GPA short instruction

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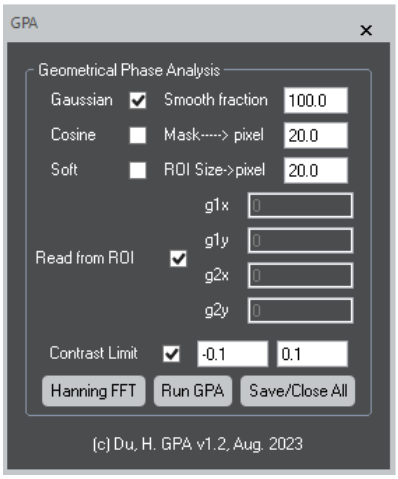


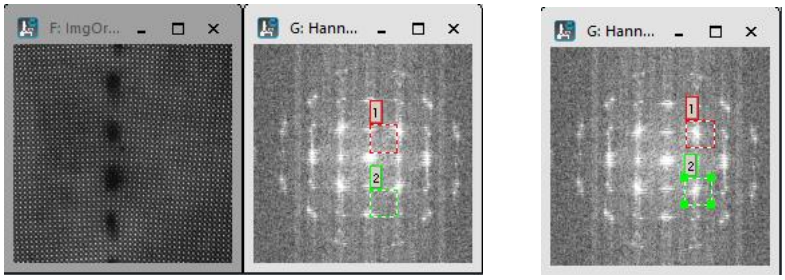
Installation

1. close DM if it is running.
2. copy the file into the folder C:\ProgramData\Gatan\Plugins
   You may need to enable showing hidden folder to see it.
3. restart DM

Strain mapping

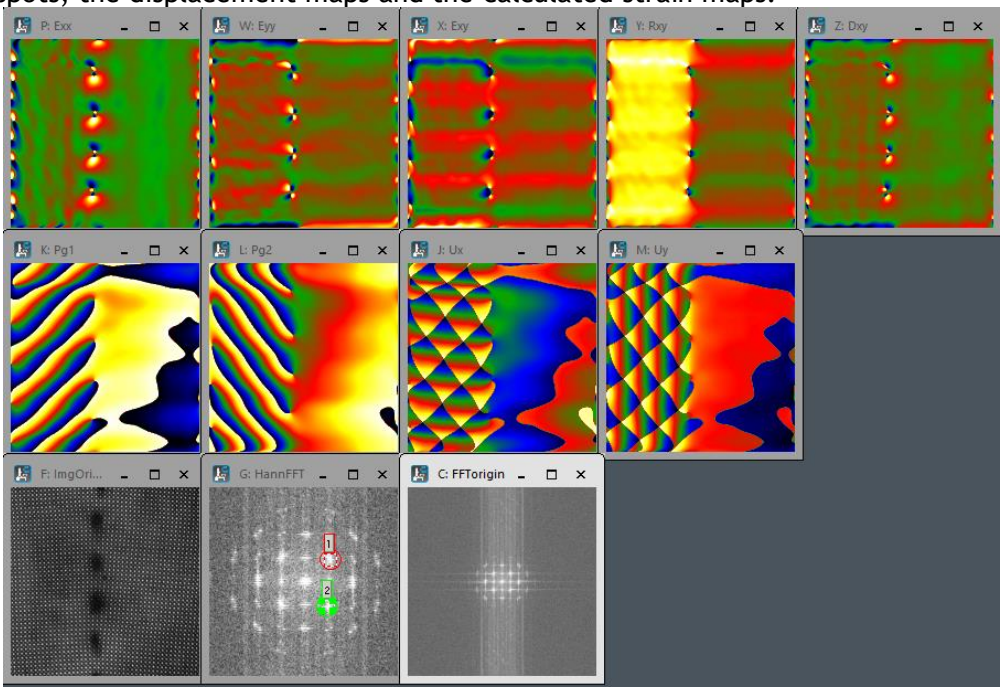
1. Open an image you want to perform analysis.
2. Start the package through the DM menu ER-C —> Analysis-->GPAxx.

