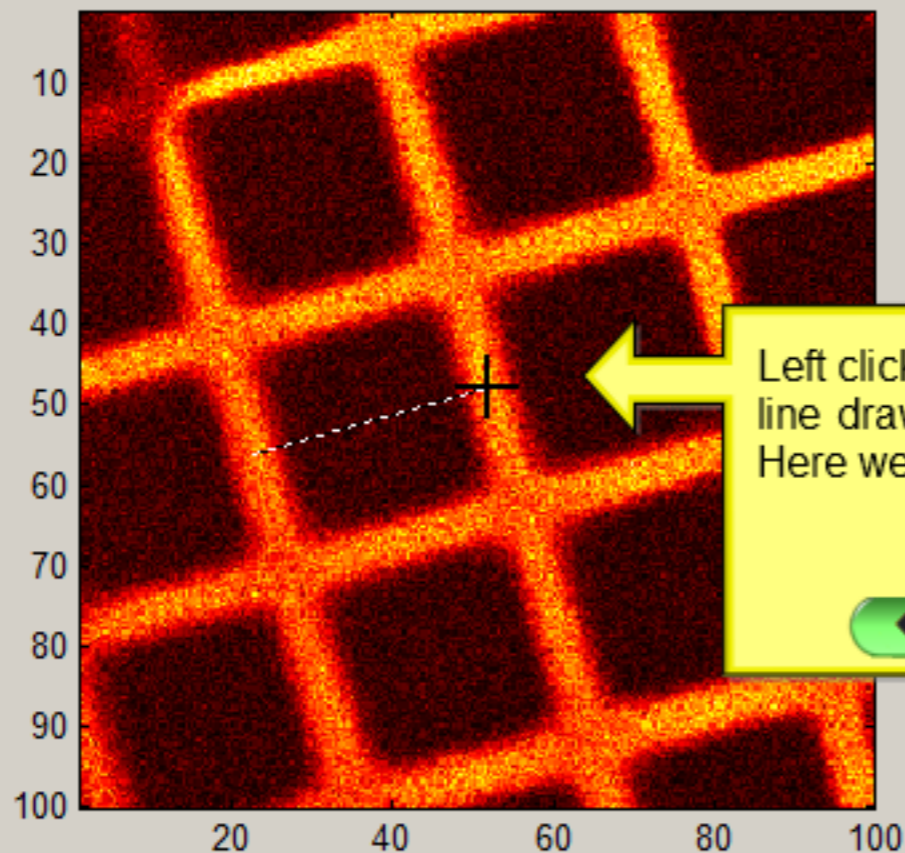
6.7692

Microns



Variable List

15.9971
25.0051
26.0054
31.9732
32.9727
34.9663
42.0052
58.9992
63.9539
71.0156
79.9478
96.9589
104.959
152.948
196.926
228.915
249.099



Left click and drag a line. Double click to end line drawing mode and measure the feature. Here we measure from the middle of the bars.

Save ROI Mask

Threshold image

Choose a thresholding method from the menu below

Manual

Invert thresholded image ☒

0 0.34 1

Close Panel

Data Selection Panel

Name of Image Matrix

Name of Variable Matrix

imagedata_DAN01

exactmass_DAN01

Load Selected Data

Image: **imagedata_DAN01**

Variables: **exactmass_DAN01**

Choose the peak(s) you want to plot from the list on the left and then choose an image processing function from the menu below.

Which Image to measure on?

