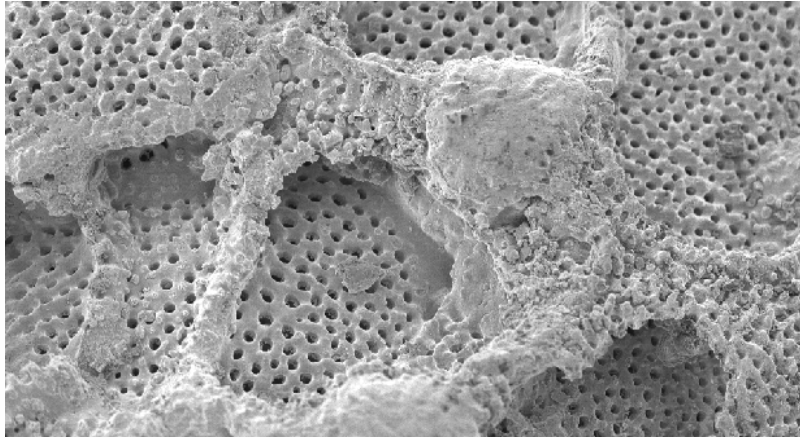
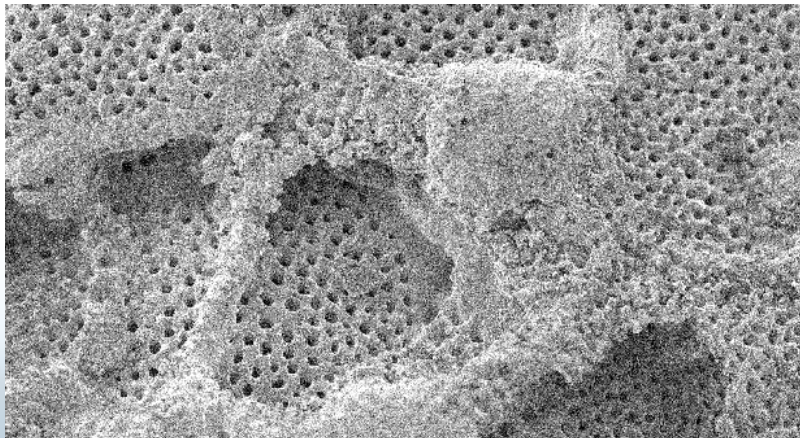


