

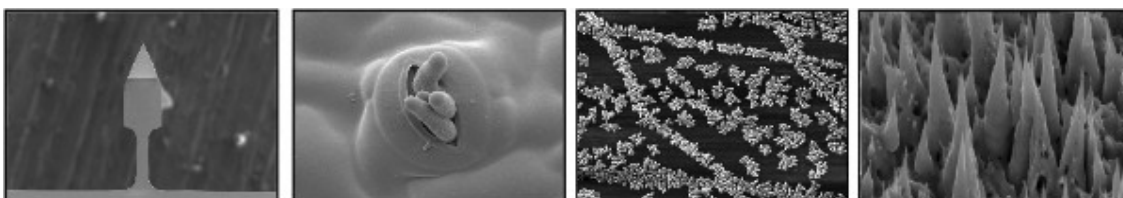
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NANO IMAGING LAB

Newsletter

VOLUME I, January 14th, 2019



Nano Image Award 2018

The first prize of the Nano Image Award 2018 of the SNI, which took place in November, went to Daniel Mathys from the Nano Imaging Lab. Congratulations !



The beauty of Catalysis: Catalyst for the production of Maleic anhydrid

Leica TXP Target Surfacing System new at the Nano Imaging Lab



The Leica EM TXP is a unique target preparation device especially developed for cutting and polishing samples prior to examination by SEM, TEM and LM techniques. It excels with challenging specimens where pinpointing and preparing barely visible targets becomes easy. Before sawing, milling, grinding and polishing exactly

to the target was often a very time-consuming and difficult procedure as points of interest were easily missed and specimens often difficult to handle due to their small size. With the Leica EM TXP such samples can easily be prepared. Furthermore, due to its versatility, the EM TXP is a very efficient tool for sample pre-preparation prior to ion beam milling and ultramicrotomy.

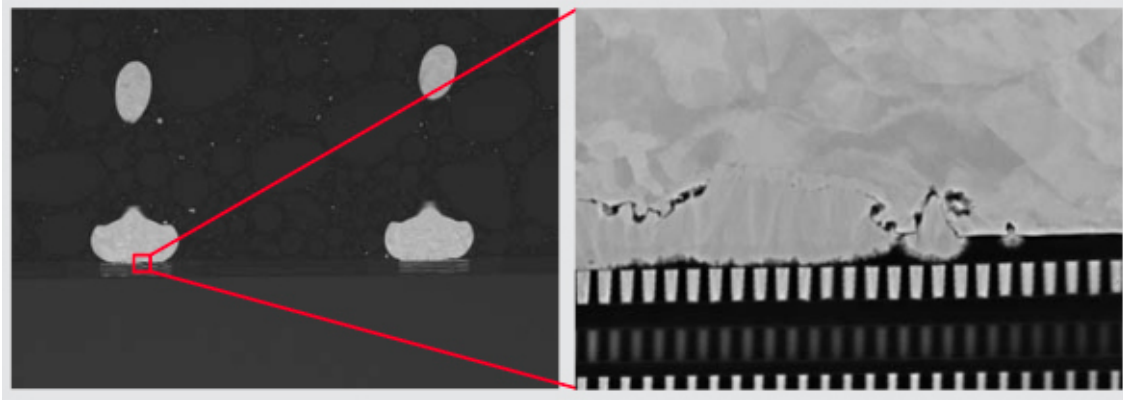
Process Possibilities

Once the sample is clamped into the specimen holder and inserted in the pivot arm, the specimen can be:

- milled
- sawn
- drilled
- ground
- and polished



without removing the sample from the Leica EM TXP and simply changing the tools while observing the process directly through the stereomicroscope. The tool and sample are enclosed within a protective chamber with a transparent cover for safety. This prevents access to moving parts and avoids particulate matter escaping. During milling a low-noise extraction and filtration unit with a Hepa filter (optional) provides a safe, dust-free environment.



High surface quality within a few hours. The user interaction time of the complete process is around 20 minutes using the Leica EM TXP prior to EM TIC 3X.

Our TEM CM100 will be replaced in 2019

The effort of applying for R'equip support last year has been worthwhile: the Nano Imaging Lab has been assigned a 50% support (maximum rate) by the SNF program to buy a new TEM. The other half will be provided by the University of Basel and the Swiss Nanoscience Institute.

The new TEM, which will replace our 22 years old CM100 Bio Twin, will be dedicated to material sciences and serve at least the 8 projects, which are listed in the R'Equip application.

The ideal instrument should fulfill the following features:

- 200 kV field emission gun
- Short or intermediate distance of polepieces (less tilt angle, higher resolving performance)
- STEM attachment
- EDX analytics
- Electron Energy Loss Spectrometer (EELS; optional)
- Cryo-stage (optional)
- Electron Backscatter Diffraction detector (EBSD; optional)

It would be a complementary equipment in the Basel area, because all instruments available at the University are dedicated to life science, performing tilt series with frozen hydrated specimen.

If we combine the newly introduced freeze-drying preparation method with this state of the art TEM, the Nano Imaging Lab will be able to comply with all needs, from nanoparticle analysis to quantum computing development.

We will discuss with the three major suppliers Thermo FEI, Hitachi and Jeol, to find the most suitable machine and of course the best offer.

Announcement of the Nano Imaging User Event 2019

This year we will repeat our successful User Event from 2017. It will take place on June 13th, 2019 from 16:00 to 18:00 o'clock in the Alte Universität (Rheinsprung 9), integrated into the Conference [Nanosciencefocus: Imaging](#), which is hosted by the SNI.

Again you will hear interesting essays about projects, that have been realized with the facilities of the Nano Imaging Lab. You will learn about applications of Electron Microscopy, EDX, FIB, AFM, ...in latest research projects. Furthermore future plans will be presented. Please mark your calender and take part in this very beneficial meeting for free, that will give users of the NI Lab the opportunity to get involved with each other and discuss their projects and ideas. An official invitation with the list of speakers will follow.

User Event 2019 of SNI's Nano Imaging Lab:

June 13th, 2019
16:00 til 18:00
Alte Universität Basel



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