

## **b\_RingMarker**

### ***credits***

The scripts was done by Bernhard Schaffer on suggestion by Andreas Kastenmüller.

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### ***purpose***

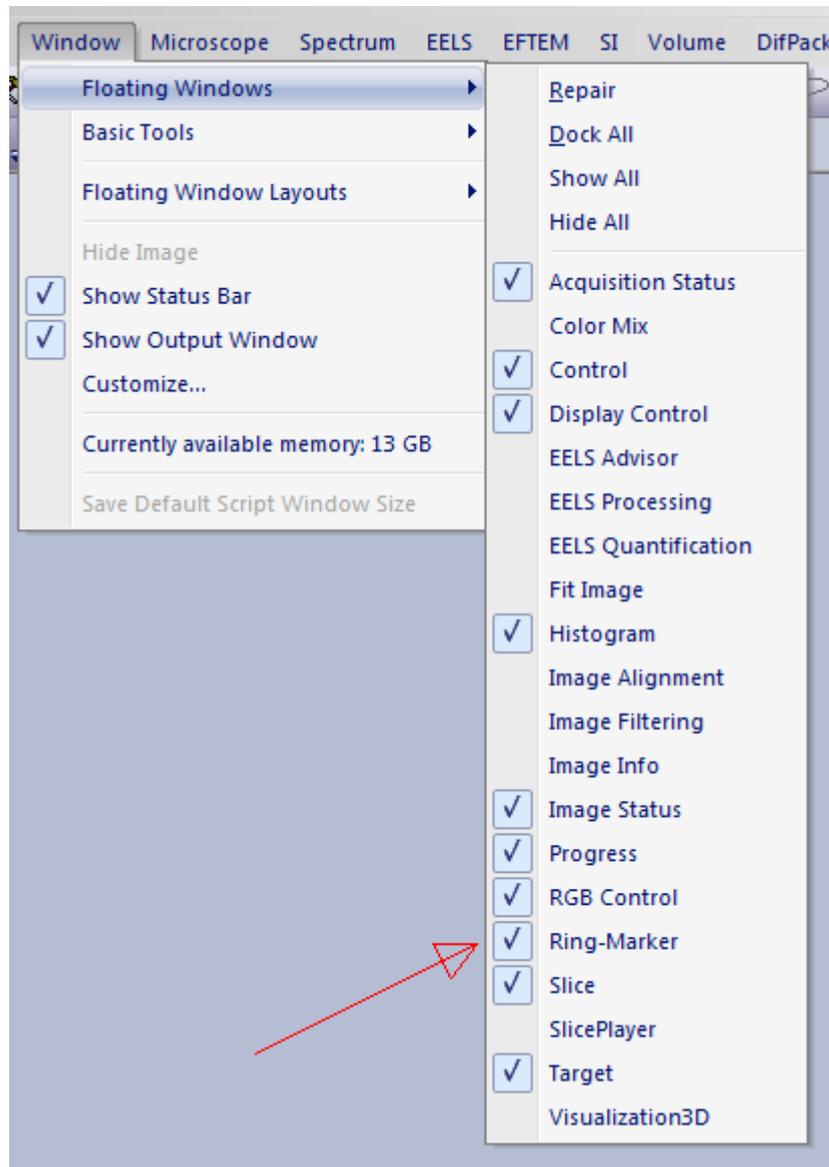
This script installs a little palette-tool to add interactive, centred circles to an image which display the circle radius either with image calibration or as reciprocal value. This is in particular useful for FFTs of high resolution images or if diffraction patterns are calibrated in reciprocal lattice spacing.

### ***Contents***

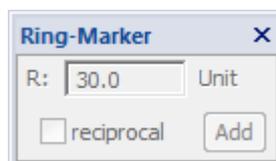
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## Setup

Copy the *b\_RingMarker.gtk* file into the plugins folder and restart DigitalMicrograph. On startup, there should now be a new menu entry in the floating windows menu:



Use this menu to show or hide the Ring-Marker floating palette:

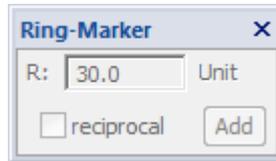


This script is only suitable for GMS versions from GMS 2.0 onwards.

