# CTF Simulation

- When collecting data it's important to spread your defocus values out over a sufficient range, and sufficiently uniformly to get pretty uniform information at all resolutions. ie- you don't want the zeroes to overlap too much. While the general guideline of going as close to focus as you can see particles clearly, then extending from this defocus to ~1 micron further from focus works well in most cases, it can be useful to simulate expected results.

- e2ctfsim.py allows you to simulate CTF curves for multiple defocuses at once. This can be useful to:

  - Look at the sum of these curves to see what sort of Fourier filling you can expect during reconstruction.

  - Simulate a specific box size and look for aliasing artifacts at high resolution. This can help you assess the maximum safe defocus for a given box-size.

  - Examine tolerance for various amounts of astigmatism without correction.

Sum of 3 defocus curves

Mild Aliasing
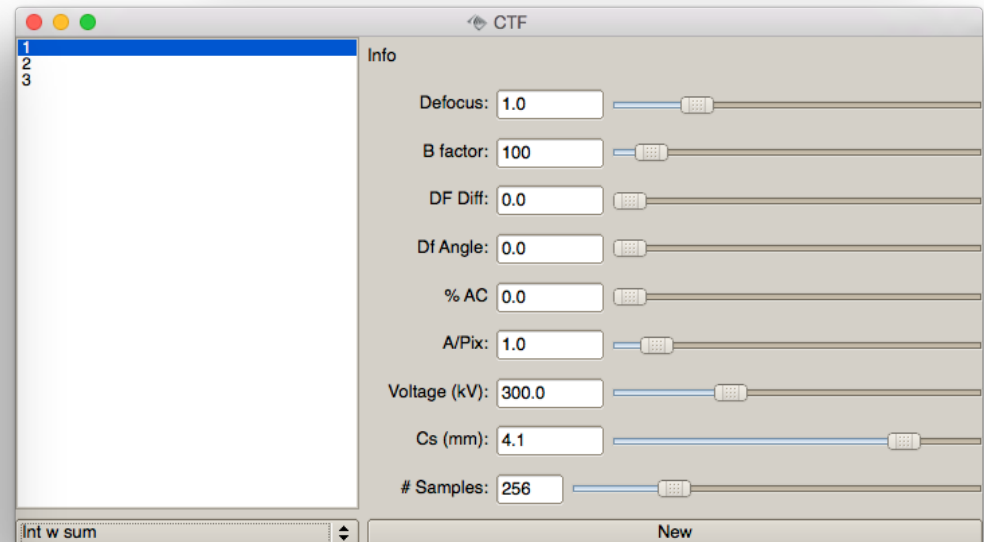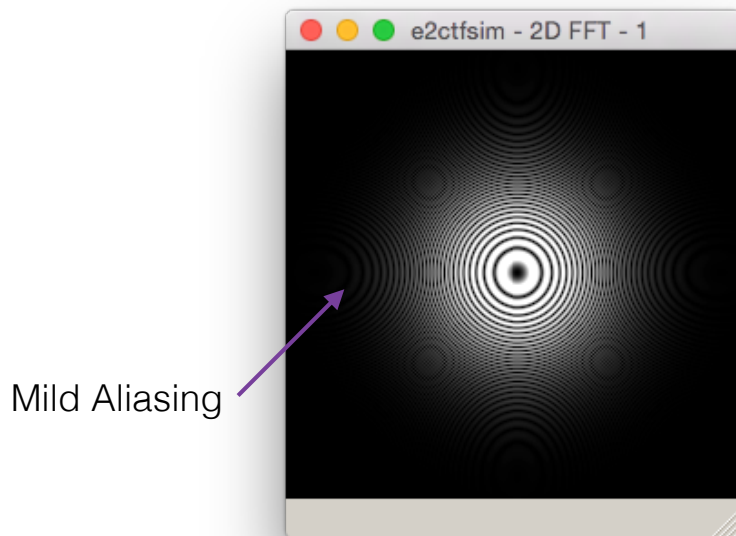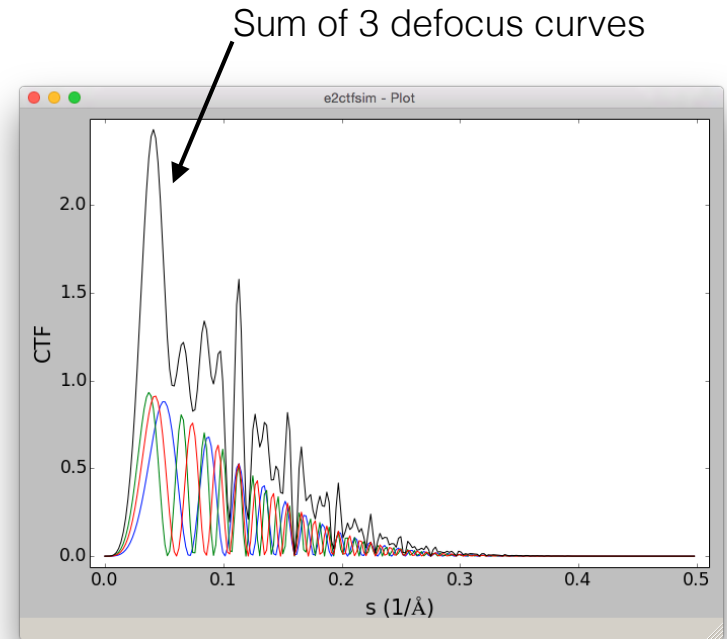
Micrograph Evaluation

