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Instrumentation & Methods

- Atomic Force Microscopy (AFM)
- Focused Ion Beam (FIB)
- Infrared and Raman Microspectrometry
- Scanning Electron Microscopy (SEM)
- Environmental SEM (ESEM)
- Transmission Electron Microscopy (TEM)
- X-Ray Diffraction (XRD)
- High-End Sample Preparation

Austrian Centre for Electron Microscopy and Nanoanalysis

Verein zur Förderung der Elektronenmikroskopie und Feinstrukturforschung

Institute of Electron Microscopy and Nanoanalysis

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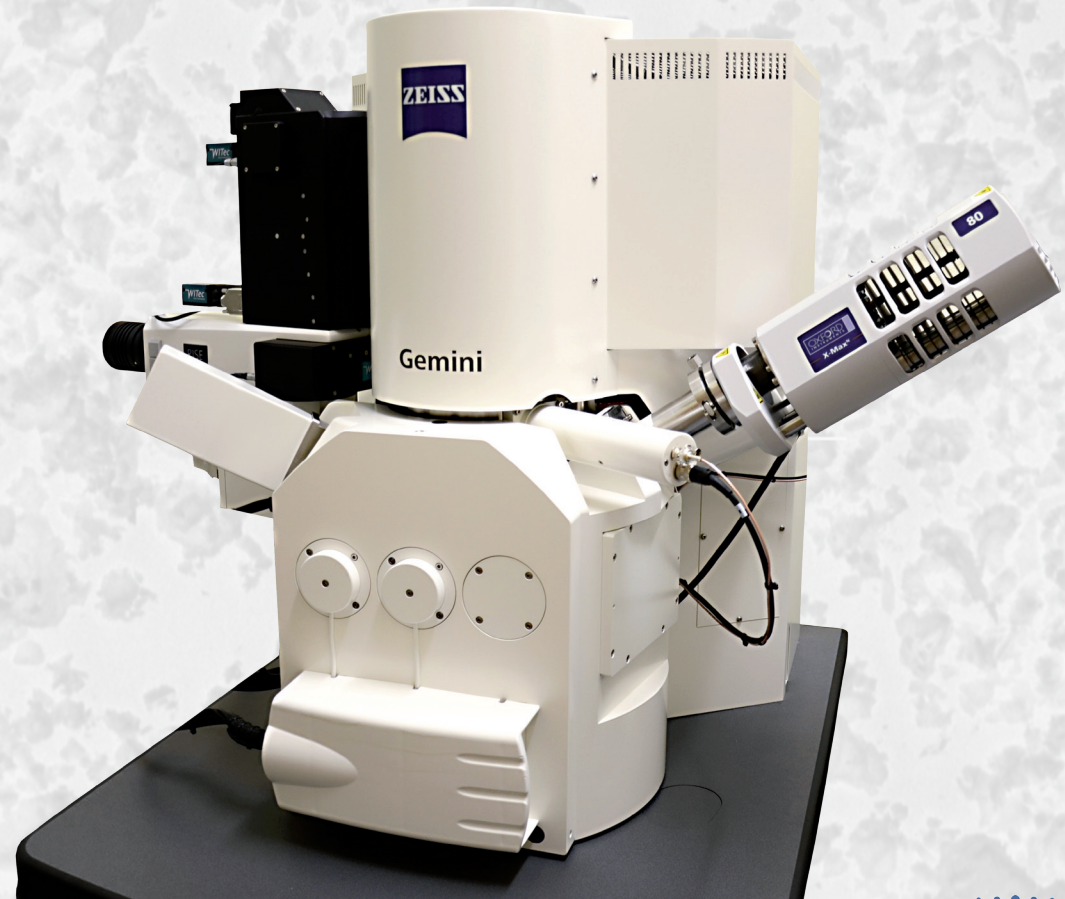
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Zentrum für Elektronenmikroskopie Graz

