BIO NANONET

NEWSLETTER

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Editorial -
Contemporary issues from the network

Dear Ladies and Gentlemen,

The start into the New Year was was very intense with supporting preparation of future calls and initiatives. The exchange among our BioNanoNet members and the exchange between members and BioNanoNat increases continuously. By this, the initiations of collaboration leads the active members of the network to success. In addition to that, we like to express once again our openness to newcomers who are interested to benefit from this unique community.

Definitely a highlight has been the Nano World Cancer Day 2017, organised and chaired by BioNanoNet in its role as coordinator of NanoMedicine-Austria. We are very grateful for the organisational support from the Medical University of Graz and the great presentations by the speakers. The planning of next year event already started and we will further support the Austrian research community in the field of nanomedicine to become more visible, that funding in Austria is dedicated to this important discipline either for participation in ERA.NETs (EuroNanoMed, etc.) or as separate Austrian funding scheme (e.g. in the basic program). Both, science and society will benefit from this investment – and Austria will be able to step forward **towards the center of nanomedical research and development** in Europe – the science and research is already on that high level, now it is the perfect time for substantial support in Austria.

Continuing the short introduction about the national technology platform SusChem-AT in our previous newsletter, we now like to invite all organisations which are active in research and development on important topics in the main areas of sustainable chemistry (e.g. sustainable bio-economy, ICT for processes, water, catalysis and processes, and materials for energy; SPIRE, FoF, BioTech, etc.) to become member of BioNanoNet and by this join the Austrian technology platform SusChem-AT. Thus your organisation will be part of a well-positioned NTP in Europe to strongly contribute shaping the European strategies in the aforementioned thematic areas.

Looking forward to discussing future calls and initiatives during the BioNanoNet association's networking on March 27th in Graz!

Sincerely,

BioNanoNet-team

BioNanoNet *news*

New BioNanoNet members

It is a pleasure to welcome our new BioNanoNet members:

Standard member:

- Institute of Electrical and Biomedical Engineering, UMIT

Extraordinary member:

- Institute of Chemistry and Biotechnology at the Zurich University of Applied Sciences

BioNanoNet *member presentations*

Payer Medical GmbH

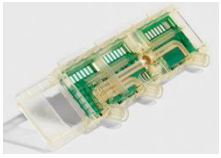
YOUR COMPETENT PARTNER FOR INNOVATIVE MEDICAL PRODUCTS

PAYER Medical GmbH, as member of the PAYER group, is an active B2B partner. We have experience in development and production of electrochemical and optical sensor modules over almost 40 years. In addition, we have extended experience in high-quality injection moulding of medical products and diagnostic systems. PAYER Medical is producing at two development and productions sites in Austria with 85 employees and is EN-ISO 13485:2012 certified and FDA registered.

Our broad service portfolio in development and manufacturing as well as our innovative and creative power distinguishes us as industrialisation partner – from conception to serial production.

RANGE-OF APPLICATION

PAYER Medical core competences are in the field of point-of-care diagnostics. We provide products that are reliable, safe and easy to handle. In a joint effort with our customers, we realise optimised solutions that meet these requirements to improve patient care.

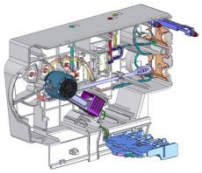


Electrochemical and optical sensor technology

We have decades of experience in blood analysis devices especially with blood gases, metabolites, electrolytes and haemoglobin-derivatives.
We offer development, industrialisation and consulting services for high-tech sensor modules.

Advanced consumables

PAYER Medical produces advanced medical consumables with an added value. We develop optimised and expanded products regarding functionality and response.



System integration

A well-defined requirement management process is our major contributor to success. It is our key strengths to integrate the different modules like hardware, software, reagents, fluidics, electrochemical sensors and analytics. We cover all skills along the value chain from concept to volume manufacturing.

SKILLS AND COMPETENCES

Starting with a detailed analysis of customer's requirements, we accompany the process from individual conception and planning to the successful implementation of the medical product in serial production.