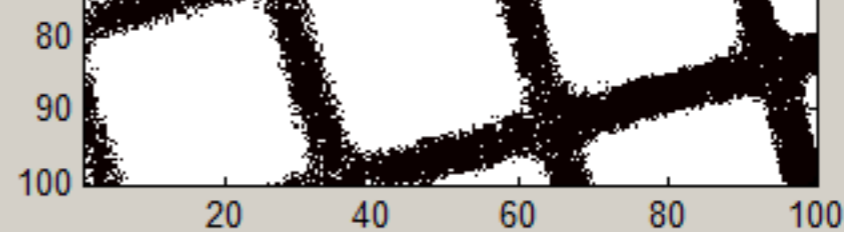
Original image

Measure

30.4089

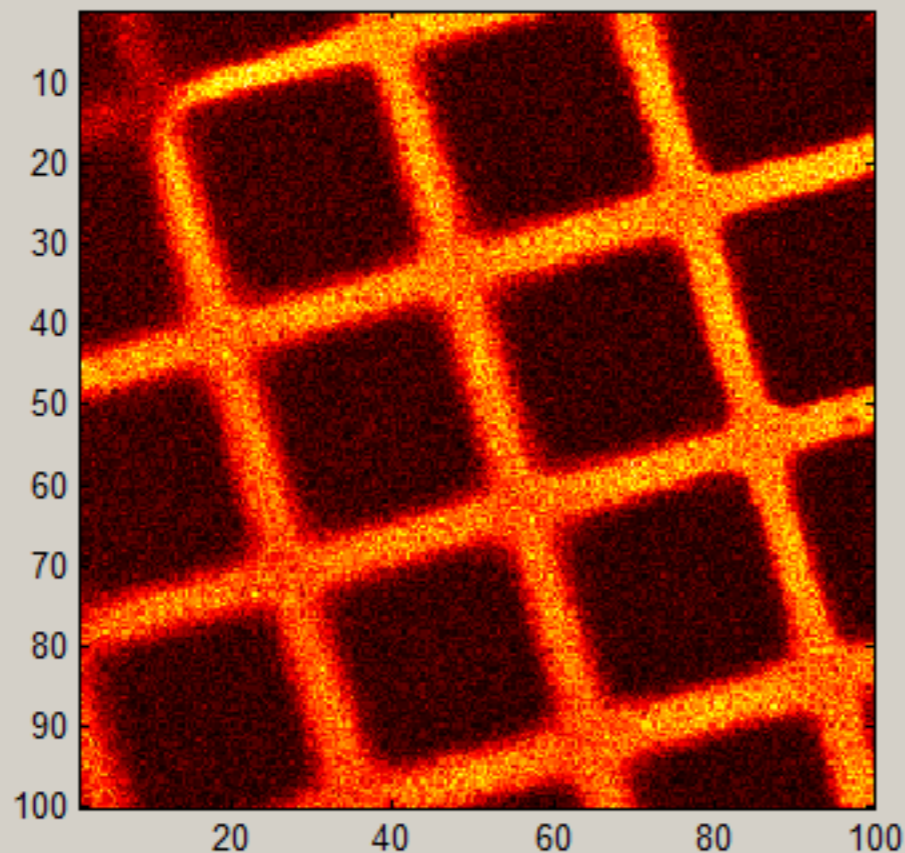
Microns

The size is shown here.



Variable List

15.9971
25.0051
26.0054
31.9732
32.9727
34.9663
42.0052
58.9992
63.9539
71.0156
79.9478
96.9589
104.959
152.948
196.926
228.915
249.099

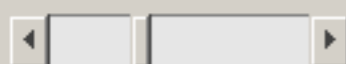


Threshold image

Choose a thresholding method from the menu below

Manual

Invert thresholded image ☒



0 0.34 1

Close Panel

Name for ROI Mask

squares

Save ROI Mask

Data Selection Panel

Name of Image Matrix

Name of Variable Matrix

imagedata_DAN01

exactmass_DAN01

Load Selected Data

Image: **imagedata_DAN01**

Variables: **exactmass_DAN01**

Choose the peak(s) you want to plot from the list on the left and then choose an image processing function from the menu below.

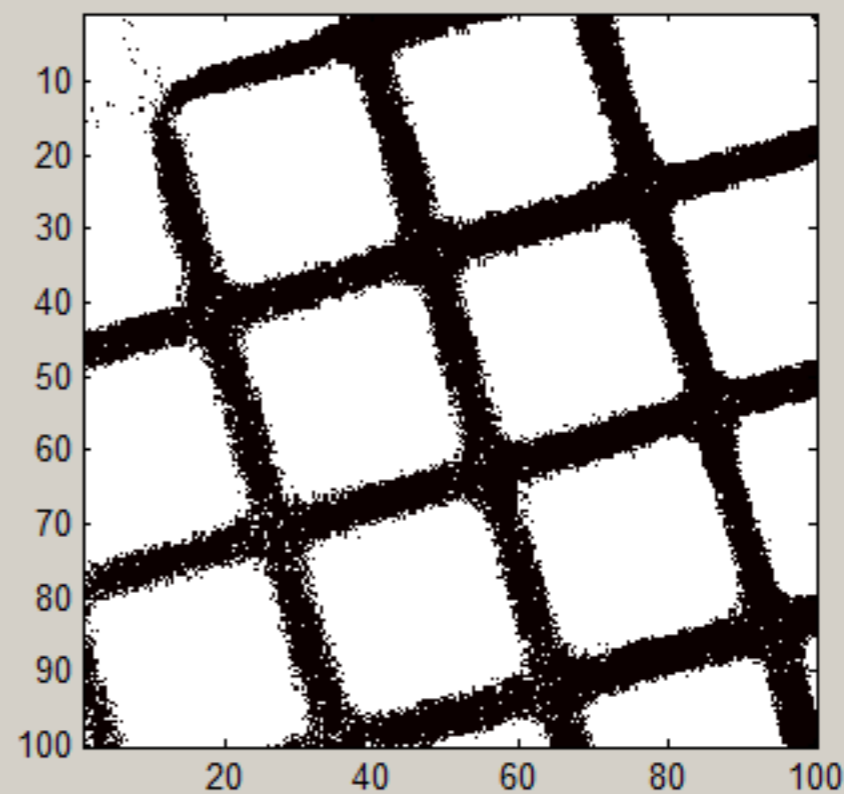
Which Image to measure on?

Original image

Measure

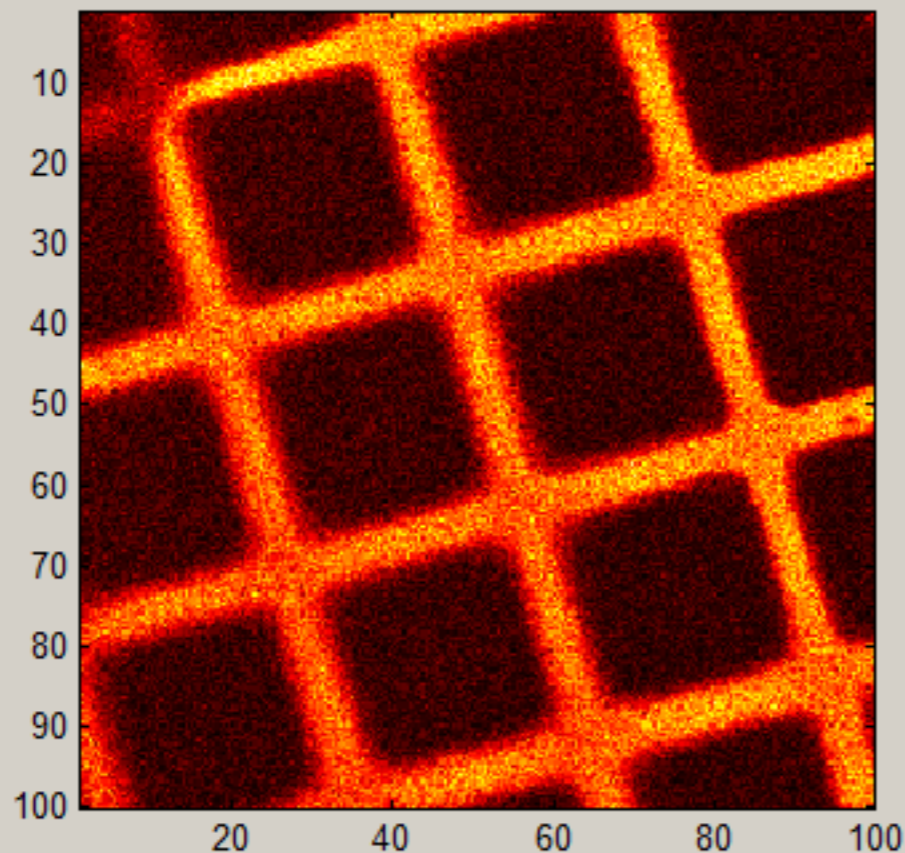
30.4089

Microns



Variable List

15.9971
25.0051
26.0054
31.9732
32.9727
34.9663
42.0052
58.9992
63.9539
71.0156
79.9478
96.9589
104.959
152.948
196.926
228.915
249.099



