Guidance for calibrations required for double click to tilt in Velox:

For double-click to tilt to work properly, the displayed diffraction patterns in Velox need to have a spatial scale (scale bar in nm^{-1}) in order to calculate the required tilts. If you see pix in the scale bar of Velox SmartCam display or if values are not correct, you need to perform the following calibrations:

1. Diffraction calibrations
2. Flucam calibrations

Please see detailed procedure below, if you are not familiar with it:

Diffraction Calibration

(a) In the Peoui “Help” menu, follow the *Diffraction calibration procedure* as shown in Figure 1.

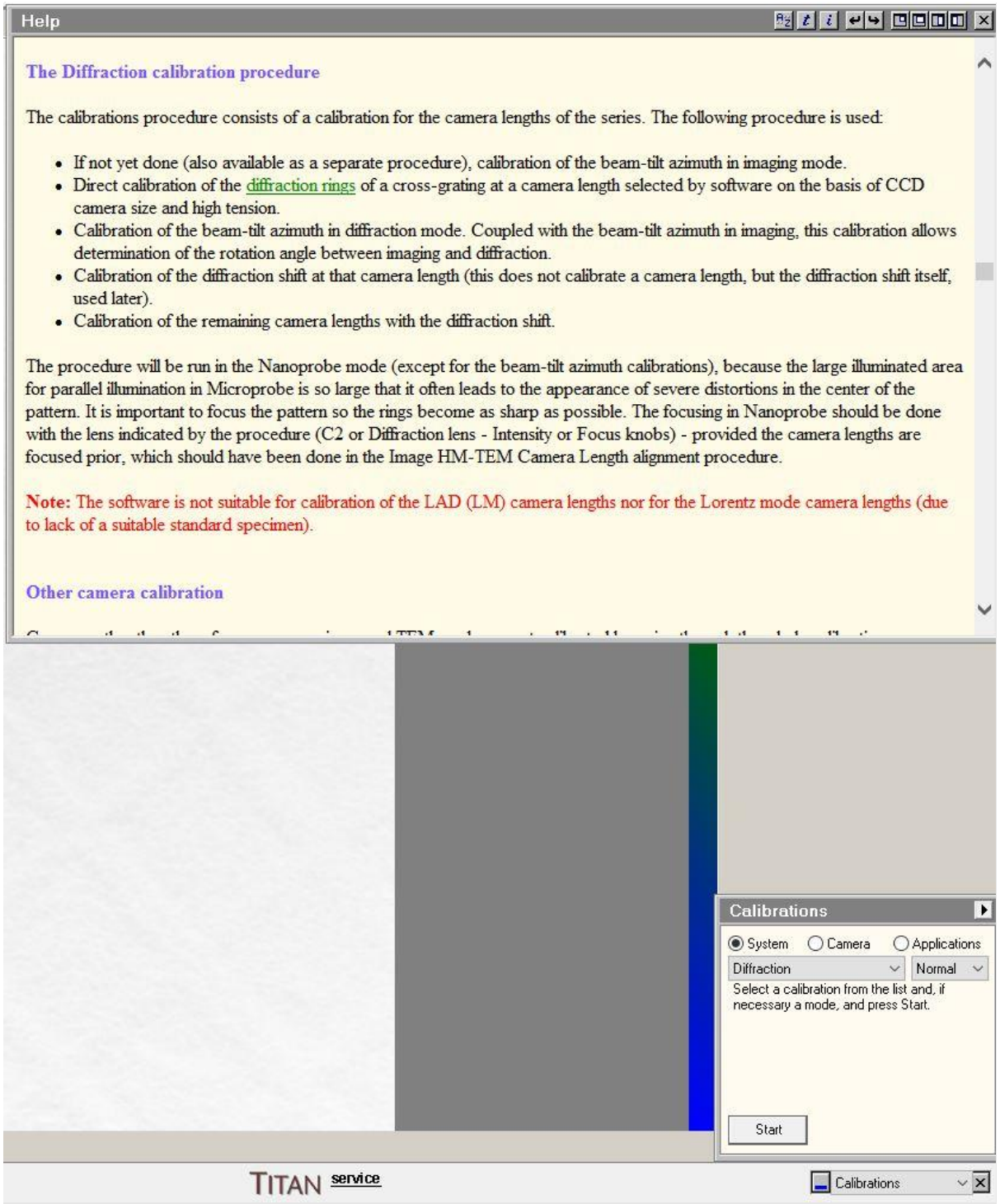


Figure 1

(b) In PEOUI, find “Calibrations” panel.

(c) Calibrations -> System -> Diffraction -> Start.

(d) Follow the step-by-step directions as per the suggested procedure on Calibrations tab on the bottom right corner. For reference, look at the screenshots from Figure 2 till 19.

