

CEITEC – Central European Institute of Technology, Brno University of Technology would like to inform you about the on-coming lecture:

Prof. Ernesto Joselevich

(Weizmann Institute of Science,
Rehovot, Israel)

Guided Nanowires: New Building Blocks for Self-Integrated Nanosystems

30/11/2016

Room P6
Faculty of Mechanical Engineering
Brno University of Technology
Technická 2

 **Wednesday, 14:00**

The large-scale assembly of NWs with controlled orientation on surfaces remains one challenge toward their integration into practical devices. We report the VLS growth of perfectly aligned, millimeter-long, horizontal NWs of GaN [1], ZnO [2], ZnSe [3], ZnTe [4], CdSe [5] and other materials, with controlled crystallographic orientations on different planes of sapphire [1-5], SiC [6], quartz [7], and spinel [8]. The growth directions and crystallographic orientation of the NWs are controlled by their epitaxial relationship with the substrate, as well as by a graphoepitaxial effect that guides their growth along surface steps and grooves. As a proof of concept for future applications, we demonstrate the massively parallel “self-integration” of NWs into circuits via guided growth [9].

- [1] Science, 333, 1003 (2011).
- [2] ACS Nano, 6, 6433 (2012).
- [3] Adv. Mater., 27, 3999 (2015).
- [4] J. Phys. Chem. C, 2016, 120, 18087.
- [5] ACS Nano, under review (2014).
- [6] Nano Lett., 13, 5491 (2013).
- [7] ACS Nano 8, 2838 (2014).
- [8] J. Phys. Chem C 118, 19158 (2014).
- [9] PNAS, 110, 15195 (2013).