Threshold image

Choose a thresholding method from the menu below

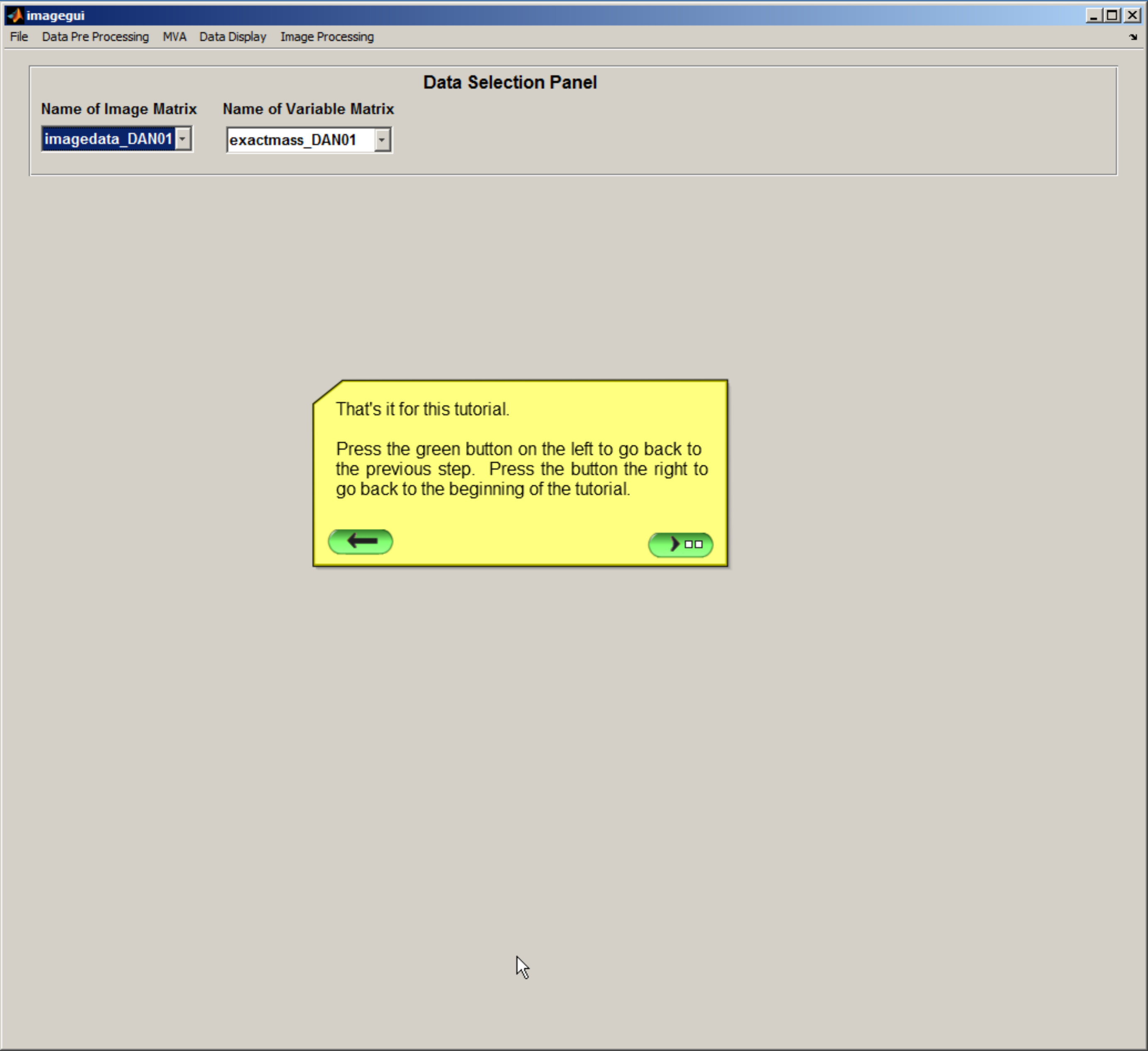
Manual

Invert thresholded image ☒

0 0.34 1

Close Panel

Close the panel by pressing the 'Close Panel' button.



Data Selection Panel

Name of Image Matrix

Name of Variable Matrix

imagedata_DAN01

exactmass_DAN01

That's it for this tutorial.

Press the green button on the left to go back to the previous step. Press the button the right to go back to the beginning of the tutorial.

