



University
of Basel

Swiss Nanoscience Institute

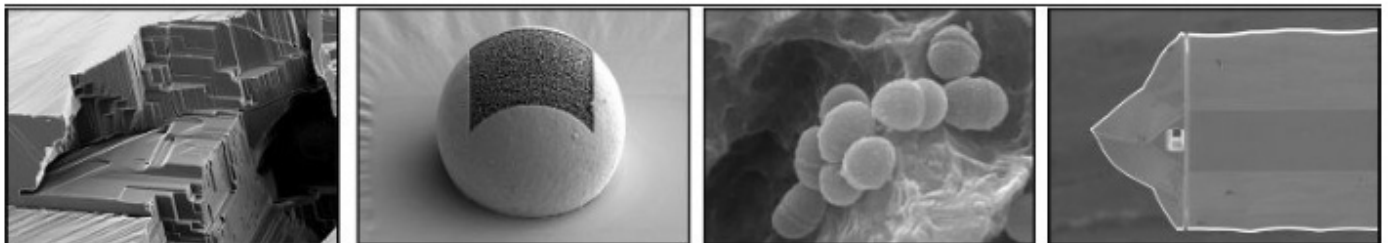


Swiss Nanoscience Institute
Exzellenzzentrum
der Universität Basel und
des Kantons Aargau

NANO IMAGING LAB

Newsletter

October 17, 2023

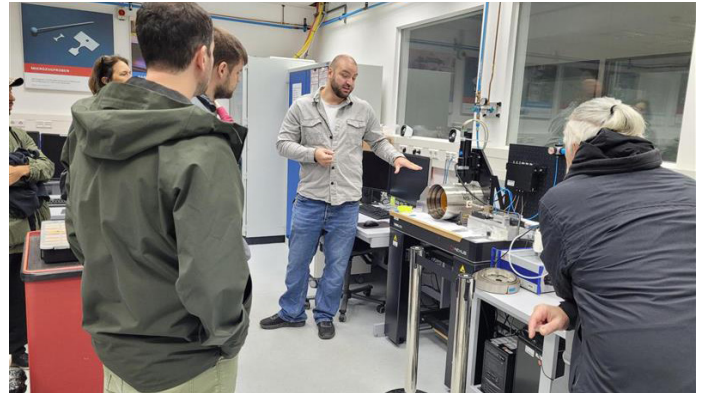


Nano Imaging Labs excursion trip

In order to cultivate the very valuable relations to German scientific institutions, the seven members of the Nanoimaging Lab undertook a lab excursion on August 29 to Freiburg im Breisgau. The first destination was the Fraunhofer Institute for Applied Solid State Physics (IAF) and for Mechanics of Materials (IWM). Being well connected to Dr. Simon Philipp, who did his doctorate in the Poggio Lab in Basel, it was possible to get a tour around the labs and gain valuable insights into material characterisation, component testing, failure analysis, fault diagnostics, microstructure



analysis and tribology at the IWM. Dr. Jan Jeske, group leader of quantum magnetometry, then showed us the measurement set-ups of NV magnetometry at the IAF. A future scientific collaboration is planned between IAF, IWM and the Nano Imaging Lab (SNI), in which the influence of mechanical stress on magnetic nanostructures will be investigated.



After lunch the good tempered team went on to pay a visit to the Staatliches Weinbau Institut (WBI) at Blankenhornsberg. Here they met Dr. René Fuchs, with whom there already exists a long lasting collaboration within the interregional project Wivitis (former Vitifutur). The aim of the project is to strengthen cross-border cooperation between science and viticulture practice in order to increase the sustainability of viticulture in the Upper Rhine region and to adapt to climate change and the associated increase in extreme weather events. The project idea is to provide new ecosystem tools to make viticulture in the Upper Rhine region sustainable and fit for the future. This project idea can be realised through coordinated cross-border research and development work. To this end, a network of wine research institutes in cooperation with viticulture experts on both sides of the Rhine is conducting a three-year study on a selection of climate-resistant grape varieties that will benefit winegrowers in the border region who are already suffering the economic consequences of climate change. In this trinational research project (Interreg Oberrhein), the Nano Imaging Lab is responsible for cryo-SEM measurements.



