

# NANOFORCE newsletter

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## Editorial

Dear Readers!

Welcome to the 3<sup>rd</sup> NANOFORCE newsletter. The NANOFORCE Project is now entering its final phase (the end of the Project is scheduled for January 2014) and we're shaping its key outputs gradually. Please, read below about the key activities and nanoevents to be organized in following months in order to learn about our progress. Thank you for your attention.

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## PREVIOUS NANOFORCE EVENTS

### ***1<sup>st</sup> Nanodeals Generator Workshop, 28<sup>th</sup> February, Bratislava, Slovakia***

The last day in February ZCHFP SR organized support forum for innovative projects in the field of nanotechnology and preparation of deals for Nanodeal Generator. Two Slovak companies VUCHV and Chemosvit presented their proposals of deals. Representatives of lead partner explained all requirements regarding preparation of NANOFORCE Business plan I.N.V.C.F., Agency for support of investments in Slovakia SARIO presents their activities and there were also presentation of Venture capitalist and Business Angels in Slovakia, which are willing to invest in nanotechnologies. More information at <http://www.zchfp.sk/?vyber=21#k10>

### ***The 2<sup>nd</sup> NANOFORCE Joint Working Table, 16<sup>th</sup> May, Hannau, Germany***

The 2<sup>nd</sup> NANOFORCE Joint Working Table was held as part of the "10<sup>th</sup> Nanotechnology Forum Hestia: From Technology to Innovation", organized



by the Hessian Ministry for Economics. The interesting combination of representatives from industries association, investor and from knowledge disseminating entities shed light on the processes that encourage or inhibit investments in nanotechnologies. This informative and entertaining event was a success for the audience as well as the NANOFORCE Project. For more details please visit: <http://www.chemiecluster-bayern.de/en/news/2-nanoforce-podiumsdiskussion/>.

### ***The 2<sup>nd</sup> NANOFORCE Info Day, 30<sup>th</sup> May, Prague, Czech Republic***

The 2<sup>nd</sup> NANOFORCE Info Day was organized by The Association of Czech Chemical Industry for more than 60 representatives of nanotechnology companies, researchers or those who are somehow involved in research, development and commercialization of nanotechnology and wish

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to obtain information on current opportunities for the development and financing of these projects in the Czech Republic. The main objective of the event was about sharing of practical experiences in financing projects in the field of nanotechnology.

## PROJECT HIGHLIGHTS

### *The IV NTPF – exposure and environmental impacts of nanomaterials*

The IV NANOFORCE Technical Partnership Forum took place on 18<sup>th</sup> of April, in Mestre, Italy. The main goal of the meeting was to discuss the advancement of the Project activity related to Safety Data Sheets (SDS) and Exposure Scenarios (ES) development. It was agreed that results of the SDS building experience will be part of the Transnational Guideline, as “procedure how to generate SDS”. NANOFORCE assess the effects on human health, exposure and environmental impacts of 3 major types of nanomaterials (TiO<sub>2</sub>, nanoAg and ZnO) which are generally used in the industrial sector to demonstrate their proficiency. Within the project consortium generic SDS and ES will be generated for the companies who provided the test material. Including generic data, literature data, active toxicity and characterization testing data and many more a recommendation for an adaption of a bulk SDS and ES will be given for the use of nanomaterials.

A report (Transnational Guideline) will answer important questions on how to adapt a SDS and ES for nanomaterials, data/information relevant for SDS and ES and direct feedback will be provided for the companies on how to finalize the nanomaterials’ SDS and ES.

### *NANOFORCE Business plan INVCF*

The NANOFORCE Project team is working on a proposal to examine the launch of the Interregional Nano Venture Capital Fund (INVCF) in Central Europe. This is the Business Plan document that summarizes the huge amount of information picked up through a properly research activity, made by all the project partners. Furthermore, the Business Plan should be appreciated, not only as a clear picture of: the main potentialities of the Nanotechnology Industry in the Central Europe, the strong network of Universities and Researchers, the fruitful area of the Industrial Clusters, the Financial activities of the 8 Areas, but also as a fine Business and Financial model that shows the Internal Rate of Return (IRR) of the INVCF Fund. The content of the document will act as a strong lever for both, private and institutional investors, in the creation of a fund that will be able to support the development of the local companies, in particular nano-tech start-ups.

