Dr Neil Young
Manager, David Cockayne Centre

Dr Gareth Hughes
Deputy Manager, FIB Support Scientist,
David Cockayne Centre

Part II Induction
Oxford – 2nd November 2020
- The David Cockayne Centre for Electron Microscopy supports characterisation via SEM, TEM, FIB and related techniques within the Department of Materials.

- The centre acts as a hub for characterisation in the physical sciences across the University of Oxford. It is supported by 3 research support scientists (specialisms in FIB, SEM and a-c STEM respectively), a senior facility manager (also supports TEM users) and an EM technician.

http://www-em.materials.ox.ac.uk
DAVID COCKAYNE CENTRE FOR ELECTRON MICROSCOPY

Neil Young
EM Facility Manager
TEM Support

Ian Griffiths
Research Support Scientist
(Aberration-corrected STEM)

Jennifer Holter
Research Support Scientist (SEM)

Gareth Hughes
Research Support Scientist (FIB)

Graham Wyatt
EM Technician
Equipment available:

**Transmission Electron Microscopy:**
- LaB$_6$ Analytical TEM/STEM with EDX
- 200kV HRTEM with STEM
- Aberration-corrected STEM with EELS and EDX
+ sample preparation facilities for TEM prep...
  mechanical polishing, grinding, Ar ion thinning.

**Scanning Electron Microscopy:**
- Entry level analytical SEM with EDX, EBSD capability
- Intermediate level FE-SEM for imaging and analysis
- High-resolution FE-SEM's with full range of capabilities; STEM, EBSD, EDX, LV
  + sample prep, polishing + coating facilities

http://www-em.materials.ox.ac.uk
Equipment available:

**Focused Ion Beam:**

- In-Situ and Ex-Situ TEM specimen preparation
- Atom probe specimen preparation
- Micro and Nano fabrication
- Patterning
- Analytical FIB-SEM with 3D EDX/EBSD
- Xe Plasma FIB with SIMS and vacuum transfer

http://www-em.materials.ox.ac.uk
Access for PtII Research Projects:

- Many PtII projects will be using EM instrumentation during the year. For some EM will be a major component of the project, others less so.

- Generally students will be supported by members of their research group who are already experienced in EM.

- Each EM theme has a support scientist who will oversee the sign-off of PtII’s on instruments, and add any additional training required, beyond what the research groups will support.

- The facility maintains a suite of EM, FIB and related instrumentation at the main Parks Road site (Holder Building). There are also some SEM facilities at Begbroke.

- All of you will have seen some of these instruments during your practical classes and also the characterisation module.
PtII’s using EM as recorded on Supervisors ‘SF1’ form:

The department has a master spreadsheet of PtII projects, including details of the EM demands:

8 PtII projects listed as ‘Heavy EM usage’ – of which all bar one has in-group training support

11 PtII projects listed as ‘light EM usage’ - of which potentially three do not have in-group training support

14 PtII projects which do not require EM

‘Heavy EM usage projects’ will be given priority access to the equipment. ‘In-group trainers’ will be given additional EM sessions to their current booking allocation in order to provide training. Research groups are the primary support for PtII projects, DCCEM staff will provide additional training if required.

Contact:

For general queries regarding EM training and research support, contact any one of the three EM support scientists, or emaccess@materials.ox.ac.uk

If you have a technical problem or microscope fault, contact em-faults@maillist.ox.ac.uk