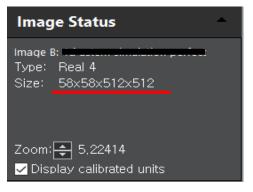
DPC imaging for 4D-STEM Data

Requirements: Python-integrated GMS 3, Numpy, Scipy, Matplotlib





4D-STEM data example

- dimensions of 4D-STEM data = (sx, sy, dsx, dsy)
- sx, sy \rightarrow STEM scanning size
- dsx, dsy \rightarrow diffraction pattern (DP) size

the 4D-STEM data must be front-most

```
_ _
      import numpy as np
       from scipy import optimize
       import matplotlib.pyplot as plt
      import matplotlib.cm as cm
      import matplotlib.colors as mcolors
     class dpc python():
          def init (self, f stack, ang per pixel, mrad per pixel):
               self.original stack = f stack
              self.original shape = f stack.shape
12
              self.original packed = np.mean(self.original stack, axis=(0, 1))
13
              self.ang_per_pixel = ang_per_pixel
14
              self.mrad per pixel = mrad per pixel
15
16
              print("the shape of the data =", self.original shape)
17
          def find_center(self, com=True, gaussian=False):
18
19
20
              if com and gaussian:
21
                  print ("Warning! Choose only one option to find the center")
22
23
              if not com and not gaussian:
24
                  print ("Warning! Choose at least one option to find the center"
25
26
              Y, X = np.indices(self.original packed.shape)
27
               com y = np.sum(self.original pacbed * Y) / np.sum(self.original packed * Y)
28
              com x = np.sum(self.original pacbed * X) / np.sum(self.original packet)
29
              self.com ct = [com y, com x]
30
31
               (_, center_y, center_x, _, _) = fitgaussian(self.original_pacbed)
32
               self.gauss_ct = [center_y, center_x]
33
34
                   self.ct=self.com ct
             Show on all workspaces
                                       Language: Python
                                                                     ecute on Backg
```

uncheck
"Execute on Background Thread"

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