NANO
Research Infrastructure

| **Scanning Electron Microscopy (SEM)** | **Category:**<br>**C. Particle Characterisation in and ex-situ**<br><br>**Institute:** **Uppsala University (UU)**<br>**Location:** **Ångström Laboratory**<br>**Lägerhyddsv. 1, Uppsala, Sweden**<br>**Contact Details of Technology Expert:**<br>**Fredric Ericson**<br>**Phone:** **+46 (0)18 471 3090**<br>**Fax:** **+46 (0)18 471 3380**<br>**E-mail:** **fredric.ericson@angstrom.uu.se** |
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**Short Technology Description**

The Ångström Microstructure Laboratory (MSL) offers four different SEM instruments, including one Dual beam FIB/SEM (focused ion beam) system. Most instruments are equipped with FEG sources and EDS units (energy dispersive spectroscopy) for element analysis, thus providing excellent conditions for high-quality imaging and analysis. The ESEM (environmental SEM) can handle biological and other samples not compatible with high vacuum operation. It is also useful for non-conducting samples, as charge build-up can be avoided. In the FIB system the sample under investigation can be in-situ structured by an ion-beam, which e.g. makes it possible to select a specific site for etching and cross section analysis. The FIB is also used for TEM sample preparation. A cryo-stage attached to the FIB system allows freezing with liquid nitrogen and subsequent imaging and structuring of e.g. biological samples.

**Main Features (Equipment Capabilities):**

*Zeiss / LEO 1550 SEM*

- FEG
- EDS
- Resolution 1 nm

*Zeiss / LEO 440 SEM*

- $LaB_6$ filament
- EDS

*FEI XL30 ESEM*

- Low vacuum operation
- FEG
- Heating / cooling stages

*FEI Strata DB235 FIB/SEM*

- Ion-beam (Ga)
- Gas injector systems, Pt, Si-ox deposition and enhanced etch
- FEG
- EDS
- Cryo-stage

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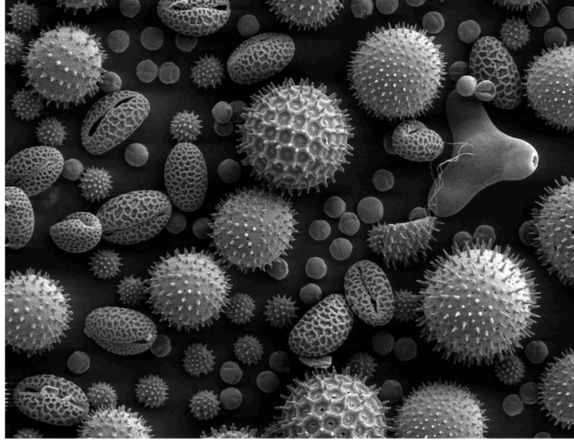
**Typical Samples & Images:**



*Any further Information*: