

UIC ELECTRON MICROSCOPY SERVICE INSTRUMENTS

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Site	Microscope	Year	Type	Resolution	Max Mag.	XEDS	EELS	EFTEM	Digital Images
SES	JEOL JXA-733	1984	Microprobe	10nm at 30kV	360,000	Yes & WDS	No	No	No
Microprobe ~1 μ m beam used to generate X-rays; WDS gives better minimum detectability than XEDS.									
SES	JEOL JEM-100CX II	1986	TEM	0.2nm	300,000	No	No	No	No
TEM for teaching, training and specimen checking.									
SES	VG Microscopes HB601UX	1992	STEM	0.144nm BF 0.22nm ADF	20,000,000	No	Yes	No	Yes
Fitted with aberration corrector to get 0.1nm ADF resolution and 0.15nm EELS spectroscopy resolution.									
MSB	JEOL JSM-6320F	1997	SEM	1.2nm at 15kV	650,000	Yes	No	No	Yes
High Resolution and Low Voltage Field Emission SEM. XEDS resolution dependent on sample and accelerating voltage.									
MSB	JEOL JEM-1220	1997	TEM	0.2nm	600,000	No	No	No	Yes
TEM for life science applications									
SES	JEOL JEM-3010	1998	TEM	0.14nm	1,500,000	Yes	No	No	Yes
TEM for materials science applications. XEDS minimum resolution around 5nm. Hot (800°C) and Cold (-170°C) stages available.									
SES	JEOL JEM-2010F	1998	TEM/STEM	0.1nm TEM 0.13nm STEM	1,500,000 10,000,000	Yes	Yes	Yes	Yes
Field Emission TEM/STEM. Highest resolution STEM in the world at 200kV. Former JEOL demonstration site. XEDS spectroscopy and imaging at resolutions down to 0.5nm and EELS spectroscopy and imaging down to 0.2nm resolution. Hot (800°C) and Cold (-170°C) stages available.									
MSB	Hitachi S-3000N	2000	VPSEM	3.5nm HV 5.0nm LV	300,000	Yes	No	No	Yes
Variable Pressure SEM can work in conventional high vacuum and in a range 1-270Pa where non conducting specimens can be imaged without charging. XEDS resolution for spectroscopy and mapping dependent on sample, accelerating voltage and vacuum.									

Micro Spectrometry, Surface Analysis and other High Vacuum Instrumentation

Site	Instrument	Year	Type	Resolution	Imaging	Spectroscopy			Digital Images
SES	Renishaw Ramascope 2000	1997	Raman	1 μ m	Yes	Raman			Yes
Raman Spectroscopy and Mapping for phase identification, strain and thickness determination. Former Renishaw demonstration site.									
SES	Biorad UMA-500/FTS-45		FTIR	1 μ m	Yes	FTIR			Yes
FTIR Spectroscopy and Mapping.									
SES	Kratos AXIS-165	2004	Surface Analysis	X&Y 30 μ m Z 8-10nm	XPS	XPS	ISS		Yes
Fitted with Ar ion gun for depth profiling, typically used with a 300 μ m X,Y resolution.									
SES	Applied EPI Gen II MBE System	2001	Molecular Beam Epitaxy			For growth of extremely thin Oxide films on substrates			
Molecular Beam Epitaxy system for oxide growth									
SES	Omicron VT SPM		Scanning Probe Microscope	X, Y atomic resolution, Z<0.01nm (STM)	AFM/ STM	STM			Yes
Ultra High Vacuum Scanning Probe Microscope.									