



TECHNISCHE  
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# IAP-SEMINAR

## ANNOUNCEMENT

- Date: **Tuesday, 17.3.2015**  
Time: **16:00 p.m.**  
Location: **Technische Universität Wien, Institut für Angewandte Physik, E134**  
yellow tower „B“, 5<sup>th</sup> floor, Seminarraum 134A (room number DB05L03)  
1040 Wien, Wiedner Hauptstraße 8-10
- Lecturer: **Miroslav Kolíbal**  
CEITEC BUT, Brno University of Technology, Brno/Czech Republic
- Subject: **Real time observations of nanowire growth in scanning electron microscope**
- Abstract: The nanowire shape (cross-section, sidewalls' orientation etc.) and orientation plays a major role in determining electrical transport or sensing properties of nanowire-based devices. The ability to fully control the nanowire morphology is, of course, based on our understanding of the growth process. In this respect, in-situ Transmission Electron Microscopy (TEM) studies have provided vital information on this issue. In this contribution, I will present our results on the vapor-liquid-solid (VLS) germanium nanowire growth by evaporation inside a SEM vacuum chamber. Compared to TEM, scanning electron microscopy (SEM) can easily give three-dimensional information of the growth scenario. As the group IV nanowires grown by evaporation are highly faceted, I will focus on effects where SEM can give substantial information. In particular, the initial formation of the growth interface between the droplet and the substrate is decisive on the nanowire orientation. In another example, I will demonstrate that the droplet on top of a nanowire is not necessarily pinned to the growth interface. Instead, under certain growth conditions it slides down the sidewalls and then climbs up again to the top. Therefore, the growth interface is not planar, but dynamically changes, which results in very complicated nanowire morphology.

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*All interested colleagues are welcome to this seminar lecture  
(45 minutes presentation followed by discussion).*

*P. Varga e.h.  
(Seminar-Chairperson)*

*H. Störi e.h.  
(LVA-Leiter)*