



University
of Basel

Swiss Nanoscience Institute

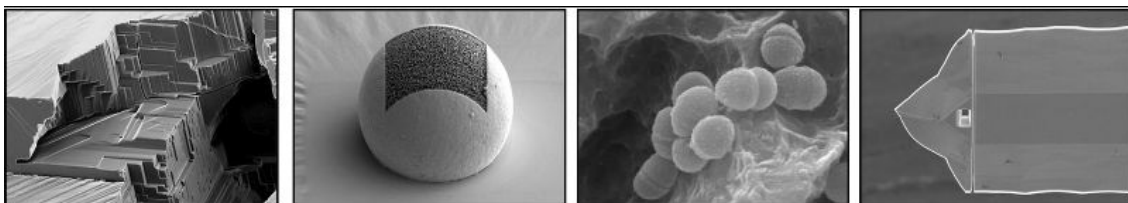


Swiss Nanoscience Institute
Exzellenzzentrum
der Universität Basel und
des Kantons Aargau

NANO IMAGING LAB

Newsletter

4. October, 2022



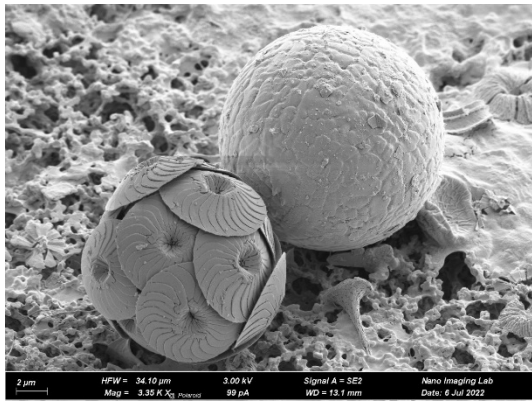
Introduction of our new GeminiSEM 450 from ZEISS



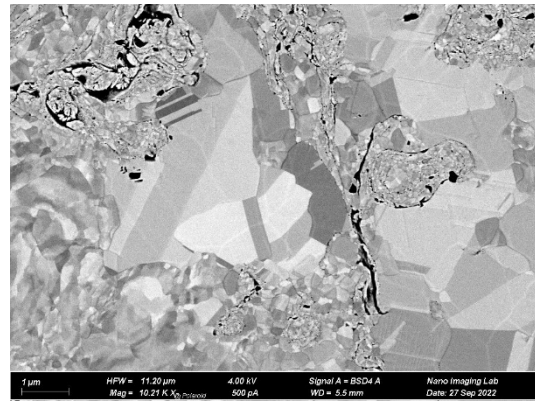
Today we introduce you to the latest addition to the infrastructure of our excellence center: the GeminiSEM 450 with its Gemini2 column from ZEISS.

This device has a Schottky field emitter and with its eight detectors it offers a broad spectrum of high resolution illustration and analytics:

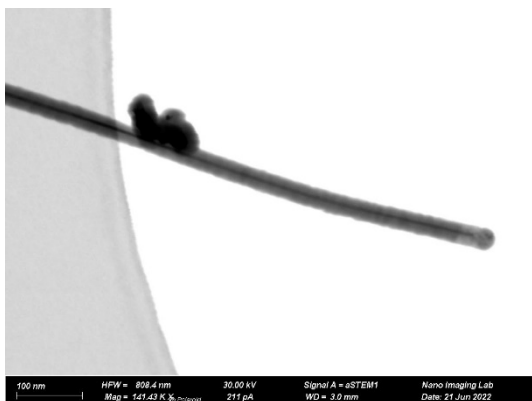
1. InLens SE detector
2. SE2 detector (Everhardt-Thornley-Detector)
3. nanoVPN detector (various pressure) for non coated samples
4. EsB (Energy selective BS detector)
5. aSTEM detector
6. aBSDetector (angular, 6 channels), combined with 3-D-surface modelling software
7. Octane Elite Detector from EDAX with APEX software for EDX-analysis
8. EBSD Camera for crystal analysis with APEX software



