Centre for Nuclear Safety

Hot microscopy laboratory

Material characterisation from macro-structures down to micro- and nano-scale structures
Microscopy is an essential part of failure analysis, and materials characterisation is essential for creating the understanding that underpins safety assurance.

Services

Our offering:

- Determination of crack initiation site and fracture mode, crack growth, microstructure, secondary phases, crack path in the microstructure
- Determination of microstructural metrics: grain size and texture, second phase population distributions, compositional mapping
- High-resolution compositional mapping intra- and inter-grain features
- Investigations of microstructural features at nano-scale
- Determination of radiation-induced defects in materials
- Microscopy specimen preparation, from light microscopy cross-sections to FIB lift-outs for TEM, from metals to ceramics, concrete and polymers

Facilities

Analytical scanning electron microscope
- Zeiss Crossbeam 540 FIB/FEG-SEM with EDAX Trident system (EDS/EBSD/WDS)

Analytical scanning/transmission electron microscope – (S)TEM
- FEI Talos™ F200X FEG (S)TEM with Bruker/FEI Super-X EDS analyzer
- Gatan Enfinium SE/976 EELS for chemical and compositional analysis

Sample preparation equipment:
- Automatic polishing device
- Electrolytic polishing device
- Standard rotary grinding/polishing devices
- Focused Ion Beam (FIB)
- Hot Cells for irradiated samples
- Optical and digital stereo microscopes
- Hot and cold mounting
- Carbon and gold sputter coating

Get in touch with us:
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