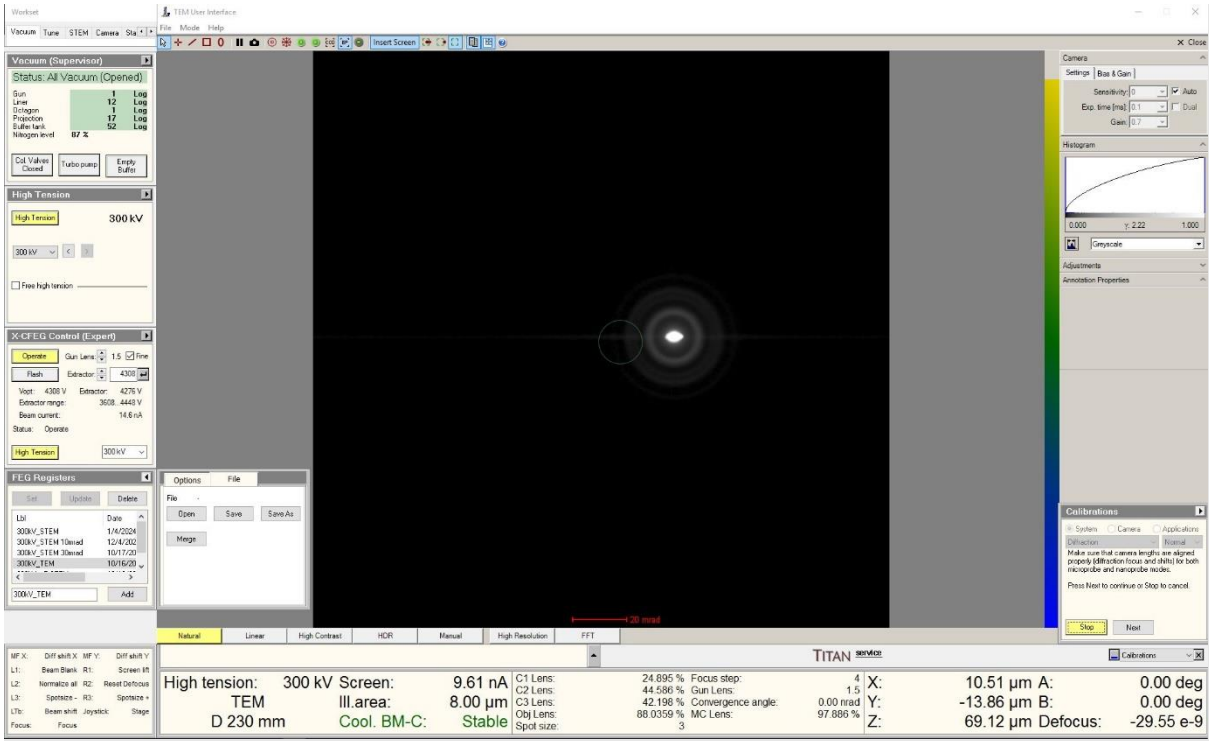


Figure 2

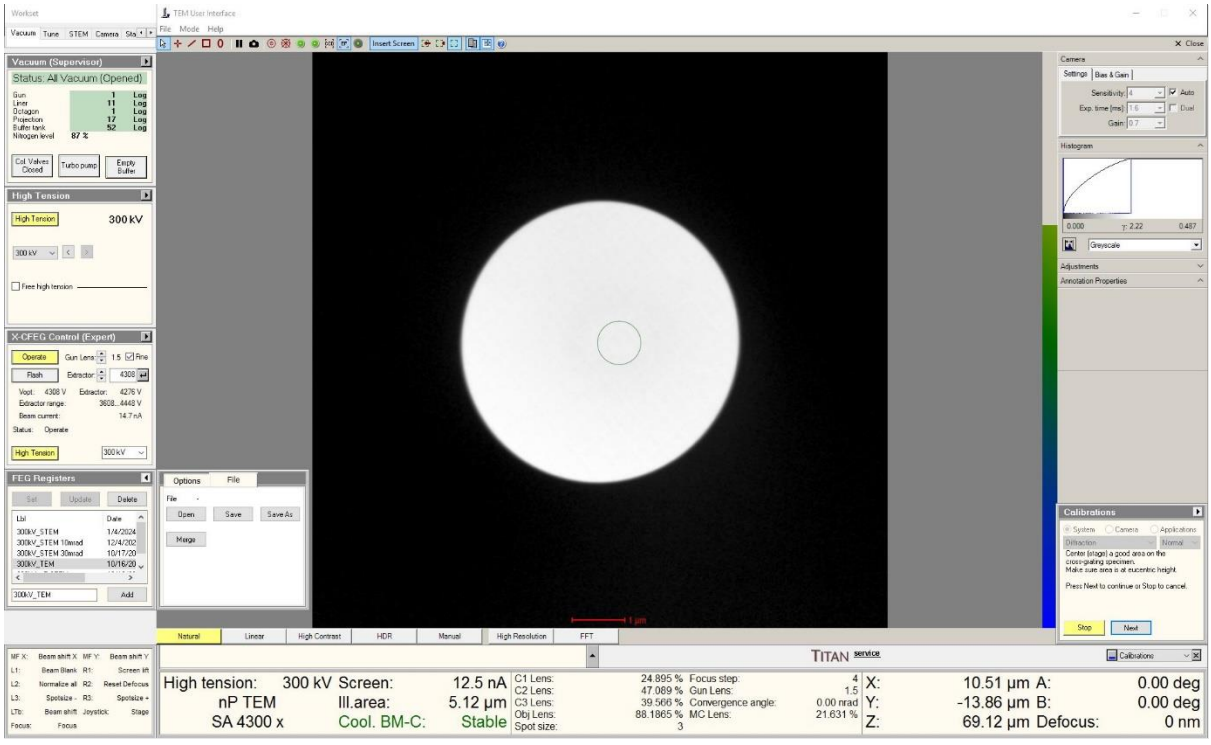


Figure 3

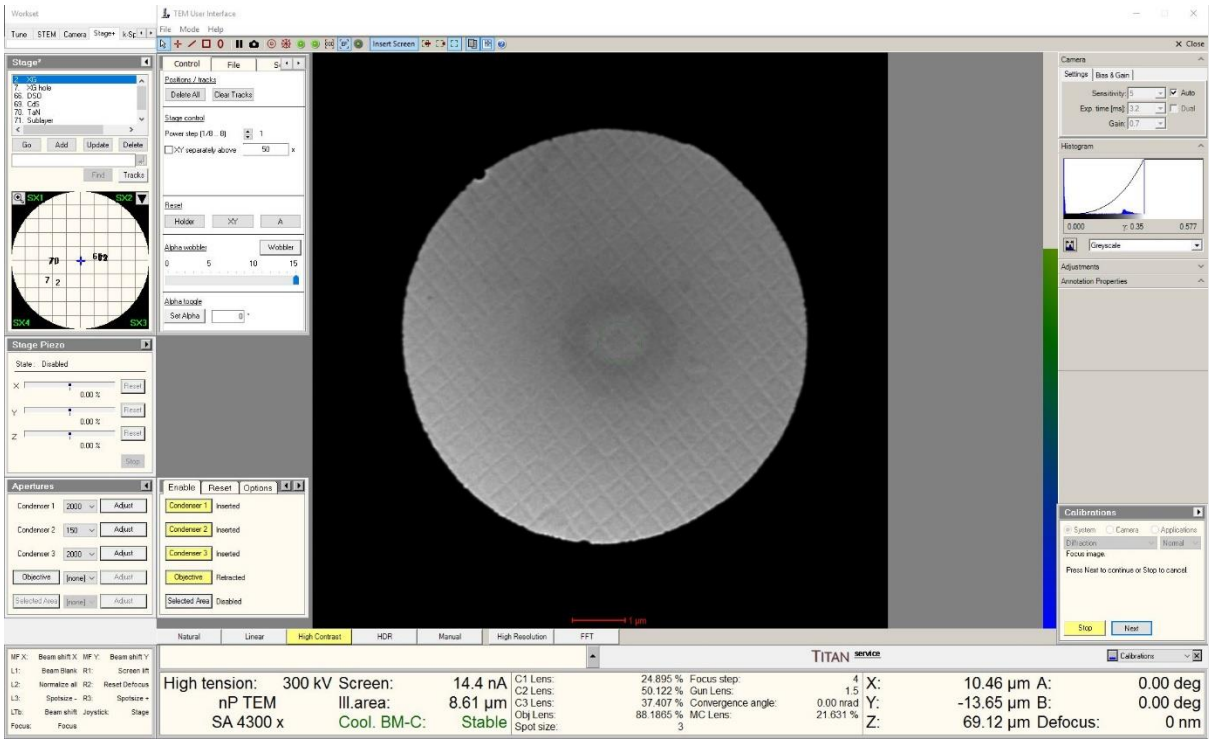


Figure 4

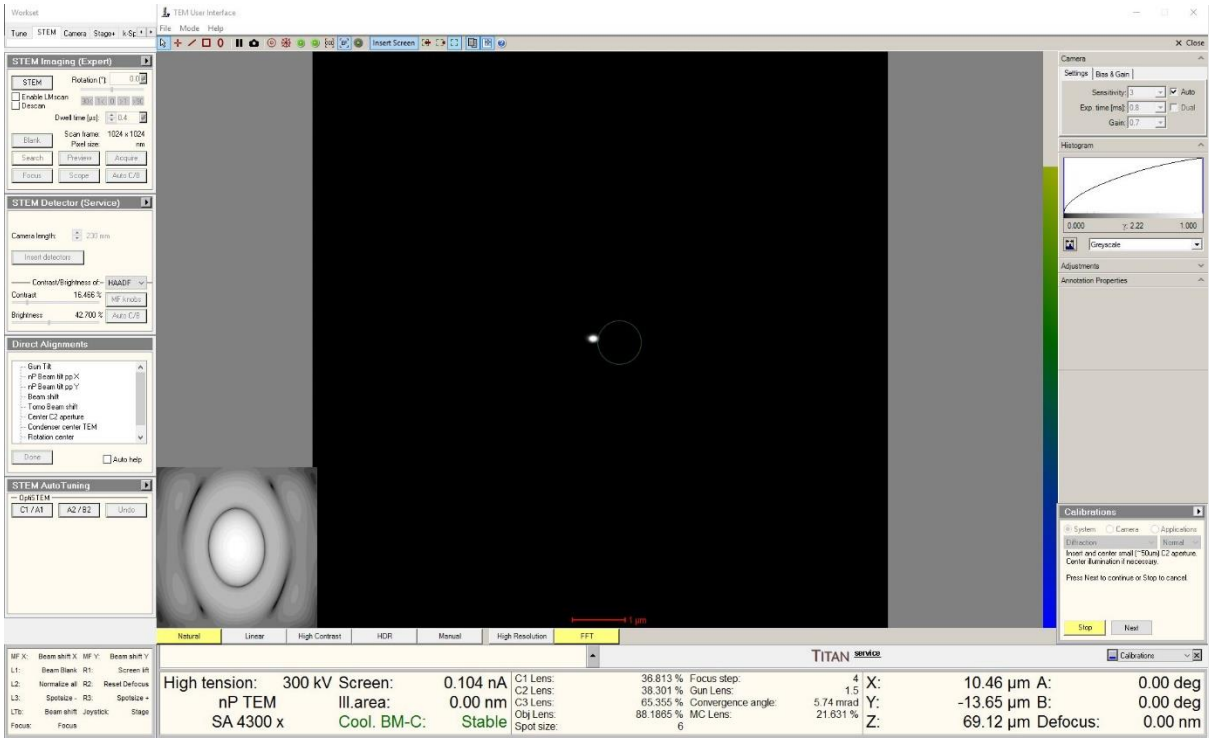


Figure 5

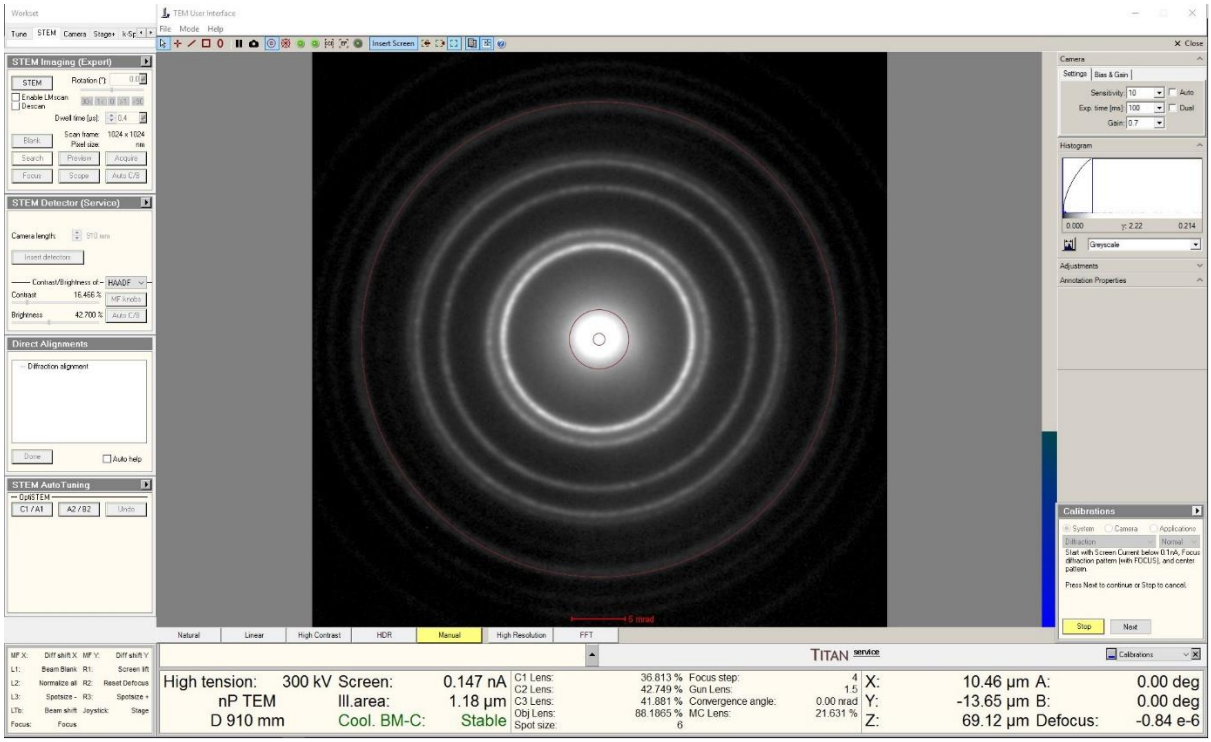


Figure 6

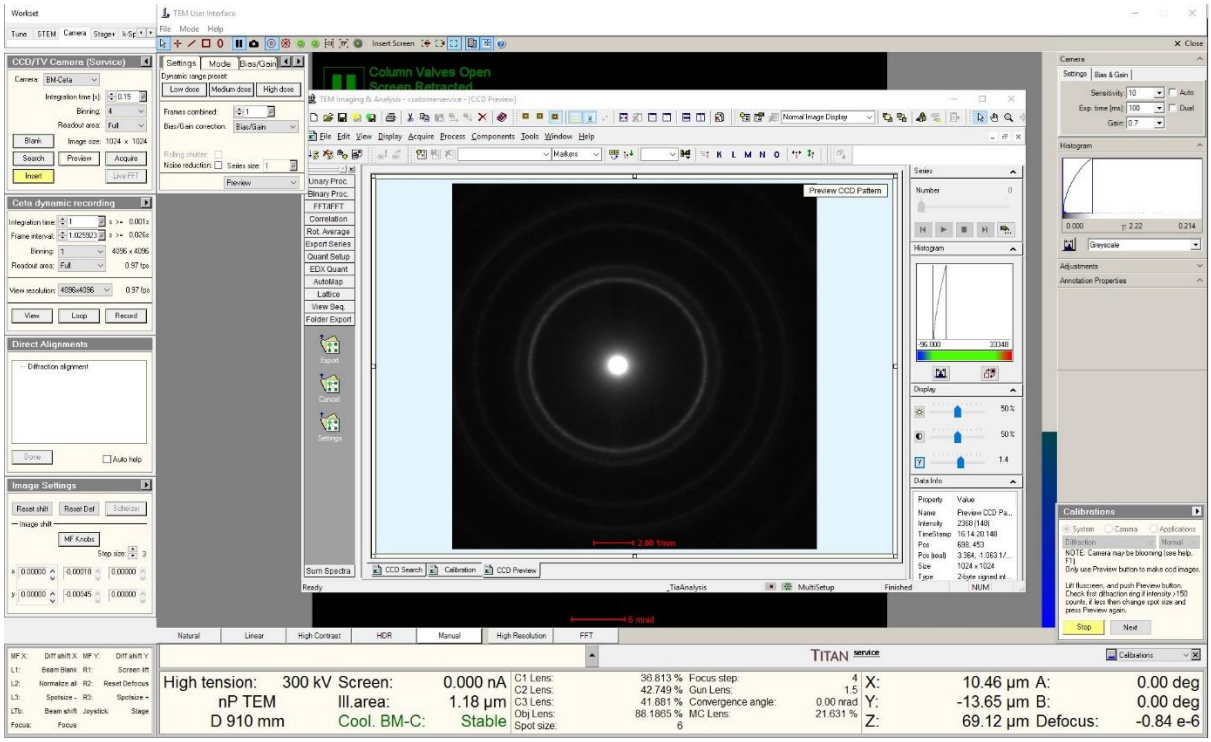


Figure 7

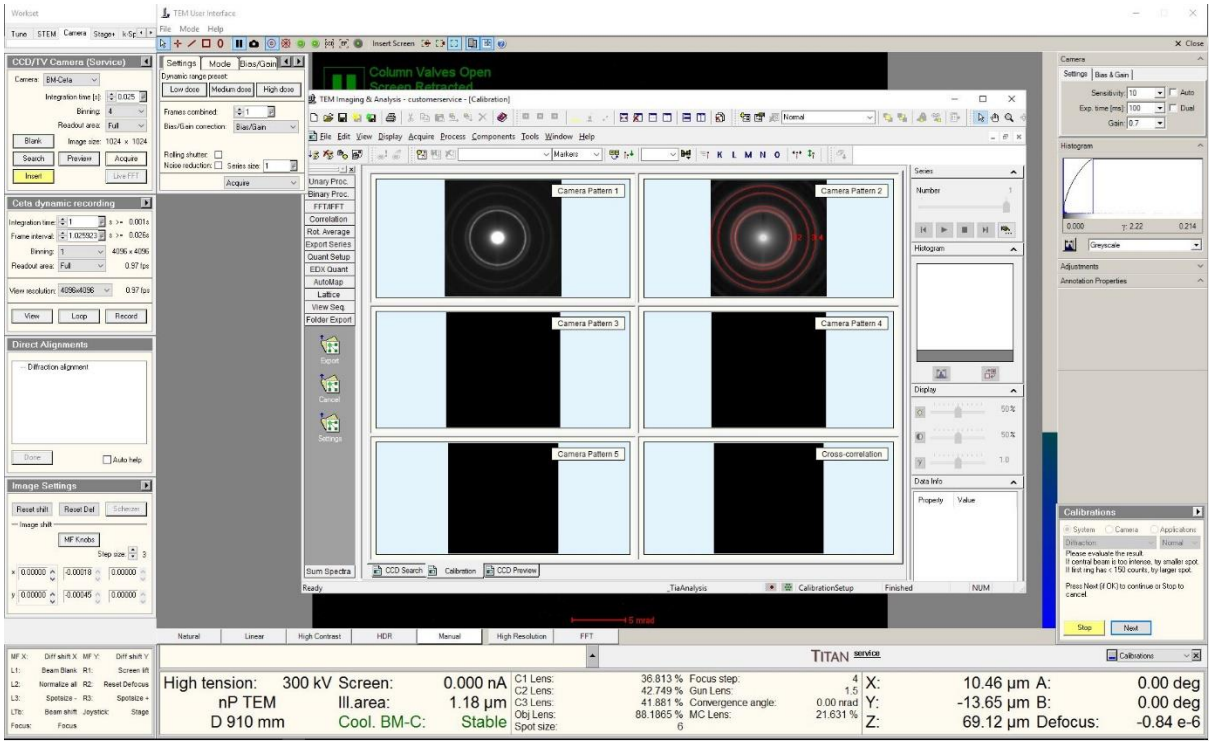


Figure 8

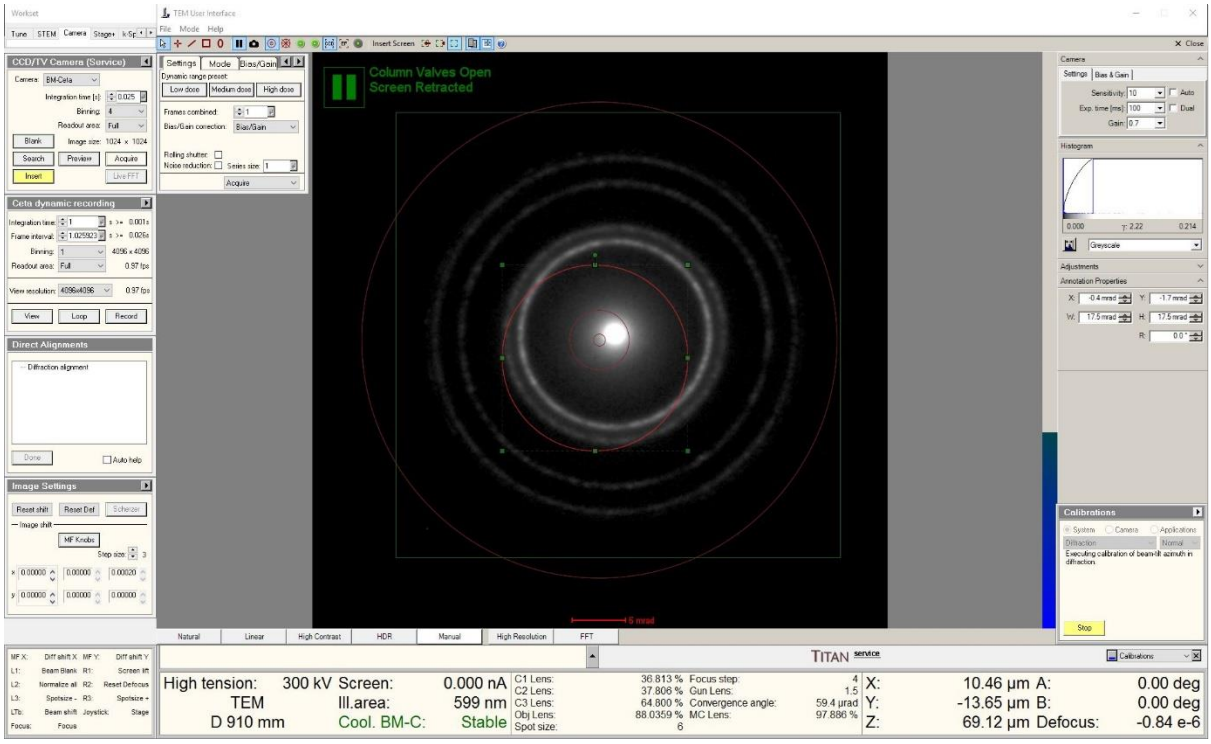


Figure 9

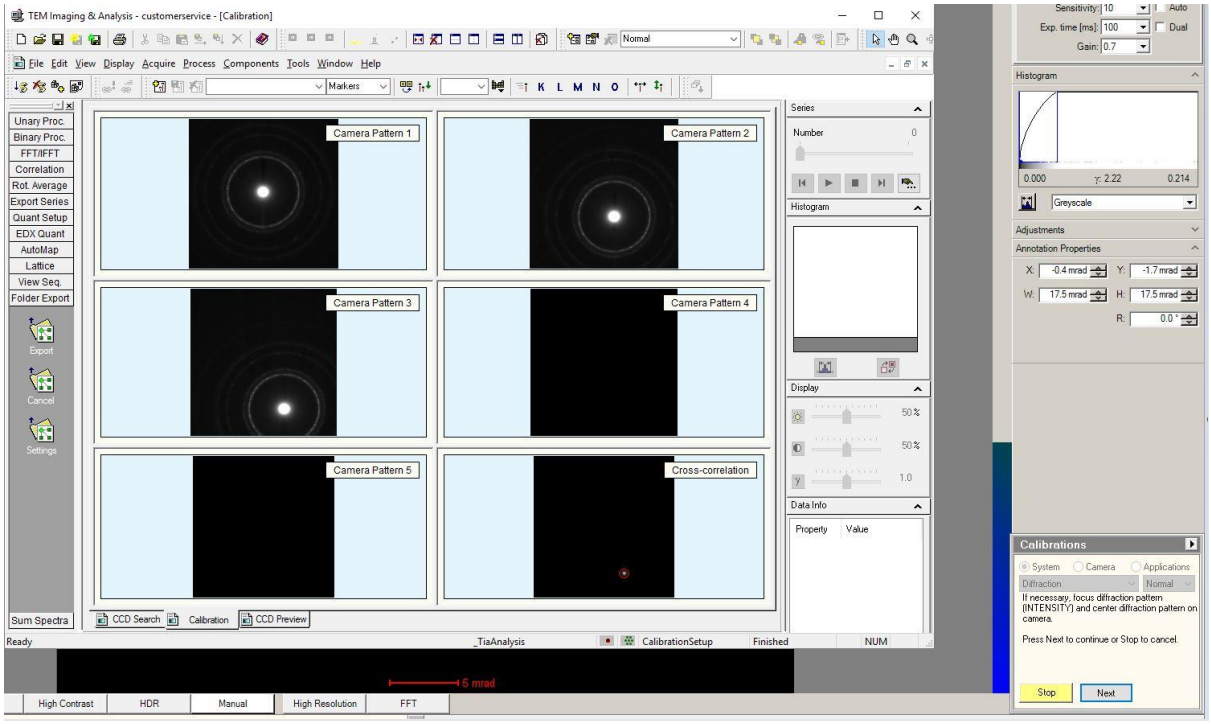


Figure 10

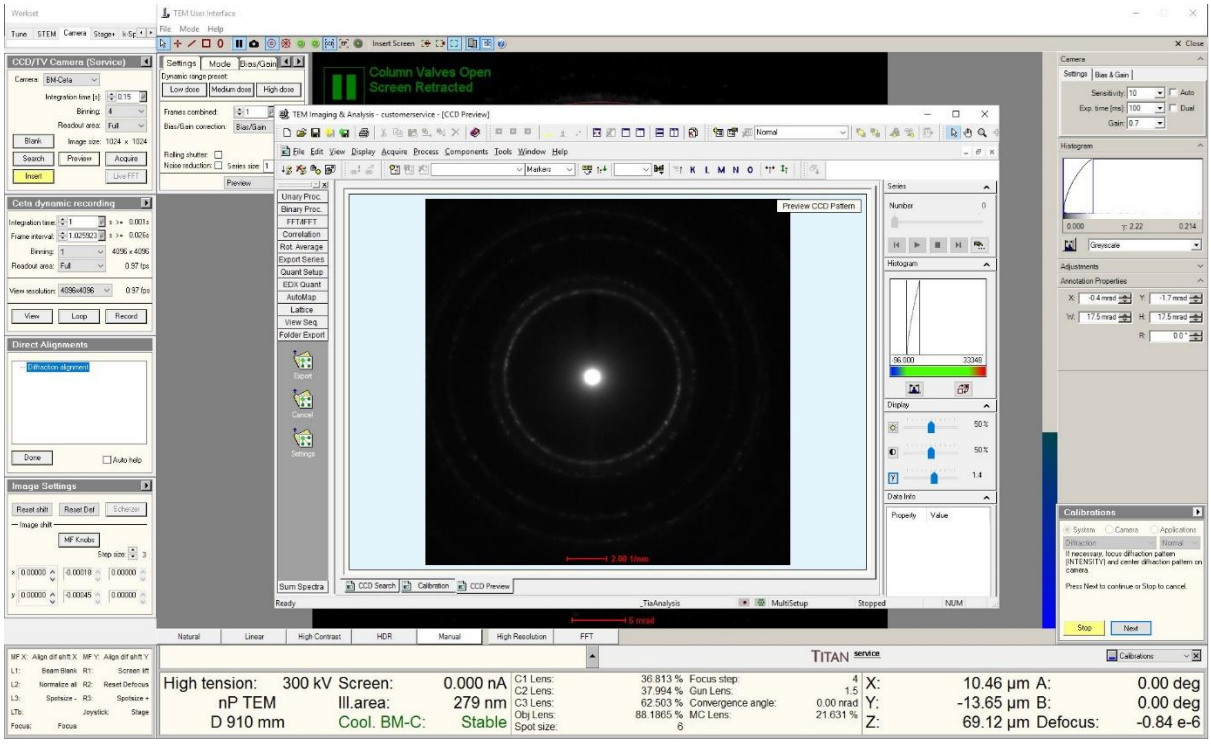


Figure 11

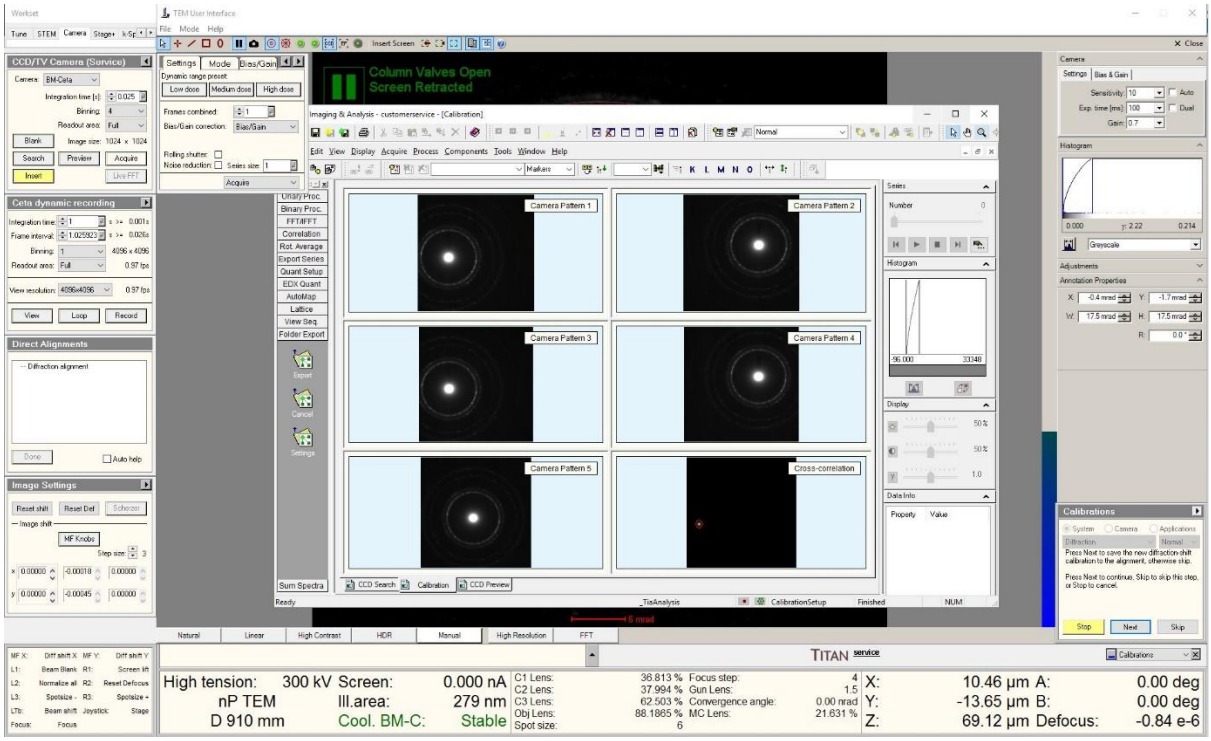


Figure 12

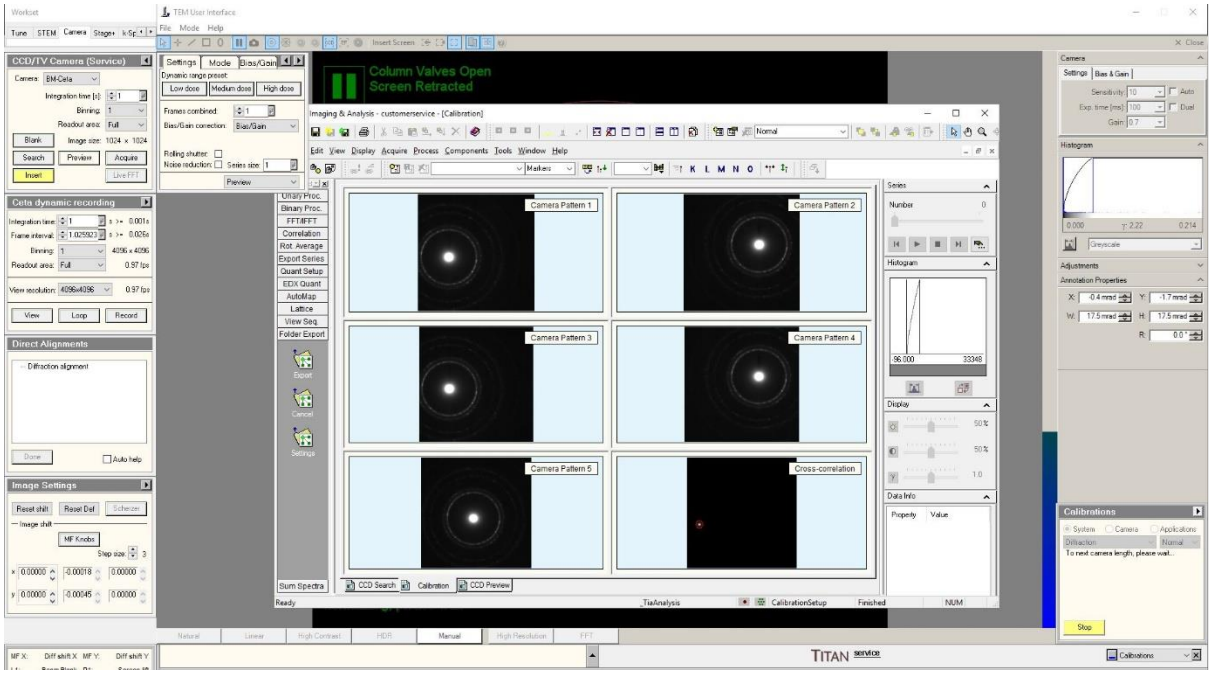


Figure 13

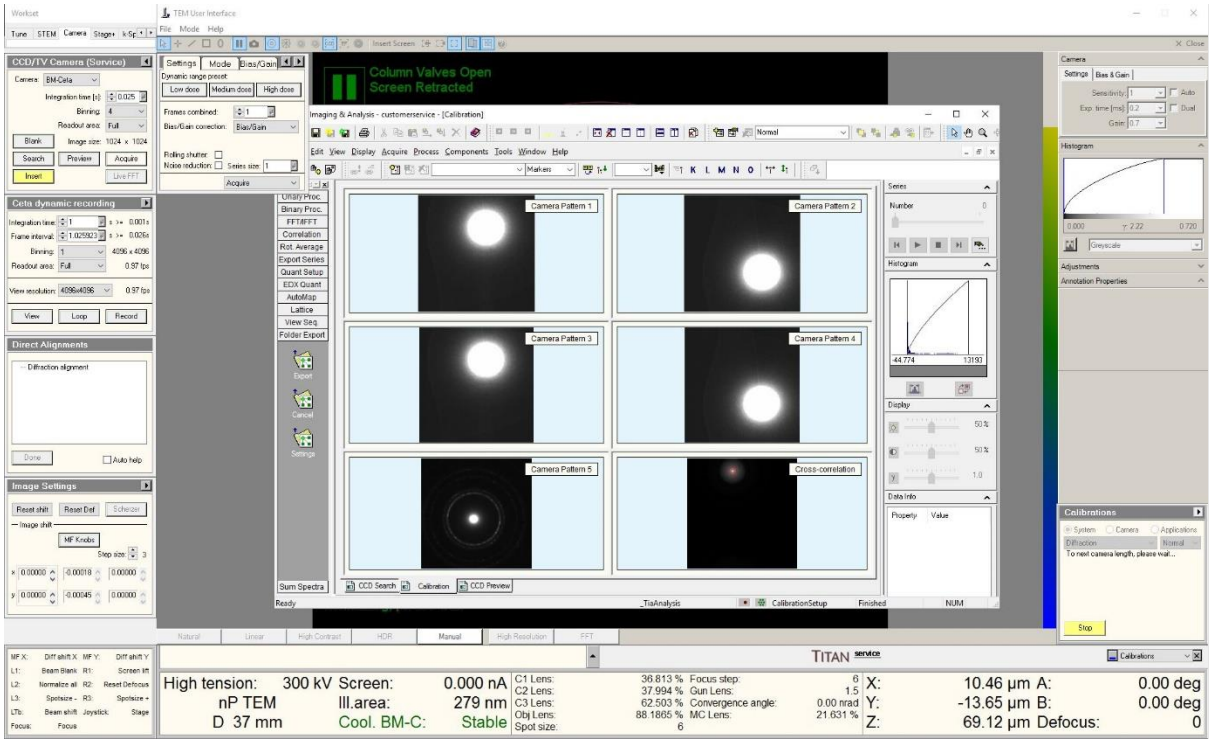


Figure 14

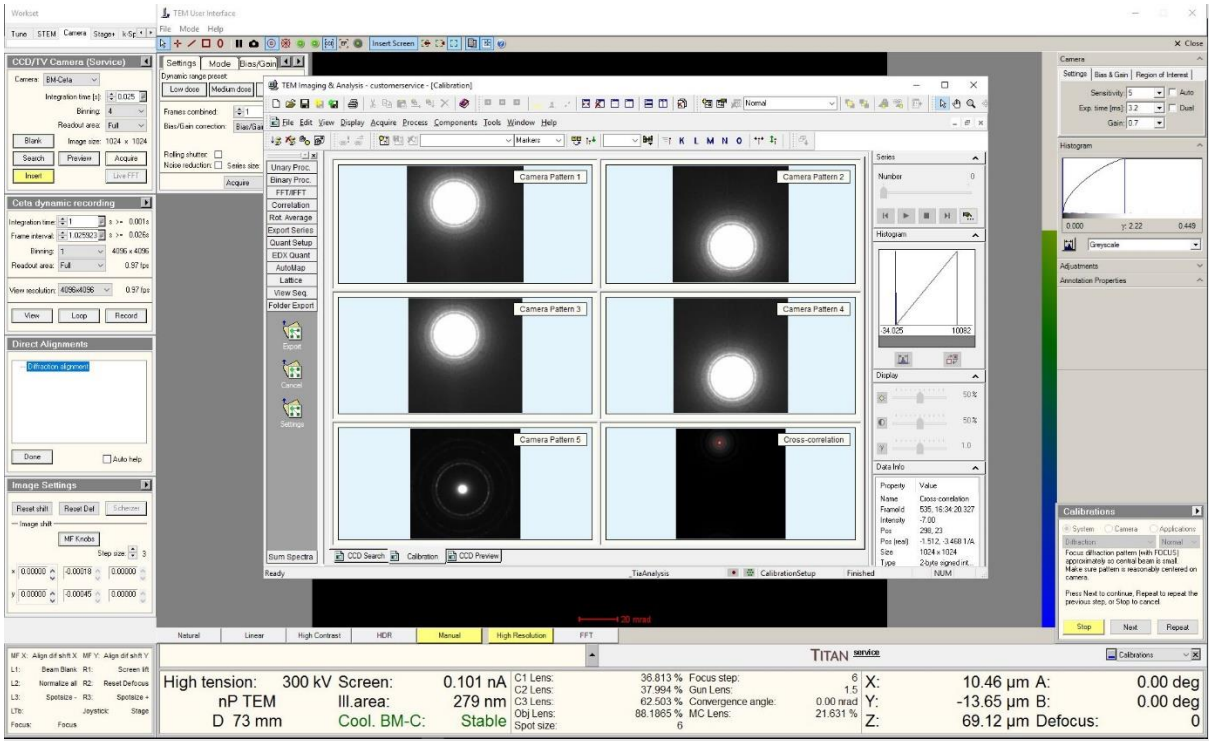


Figure 15

