

# Quanta Q600F Field Emission SEM Training

People having no previous SEM experience are encouraged to read Chapter 7 in **Electron microscopy** : principles and techniques for biologists / 2nd ed. John J. Bozzola, Lonnie D. Russell (which is available as an ebook) before starting the hands on training. Users are first shown how to generate and save images using the secondary electron detector. This process generally takes 3 sessions lasting 2.5-3 hours each. The basic training outline follows below but can be varied based on individual needs. Training for people having previous SEM experience follows the same basic outline but is accelerated to the extent their experience allows. People can train in groups of up to 3 users from the same group. Training for any of the other detectors (BSE, EDS, EBSD, CL) is done on an as need basis once the user has gained proficiency in operating the Q600 using the secondary electron detector. Billing is based on instrument time used plus instructor contact time.

## Basic training outline

### 1<sup>st</sup> Session:

Instrument orientation, instrument start up, sample insertion using the instructors sample, beam generation, stage movement, basic imaging, sample removal, proper shutdown

### 2<sup>nd</sup> Session:

Review of first session (again using the instructor's sample), safely changing working distance, stigmation, image capture

### 3<sup>rd</sup> Session:

Users may bring their sample for this session if they wish, how to use the Cressington 208HR sputter coater if needed for the user's sample, practice using the Q600 with the instructor present as needed

After the 3<sup>rd</sup> session users should have one or two more practice sessions (depending on operation proficiency) where they operate the Q600 when the instructor is available in case there are any questions or problems. Only instrument time is billed for these sessions unless the instructor needs to help the user and then only instructor contact time is billed. After the last practice sessions users can continue using the Q600 independently during regular business hours. If after hours use is desired a checkout session needs to be scheduled. Checkouts generally take one to two hours and involve having the instructor sit in the room with the student and watch them start up and

operate the instrument, while inspecting their samples, to make sure they are comfortable with its operation.

After the third session users can also request training for any of the other available detectors. EDS generally takes 1.5-2 hours. EBSD takes one 2-3 hour session plus an additional practice session with instructor supervision. BSE and CL imaging generally take less than an hour of training.

## **Refresher training**

People who have not used the microscope for 6 months or longer are required to have refresher training.