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## NANOFORCE SUCCESS STORIES

- **BioNanoNet attended the BioNanoMed conference held on 13<sup>th</sup> to 15<sup>th</sup> March, 2013 in Krems, Austria.** BioNanoNet presented the “Toxicological Assessment Strategy to Secure the Safe Implementation of Nanomaterials” developed within the NANOFORCE project. Furthermore, current findings of the NANOFORCE project in regulatory needs and proposed amendments have been presented focusing on the development of a guideline to secure the safe implementation of a nano-product on the European market. Experts, stakeholders, researchers, businesses and industry have been invited to join the NANOFORCE Nanodeals Generator to establish collaborations amongst the fields of expertise and carry out innovative research and development.

## PROJECT PARTNERS INTRODUCTION

### **PROJECT PARTNER 7 – BioNanoNet Forschungs GmbH**

The BioNanoNet Forschungsgesellschaft mbH is an Austrian network in the key enabling technologies biotechnology and nanotechnology, which combines a wide range of expertise in numerous disciplines of medical and pharmaceutical research, nanomedicine, nanotoxicology, and sensor technologies.

The BioNanoNet has the clear aim of driving innovative interdisciplinary research by supporting the cooperation and synergy of collaboration. The

emphasis of BioNanoNet is on: (1) nanotoxicology – providing a toolkit for industry, (2) sensor technology, (3) health and safety including (nano) medicine, and additionally offers (4) coordination and management, dissemination and communication services. The BioNanoNet has initiated the build-up of the European Center for Nanotoxicology (EURO-NanoTox; [www.EURO-NanoTox.eu](http://www.EURO-NanoTox.eu)). This virtual center unites Austrian experts in the field of nanotoxicology and helps to develop standardized methods. This center serves as a showcase example of how national activities can be structured and combined across Europe. It is coordinated by the BioNanoNet Forschungsgesellschaft mbH.

EURO-NanoTox offers:

- The development, establishment and implementation of standardized in vitro and in vivo toxicological methods for nano-structured materials and literature screening.
- Development and structuring of the field of nanotoxicology in Austria.
- Establishment and active support of international contacts with key players in the field of nanotoxicology.
- Establishment of a European wide hub system to increase scientific knowledge transfer.
- Supply of a “tool kit” to industries containing methods for in vitro and in vivo measurements of the toxicological potential of nano-structured materials including protocols and interpretations.
- Active monitoring of relevant literature and “information point” for interested scientists and industry partners.

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- The development of national and international research projects on nanotoxicology.
- Participation in and organization of comparative studies including ring studies.

**PROJECT PARTNER 8 – Association of Chemical and Pharmaceutical Industry of the Slovak Republic**

The Association of Chemical and Pharmaceutical Industry of the Slovak Republic was established as a voluntary association of entrepreneurial entities active in the field of the Slovak chemistry and pharmacy, on November 30, 1991. At present it represents 52 members employing more than 12,000 people. Its activities and deliberations are focused on:

- Defending of business and entrepreneurial interests of chemical and pharmaceutical industries, in dialogue with the Parliament and the Government, with trade unions headquarters, interest groups, national and international governmental and non-governmental organizations
- Support of enterprising of its member entities, particularly by means of specialized information service
- Co-ordination of activities and procedures when solving common problems,
- Submitting of standpoints and proposals, with the objective to shape and influence intents and development of the Slovak economic policy
- Development of business policy, so as to minimize and remove technical obstacles in it,
- Continuous improvement and extension of foreign co-operation with partner associations and as a full-fledged member within the framework of Cefic – the European Chemical Council
- Continuous deepening and extension of environmental protection and care, mainly by means of the Responsible Care Project, DINS Project and a whole number of other specific activities
- Advocacy interests of the Slovak Chemistry at implementation REACH into practice
- Organizing of specialized workshops, seminars, conferences for member and non-member companies, concerning mainly new chemical legislation

- Permanent deepening of co-operation with electronic media and with other types of media, with the objective to gain general public for support of further development of the Slovak chemistry and pharmacy.

The Association is a member of following organizations:

- Federation of Employers Associations of the Slovak Republic
- Centre for the Development of Chemical and Pharmaceutical Industry of the Slovak Republic
- European Chemical Industry Council – Cefic
- European Chemical Employers Group – ECEG
- On the base of special agreement, ZCHFP SR co-operates with PlasticsEurope.