3. Click the 'HanningFFT' in the GUI, a HannFFT image will show up with two labeled ROIs.

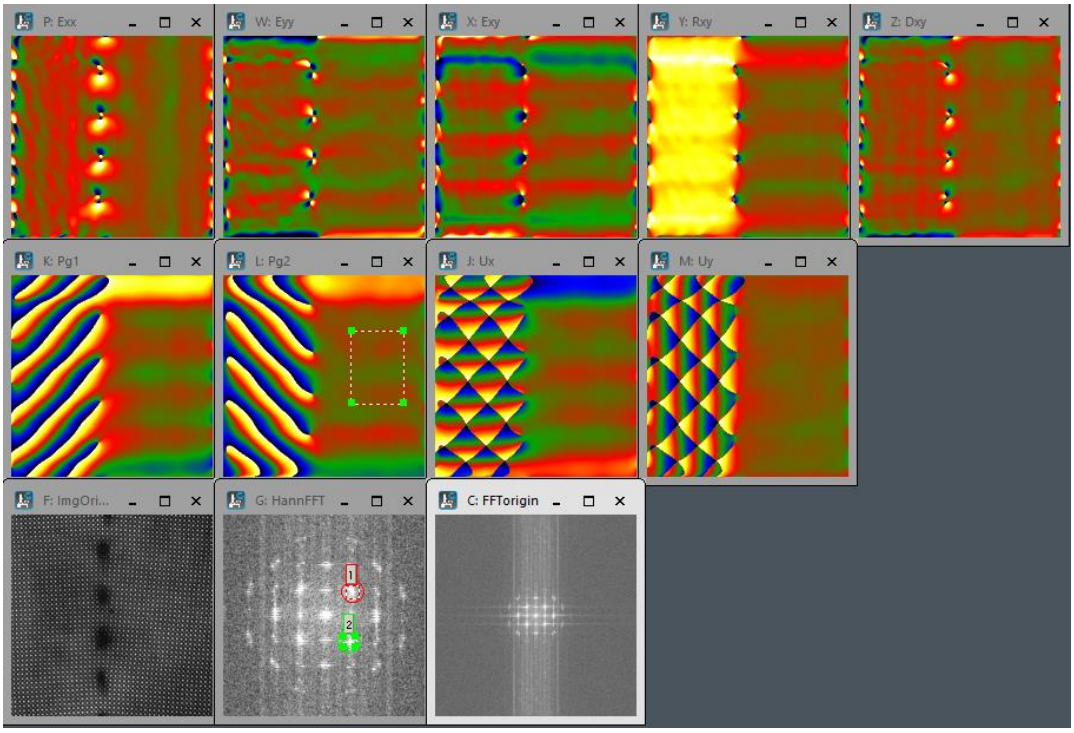


4. Put the two ROIs over two most intense spots (not necessary to be precise, the position will be set to the location of the maximum value of magnitude in a later step) which are not collinear with respect to the central spot and as close to being orthogonal as possible.

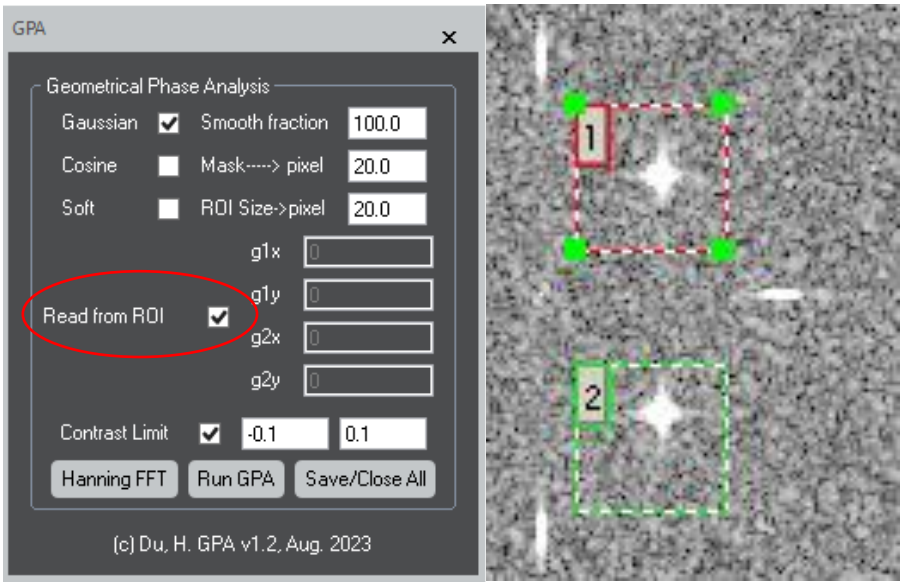
5. click 'Run GPA', will perform the analysis and show the phase maps of the two selected spots, the displacement maps and the calculated strain maps.



6. Reference area can be chosen by draw a ROI in either the image imgOrigin, Pg1, or Pg2, thereafter, repeat step 5.



7. The selected spots have to be smoothed by one of the three methods (see GUI): Gaussian, Cosine, and Soft (edge), in an order of the decrease of smooth level at the same smooth fraction. The larger of the smooth fraction (>0, <=100), the higher level of smooth.
8. The 'Mask ---->pixel' define the size of the area around the spots that will be used for the calculation of the strains. A smaller value will give smoother strain maps. It is suggested to set this value as large as possible that the resulting strain maps are reasonable.



9. With Read from ROI check box being enabled, users can set the positions of the two reflections manually by dragging the ROI in the HannFFT image using mouse with the

left button pressed or by pressing arrow keys from the keyboard with the ROI selected (showing green markers at its vertexes).

10. Click the Save/Close All in the GUI will bring a select folder dialog. Confirmation of a selected folder will Save all the shown images created by GPA to a subfolder under a name of GPA_xx and then close all; Confirmation of cancel will close all the images without saving.