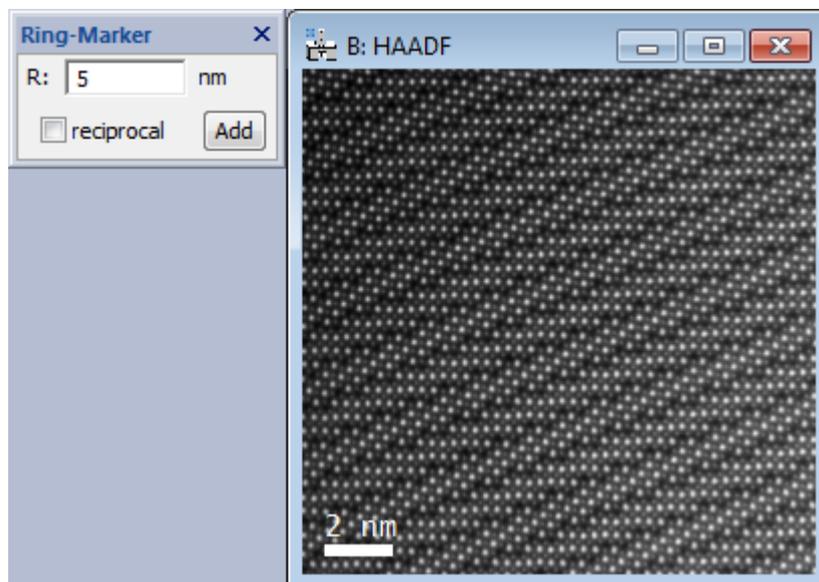
## Usage

### *Using circle tool in calibrated values*

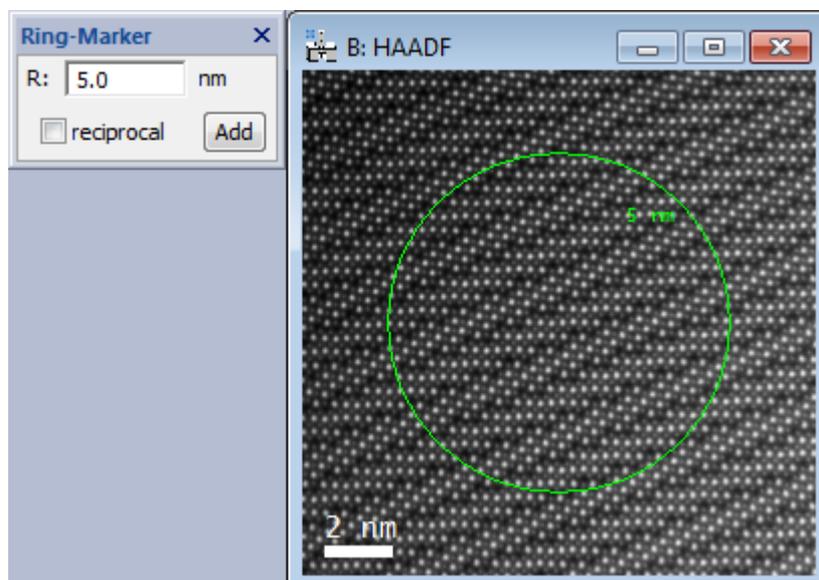
The palette always acts on the front most displayed image and updates the tool display whenever the image order in DigitalMicrograph is changed. If the front image is not suitable, i.e. it is not a 2D raster-display image, then the palette is disabled.



Otherwise, the palette displays a single entry field for a circle radius, a checkbox to switch between “radius / reciprocal radius” entry and a Add-button to add marker to the image. Note that the units in the field automatically update to the (x-)calibration of the image or it’s reciprocal value if the checkbox is enabled.

