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# Focused Ion Beam Quanta 200 3D

The Quanta 200 3D Dual Beam is a combination of two systems: Scanning Electron Microscope (SEM) and Focused Ion Beam (FIB). The combined power of FIB and SEM has opened a new world of 3 dimensional materials characterization, analysis, and manipulation at the nanoscale. It uses an energetic focused beam of ions as a "nano" milling machine and can mill cross sections and patterns to fabricate any desired device structure. The two different sources (electrons and ions) enable high-resolution imaging of the surface structures. The directed energy from electron and ion beams can also be used for patterning, repairing or prototyping using localized chemical vapor deposition (CVD). The ion beam can be used to slice thin lamella from bulk samples, which are then removed using a Omniprobe micromanipulator. The ion beam can then be used to "weld" the lamella to a 3mm grid for detailed analysis by other characterization instruments such as the transmission electron microscopy (TEM).

**Quanta 200 3D Dual Beam basic specifications:**

- 2 – 30 kV electron source
- 5-30 kV Gallium liquid metal ion source
- Maximum specimen dimensions 150 x 100 x 25 mm will allow full stage movements
- Ion beam assisted Platinum deposition
- Ion beam assisted Carbon deposition
- Omniprobe for micro- and nano-manipulation with patterned specimens
- Charge neutralizer for SEM images of nonconductive samples
- Low vacuum and ESEM mode

**Contact: Dr. Yusuf Emirov**
**Cell: 813.390.1652**
**Fax: 813.974.3610**
**http://www.nrec.usf.edu**

**USF College of Engineering**
**4202 East Fowler Avenue NTA102**
**Tampa, Florida 33620-5350**