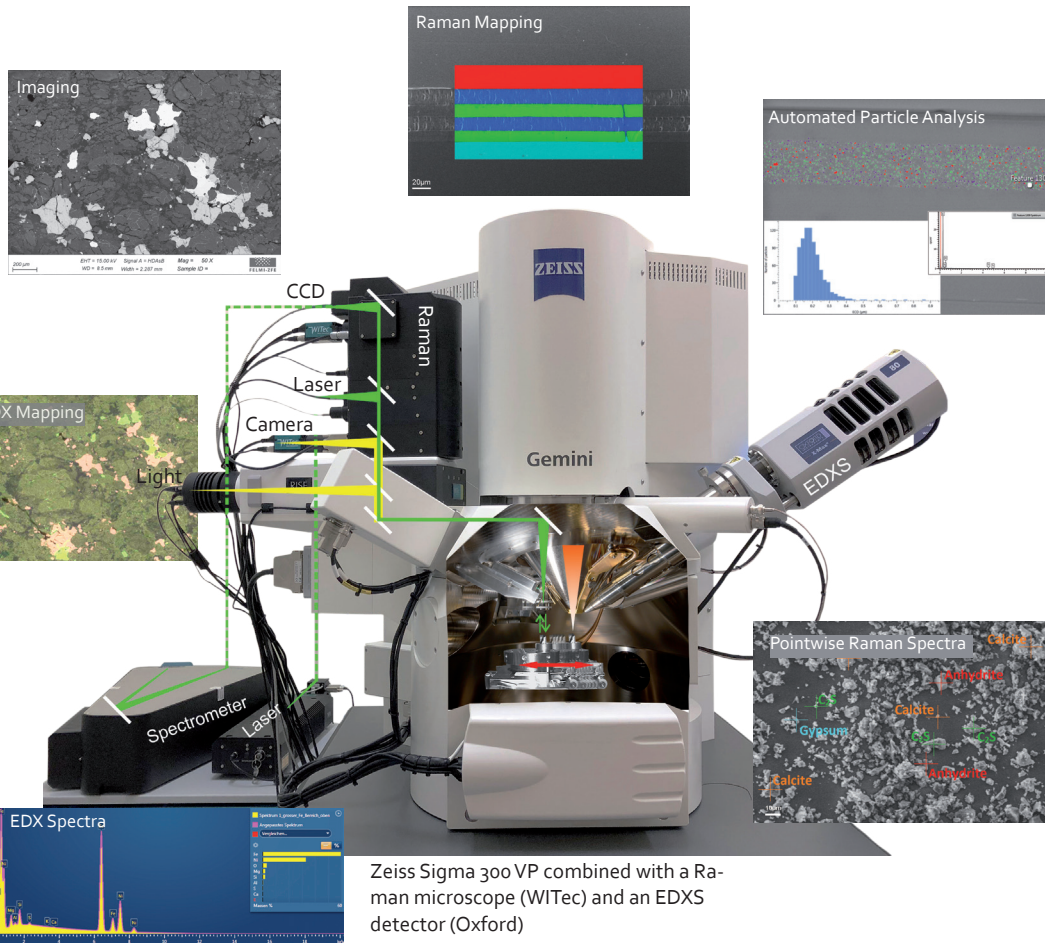
RISE & EDXS

Raman Imaging and Scanning Electron Microscopy
& Energy Dispersive X-Ray Spectroscopy

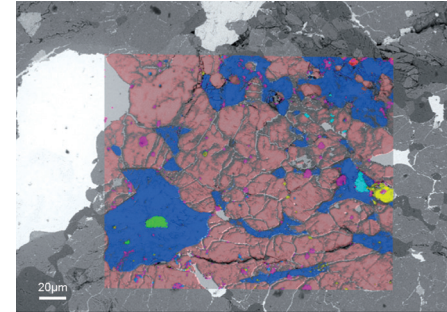


Methods

- High Resolution SEM Imaging
- Low Voltage SEM Imaging
- Variable Pressure SEM Imaging
- Raman Microscopy
- Raman Mapping
- Energy Dispersive X-Ray Spectroscopy (EDXS)
- EDXS Mapping
- Automated Particle Analysis with EDXS
- Large Area Mapping (LAM) with EDXS



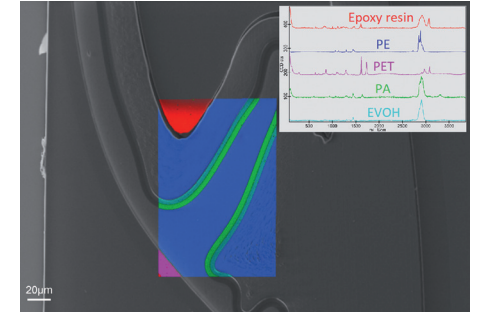
Phase Distribution in Inorganic Specimen



Raman map of the cross section of a meteorite

While imaging with backscattered electrons shows compositional contrast, Raman mapping gives chemical information.

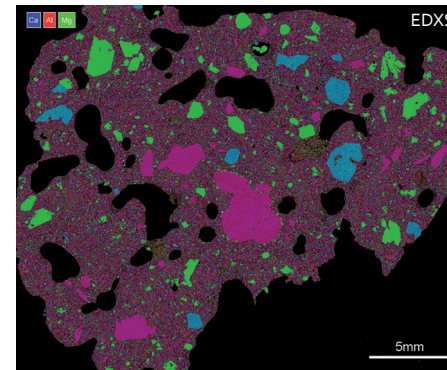
Raman Mapping of Organic Specimen



Raman map of the cross section of a polymer specimen

The correlation of SEM images with Raman maps allows to combine morphological information with chemical analysis.

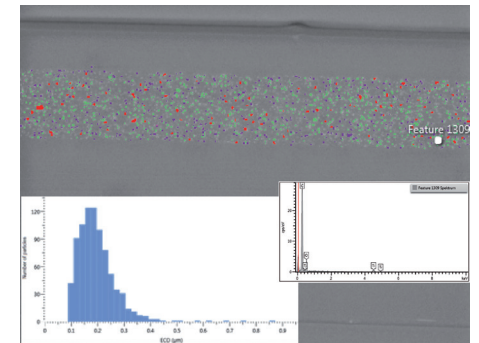
Large Area EDXS Mapping of a Mineral Specimen



Cross Section of a volcanic rock

Large Area Mapping enables elemental analysis on surfaces of many square millimeters. Different colours indicate different elements in the material.

Chemical Analysis and Size Distribution of Particles



Automated particle analysis of rutile particles

It enables the automated measurement of number, diameter and elemental properties of heterogeneities, especially particles, in the matrix of a specimen.