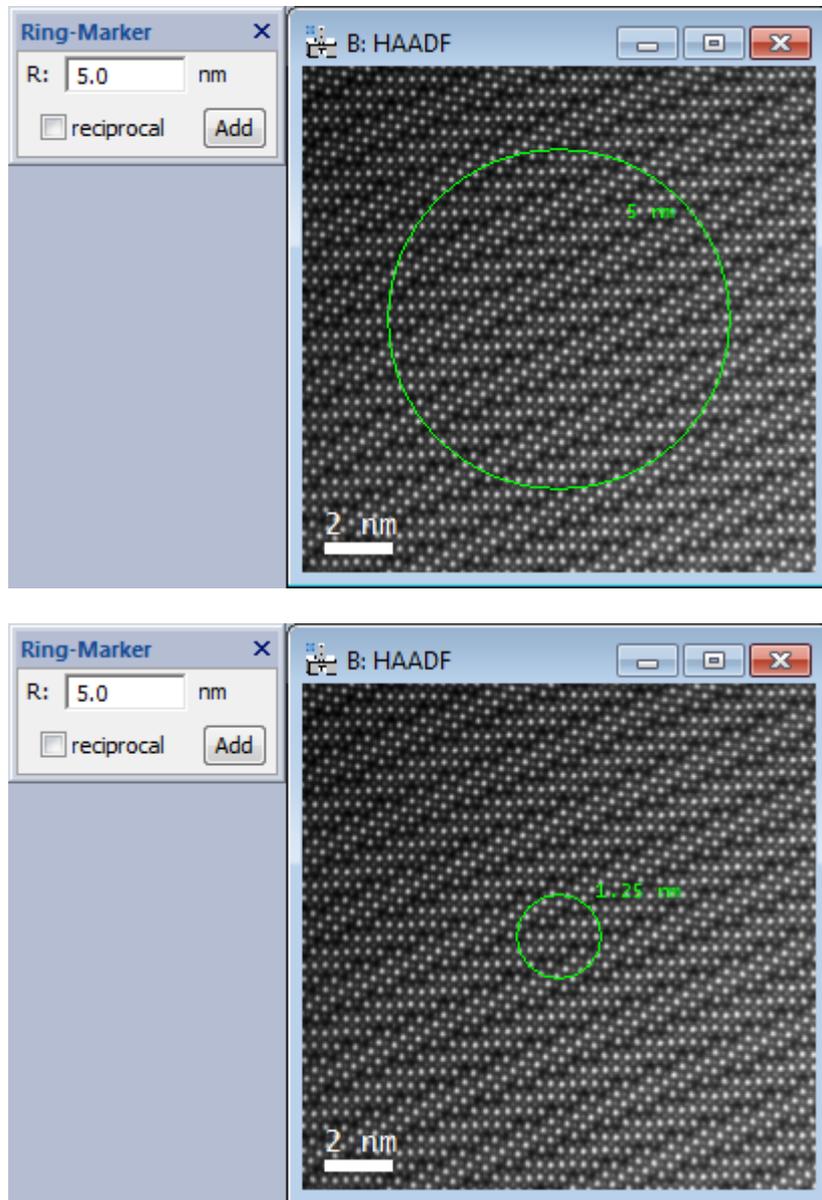


The Add-button adds a centred circle with given radius to the image.



The color of the circle (and label) depends on the current default color for annotations. The label gives the calibrated radius of the circle and is attached at 45degree position to the circle. Inside for larger circles, and outside for smaller circles.

