## Atomic & Nano Imaging and Microscopes

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JEOL JSM 6701F SEM

Key features of JSM 6701F SEM
• High resolution of secondary electron image (SEI) 1.0 nm at accelerating voltage 15 kV; 2.2 nm at accelerating voltage 1 kV
• High magnification x100 (WD 25 mm) to x650,000 (WD 8 mm)
• Accelerating voltage 0.5 to 30 kV
• Probe current order of $10^{-13}$ to $2 \times 10^{-9}$ A
• Automated electron optics
• Electron gun field emission gun with cold cathode
• Emission current 2, 5, 10, 20 uA; usually 10 uA
• High stability large eucentric specimen stage with motorized control
• X-axis 70 mm; Y-axis 50 mm; Z-axis 25 mm; Rotation 360°; Tilt -5° to +60°
• Liquid N2 cold trap

Key features of Oxford EDS
• X-Max Silicon Drift Detector (SDD)
• Single sensor with 50 mm² large active area
• Liquid N2 free analysis
• Vacuum enclosed sensor
• Motorized slide control
• High speed
• High counts > 500,000 cps
• Throughput > 200,000 cps
• Short analysis time
• High accuracy

Location: N1.2-B5-10
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Key features of JSM 6700F SEM
- High resolution of secondary electron image (SEI) 1.0 nm at accelerating voltage 15 kV; 2.2 nm at accelerating voltage 1 kV
- High magnification x100 (WD 25 mm) to x650,000 (WD 8 mm)
- Accelerating voltage 0.5 to 30 kV
- Backscattered Electron (BSE) mode with a retractable solid state BSE detector
- Scanning Transmission Electron detector (STEM) with resolution better than 1 nm at highest accelerating voltage of 30 kV
- Oxford X-MaxN 80 Energy Dispersive X-ray Analyser (EDS) offering seamless observation and micro-analysis

Key features of Oxford EDS X-MaxN 80
- X-Max Silicon Drift Detector (SDD)
- Single sensor with 80 mm² large active area
- Liquid N₂ free analysis
- Vacuum enclosed sensor
- Motorized slide control
- High speed & high accuracy
- High counts > 500,000 cps
- Throughput > 200,000 cps
- Short analysis time

Location: N1.3-B3-19a
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JEOL JSM 6390LA SEM

Key features of JSM 6390LA SEM

- With HV mode and LV mode
- Equipped with secondary-electron detector and backscattered-electron detector
- Resolution of secondary electron image (SEI) 3.0 nm at accelerating voltage 30 kV; 8.0 nm at accelerating voltage 3 kV; 15.0 nm at accelerating voltage 1 kV
- Magnification x5 (WD 48 mm) to x300,000 (WD 8 mm)
- Automatically corrected for accelerating voltage and WD changes
- Probe current 1 pA to 1 uA
- Fully automatic system control
- Ultimate pressure in gun chamber 0.1 mPa order at HV mode; 1 mPa order at LV mode
- X-axis 80 mm; Y-axis 40 mm; Z-axis 48 mm; Rotation 360°; Tilt -10° to +80°
- Specimen holder 10 mm diameter x 10 mmH and 32 mm diameter x 10 mmH

Location: N1.2-B5-10
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JEOL JEM 3010 TEM

Key features of JEM 3010 TEM
• Accelerating Voltage 300 kV
• Magnification 4000x to 1200000x
• Electron gun LaB6 filament
• With condenser aperture, objective aperture and field limiting aperture
• OL polepiece HRP
• Polepiece lattice resolution 0.143 nm; point resolution 0.19 nm
• With 5 spot sizes and 3 $\alpha$ angles
• With Gatan Orius832 CCD camera
JEOL JEM 2100PLUS TEM

Key features of JEM 2100PLUS TEM

• Accelerating Voltage 200 kV
• Magnification 30x to 1500000x
• Electron gun LaB6 filament
• With condenser aperture, objective aperture and field limiting aperture
• Polepiece lattice resolution 0.14 nm; point resolution 0.23 nm
• With 5 spot sizes and 3 α angles
• With BF and DF STEM
• With Gatan RIO camera

Location: N1.2-B5-10
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Bruker ICON2-SYS AFM

Key features of Bruker ICON AFM
• With an anti-vibration hood installed
• Operating modes: Contact mode, Tapping mode and Force mode
• Scan Axes: X&Y 100 μm; Z >10 μm sensored travel

Location: N1.2-B5-10
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Asylum Research MFP-3D AFM

**Key features of MFP-3D AFM**

- Mounted onto a baseplate with XY scanner which sits on an inverted optical microscope frame
- With an anti-vibration hood installed
- Operating modes: Contact mode, AC mode and Force mode
- Scan Axes: X&Y 90 μm travel; Z >15 μm sensored travel
Zeiss LSM 800 Confocal Microscope

Key features of Zeiss LSM 800 Confocal Microscope

- Four Diode Lasers with 405/488/561/640nm
- Two high sensitive Gallium arsenide phosphide (GaAsP) detectors and one Airyscan detector for super-resolution.
- Airyscan detector increases lateral resolution of an image by 1.4 folds without any software post-processing, and also increases sensitivity of detection.
- Scanning speed: Up to 8 fps with 512x512 pixels
- Objectives: 5X, 10X, 20X, 40X, 63X, 100X
- Motorised stage with Z section scanning (100-200um), Z1 has a 10nm step size with +/- 10nm repeatability
- Live-cell stage equipment with incubation chambers & good environmental control
- Fluorescence Energy Transfer (FRET), Recovery After Photo bleaching (FRAP)
- Stitching ability for photo montages

Location: N1.3-B3-19b
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KRUSS DSA25 Contact Angle Analyzer

Key features of KRUSS DSA Contact Angle Analyzer
- Measuring contact angle
- Measuring surface and interfacial tensions
- Measuring wettability and absorption
- Computer controlled syringe pump
- Computer controlled lighting
- Adjustable specimen stage

Location: N1.2-B5-10
Contact email: WangXJ@ntu.edu.sg

ZEISS Axiovert 200M Fluorescence Microscope

Key features of ZEISS Axiovert 200M Fluorescence Microscope
- RGB
- 10x; 20x; 40x; 100x oil lens
- AxioVision Software

Location: N1.2-B2-13
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