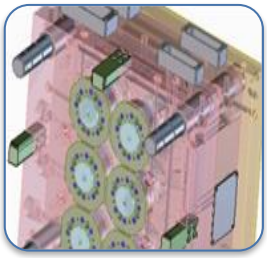
Planning and Project Management

- Requirement management and user-centred design
- Schedules, costs and resources
- Conceptual design
- IP management
- Risk management

Development

- Electrochemical and optical sensor module
- Chemical and biological laboratories
- Sensor signal processing
- Functional material engineering
- Mechanical, electrical and fluidic engineering
- Prototyping and rapid tooling competence

Industrialisation



- Process engineering and system integration
- Test series to scale-up concepts
- Sequence of events analysis
- In-house tool making (multi-component, multi-cavity)
- Jigs and fixtures
- Supply chain management

Testing

- Dedicated test facilities
- System and process validation
- Development of customized test methods
- Material testing
- Measurement series with biological samples
- Support in execution of clinical trials

Production

- Electrochemical and optical sensor modules
- Screen printing and dispensing technology
- Plastics injection moulding
- ISO 7/8 cleanroom facilities
- Surface finishing, manual & automated assembly
- Sterilisation

REFERENCES

Supported by a dynamic team of medical experts, we are ready to take on challenges and responsibilities. Our combination of deep industrial expertise and innovative thinking has enabled us to build and maintain long-term customer relationships successfully.

- Roche Diagnostics,
- B.Braun,
- Keba,
- smaXtec

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Institute of Paper, Pulp and Fiber Technology at Graz University of Technology

IPZ

Introduction

The Institute of Paper, Pulp and Fiber Technology at Graz University of Technology is the major institute in Austria to perform research and development and to educate students at all levels in the field of pulp, paper and related biobased materials. The philosophy of the Institute is to combine practical needs of industrial partners with high level research in order to provide the best possible environment for students to acquire and to apply the gained knowledge. The Institute is involved in many large scale research activities to advance the use of biobased products, to optimize value chains and to develop new materials with added value while better understanding basic interaction mechanisms in these materials. The activities are performed in the frame of COMET projects, CD laboratories, H2020 programs, FFG and FWF projects and cover both fundamental and applied research. Lately, the Institute took the lead in the H2020-BioEnergyTrain project, which aims at providing a European best practice case to develop a master's program in the field of Biorefinery Engineering. Together with 14 partners, we aim at educating the next generation of biorefinery engineers for the development of a biobased economy starting in autumn 2017.

From Paper Products- and Process Analysis, Pulp, Paper and Fibre Physics to Biobased Materials Technology

One focus of the Institute is dealing with paper characterization while understanding its behavior during production, printing, converting and end use. As a matter of fact, this requires a steady development of new analytical tools and measurement techniques and sometimes also to evaluate commercially available instruments. These activities are complemented with intense analysis and simulation of production processes in pulp and paper industry. Besides

these approaches, the relationship between fundamental mechanical properties of individual pulp fibers and the strength of paper is currently investigated. In this context, a wide range of mechanical parameters is determined under steady and dynamic conditions and compared to simulations using a variety of tools.

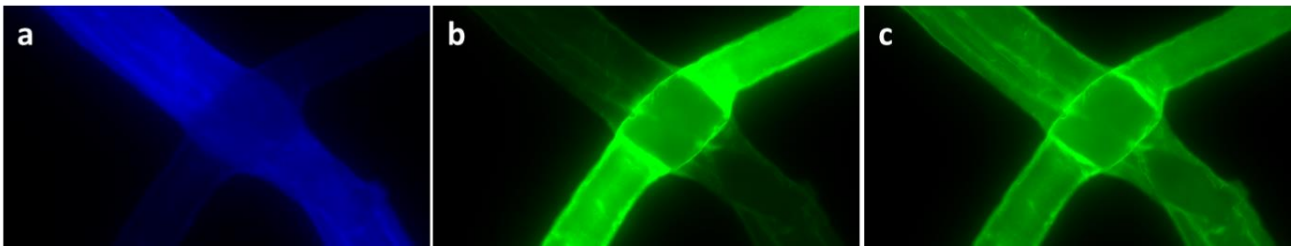

Figure 1. Analysis of the bonded area between two individual pulp fibers using FRET. a) fiber with donor dye, b) fiber with acceptor dye, c) fiber showing FRET effect.