# MeX Requirements (1)

## Good Signal / Noise Ratio



Good Signal/Noise Ratio

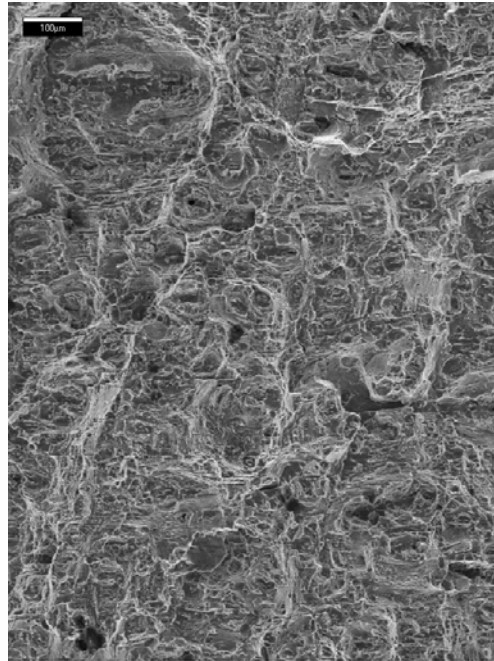


Bad Signal/Noise Ratio

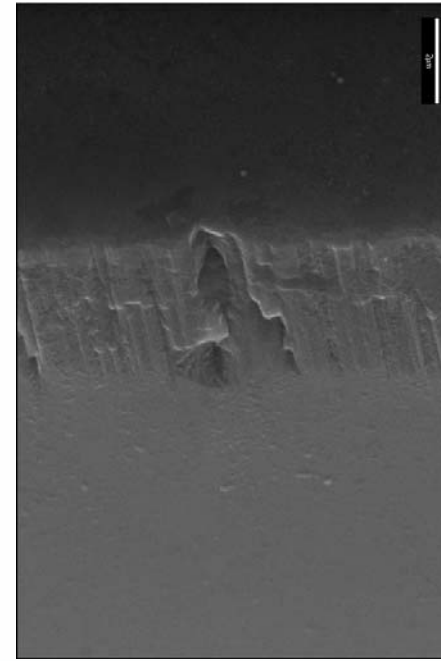
It is important that the images do not contain too much noise.

# MeX Requirements (2)

## Good Structure



Good structure

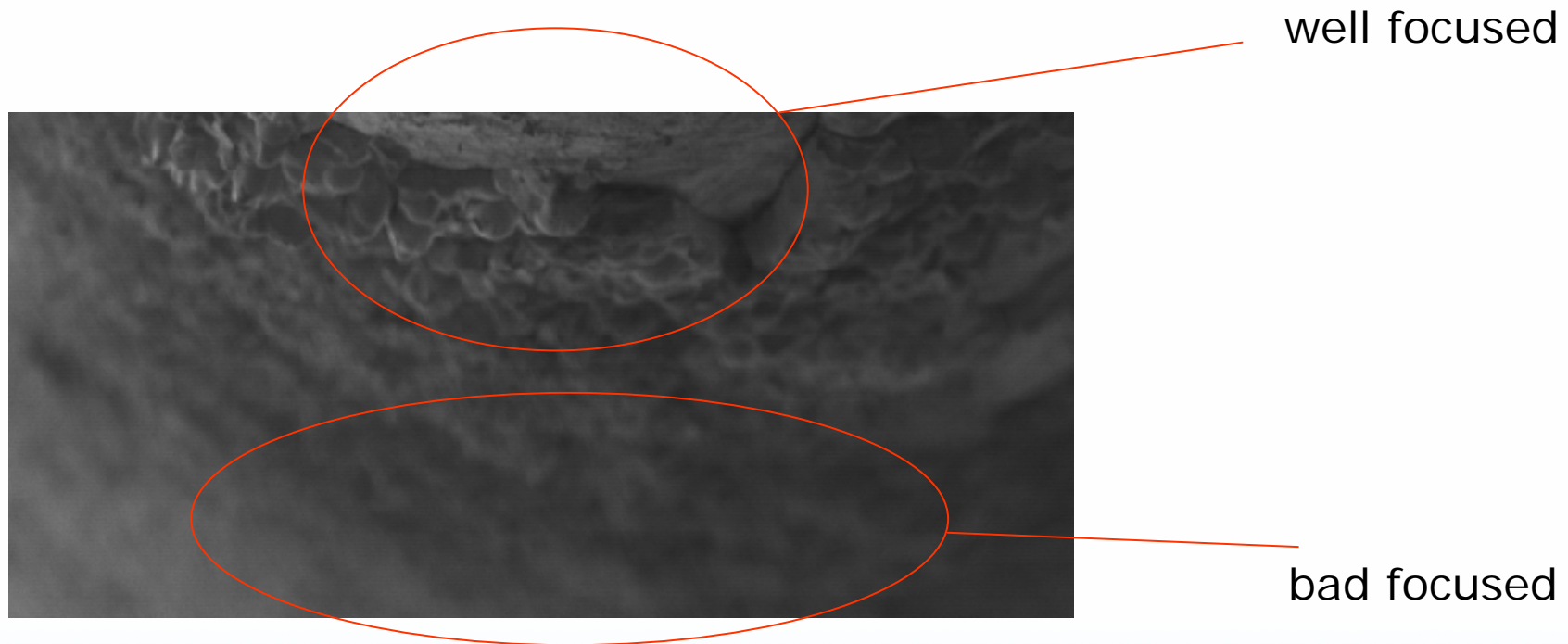


Bad structure

An important requirement for good reconstruction is enough structure in the images. The left image contains sufficient structure whereas the right image only contains structure in the center of the image.