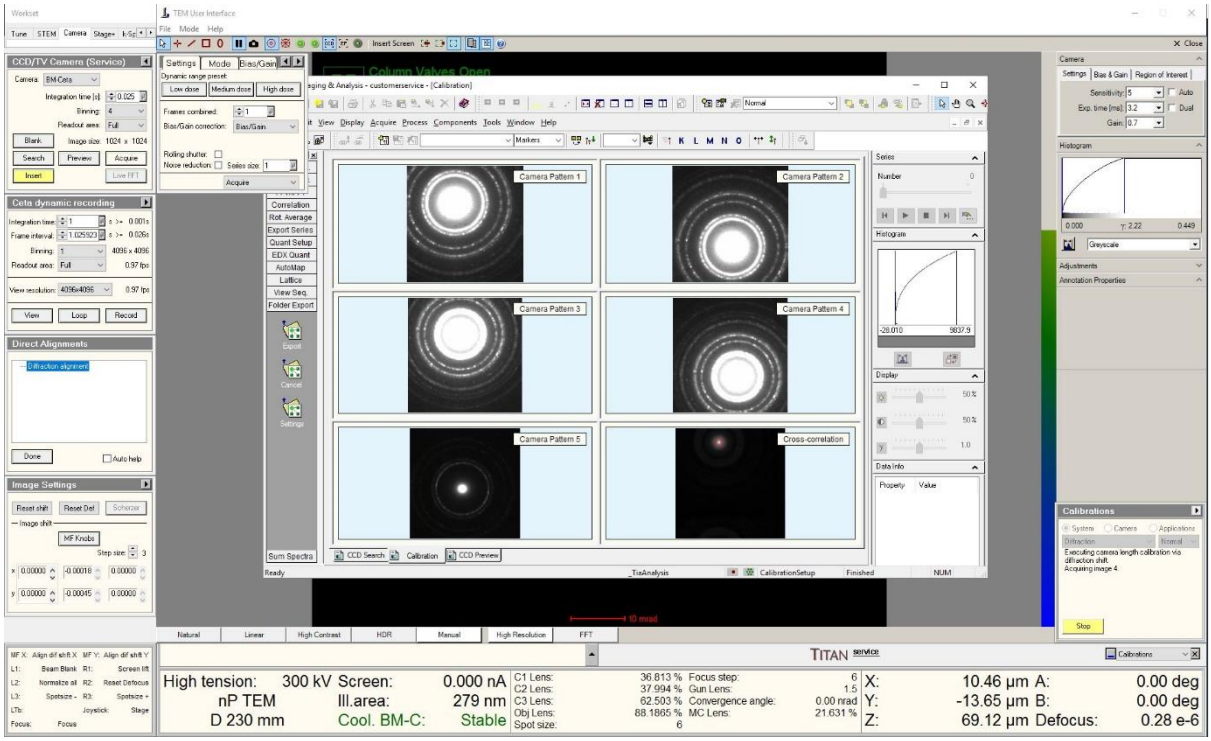


Figure 16

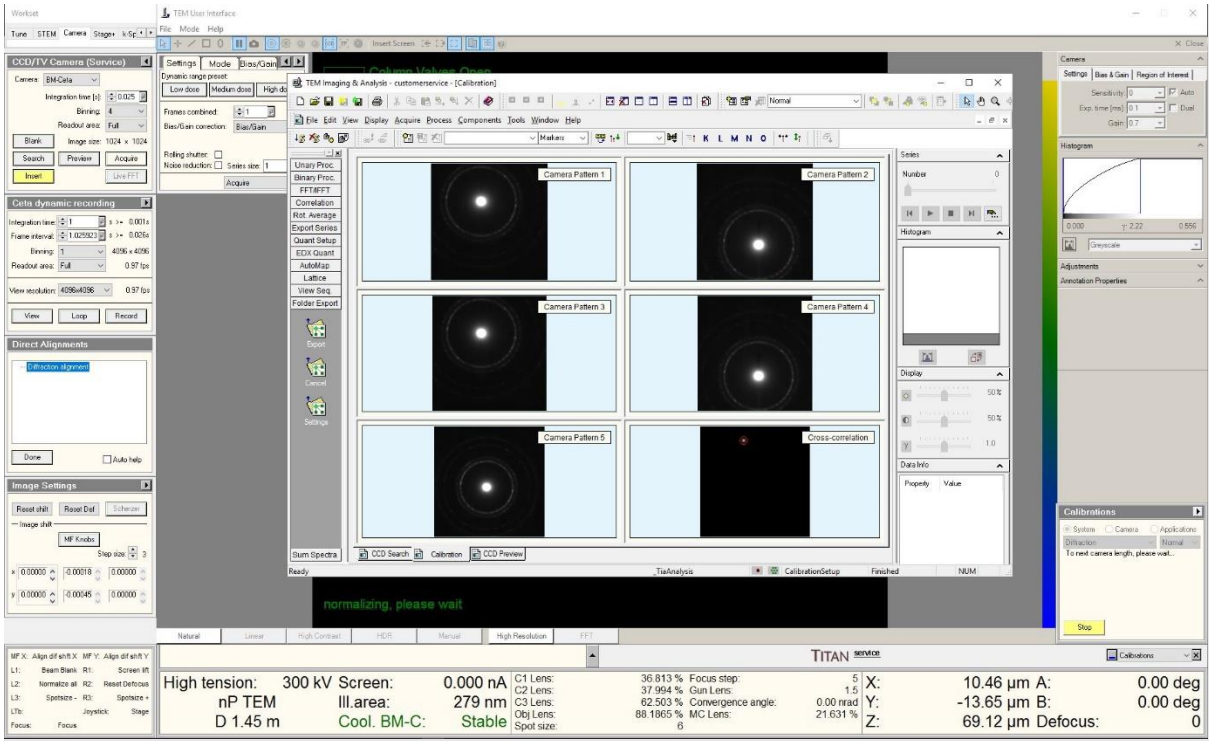


Figure 17

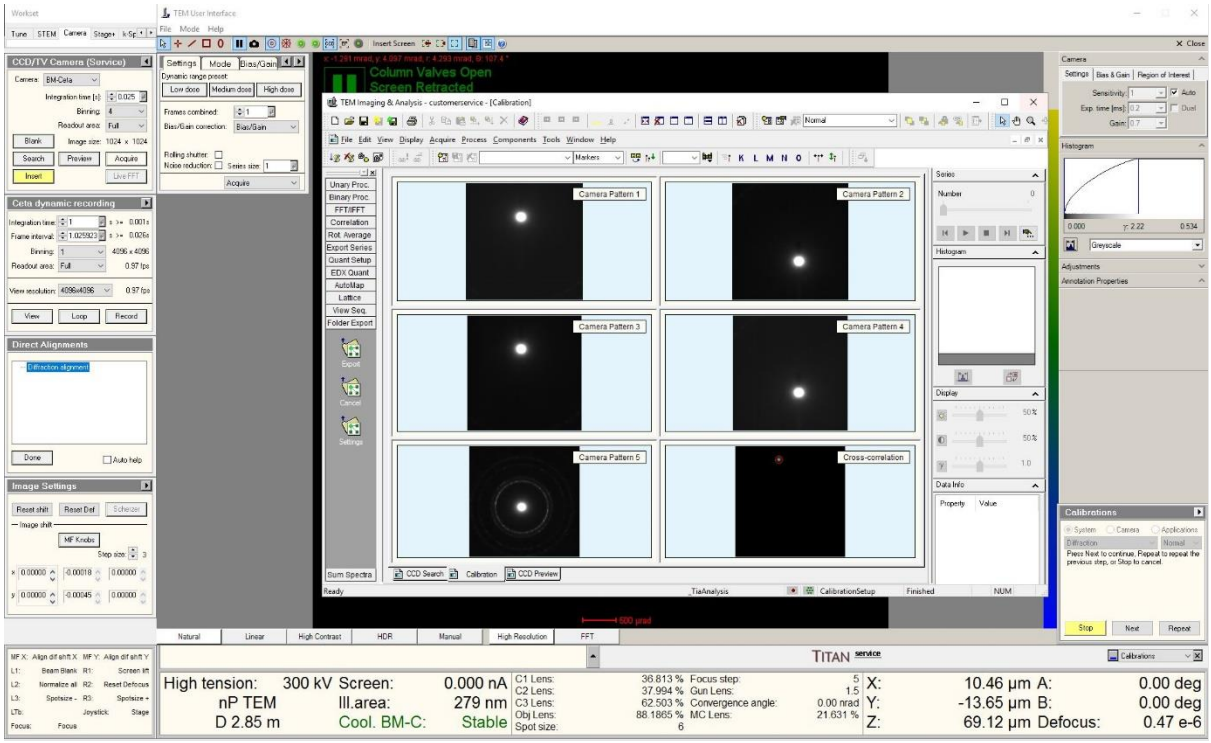


Figure 18

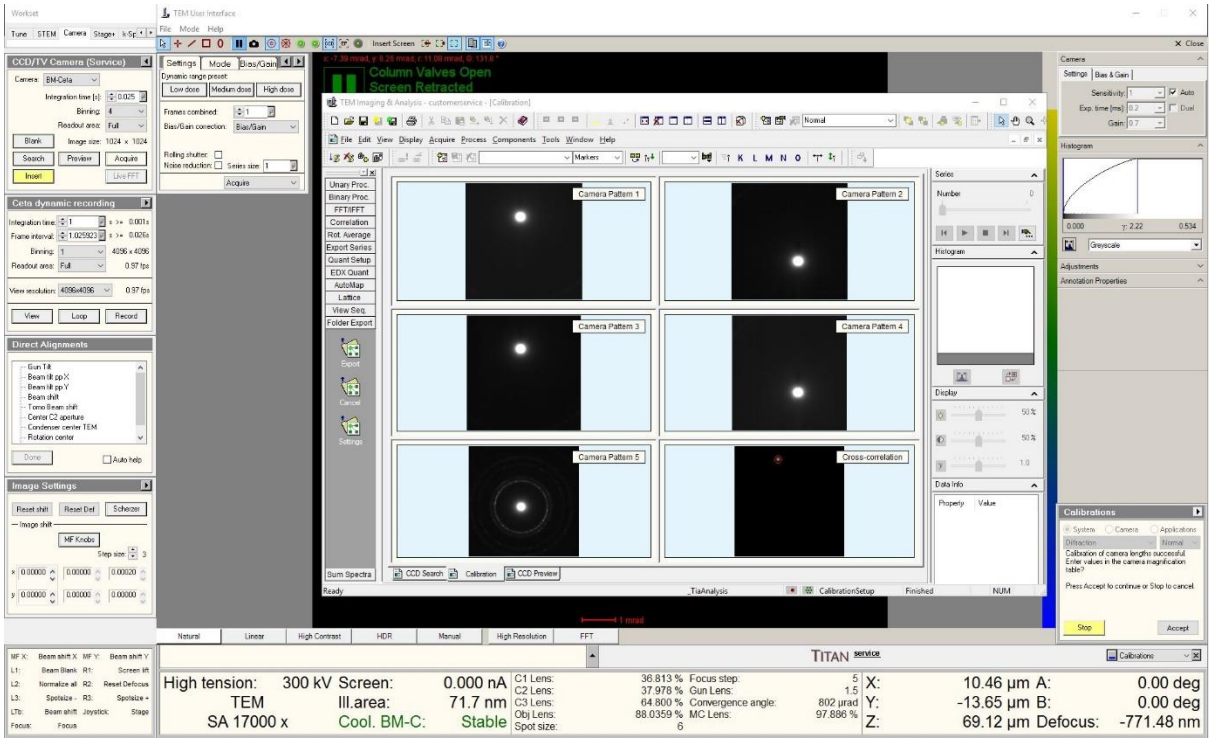


Figure 19

Flucam Calibration

(a) Perform the camera calibration

(b) Calibrations -> Camera -> Calibrate Flucam -> Start

(c) Follow the step-by-step directions as per the suggested procedure on Calibrations tab on the bottom right corner. For reference, look at the screenshots from Figure 22 till 27.