A further area of research covers the interaction of cellulose substrates with liquids with particular focus on high speed ink-jet printing. In this context, the 2D and 3D properties of the paper structure are explored to tune liquid penetration and ink wettability on paper. Further topics include the interaction of lignocellulosic substrates with other biobased materials such as proteins, polysaccharides and lignins. Here, we aim at exploiting our experience and knowledge to create advanced materials potentially applicable in sensor design, electrochemical storage systems or smart devices.

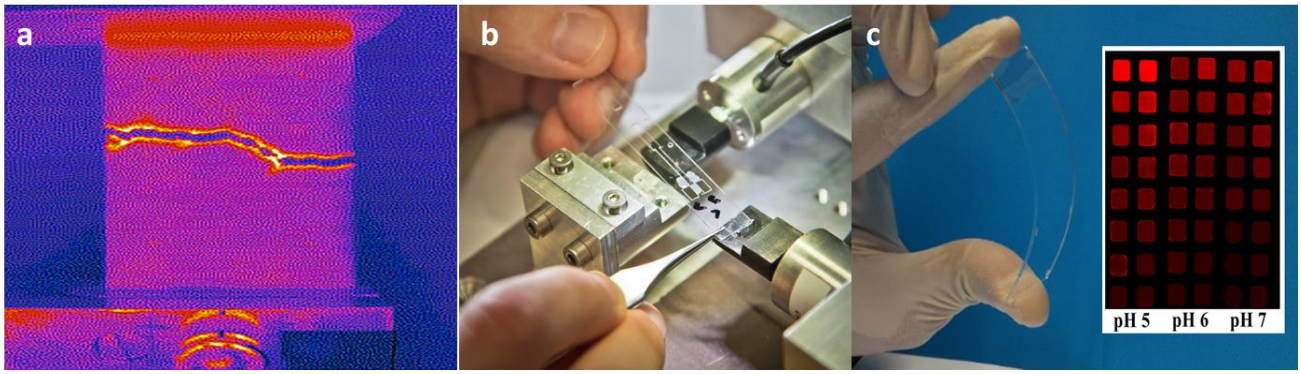

Figure 2. a) Determination of energy generated in paper sheets during tensile testing using an IR camera b) setup for determination of individual fiber-fiber bonds, c) example of a flexible polymer slide coated with cellulose derivatives and fluorescent labeled proteins.

State of the art analytical techniques are employed comprising surface plasmon resonance spectroscopy, atomic force microscopy, as well as high end scattering techniques (SAXS, WAXS, XRR).

Services for Industry and Academic Partners

Besides research and development projects, IPZ and its associated testing facility are certified according to ISO 17025 and provide a variety services in the field of pulp and paper. The offered services for the characterization of pulps and papers cover:

- **Basic properties** (e.g. density, thickness, volume…),
- **Composition** (e.g. ash and water contents..),
- **Mechanical properties** (e.g. dry and wet tensile properties, burst strength, folding endurance, tearing resistance, short span compression strength….)
- **Load deformation behavior** (e.g. Young's modulus, bending stiffness, bending resistance, stress strain behavior)
- **Surface properties** (e.g. surface topography, hardness, zeta potential, surface charge, surface energy….)
- **Optical properties** (e.g. brightness, light absorption and scattering, opacity, gloss…)
- **Printing properties** (e.g. pick resistance, printing gloss, ink penetration, ink density…)
- **Local paper properties** (e.g. Beta-radiography, local refractive index, microgloss…)
- **Interaction with liquids** (e.g. KIT test, oil uptake, printability, dimensional stability, water retention….)
- **Barrier properties against gases** (water vapor, air, oxygen…)
- **Interaction of lignocellulose substrates with biomolecules** (e.g. binding constants, surface coverage, surface concentration…..)

