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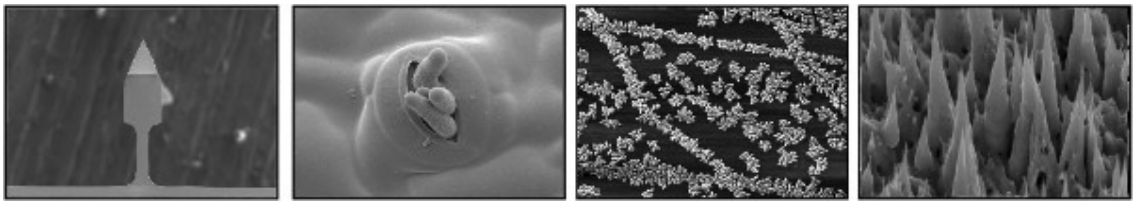
University of Basel
Swiss Nanoscience Institute

SNI SWISS NANOSCIENCE INSTITUTE
EINE INITIATIVE DER UNIVERSITÄT BASEL UND DES KANTONS AARGAU

NANO IMAGING LAB

Newsletter

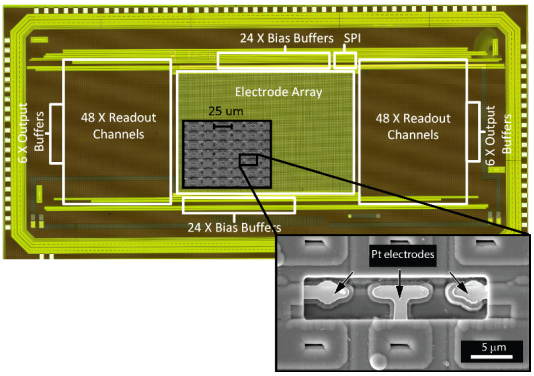
VOLUME III, July 9th, 2019

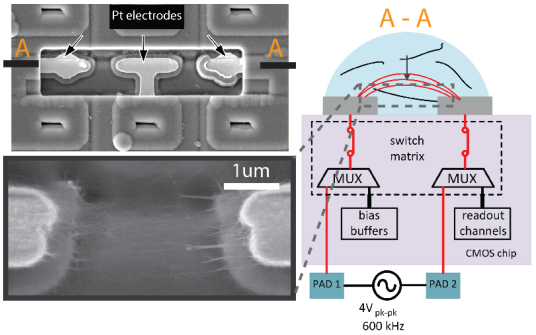


User Event 2019

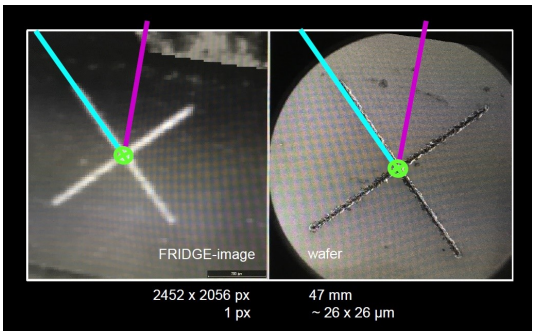
On June 13th 2019 about forty users and interested colleagues of the Nano Imaging Lab followed their invitation to the second user meeting and gathered in the Neuer Hörsaal 1 of the Physics Department, University of Basel. Already the last very successful user event showed how valuable this informative meeting is to all users. The diversity of their service, elucidated by the six scientific talks, inspired the participants to have new ideas and exchange information.

The first speaker **Alexandra Dudina** from Department of Biosystems Science and Engineering, ETH Zürich talked about the effects of integrating Carbon nanotubes on CMOS chips and the application of such a device as a sensor. (see abstract Dudina)





Claudia Mignani from the Department of Environmental Sciences took us to the world of ice nucleating particles in clouds and showed how she collected and analysed her samples.



Using the Helios Scanning Electron Microscope she investigated the particles morphologically and in their elemental composition by EDX-analysis. The Maps 2.1 software helped her to localize predestinated particles on her wafers (see abstract Mignani).

