

CONFERENCES
NanoBio-Europe 2007 International Conference
in Munster, Germany (June 13–15, 2007)

The nanobiotechnology is one of the most rapidly developing branches appearing on the cross of biology, medicine, and other natural, as well as technical sciences. The Conference NanoBio-Europe 2007 (Munster, Germany) was an extraordinary opportunity to demonstrate the achievements in that field, and the representatives of the international nanobiotech-community from not only Europe, but also from the North America, Asia and Australia, took part as lecturers and participants. A group of the Ukrainian researchers, particularly those who have scientific collaboration with their German colleagues in the field of nanobiotechnology, also arrived to Munster. In 1993, the City of Munster celebrated its 1200th Anniversary. Everybody knows that the Westphalian Peace Treaty was negotiated and signed in Munster. It is also one of the main University cities in Germany. However, only a few insiders know that Munster has become an important location for nano- and biotechnology. There are several examples of innovative and successful business start-ups, as well as encouraging development of future technologies in Munster. The City of Munster, in cooperation with the Technology Park and the Federal State of North-Rhine Westphalia and the University, has taken an active part in establishing the Center for Nanotechnology, called CeNTech. The Ukrainian participants got a chance of visiting the main laboratories at that Center during NanoBio Europe 2007 in Munster.

Within the program of NanoBio-Europe 2007, the participants could listen to the lectures of the well known researchers in the field of nanobiotechnology, who presented the Keynote Lectures: Mauro Ferrari (University of Texas, USA) «Nano-Bio-Math — A critical triangulation», and Goran Hermeren (University of Lund, Sweden) «How nano scale research in the biosciences can improve the quality of life: Ethical aspects».

Among the most interesting lectures of the Invited Speakers, one should note: Otmar Schober (University of Munster, Germany) «Non-invasive molecular imaging of beta-adrenoreceptors in vivo: Perspectives for PET-radioligands» at Session 1 «Molecular Imaging and Biophotonics», Dario Anselmetti (University of Bielenfeld, Germany) «Single molecule biophysics and system nanobiology» at Session 2 «Nanobioanalysis In Vitro», Ehud Gazit (University of Tel Aviv, Israel) «Self-Assembly of short aromatic peptides: From amyloid disorders to nanotechnology» at Session 3 «Nanoassemblies/Surfaces», Krasimir Velikov (Unilever Food and Health Research Institute, The Netherlands) «Colloidal delivery systems for micronutrients and nutraceuticals: Comparison with drug delivery» at Session 4 «Drug delivery/Theranostics», Reinhold Deppisch (Gambro Dialysatoren GmbH, Germany) «Convergence of nanostructuring of medical device surfaces and biological elements to new and enhanced functionality» at Session 5 «Nanomaterials for bio and medical application», Claude Vauchier (CEA-LETI, France) «Progress in Lab on Chip integration for biological application» at Session 6, and Jonathan Trent (NASA, USA) «What is the far future of nanotechnology?» at Session 7 «Future challenges».

Of special interest was a free Panel Discussion at the conference on the perspectives of nanobiotechnology development. The leading representatives of the nanobiotech-community working for the Universities and Business, including NASA, took part in that Discussion. It was stated that the nanobiotechnology is well on its way to supporting the transformational changes in medicine. In particular, it offers unprecedented breakthrough opportunities in the early detection of diseases from biological fluids, and in the delivery of therapeutic agents in a spatially and temporally optimized manner. These undertakings require expertise not only in nanoscale technology and the biomedical sciences, but also in the mathematical framings of the nanoscale phenomena. However, a question «How can nanoscale research improve the quality of life?» still needs a positive answering.

It was also announced at the conference, that the next NanoBio-Europe 2008 will take place in Barcelona (Spain).

