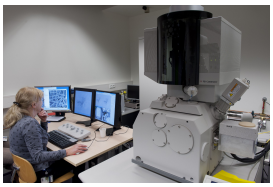
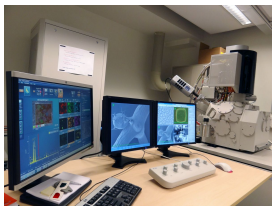
Ultra high resolution (cryo-) SEM

https://search.researchequipment.wur.nl/SearchDetail.aspx?deviceid=ad479873-7347-47fd-ad9f-9a700f17ab7d





Brand

Fei

Type

Magellan

Contact

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Organisation

Plant Sciences Group

Department

Wageningen Electron Microscopy Centre

Description

Scanning Electron Microscopy (SEM) has many applications across a multitude of industry sectors. It produces extremely high magnification images (up to 1.000.000x) with sub-nanometer resolution. This SEM produces extreme-high-resolution 3-dimensional images of topography and morphology. Combined with energy-dispersive X-ray spectroscopy (EDX) it can generate localised chemical information. The cryo-setup enables to image fully hydrated samples with this technology. Therefore, the CAT-AgroFood SEM is a powerful and flexible tool for studying a very broad range of materials and products.
Wageningen Electron Microscopy Center
The Scanning Electron Microscope and sample preparation facilities are embedded in the Wageningen Electron Microscopy Center (WEMC). WEMC provides technical support, training and consultation in the area of electron microscopy and elemental analysis. CAT-AgroFood and WEMC jointly provide access to advanced electron microscopes and relevant expertise for biological, food and non-biological science research. In addition to UHR-(cryo-)SEM, HR-(cryo-)Transmission Electron Microscopy (TEM) and routine TEM are available as well.

Technical Details

FEI Magellan 400

• Ultra high resolution field emission scanning electron microscope (FESEM)
• Leica VCT100 cryotransfer system
• Leica cryoMED020 cryopreparation unit
• Oxford Aztec EDX
• In-lens SE and BSE detection
• "Under" lens SE and BSE detection

Applications

UHR-(cryo-)SEM may assist in a wide range of research applications where high-resolution surface characterization is needed in the areas of life sciences, food science, nanotechnology, material science, forensic analysis, metallurgy, semiconductors, environmental studies and many more.

Complementary Techniques

Sample preparation facilities
State-of-the-art facilities for sample preparation are available, among which:
• Sputter coating and carbon coating
• Critical point dryer
Especially for cryo-samples:
• Plunge freezing
• High pressure freezing
• Freeze substitution
• Cryo-ultramicrotomes