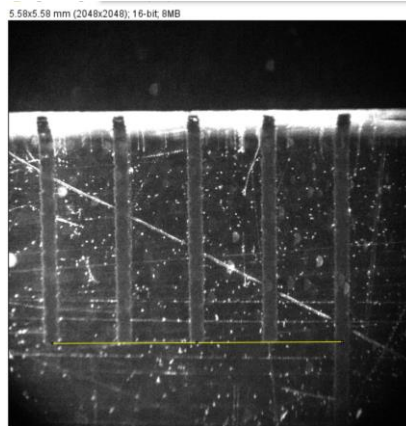


## Group 4

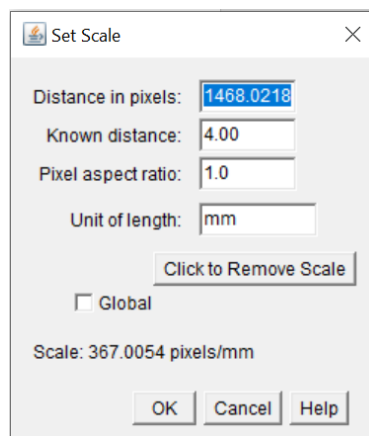
### Identifying pixel length and particle diameter in pixels using imageJ

Trackpy requires an estimation of the feature sizes in terms of pixels. As we already know the particle diameter, what we will need to identify is the pixel length of the whole apparatus, starting from the camera, and ending at the microscope lens.

To do that, a picture of a ruler was taken using the apparatus, and imageJ was used to identify the number of pixels across 4 mm of the ruler as shown below.



Start with the straight-line tool, and set a scale, through using the known distance which in this case is 4 mm.



This shows that we have around 367 pixels/mm when using a 1x zoom. As all the pictures in the experiment were taken at 8x zoom, the number of pixel per unit length has to be multiplied by 8, leading to 2936 pixels/mm. This indicates that we have a pixel length of  $0.3405 \mu\text{m}/\text{pixel}$ .

Since the particle diameter is  $1.1 \mu\text{m}$ , we know that it is 3.23 pixels. For trackpy, we can use 3 pixels.