



Conference NANOCON'16 focused on carbon nanostructures

An opportunity to become acquainted with the results of research and development of nanomaterials in the Czech Republic and abroad as well as to meet the world's leading scientists working on nanotechnology and to debate with them had participants of the seventh annual international conference NANOCON'16. This event was organized by the Czech Society for New Materials and Technologies on 19 - 21, October 2016 in Brno, in cooperation with the Regional Centre of Advanced Technologies and Materials (RCATM) at the Faculty of Science of Palacky University in Olomouc and with the company Tanger Ltd.

During the conference in total 80 lectures and 200 posters were presented for 350 participants from 23 countries. NANOCON'16 confirmed that it is the largest event of its kind organized in the Czech Republic and at the same time it is one of the largest conferences in the field of nanotechnology in the Central European region. About one 40% of all participants came to NANOCON from abroad this year, the most from Russia, Poland and Germany. The research results presented in Brno also scientists from distant countries, including U.S.A., Japan, India or South Korea.

The opening plenary lecture entitled "Elementary Electronic Processes in Carbon-based Materials and Beyond: What do we Learn from Theory" was performed by David Beljonne from the University of Mons (Belgium). This outstanding expert in molecular dynamics simulations allowed to audience to uncover secrets of supramolecular organization and the opto-electrical properties of materials used in solar cells, light-emitting diodes and field-effect transistors. Another plenary speaker Thomas Michely from University of Cologne (Germany) in his lecture outlined amazing possibilities of 2D layers, like graphene or a monolayer of hexagonal boron nitride, enabling the creation of new light materials with the strength 300 times higher than steel, and yet mechanically strong and perfectly electrically conductive.

Both plenary lectures indicated the main theme of the 8th NANOCON, which were carbon nanostructures. Their unique properties have a promising application potential, particularly in semiconductors, electronics, optical, medical and energy technologies. Michal Otyepka from Palacky University in Olomouc, co-discoverer of fluorine-graphene and the beneficiary of prestigious five-year grant from the European Research Council, introduced the characteristics of derivatives of this thinnest insulator and their possible chemical transformations towards new 2D conductors and semiconductors. Other lectures of five thematical sessions were related to preparation of nanomaterials, characterization of their properties, applications and also to their toxicity, including monitoring. Participants could hear lectures focused on various nanomaterials based on zero-valent iron, titan or silver, about materials for electronics and optics, water treatment, high-performance electrodes for lithium ion batteries or next progress in the field of nanofibers.

Lectures relating to applications of nanomaterials in medicine attracted audience's attention. František Štěpánek from the University of Chemistry and Technology in Prague (CZ) fascinated by his R&D results in the field of remotely chemical robots. Their properties raise great hopes for successful use for targeted drug delivery to a specific location in the human body of for the gene therapy. The programme of the conference underlined also the issue of impact of nanomaterials on human health and nature. Andrew Collins represented Department of Nutrition of University of Oslo (Norway) presented interesting talk dedicated to new faster and cheaper methods of testing genotoxicity of several nanomaterials.

Press Release published by: The Czech Society for New Materials and Technologies, Novotného lávka 5, 116 68 Prague 1, CZ

Next information: Jiřina Shrbená, Conference Program Committee Chair, jirina.shrbena@csnmt.cz, tel. +420777863262,

www.nanocon.eu



The award of Dr. Tasilo Prnka, the conference founder and the promoter of nanotechnology in the Czech Republic, for the best lecture of young scientists under the age of thirty three years received Torres Mendieta Rafael Omar from Jaume I. University in Castellón de la Plana (Spain) for the talk describing the synthesis and properties of interesting nanostructures composed by graphene oxide and gold nanoparticles through pulsed laser ablation in liquids..

In the poster session 200 posters had been performed. As the best one from scientific content and graphic design point of view have been assessed the poster of Marian Varga from Institute of Physics of the CAS (CZ) illustrating the fabrication of polycrystalline diamond-based photonic crystals. Among the top three the poster of Frederik Vreys from the Hasselt University in Diepenbeek (Belgium) describing a novel design for the thermal based biosensor using the transient plane source technique and the poster of Tomáš Pejchal from the Brno University of Technology/Research Centre CEITEC dedicated to synergic effect of atomic hydrogen and catalyst spreading on germanium nanowire growth orientation and kinking.

The conference NANOCON'16 confirmed that this event becomes a popular meeting place for Czech nanotechnology community. In total 14 universities, 9 research institutes of the Academy of Sciences and other research organizations, such as the Public Health Institute or the Czech Metrology Institute. "This year's NANOCON for the first time underlined one research topic – graphene and 2D materials. It was definitely a good choice. We managed to synergistically connect lectures on new methods of synthesis, unique properties, but also very advanced applications of 2D nanostructures. In doing so, the quality of lectures in other thematical sessions did not suffer and both lecture halls were completely full. Hence we intend to continue this approach also next year. The central topic of the NANOCON'17 will be nanomaterials for medical and biomedical applications," says Radek Zboril', the director of the Regional Centre of Advanced Technologies and Materials. As the chairman of the conference he is pleased by the growing interest of experts from abroad to establish cooperation with Czech experts.

Participation of representatives of 20 private sector entities, typically innovative companies with strong research background, in Brno confirms that nanotechnology does not attract only an academic sector. For example, the experts from the Coatema Coating Machinery GmbH from Dormagen (Germany) in Brno presented their progress in the large area printed electronics and UV-nanoimprint lithography. Researchers from the biotechnology company Contipro a.s. from Dolní Dobrouč (CZ), the producer of hyaluronic acid, introduced the novel nanofiber layer preparation from chemically modified hyaluronic acid by patented 4SPIN technology. The interest of the business sector in nanomaterials is illustrated by the fact that 12 companies exhibited their products and demonstrated laboratory and measuring equipment in the conference accompanying program, e. g. Sigma-Aldrich, Raith Nanofabrication, SCIENION, Tescan or Pragolab.

More information about the conference is available at www.nanocon.eu.