Further a wide range of testing methods is available concerning the morphological characterization of chemical, mechanical and recycled fibres. For further information, please contact us!

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Member contributions

Contribution of Austrian Institute of Technology

AUSTRIAN INSTITUTE OF TECHNOLOGY

The Austrian Institute of Technology: Partner in a Challenging European Research Project to Develop New Tiny Microscopes

The Austrian Institute of Technology is partner in a new European research project entitled ChipScope which aims to develop a completely new and extremely small optical microscope capable to observe the interior of living cells in real time. A consortium of 7 partners from 5 countries will tackle this issue with very ambitious objectives during a four-year research program.

To demonstrate the usefulness of this new scientific tool, in the end of the project the developed chip-sized microscope will be used to observe in real-time the interior of cells present in a disease called Idiopathic Pulmonary Fibrosis (IPF), a chronic age-related lung disease killing 0.5 Million people each year worldwide.

The new microscopes will be cheap and ubiquitously available. In science, they are expected to lead to foundational breakthroughs in virtually every field of research that makes use today of optical microscopes, particularly in the medical field. Making microscopic images will be easy and accessible to researchers who operate out in the field, away from scientific infrastructures and they will be affordable to researchers in developing countries. In the future, these microscopes in a chip could also be integrated in consumer electronic products, being as common as a camera in a smartphone is today.

The Background

Today, optical microscopes are limited in resolution by physical laws related to the wavelength of light, around half a thousandth of a millimetre. Single proteins, DNA molecules or the interior of living cells are much smaller and cannot be directly observed with conventional optical microscopes. At the moment, only indirect observation - that means interpretation of measured data - can be made, for example in complex, expensive and bulky electron microscopes which, however, are not suitable for the observation of delicate living tissues.

The Ambitious Project Objectives

The objective of the ChipScope project is to develop a new kind of optical microscope allowing to see the infinitely small.

During the project, very small LEDs of 50 nm (this is 1000 times smaller than the diameter of a human hair) will be developed and used as light sources for the new microscope which will be integrated on a chip. The fundamental difference with conventional optical microscopy will be that the illumination is made by extremely small individual light sources instead of a wide illumination field and tiny detectors in the camera. This allows super-resolution (<50nm) optical microscopy, which could be used to investigate extremely small structures as viruses, DNA or living cells, in real time.

A Highly Interdisciplinary Project Team

The ChipScope project is running from January 2017 to December 2020. The project team includes SMEs, universities and research organisations under the leadership of the University of Barcelona. Other partners are the Technical University of Braunschweig in Germany, the University Tor Vergata in Rome, the company Expert Ymaging in Barcelona, the Austrian Institute of Technology, the Medical University of Vienna and the FSRM Swiss Foundation for Research in Microtechnology.

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The ChipScope project receives 3.75 M€ funding from the European Union's Research Programme Horizon 2020.

Contribution of CBmed

Quality not Quantity: the Future of Biomarker Research Puts the Individual First

The analysis of biomarkers plays a fundamental role in the identification of optimal therapies. The Austrian competence center CBmed provides a cooperative framework which links science and industry for an advanced development in areas such as digital pathology, computerized analysis of medical data or metabolic fingerprinting. One main common goal of the cooperation partners is the development of tailor-made therapies for different cancer entities, diabetes or infections.

For the second yearly CBmed Biomarker Conference, more than 100 international experts from Europe, USA and Japan gathered in Graz on February 13th, 2017 and discussed new valuable insights into the “Future of Biomarker Research” at the Medical University of Graz.

The main speakers on the conference included Univ. Prof. Dr. Johannes Haybäck from the Medical Faculty/University Hospital Magdeburg, Germany, who talked about the perspective of academia, Univ.Prof. Dr. Marcus Hacker from the Medical University of Vienna, who presented results and an outlook into the future of biomarker research and Nicholas Hoyle, CBmed advisor and former Head of Biomarker Research at Roche who presented the perspective of the industry. The perspective of the regulatory bodies was presented by AGES experts Mag. Thomas Lang and Dr. Stephan Lehr.

