Installing CSI 2.0 in Fiji (For advanced users)

If you are comfortable installing programs on your computer, and know how to deal with security for Java, use these instructions (other see the full install tutorial).

Cornell Spectrum Imager has been upgraded to 2.0! With ImageJ2 compatibility, new 4D-STEM analysis plugins, and numerous bug-fixes this new version of CSI expands your capabilities and will auto-update to make sure you always have the latest version.

Download CSI (bundled with Fiji) once and for all here:
Mac
Windows
If you already have a version of ImageJ2 (e.g. Fiji) you can add CSI by going to Help>Update… then clicking on [Manage update sites], [Add update site], then filling CSI's update site's URL: http://sites.imagej.net/CSI/
However you get CSI, ImageJ2 will be able to check for updates and install them as soon as they are released.

CSI shortcuts can be accessed from the Cornell Spectrum Imager macro toolset available by clicking the >> on the far right of ImageJ.

New plugins

Format EMPAD Data takes the data imported from a Pixel Array Detector and turns it into a cleaned-up, 4D hyperstack. It is currently configured for Cornell's EMPAD, but as new users give feedback on file formatting it will grow to include whatever 4D-STEM data you obtain.

Reslice 4D will take a hyperstack of diffraction patterns and turn it into a hyperstack of real images. (Note: resliced hyperstacks are currently not integrated with 4D Analyzer).

4D Analyzer allows you to easily browse and analyze 4D-STEM data. (Make sure the data is a hyperstack of diffraction patterns!) Selecting regions in the real space image will update the diffraction pattern with the average pattern over the selected region. The slider below the diffraction pattern adjusts the contrast on a log-scale. Similarly, selecting regions in the diffraction pattern will update the real space image with the virtual STEM-image from the corresponding aperture. The real space image is a stack of two images which depend on the selected processing method:
Integration: 1st image is the sum over the aperture (useful for quantification), 2nd image is the average over the aperture (useful if the sum is hitting the bit-depth limit).
Differential phase contrast: 1st image is the difference between the intensity in the right half of the aperture and that in the left, 2nd between top and bottom.
Center of mass: 1st image is the average X-position of the intensities in the aperture, 2nd image is the average Y-position.
Second Moment: 1st image is the average squared distance from the center of the aperture, 2nd is the average intensity over the aperture.