David Indolese from the Department of Physics explained how he fabricated graphene based nanoelectronics by creating stacks of different van der Waals materials such as hexagonal Boronitride and graphene. (see abstract Indolese).

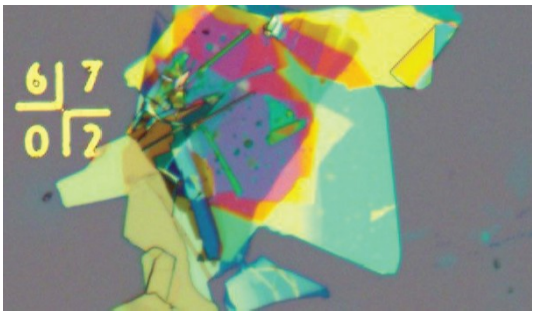


Fig.: Graphene-hBN stack. Marker size 30 µm.

Natasha Tomm from the Department of Physics, showed how she characterized microcraters for Cavity Quantum Electrodynamics Systems with the Keyence Laser Scanning Microscope (see abstract Tomm).

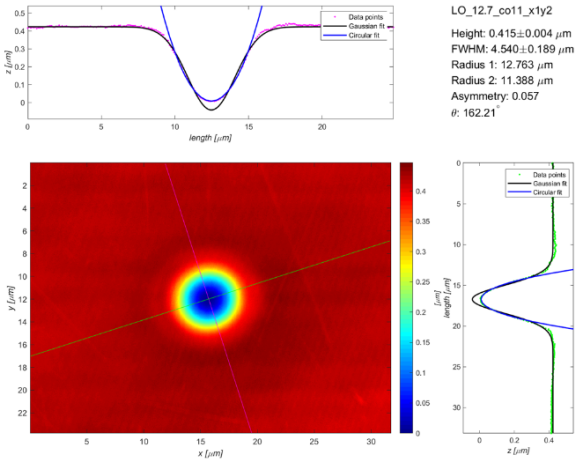
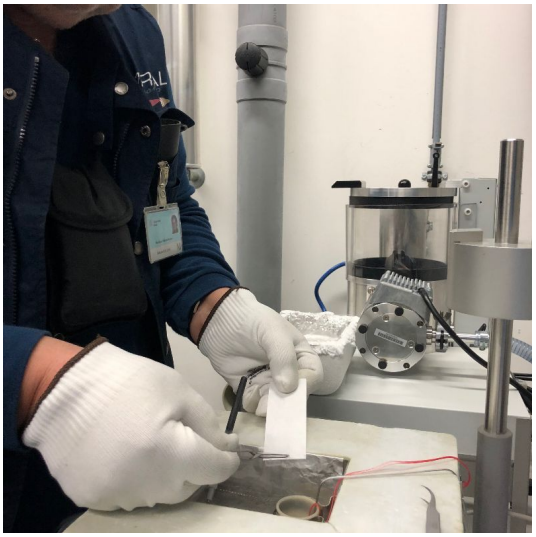


Fig. : Two-dimensional height profile of a microcrater, imaged with a Laser Scanning Microscope. This tool allows one to find the principal axes of a crater (green and pink lines) and find parameters, such as height, width and radius of curvature of such craters.

Dr.Markus Dürrenberger, the head of the Nano Imaging Lab, introduced the audience into an old but recently revived method of ultra rapid freezing combined with high vacuum drying as a preparation method for Electron Microscopy and presented first very promising results seen in Fig. 1-3.