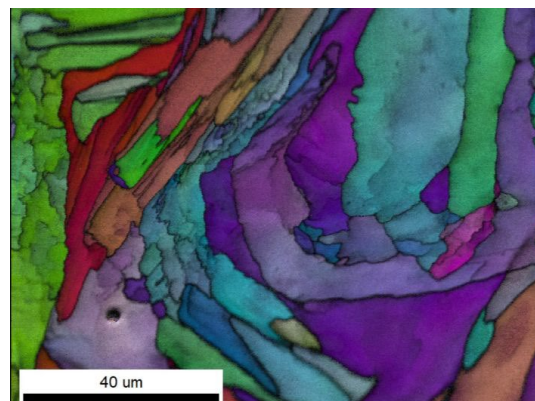
1. SE2 detector: phytoplankton



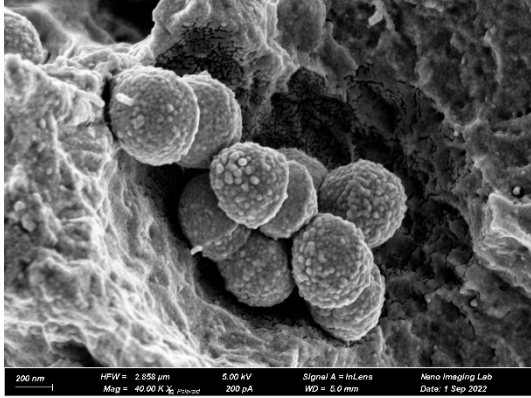
2. aBSD detector: metal



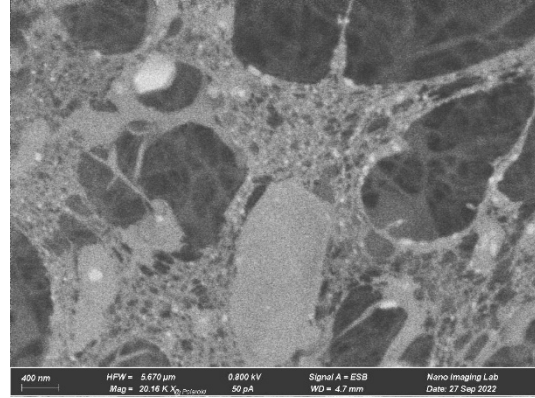
3. aSTEM detector: nanowire



4. EBSD pattern of a metal alloy



5. InLens SE detector: bacteria



6. EsB detector: non sputtered hydrogel

Expansion of the range of materials for focused ion and electron beam induced deposition (FEBID/FIBID)

In December this year, our FEI Helios NanoLab 650 will be expanded with a gold gas injection system (GIS) for focused ion and electron beam induced deposition (FEBID/FIBID). To increase the conductivity of the deposited gold, a second needle is used to supply oxygen during the deposition. Oxygen radicals bind carbon and thus increase the purity of the deposited gold. The following materials can already be used for nano patterning at the present time: Platinum (Pt) and tungsten (W) as conductive materials, carbon (C) as an insulating and cobalt (Co) as a magnetic material. Figure 1 (a) shows an extended GIS needle, which is about 150 μm above the sample. (b) shows a cantilever on which cobalt was deposited at the tip. The tip can now be used for magnetic force microscopy (MFM). (c) also shows a sharp tip at the end of cantilever. Here, platinum was deposited to improve the original spatial resolution of the tip.

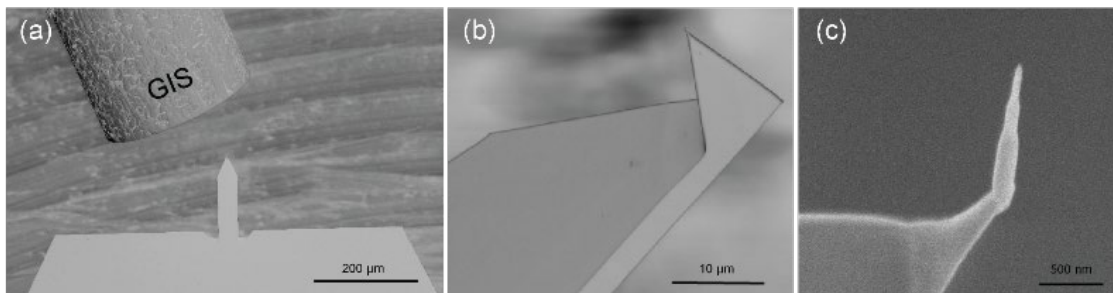


Figure 1: a) - c) Secondary electron (SE) images taken with the FEI Helios NanoLab 650.

Copyright © 2022 Nano Imaging Lab, All rights reserved.

<http://nanoimaging.unibas.ch>

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