**PROJECT PARTNER 9 – Institute of High Pressure Physics, Polish Academy of Sciences**

Institute of High Pressure Physics (IHPP), also known as “Unipress”, was founded in 1972 by Polish Academy of Sciences. The Institute is directed by Prof. Izabella Grzegory. For the outline of Unipress history please see “history of Unipress” page.

Although the original focus of Unipress was on high-pressure studies of semiconductors, the present field of research activities also covers ceramics, HTc super-conductors biological materials (high-pressure studies of protein folding, and high pressure food processing) and the plasticity of metals (hydroextrusion). The common axis of these studies is the use of high pressure; both as a research tool (a perturbation like temperature or magnetic field) and also as a technological method (high-pressure sintering, high-pressure growth of crystals).

High-pressure method has been always used within Unipress to investigate the properties of semiconductors; by changing the interatomic distances in the crystalline solids we can infer information about the nature of their electronic band structure and defect levels in the material, induce high-pressure phase transitions and shed more light on their vibrational properties. From the application side, high-pressure environments give an opportunity for a continuous change of the properties of semiconductors, making possible the fabrication of tunable devices like pressure tuned lasers.

For more than 20 years, Unipress’ scientists have

worked intensively on the physics and technology of GaN and related semiconductors. This research led to the creation of a unique technology of high-pressure growth of GaN crystals with a dislocation density much lower than crystals grown at atmospheric pressure. This has paved the way to construction of blue/violet laser diodes by using crystals as substrates for growing epitaxial structures of (AlGaIn)N with exceptional structural and optical quality. Both the MBE and MOCVD nitride technology has been developed at UNIPRESS together with the laser-processing lab. The work on blue/violet laser diodes has been done within the Polish Government program titled "The development of the blue optoelectronics", which was coordinated by Unipress. In order to commercialize this technology, new hi-tech focused company was founded.

Nanotechnology is a keyword of a modern physics and material sciences. Unipress is involved in nano-studies not only by exploring classical low-dimensional systems like quantum wells and quantum dots but also by working intensively on materials composed of nanograins such as nanoceramics and nanopowders. High-pressure technology plays very important role in the process of sintering of nanopowders, enabling better control of grain size and uniformity, thus leading to the creation of a new generation of advanced materials.

The technology to produce nanocrystalline materials is also becoming of increasing importance in the field of high Tc materials, where high pressure technology helps to obtain materials of improved performance.

High-pressure techniques have proved very revealing in biophysical studies leading to a number of successful biotechnological applications. The high-pressure tuning of kinetics of protein folding and misfolding allows one to explore protein structural states which are otherwise experimentally inaccessible. Recently, Unipress opened a new laboratory devoted to high-pressure research on protein biophysics. A very important application of high-pressure is food processing, therefore, high pressure steadily takes an increasing hold on the food industry.

Unipress pays a lot of attention to the development of high-pressure equipment. We supply high-pressure cells and high-pressure gas-compressors to scientific laboratories all-over the world."

## UPCOMING NANO EVENTS

**The series of the NANOFORCE NanoEvents – "How to better integrate science, industry, finance and institutions for the growth of the 8 Areas"**

- **September 24<sup>th</sup>, 2013, Prague, Czech Republic**
- **October 1<sup>st</sup>, 2013, Wien, Austria**
- **Venetia, Italy, date to be defined.**

The "Nanodeals Events" will present success stories, some businesses opportunities offered through the Nanotechnologies, some Private and Public Actors experiences to create the right climate for the sustainable development of the 8 Areas of the Central Europe linked by NANOFORCE Project. The "Nanodeals Events" is the series of 3 extraordinary Workshops for Scientists, Business Development Managers, Venture Capitalists, Competent Authorities Officers, Scientific and Technological Parks Managers, Agencies for the Foreign Direct Investment Attraction, Human Resources Managers to exchange their competences and experiences and to know each other to capture the potentialities of the Nanotechnologies in Central Europe. There will be also presented the Business plan of the Interregional Nanotech Venture Capital Fund to potential investors.

### **Austria:**

**NanoProdEx Workshop, June 28<sup>th</sup>, 2013, TFZ Technologie- und Forschungszentrum Viktor-Kaplan-Straße 2, Wiener Neustadt, Austria**

"Nanoproducts – Identification and Exposition" (NANOPRODEX) is a research project (lead: BioNanoNet Forschungsgesellschaft mbH; partners: Umweltbundesamt, Montanuniversität Leoben, Mondi Uncoated Kraft & Fine Paper GmbH) within the national research program NANO Environment, Health and Safety: In this project, consumer goods that are produced or used in Austria will be investigated in terms of the nanomaterial they contain.