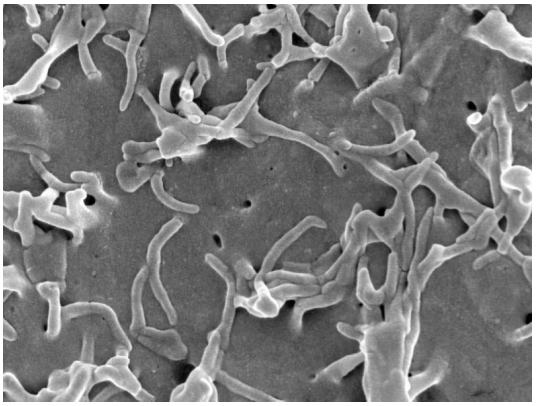


Fig.1: SEM picture of the surface of a HeLa cell prepared by freeze drying

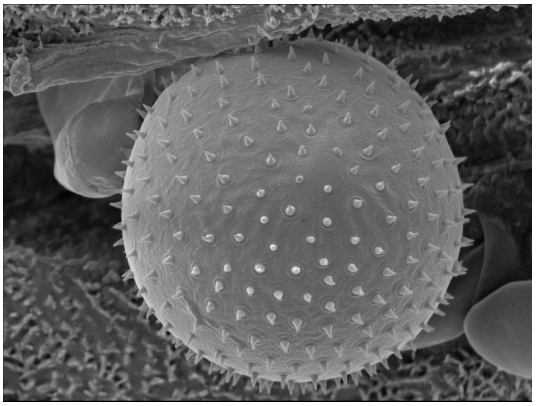


Fig.2: SEM picture of a freeze dried spore of brown leaf rust

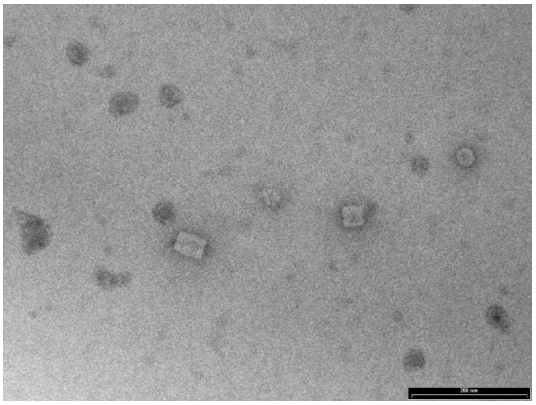


Fig.3: TEM picture of freeze dried Haemocyanin

The last speaker **Gerard Gadea**, from the Physics Department, presented his method of bottom up growth of semiconducting nano wires and demonstrated the characterization of the nano wires by Transmission Electron Microscopy (see abstract Gadea).

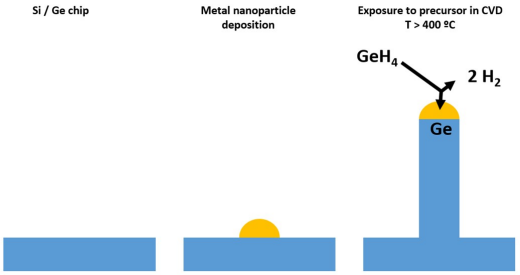


Fig.1: Bottom-up nano wire growth

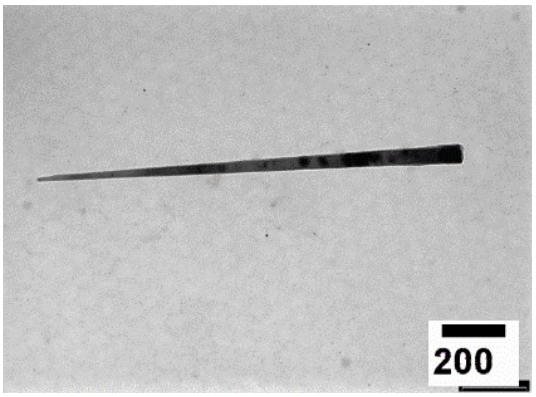


Fig.: TEM image of Ge-Si NW grown by chemical vapor deposition

Lots of questions and positive remarks came up during the meeting and the discussions went on during the following apéro, which was held in the entrance hall.

New acquaintances were made and future experiments were planned in this relaxed atmosphere.
The Nano Imaging Team was happy to have held such a fruitfull meeting and says `Thank you` to the speakers and participants!
See you next time !

http://nanoimaging.unibas.ch