



The Simons Electron Microscopy Center Newsletter



Issue 27

September 2018

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About the Simons Electron Microscopy Center

The [Simons Electron Microscopy Center](#) (SEMC) provides expertise and resources for understanding both molecular and cellular structures. Molecular structure determination is enabled by high-end transmission electron microscopes (TEMs), direct detection cameras, and computational support for single particle analysis.

Cellular structure determination is enabled by tomographic reconstructions using TEMs and a focused ion beam (FIB) scanning electron microscope (SEM). SEMC is

Annual User Re-Certification and User Meeting

It is annual user re-certification time. To maintain your active user status, which allows access to the resources and instrumentation at the center, please fill out the following form by September 20, 2018: [click here](#).

Also, we urge you to attend our annual user meeting.

The annual user meeting will be held September 20, 2017 at 2pm in the SEMC conference room. We will update users on instrumentation, access and policies, and have an open forum for users to provide feedback. For those who cannot attend in person we will broadcast the meeting using a web link. Please contact EMG@NYSBC.ORG for more details.

Extended Image Shift Data Collection on the Krios instruments and other updates

To increase the throughput of data collection we use image shift data collection. Leginon has the ability to minimize the coma introduced during this mode of data collection with image shifts $>12\mu\text{m}$ from the optical axis. From our internal tests we acquire on average an image every $\sim 20\text{s}$ and still achieve sub- 3\AA resolutions for single particle reconstructions. For more conservative data collection users may choose to use the standard $2\text{--}3\mu\text{m}$ image shift, or more moderate $7.5\mu\text{m}$ image shift configurations. This feature is currently available on Krios1 and will be shortly propagated to Krios3. Krios2 has a Cs corrector and an extended range is possible via training the image corrector to minimize both coma and astigmatism.

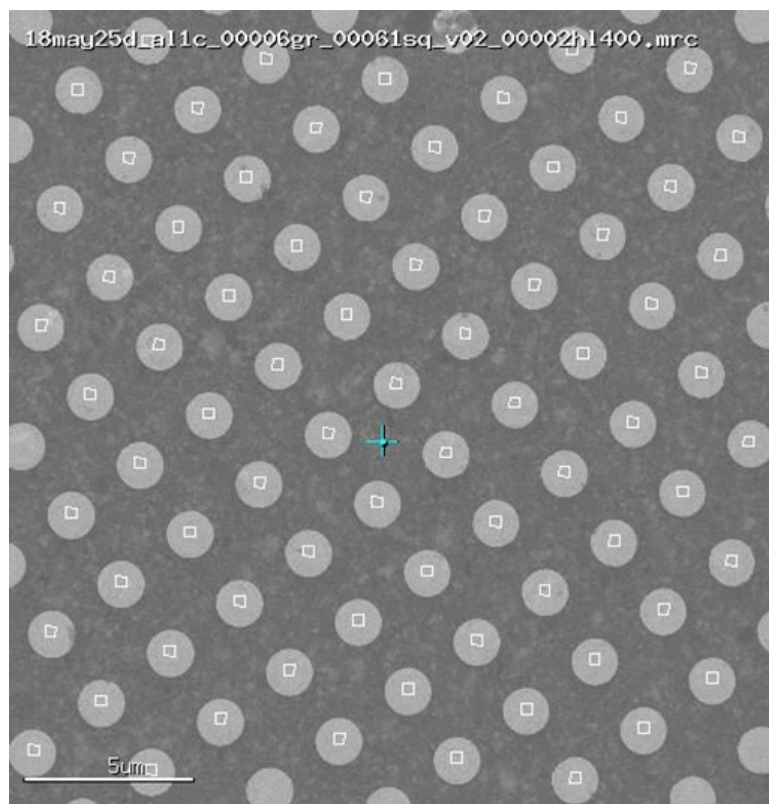
based at the [New York Structural Biology Center](#) (NYSBC) and is supported by dues from member institutions as well as the [Simons Foundation](#).

Quick Links

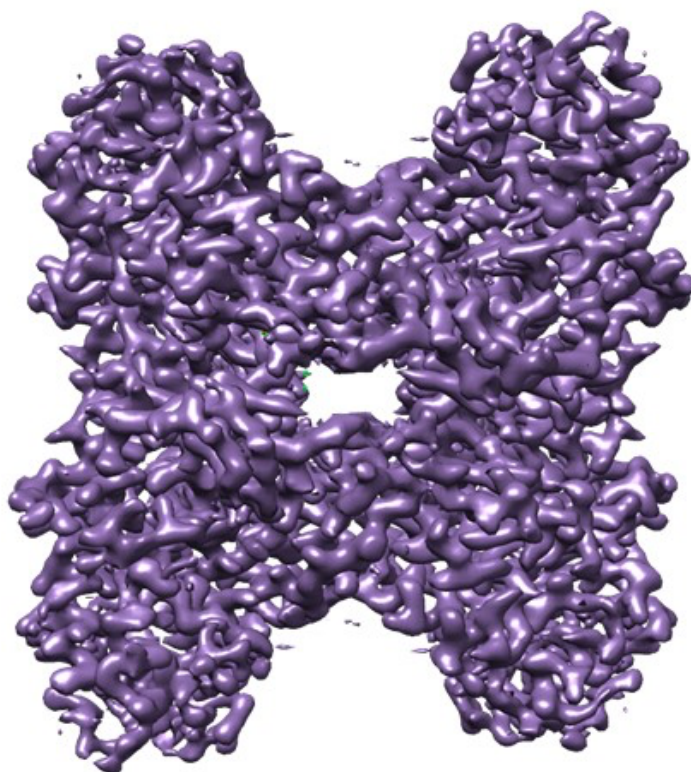
[SEMC Website](#)

[Past SEMC@NYSBC Forums](#)

[Directions to NYIBC](#)



~70 targets available using image shifts.



Aldolase at 2.9Å from images using up to 12.5 µm image shifts. Every year the Leginon/Appion development team adds new features and responds to user feedback to prioritize how best to make use of the center easier.

Appion Part 1: 2D Analysis

September 27, 2018

10am - 3pm

The Appion Part 1 Workshop provides hands-on training for the Appion single-particle data processing workflow. Appion is a "pipeline" for processing and analysis of EM images; it is integrated with Leginon data acquisition, but can also be used stand-alone after uploading images or particle stacks. Topics include analyzing the quality of your data collection, correcting the CTF, generating and cleaning up stacks, and generating 2D class averages. An Appion Part 2 Workshop will be offered in the future to provide training for making initial models and doing 3D reconstructions. To register, follow this link: [click here](#).

The workshop is limited to 10 attendees.

New User Orientation



SIMONS ELECTRON MICROSCOPY WORKSHOP



NEW USER ORIENTATION

August 7th, 2018

L-R: Jing Wang, Ed Eng (group leader), Dea Kurti, Arina Kligman

New users are required to attend a one-day new user orientation session before using the facility. The morning session covers the general laboratory policies and safety training, and the afternoon session includes a demonstration of TEM use and an introduction to Leginon. These sessions are held monthly but

are typically booked up to two months in advance. The next available session is on October 2nd, 2018. If you'd like to attend, please email EMG@NYSBC.ORG.

If you would like to arrange time to outline a training schedule or talk more about your project let us know.

New York Structural Biology Center, 89 Convent Ave, New York, NY 10027-7556

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