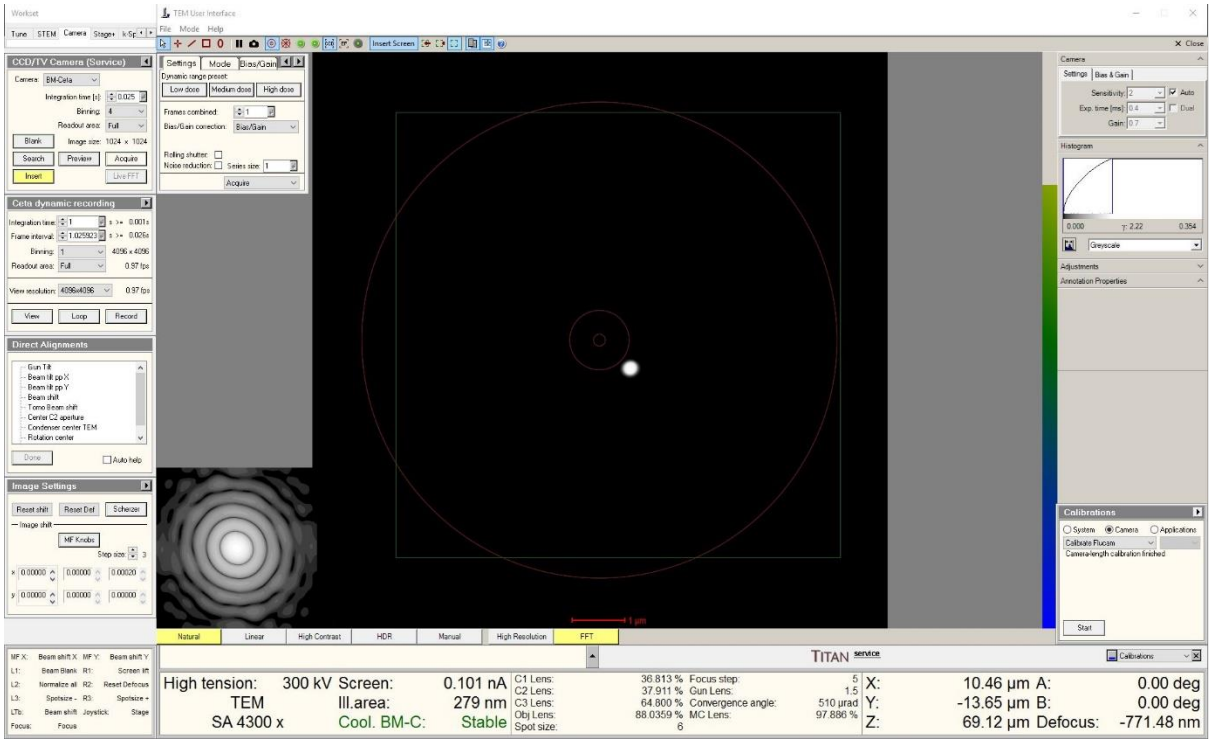


Figure 20

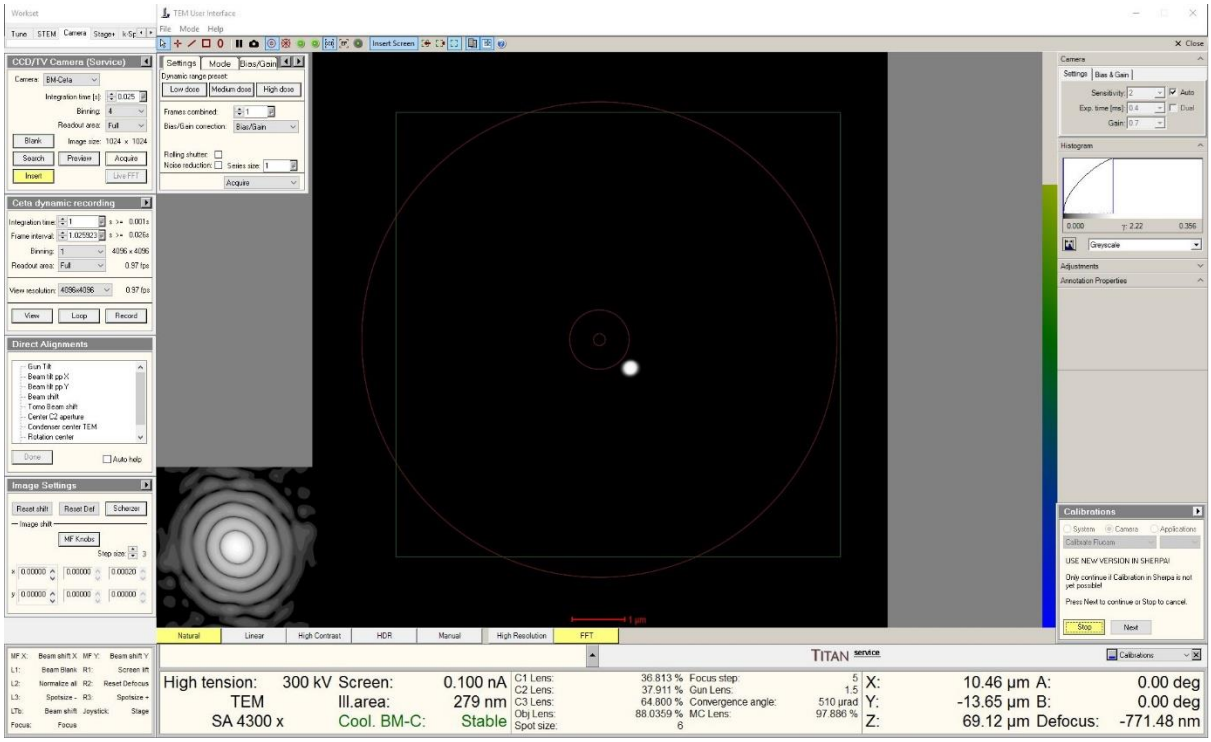


Figure 21

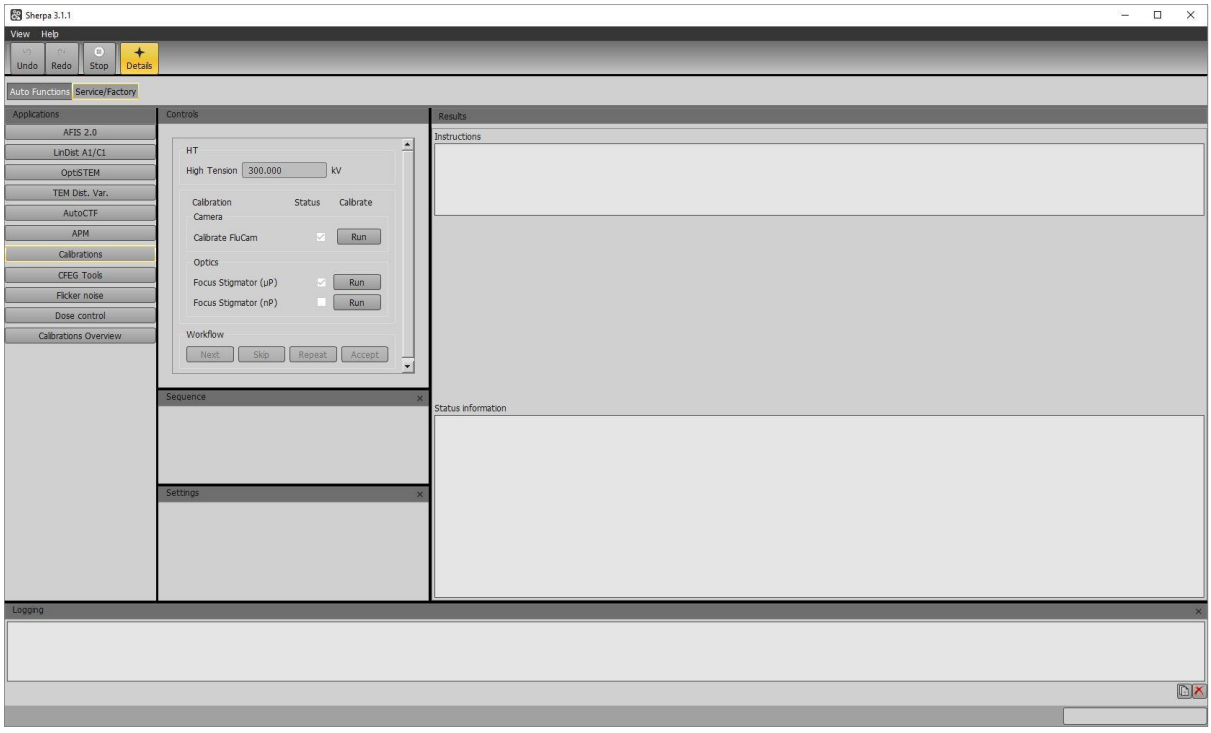


Figure 22

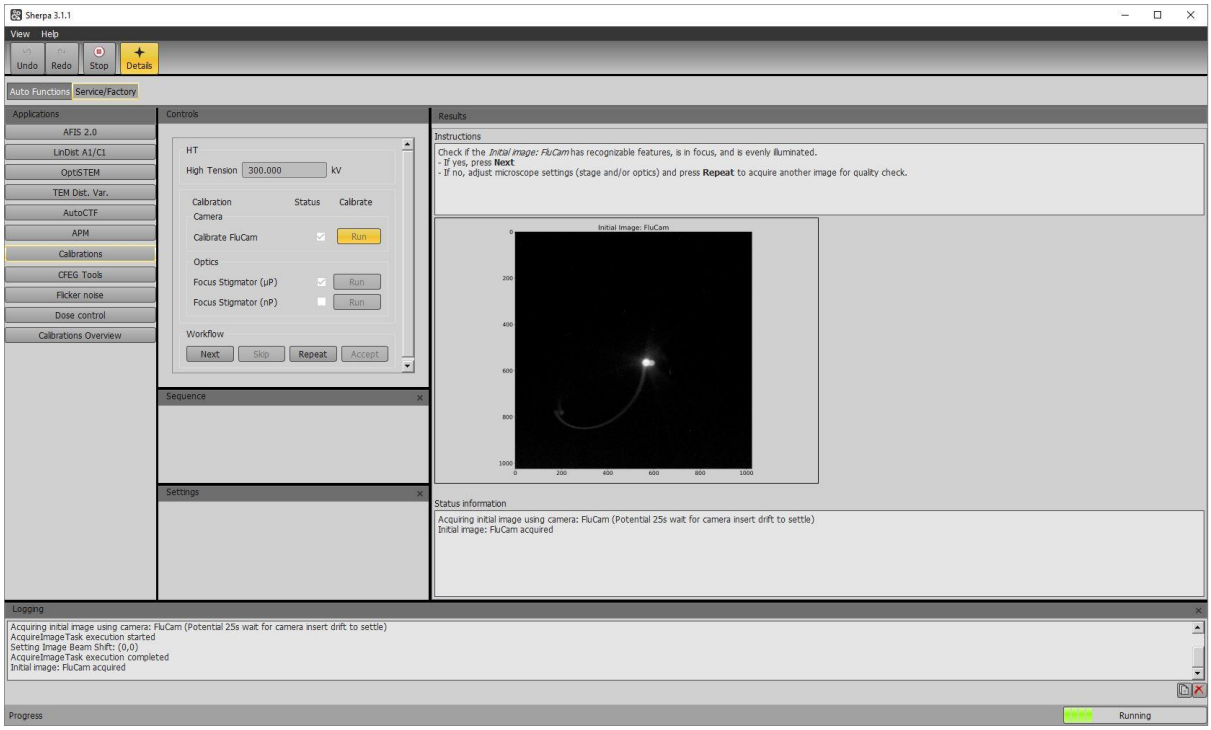


Figure 23

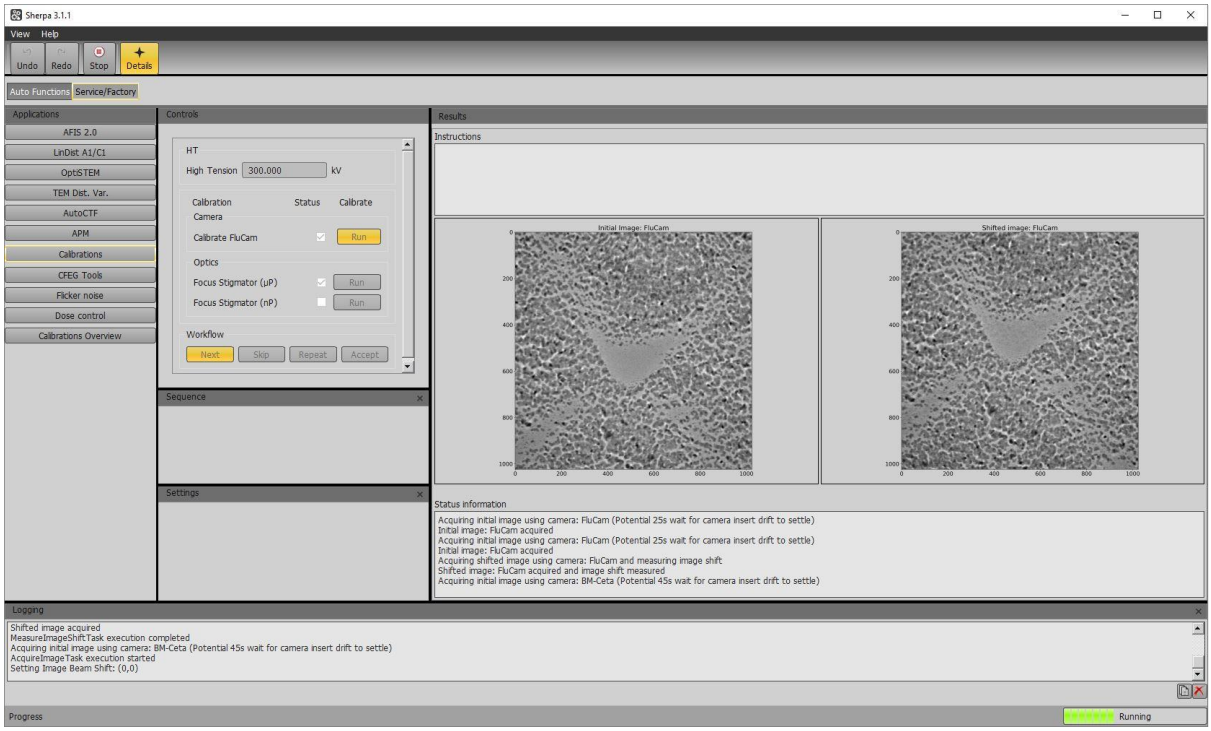


Figure 24

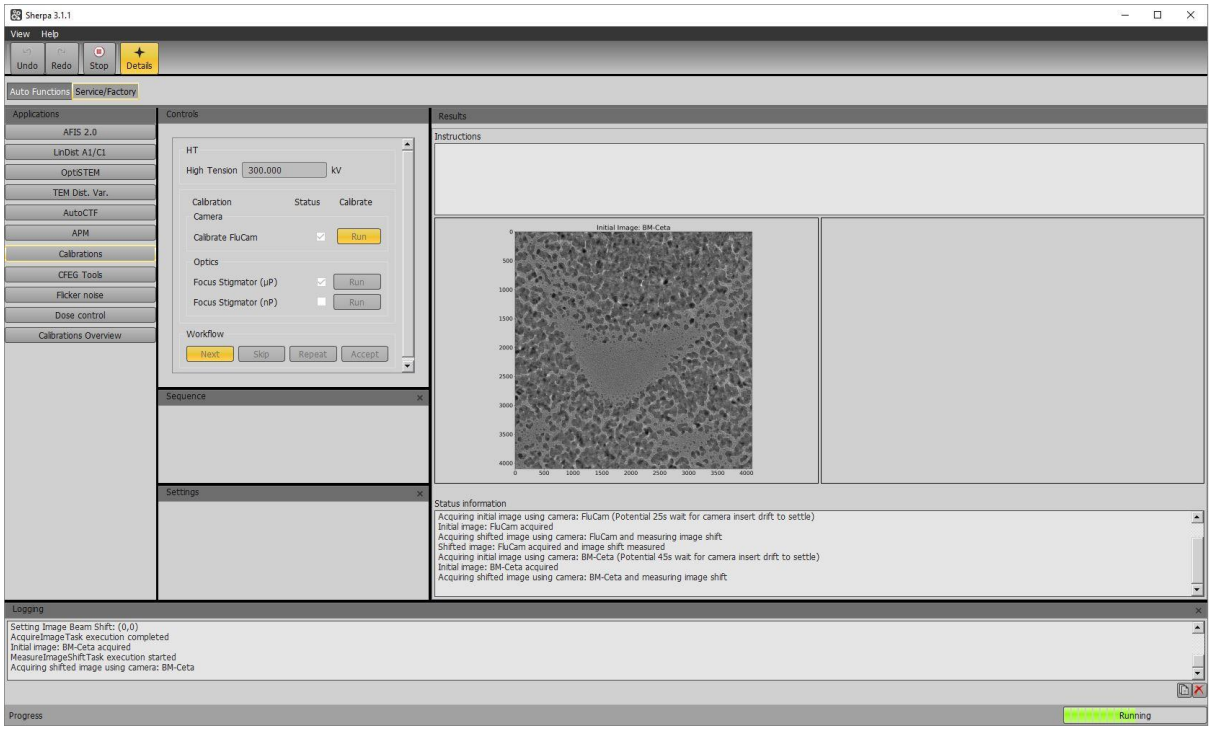


Figure 25

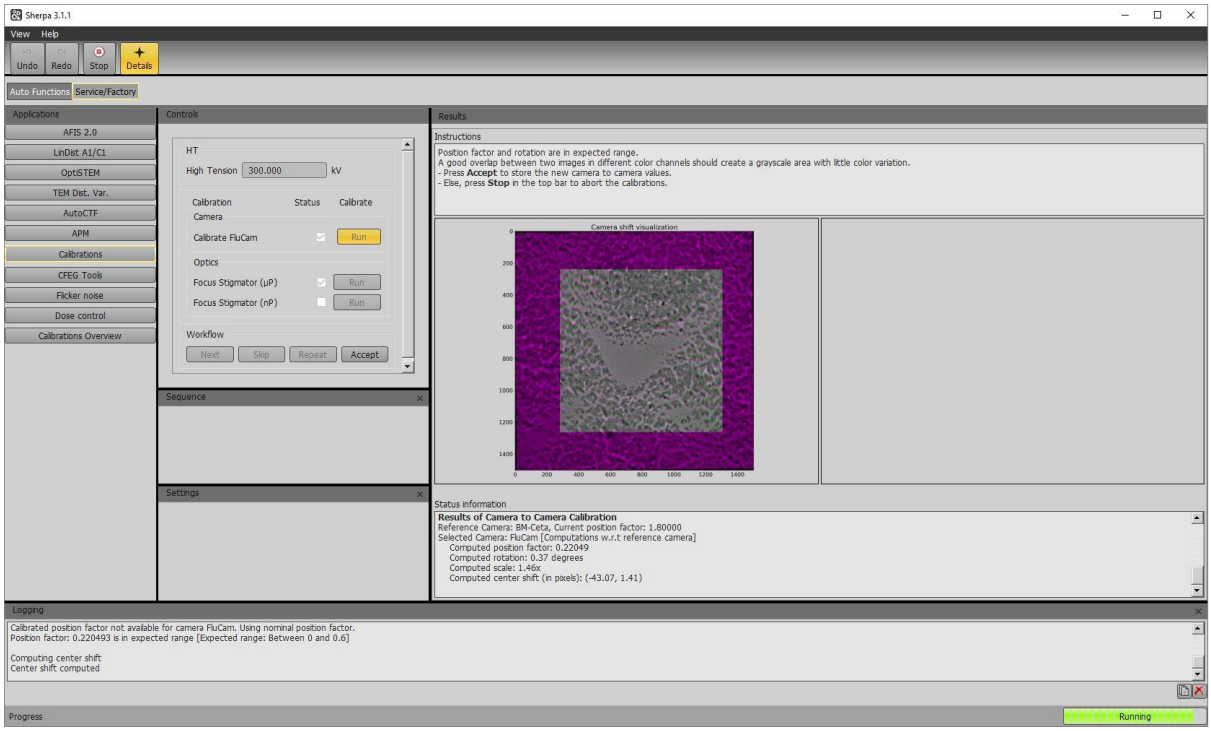
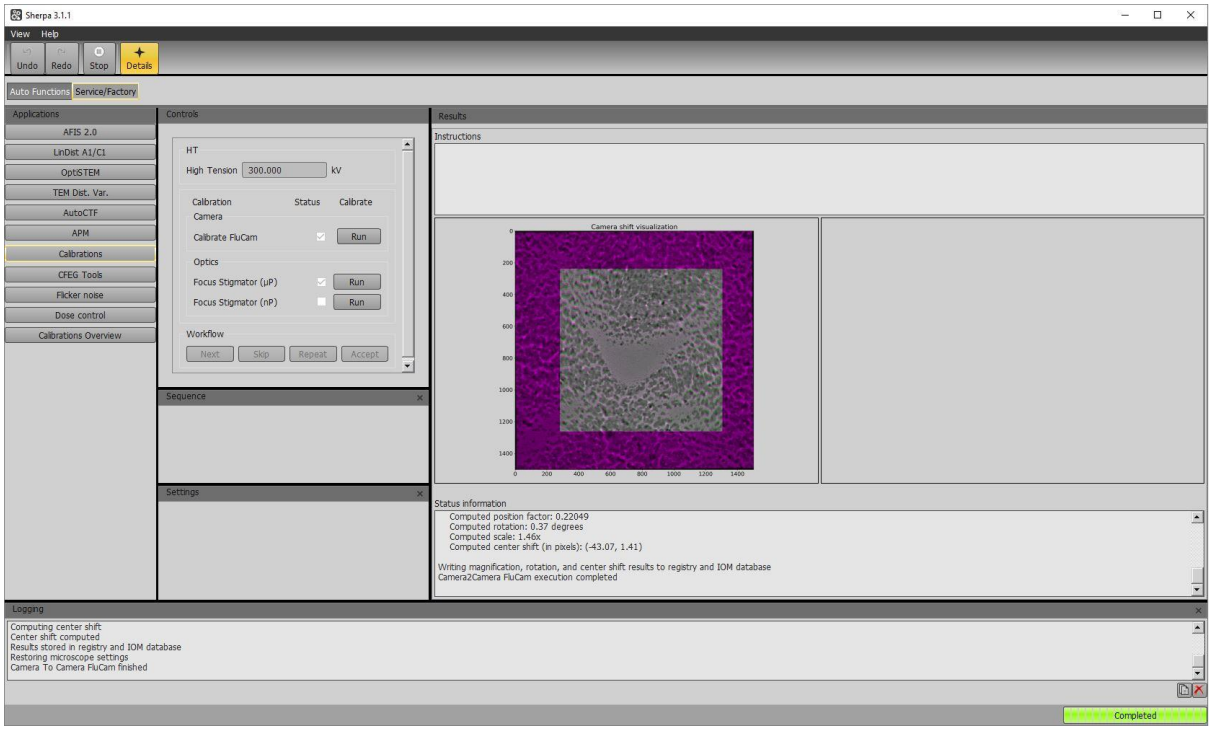


Figure 26


Sherpa 3.1.1
View Help
Undo
Redo
Stop
Details
Auto Functions
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AFIS 2.0
LinDist A1/C1
OptiSTEM
TEM Dist. Var.
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APM
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Dose control
Calibrations Overview
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High Tension 300.000 kV
Calibration Status Calibrate
Camera
Calibrate FluCam Run
Optics
Focus Stigmator (µP) Run
Focus Stigmator (nP) Run
Workflow
Next Skip Repeat Accept
Sequence
Settings
Results
Instructions
Camera shift visualization
Status information
Computed position factor: 0.22049
Computed rotation: 0.37 degrees
Computed scale: 1.46x
Computed center shift (in pixels): (-43.07, 1.41)
Writing magnification, rotation, and center shift results to registry and IOM database
Camera2Camera FluCam execution completed
Logging
Computing center shift
Center shift computed
Results stored in registry and IOM database
Restoring microscope settings
Camera To Camera FluCam finished
Completed

Figure 27