NANOCON'26 Conference Highlights Current Trends in Nanomaterials R&D

The 18th annual international NANOCON conference, held in Brno from September 30 to October 2, 2026, highlighted advances in the research and development of nanomaterials and their applications in biomedical diagnostics, next-generation energy systems, quantum computing, AI-driven nanomaterials engineering, and other fields. The main programme featured **76 oral presentations and 103 posters** for **224 registered participants from 28 countries**. The Czech Society for New Materials and Technologies co-organises this well-established conference.

Both keynote speakers addressed current trends in nanomaterials research, nanotechnology development, and their applications. Professor **Klaus Müllen**, Director Emeritus at the Max Planck Institute for Polymer Research in Mainz and a Visiting Scientist at the VSB – Technical University of Ostrava, one of the most highly cited chemists in the world, demonstrated how quickly graphene and its chemical analogues can move from fundamental research to real-world applications in electronics, sensor technology, or energy. Professor **Francisco Javier Aizpurua** of the Donostia International Physics Center in San Sebastián, Spain, focused his plenary lecture on enhanced light–matter interactions in extreme metallic nanocavities.

Taro Yoshikawa of Daicel Corporation in Kanazawa, Japan, presented techniques for the precise nanoscale manipulation and deposition of detonation nanodiamonds onto substrates. Professor **Mingdong Dong** of the iNANO Nanoscience Center at Aarhus University, Denmark, outlined the implications of reversible amyloid peptide crystallisation for biomaterial design. In a session dedicated to advanced methods for the preparation and characterisation of nanomaterials, **Andrew Yacoot** of the National Physical Laboratory in Teddington, UK, discussed the use of silicon's lattice parameter in dimensional nanometrology and efforts to bring metrology to high-speed atomic force microscopy.

"The professional standard of the lectures was exceptionally high again this year, and not only in the case of the plenary speakers. I was very intrigued by the presentation on altermagnets by **Helena Reichlová** from the Institute of Physics of the CAS (FZU). This is a research direction that was fundamentally opened up by the team around Tomáš Jungwirth and has the potential to be among the discoveries with an extraordinary international impact, perhaps even at the level of a future Nobel Prize ", said Professor Radek Zbořil, General Chair of the conference, Scientific Director of the RCPTM research unit at the CATRIN institute of Palacký University Olomouc, and Deputy Director of the Nanotechnology Centre at VSB – TUO.

The Czech scientific community was represented by researchers from **13 universities and 11 institutes of the Czech Academy of Sciences**. Participants from foreign institutions accounted for 35% of the audience. They came not only from neighbouring countries, particularly Poland and Germany, and other European countries, especially France, Spain, and Italy, but also from more distant countries, including Japan, India, and Armenia.

Experts from **13 companies** showcased their equipment, technologies, and nanomaterial-related instruments at exhibition stands. Among them was the Czech technology company Elmarco, which demonstrated its Nanospider laboratory electrospinning platform for experimental nanofibre research.

Around 40% of all NANOCON participants were doctoral and postdoctoral researchers. A total of 17 young researchers competed for the **Best Lecture Award for Young Scientists under 33**. The winner was Pavel Kopecký, a doctoral student at the Institute of Biochemistry, Faculty of Science, Masaryk University in Brno, Czech Republic. His presentation focused on photon-upconversion nanoparticle-based immunoassays for high-throughput biomarker detection. Given the high standard of the presentations, three honourable mentions were also awarded. One went to Neda Nazari of Wood K plus – Kompetenzzentrum Holz GmbH in Linz, Austria, for her lecture on bio-based, self-standing hard-carbon and activated-carbon electrodes for sustainable energy storage.

The **Best Poster Award** went to Tomáš Chvojka, a doctoral student at the University of Chemistry and Technology Prague, Czech Republic, who presented a dual-plasmon-active catalyst for methanol oxidation. Honourable mentions were awarded to the authors of six additional posters.

More information about the conference can be found at www.nanocon.eu.