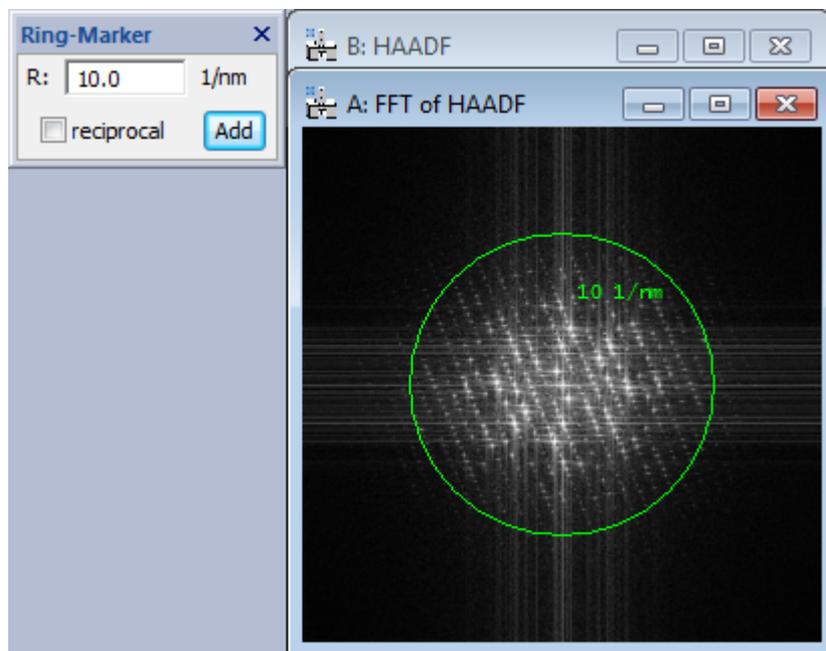
The circle-annotation can be selected and resized, but not moved. It is automatically restricted to a circle, and the radius-label is adjusted automatically.



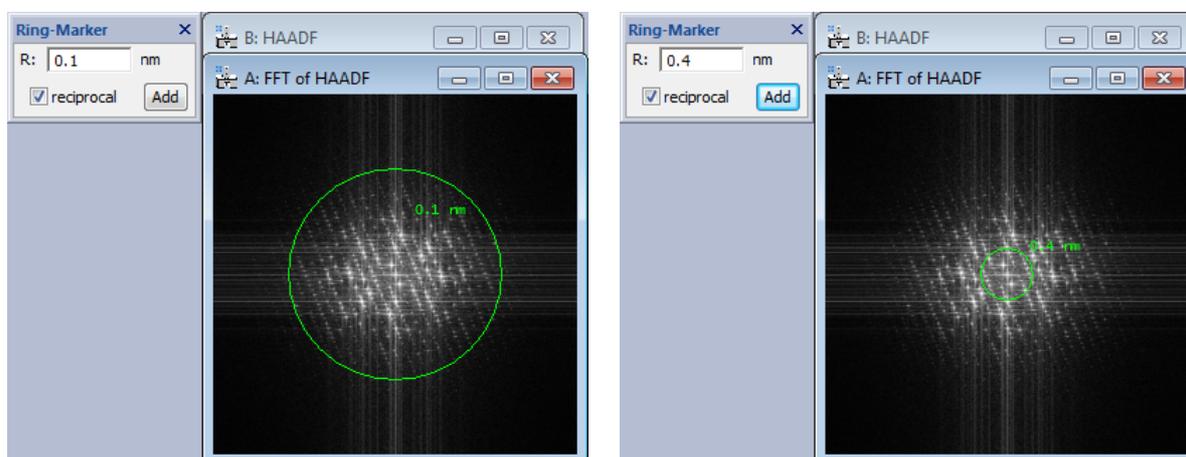
The Add-button adds a centred circle with given radius to the image. If the reciprocal checkbox is enabled, then the radius is computed from the reciprocal entered value. It is possible to select and delete the circle (using the delete key), which will automatically delete the label as well.

## Using circle tool in reciprocal, calibrated values

The main usage of the tool is in reciprocal units like in FFTs. Compute the FFT of an image (fasted by pressing CTRL + F ) and use the tool as in previous section. (Note that the unit in the tool has automatically changed to the calibration of the FFT.)