A public Workshop will be held on the 28<sup>th</sup> of June, 2013 in Wiener Neustadt, where the project's results will be discussed among relevant experts and industry regarding future recommendations for the regulation of nanomaterials.

Information and registration (session will be held in German): [http://cms.bionanonet.at/component?option=com\\_chronocontact&chronoformname,form2/Itemid,71/lang,german/](http://cms.bionanonet.at/component?option=com_chronocontact&chronoformname,form2/Itemid,71/lang,german/)

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**2<sup>nd</sup> NANOFORCE InfoDay and Joint Working Table, June 5<sup>th</sup>, 2013, Austrian Academy of Sciences, Dr. Ignaz-Seipel-Platz 2, Wien, Austria**

BioNanoNet ForschungsgmbH cordially invites you to take part at the 2<sup>nd</sup> NANOFORCE INFODAY and Joint Working Table. The sessions will focus on health and safety issues especially on toxicological aspects of nanomaterials with experts from the European Center for Nanotoxicology. The Joint Working Table presents a panel discussion on the ongoing risk dialogue on nanomaterials (workplace safety, consumer acceptance, communication between industry and science, etc.). Information and registration (Sessions will be held in German): [www.bionanonet.at/nanoforce-infoday](http://www.bionanonet.at/nanoforce-infoday)

**Czech Republic**  
**2<sup>nd</sup> NANOFORCE Joint Working Table, 11. June 2013, Technological Centre Academy of Sciences, Prague, Czech Republic**

The 2<sup>nd</sup> Prague Joint Working Table is Roundtable is organized by The Association of Czech Chemical Industry and The Technology Centre Academy of Sciences. Discussion is intended for professionals in the field of SHE (Safety, Health & Environment), research, development and industrial applications of nanomaterials. The main discussion will cover topics related to responsible development of nanomaterials: current conditions of research and development, recommendations for legislation, obstacles to market and legislation, need for addressing European and global context and Nanomaterials “safety by design”.

**NANOFORCE Magic Training, 26.–28. June 2013, Olsanka Hotel, Prague, Czech Republic**

This 2 and ½ day Magic Training Course provides a comprehensive overview on how to become an Entrepreneur in the high tech business! Graduates with Bachelor Degree up to PhDs in scientific disciplines; young Researchers willing to apply their competences to the markets needs; emerging Professionals interested to transform their services into private companies will be selected and invited to this free of charge Magic Training Course. The participants will gain an ability to identify potential for transforming their knowledge into wealth for themselves and for the 8 Areas of Central Europe in which they live.

**Germany:**  
**European Tradeshow Chemspec, Russian-Bavarian Innovation Forum „Pharma“, June 5<sup>th</sup>, 2013, Munich, Germany**

Cooperation opportunities resulting out of strategic partnership between the Chemistry-Cluster Bavaria (Germany) and the Pharmacy Cluster Kaluga Region (Russia) will be made accessible for a wider group of entrepreneurs and research institutions. The two clusters have been maintaining strategic cooperation since 2012 with the overall objective of reciprocal opening up new market opportunities and joint commercialization of research results.

<http://www.chemiecluster-bayern.de/aktuelles/russisch-bayerisches-innovationsforum-auf-der-chemspec-in-muenchen/>

**Greece:**  
**NANOTECHNOLOGY 2013, 6<sup>th</sup>–13<sup>th</sup> July, I. Vellidis Congress Center, Thessaloniki, Greece**

International Conferences and Exhibition on Nanotechnologies & Organic Electronics NANOTECHNOLOGY is the annual event to explore the opportunities in the emerging fields of Nanotechnologies & Organic Electronics. It includes a powerful community that brings together over 3,000 scientists, business and technical professionals to promote research and industrial collaborations and technology transfer by networking and matchmaking.

BioNanoNet will attend NN13 to give a talk on new approaches in nanotechnologies and promote the NANOFORCE project

More information at: [www.nanotextology.com](http://www.nanotextology.com)

**Italy:**  
**7<sup>th</sup> International Conference on Nanotechnology, 12<sup>th</sup> December, Milano, Italy**

Federchimica organizes every year the annual Conference on Nanotechnology. This event is managed by the N.I.C. Programme (Nanotechnology in Chemical Industry), that is a working group including companies, universities, research centers and other institutional stakeholders with the aim of promoting R&D&innovation in nanotechnology.