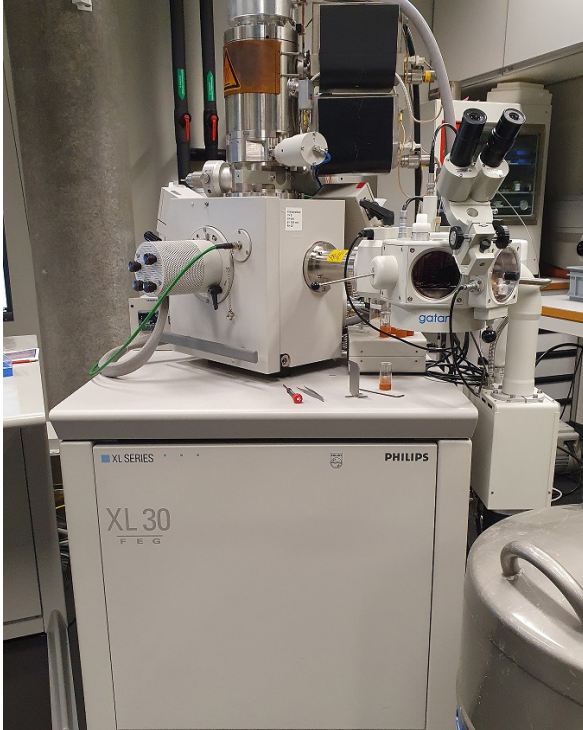
The group took a pleasant tour around the vineyard and learned all about this very special place and the challenges of winegrowing today. Afterwards there was the chance to deepen the relationship even more by tasting some of the WBI's high quality wines, which René gladly served and

explained. At the end of the day everybody has enjoyed each others company very much and looks forward to next years group activity.



ESEM Cryo-SEM

The cryo-SEM measurements for the Wivitis project are taken with the ESEM XL30 from Philips. The application of this machine is perfect for biological samples, that are difficult to fix and dry. The samples are nearly free of material artefacts and result in really nice and crisp pictures. Additionally the XL30 is equipped for element analysis.



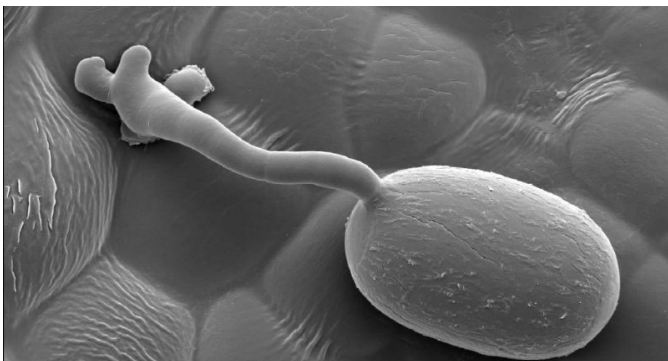
ESEM XL30 from Philips

Technical specifications:

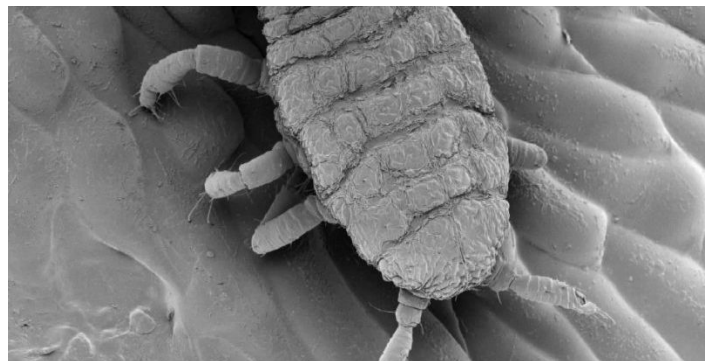
- Field emission scanning electron microscope including a cryo unit from Gatan
- resolution of the electron beam at 30kV is 20nm

Detectors and micro analysis:

- Secondary electron detector (Everhard-Thornley-Detector, ETD)
- Back scattered electron detector (BSED)
- Gas secondary electron detector (GSED)
- Electron dispersive X-ray spectroscopy (EDX)



Downy mildew



Vine louse

Copyright © 2023 Nano Imaging Lab, All rights reserved.

<http://nanoimaging.unibas.ch>

[unsubscribe](#) | [view in browser](#)