# MeX Requirements (3)

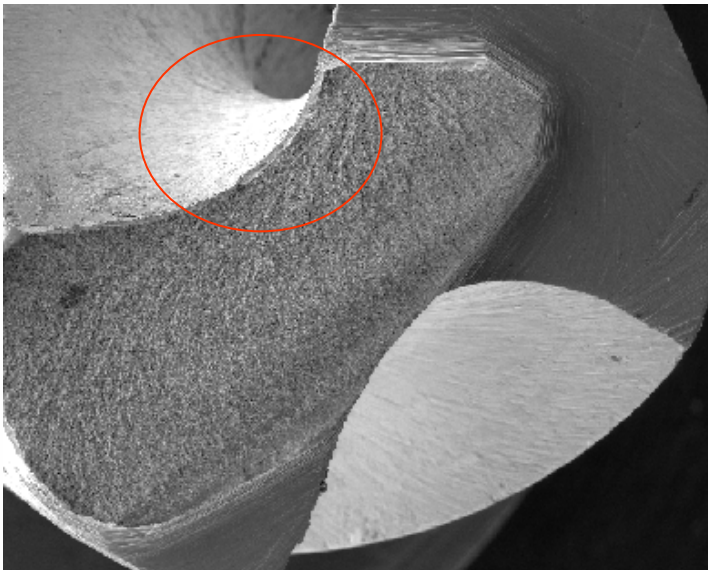
## Good focus



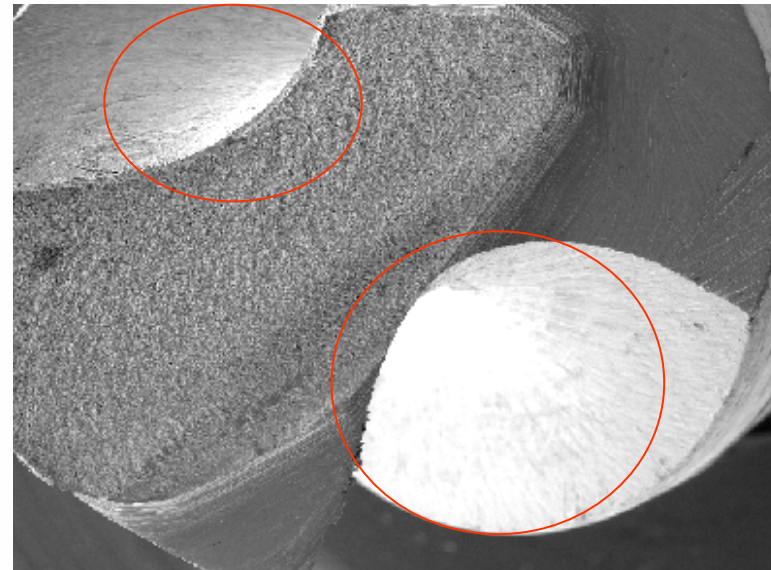
It is important that all regions of the image are well focused

