

Acquire STEM Rotated Series

DigitalMicrograph plugin

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1 What this plugin is doing?

The plugin facilitates acquisition of STEM images with periodic alternating the fast scan direction:

- image in the initial orientation
- same image in the 90° rotated orientation
- next image in the initial orientation
- next image in the 90° rotated orientation
- and so on.

Revolving the direction of fast scan can offer significant benefits as the directions of maximal and minimal distortions are altered. Therefore, it is possible to reconstruct the accurate, undistorted structure by combining two images with mutually perpendicular fast scan directions.

2 Requirement

- Gatan Microscope Suite (GMS) installed in a (S)TEM-controlling PC
- Digiscan for collecting STEM images activated in GMS

3 Installation

- Download and unzip `temDM STEM_2_images_1_0.zip`.

Variant A

- Place `temDM STEM_2_images.gtk` into one of plugins folders of DigitalMicrograph.

The script *find_plugins_folders.s* included in the distribution package will help you to localize such folders. Open *find_plugins_folders.s* in DigitalMicrograph and run it by pressing „execute“ or by pressing ENTER with holding the CNTR key. Read the list of available plugins folders. The first folder in the list is most appropriated for placing the temDM plugins.

- Restart DigitalMicrograph.
- Find item "STEM 2 images" in the "temDM" menu of DigitalMicrograph.

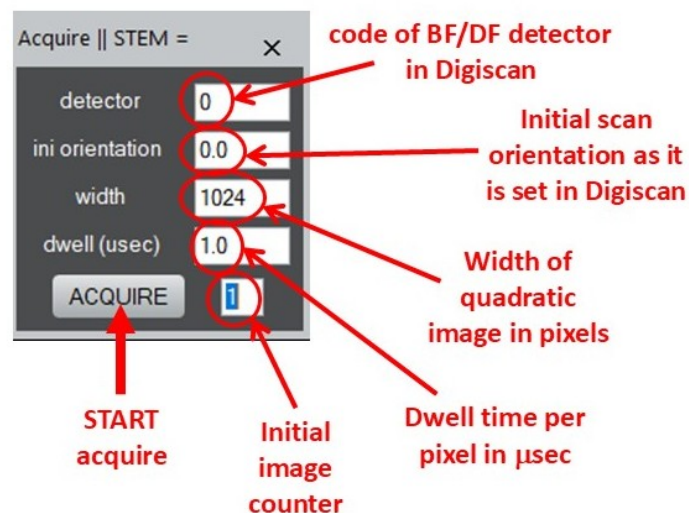
Variant B

- Open `STEM_2_images.s` in DigitalMicrograph.
- Press "Execute" button in the script frame.

Variant C

- Open `STEM_2_images.s` in DigitalMicrograph.
- Having `STEM_2_images.s` frontmost got to DigitalMicrograph Menu "File : Install script". Choose "Library" panel and press OK.

4 How it works



Before starting, check if the detector code, scan orientation and dwell time in the script frame correspond to those you typically use in Digiscan. Set the desired image size in pixels. Then:

- Find the appropriated place in the sample, focus well and press "ACQUIRE".
- Digiscan will acquire a STEM image, then immediately rotate the fast scan direction 90° clockwise and acquires its copy in another orientation. The image counter increments by one.
- Both images are displayed and automatically stored in the subfolder `.\rotated series` under the names `1_0.dm4` and `1_R.dm4`. You can change the folder and standard name in the text of the script if you want.
- Go to another place in the sample, focus, press again "ACQUIRE" and get `2_0.dm4` and `2_R.dm4`.
- And so on...