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EINLADUNG zum IFP-SEMINAR

Thema: **Synthesis and Characterization of Semiconducting Nanowires and Co-axial Heterostructures**

Vortragender: **Sven Barth**
TU Wien, Institut für Materialchemie

Host: Silke Bühler-Paschen

Termin: **Mittwoch, 13. Oktober 2010, 16:00 Uhr**

Ort: TU Wien, Institut für Festkörperphysik
Freihaus Seminarraum 138B, Turm C, 7. OG (rote Leitfarbe)
Wiedner Hauptstraße 8-10, 1040 Wien

Abstract:
Semiconductor nanowires are attractive building blocks for functional nanosystems and next generation electronics [1]. The development of next generation sensors or transistors using these nanostructures is based on the reliable electrical transport properties of nanowire circuits. However, understanding of fundamental phenomena in bottom-up metal-supported growth phenomena is still an active field of research. Limits and opportunities of this approach are not fully exploited to control the radial dimensions in the few nanometer regime and the control of twinning events [2,3].
This seminar will address the controlled growth of group IV and oxide semiconductors by a metal assisted approach under low (~10^{-3} mbar) and high (~200 bar) pressures. The differences and opportunities of using the VLS type growth and solid phase seeding, such as transfer of crystallographic information, will be addressed. In addition, doping of germanium nanowires to induce further functionalities and the formation of core-shell structures will be discussed.

[1] S. Barth, F. Hernandez-Ramirez, J. D. Holmes, A. Romano-Rodriguez. *"Synthesis and Applications of One-dimensional Semiconductors"* Prog. Mater. Sci. 2010, 55, 563-627.
[2] S. A. Dayeh, S. T. Picraux. *"Direct observation of Nanoscale Size Effects in Ge Semiconductor Nanowire Growth"* Nano Lett. 2010, Doi: 10.1021/nl1019722.
[3] S. Barth, J. J. Bohland, J. D. Holmes. manuscript submitted.

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