# MeX Requirements (4)

## Avoid oversaturated regions



Left image

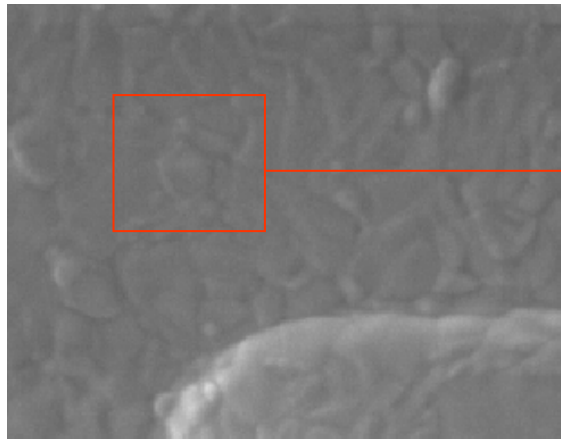


Right image

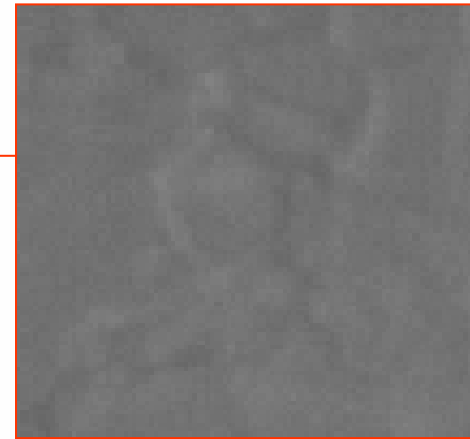
The red circles mark oversaturated regions which cannot be well reconstructed and should be avoided as much as possible.

# MeX Requirements (5)

## Hints for large magnifications



Original image



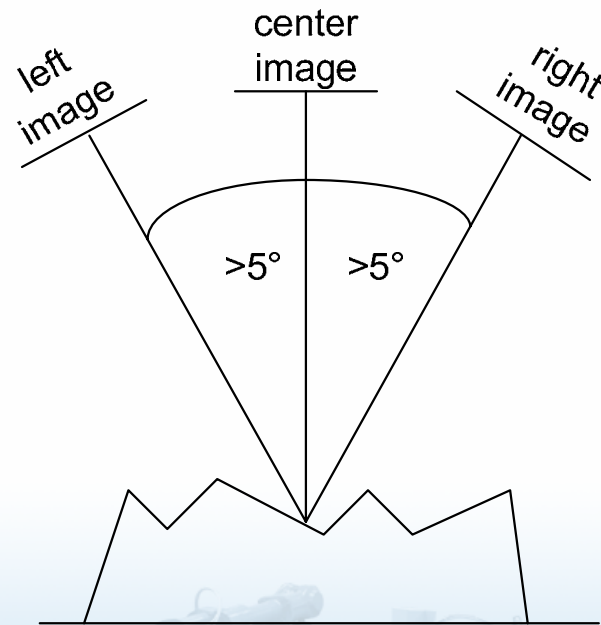
Zoomed view

Especially if images are obtained at very high magnifications, several requirements may be hard to fulfill. The images may be hard to focus, there may be little structure information and the signal/noise ratio may be very high.

The images above can be reconstructed but they are really on the limit as the zoomed view shows. Sometimes it may help to downscale such images by a certain factor (e.g. 2).

# Additional Requirements for MeX-AutoCalibration (1)

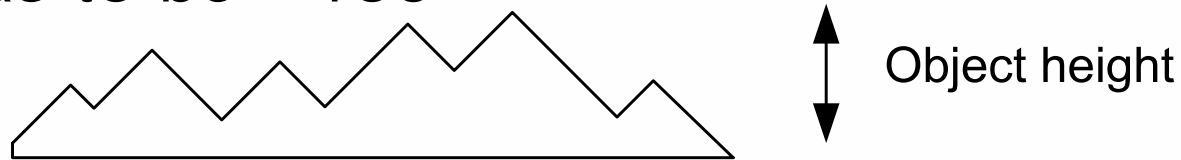
Requires a minimum tilt angle of about  $\pm 5^\circ$



Independent of the sample!

# Additional Requirements for MeX-AutoCalibration (2)

The estimated object height / pixelsize  
has to be  $>150$



e.g.:

height of object =  $15.0\mu\text{m}$

pixelsize =  $0.1\mu\text{m}$

height/pixelsize =  $15/0.1 = 150$

=> estimation of angle is possible

For very flat objects the AutoCalibration module cannot refine the tilt angle. => One can either use MeX with two images or use the Auto-Calibration method with the option not to refine the tilt angles. In these cases the software will give you also good results however the accuracy then depends on the accuracy of your tilt stage.