UNIVERSITY OF BIRMINGHAM

Electron Microscopy 2024

-Fundamental and Applications-

Syllabus and Timetable

This is an optional (open) electron microscopy module, hosted by Centre for Electron Microscopy at Metallurgy and Materials University of Birmingham.

It is designed as an introduction (fundamental and applications) of electron microscopies and their analyses, mainly for early-stage postgraduate students and scientific research engineers in materials science and engineering. It is aimed 1) to understand imaging in SEM and TEM, 2) to understand electron diffractions and the applications, 3) to understand micro-chemical analyses with electron microscopies, 4) to appreciate applications of FIB, coupled with electron microscopies.

Timetable

April 2024	**22 (Mon)**	**23 (Tue)**	**24 (Wed)**	**25 (Thu)**	**26 (Fri)**
Lecture Room	BIO-E102 **E102**		BIO-NG08 **NG08**		
Venue	University of Birmingham, Edgbaston Campus (Bldg. **R27**)				
Lecturer	Hiroto Kitaguchi	Kan Ma	Iris Carneiro	Mathew Lloyd	Hiroto Kitaguchi
09:00-11:00	Introduction to Materials Characterisation and EM	Introduction to TEM	Introduction of EBSD	Introduction to FIB	X-ray micro-chemical analysis (Fundamental) Quantitative X-ray chemical analysis SEM and TEM X-ray chemical analysis
11:00-13:00	Introduction to SEM SEM imaging technique	Applications of TEM (power of TEM imaging with diffractions)	Applications of EBSD	Applications of FIB (site specific sample preparations and analysis)	
Date/Time (TBC)*	SEM Demo and Tutorial	TEM Tutorial + Lab	EBSD Tutorial + Lab	FIB Tutorial + Lab	SEM and TEM-EDS Demonstration

A coffee break for 15-30 minutes in each morning lecture, as appropriate.

*: Detailed schedules are arranged in due course, depending on the number of potential attendees. It is currently planned after lunch, following the corresponding lecture.