More information will be available soon on <http://www.federchimica.it/DALEGGERE/Eventi.aspx>



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**Ireland:****The European EuroNanoForum 2013, 18<sup>th</sup>–20<sup>th</sup> June, Dublin, Ireland**

BioNanoNet will attend the EuroNanoForum 2013 Nanotechnology Innovation: From research to commercialization – the bridge to Horizon2020 conference will be held in Dublin during the Irish presidency of the European Union.

More information can be found at: <http://www.euronanoforum2013.eu>

**Poland:****6<sup>th</sup> Polish Conference on Nanotechnology; 9–12 July 2013, Szczecin, Poland**

The main objective of the 6<sup>th</sup> Polish Conference on Nanotechnology NANO 2013 is a review of current studies being carried out in national research centers related to nanosciences and nanotechnologies.

For more details visit [www.nano2013.zut.edu.pl/index\\_eng.php](http://www.nano2013.zut.edu.pl/index_eng.php)

**E-MRS Fall Meeting 2013, Symposium N, Research Infrastructures at the frontier of innovation – cutting edge technologies for knowledge based applications; September 16–20 2013, Warsaw, Poland**

The conference will consist of 14 thematic symposia, plenary session and satellite events. For more details visit [http://www.emrs-strasbourg.com/index.php?option=com\\_content&task=view&id=572&Itemid=1584](http://www.emrs-strasbourg.com/index.php?option=com_content&task=view&id=572&Itemid=1584)

**Nano and Advanced Materials Workshop and Fair – NAMF 2013. Satellite event of the E-MRS Fall Meeting; 16–18 September 2013, Warsaw, Poland**

NAMF is a continuation of the previous meeting Nanotehnologia, PL, Nanotehnologia PL 2011 and Nanobiotechnologia PL 2012. During this workshop newest accomplishments in nanotechnology and advanced materials will be presented. This year emphasis will be on presentation of products for and by industry as well as opportunities for entrepreneurs and scientists to establish contacts and establish cooperation. Thus this year's meeting is will include an informal 'fair' formula. In Besides fulltime presentations on chosen topics, there will be short, business style presentations, and an exhibition of nano and advanced industry products will.

For more details visit [http://www.emrs-strasbourg.com/index.php?option=com\\_content&task=view&id=687&Itemid=1617](http://www.emrs-strasbourg.com/index.php?option=com_content&task=view&id=687&Itemid=1617)

**Slovenia:****2<sup>nd</sup> NANOFORCE Joint Working Table, 25<sup>th</sup> September, 2013, Portorož, Slovenia**

University of Nova Gorica is organizing a Joint Working Table which will focus on the following topics related to nanomaterials and nanotechnology:

- Cooperation between industry and research institutions, between different industrial enterprises and between industry and public authorities.
- Presentation of research results and produced safety data sheets.
- Use of nanomaterials in environmentally friendly technologies: possibilities and risks.

Representatives of industry, research institutions and public authorities are invited to present their experiences, knowledge, findings and other relevant contributions. The workshop will be organized as independent event that will actively and cohesively introduce the 3<sup>rd</sup> European Symposium on Photocatalysis (JEP 2013; <http://www.photocatalysis-federation.eu/jep2013/>). After the Working Table interested participants will be able to join bilateral meetings organized by JEP Symposium.

Current information is available at: <http://www.ung.si/en/research/laboratory-for-environmental-research/events/>

**Switzerland:****The European CLINAM & ETPN Summit, 23<sup>rd</sup>–26<sup>th</sup> June, Basel, Switzerland  
Clinical Nanomedicine & Targeted Medicine From Antibodies to Nanodrugs, Diagnostic Systems and Targeted Delivery**

The European Foundation for Clinical Nanomedicine (CLINAM) and the European Technology Platform on Nanomedicine (ETPN) invite you to take part in CLINAM 6/13. It is the prime European gathering on Clinical Nanomedicine and Targeted Medicine that has become internationally indispensable. This years' focus topic is: "Nanomedicine & Targeted Medicine – the paradigm of precise, highly effective and innocuous medicine for the benefit of patients and mankind".

BioNanoNet supports the conference by offering the special poster award for nanotoxicology at CLINAM 2013 and give a talk on venture capital involvement in nanotechnology businesses in view of promotion of NANOFORCE project.

More information can be found at: [www.clinam.org](http://www.clinam.org)