During the NanoBio-Europe 2007 in Munster, the Workshop on German-Ukrainian Collaboration in NanoBiotechnology and NanoScience has also been organized. The welcoming address to the Workshop was presented by prof. Sergiy Komisarenko (Director of the Palladian Institute of Biochemistry, Kyiv, and Scientific Secretary at the Board of the National Academy of Sciences of Ukraine), prof. Peter Scharff (President of the Technical University in Ilmenau, Germany), and Dr. Erich Rathske (International Bureau of the German Federal Ministry of

Education and Research). Besides, the exhibition and presentations were done by the Ukrainian and German representatives at the Conference and Workshop. The Workshop was supported by the Federal Ministry of Education and Research of Germany, International Bureau of the BMBF, Science and Technology Center in Ukraine (STCU), German Research Foundation (DRG), Westphalian Wilhelm's University in Munster, and the Center of NanoTechnology (CeNTech).

It was noted during the Workshop that the main topics of Ukrainian nanobiotechnology are as following:

- Nanomaterials for coating and high performance materials;
- Nano-scale semi-conducting, and photosensitive materials;
- Sensors based on nanostructures for manifold applications (medicine, biology, environment, physics, etc.);
- Nanomaterials in biology, medicine, and pharmacy;
- Nanoscale cell biology, gene engineering and proteomics;
- Nanoanalytics;
- Manomedicine;
- Engineered nanobiostructures and biohybrid systems.

The lectures and posters presented at the Workshop organized at NanoBio-Europe 2007 are good examples of fruitful and promising German-Ukrainian collaboration in the nanobiotechnology. The following presentations were delivered:

1) Filenko D. et al., Rangelow I. W. Biochemical Recognition Using Cantilever Array. Technical University of Ilmenau, Germany; Institute of Organic Chemistry of NASU, Kyiv, Institute of Semiconductor Physics of NASU, Kyiv; Microsystems Ltd., Varna, Bulgaria.

2) Zyman Z., Epple M., Rokhmistrov D. et al. Nanopowder Processing in Developing Bioactive Materials. V.N. Karazin Kharkiv National University, Kharkiv; University of Duisburg-Essen, Germany.

3) Prylutska S.V., Grynyuk I.I., Matyshevskaya O.P., Siegmund C., Ritter U. Anti-Oxidant Properties of C60 Fullerenes In Vitro. Taras Shevchenko Kyiv National University, Kyiv, Technical University of Ilmenau, Germany.

4) Weber L., Ritter U., Scharff P., Matyshevskaya O., Prylutsky Y. Non-Enzymatic Glucose Sensors based on Carbon Nanotubes. Technical University of Ilmenau, Germany; Taras Shevchenko Kyiv National University, Kyiv.

5) Koseich M.V. et al., Benninghoven A. Nanotechnology for Mass Spectrometry for Nanobiotechnology. B. Verkin Institute of Low Temperature Physics and Engineering of NASU, Kharkiv; Westphalian Wilhelms University, Munster, Germany.

6) Prylutska S. et al., Effects of Photoexcited Fullerene C60 Composites in Normal and Transformed Cells. Taras Shevchenko Kyiv National University, Kyiv; R.E. Kavetsky Institute of Experimental Pathology, Oncology, and Radiobiology of NASU, Kyiv; Technical University of Ilmenau, Germany.

7) Stoika R., Zaichenko A., Bilyy R., Herrmann M. Novel Functional Nanoscale Composites: Synthesis and Biomedical Potentials. Institute of Cell Biology of NASU, Lviv, Ukraine; Institute of Immunology, FAU Erlangen Nuernberg, Germany.

8) Zyman Z., Epple M., Rokhmistrov D., Ivanov I., Glushko V. On the Crystallization of Amorphous Phosphate Nanoparticles Precipitated by Wet Synthesis. V.N. Karazin Kharkiv National University, Ukraine; University of Duisburg-Essen, Germany.

9) Kovtun A. (young scientist, Ukraine), Epple M. (Germany) Chromatography with Substituted Ca Phosphates for the Separation of Nucleic Acids.

10) Epple M. et al. (Germany), Sokolova V. (young scientist, Ukraine) Ca Phosphate Nanoparticles as Versatile Carriers for DNA and siRNA into Living Cells.

As the next step in further developing the German-Ukrainian collaboration in the nanobiotechnology, it was decided that the 2nd German-Ukrainian Symposium on nanobiotechnology will be organized in Germany, and a search for the needed organizational costs should be started as soon as possible.



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