- e2evalimage.py provides a tool for interactive assessment of micrographs, and offers a variety of different Fourier assessments and CTF fitting.
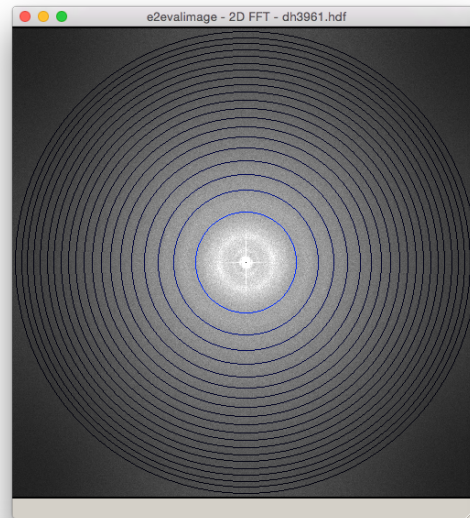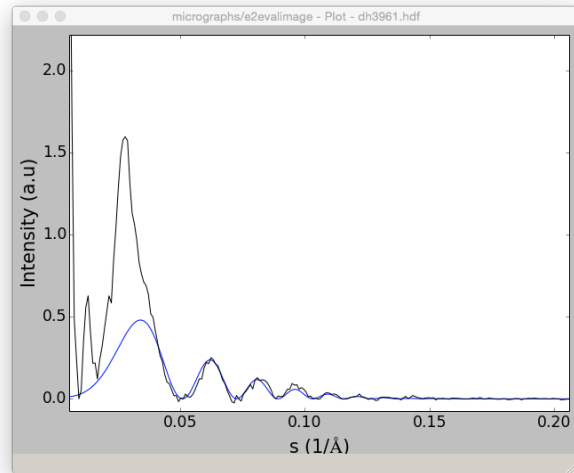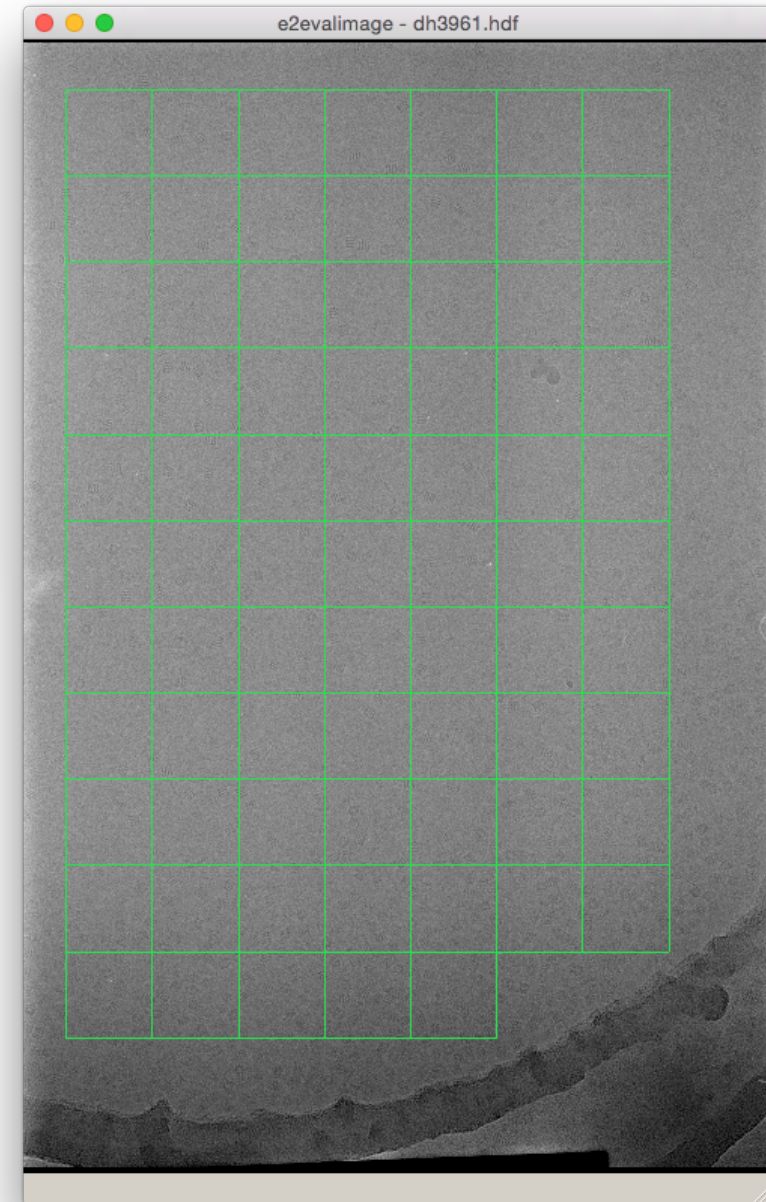
blake.bcm.edu/emanwiki/EMAN2/Programs/e2evalimage