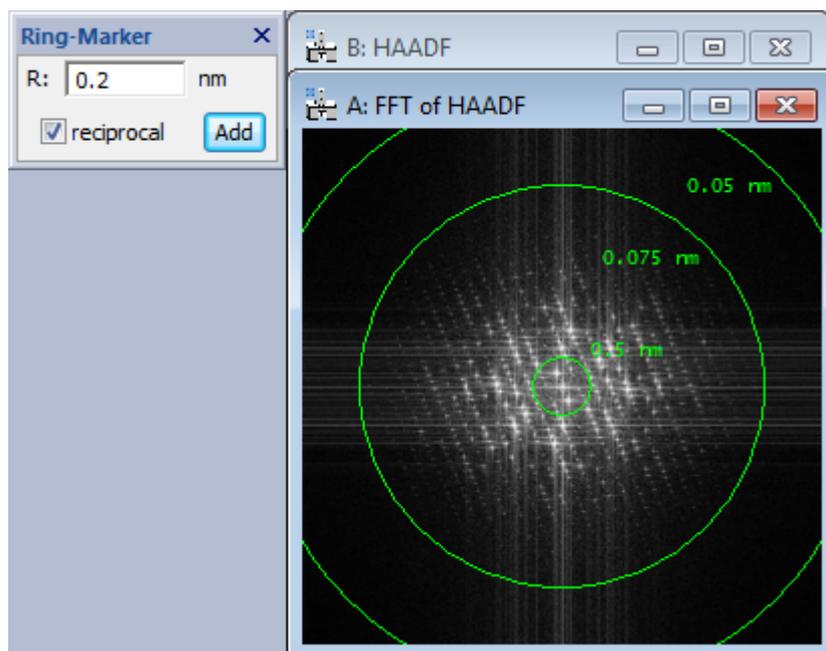
Instead of entering the circle radius in the calibration units of the FFT, one can enter it as reciprocal value, if the reciprocal checkbox is enabled. The label of the ring changes to “reciprocal” display automatically.



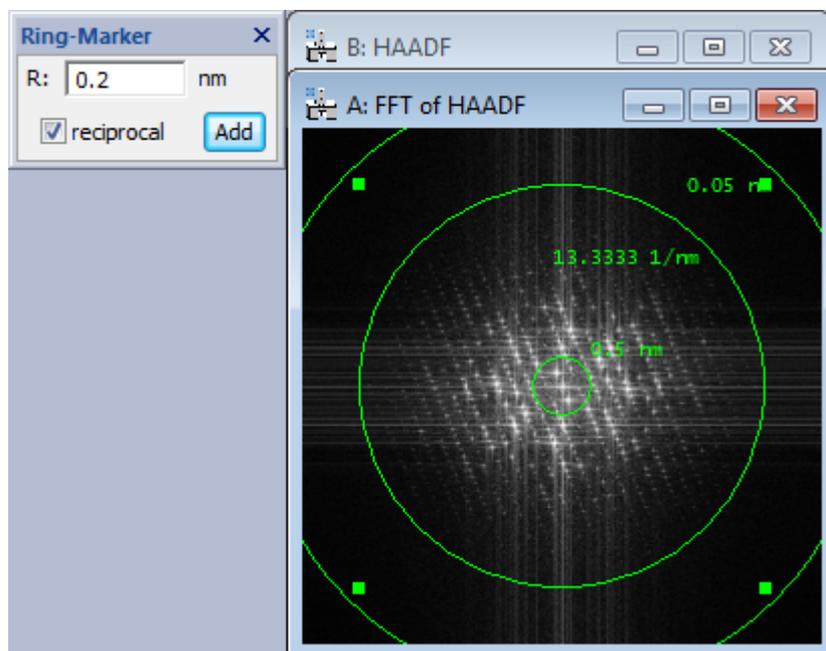
This is useful to read the “resolution” of the FFT at the given diameter.

## Additional notes

It is possible to have multiple rings on an image by repeatedly adding rings.



It is possible to switch the display between “calibrated” and “reciprocal calibrated” by having the image selected and pressing the <r> key. This will toggle the display of all *selected* rings. If no ring is selected, it will toggle the display of *all* rings. You can press <shift>+<r> to always toggle *all* rings regardless of selection state.



Pressing the <esc> key deletes all circles.