From the left: Dr. Stephan Lehr, Mag. Thomas Lang. Univ. Prof. Dr. Thomas R. Pieber, Nicholas Hoyle, Univ. Prof. Dr. Marcus Hacker, Univ. Prof. Dr. Johannes Haybäck and Ing. Robert Fasching
© CBmed

CBmed, an Austrian funded competence center, links excellent research infrastructure, scientific expertise, medical knowledge, national and international industry partners for systematic medical biomarker research. CBmed brings together scientific experts with leading pharmaceutical, diagnostic, medical-technology and IT industry partners. In addition, CBmed has a strong network in the area of Biobanking including the largest Biobank in Europe, Biobank Graz, and the European Biobanking network BBMRI-ERIC. CBmed research projects will identify new biomarkers, validate potential biomarkers and conduct translational biomarker research for products to be used in clinical practice. CBmed will develop easily applicable, targeted, minimally invasive biomarkers for better diagnosis, better therapy monitoring and a more personalized treatment of patients.

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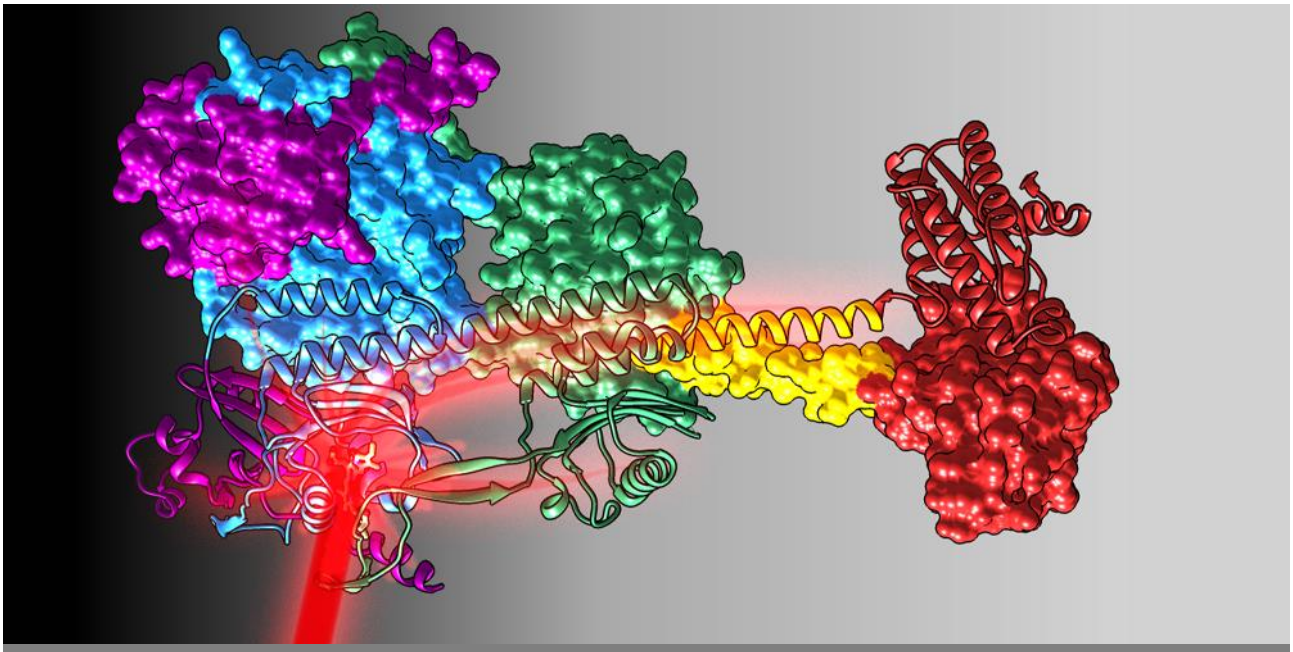
Contribution of Graz University of Technology, Institute of Biochemistry, Graz University of Technology

Biological system with light switch: new findings from Graz

For the first time ever, researchers at TU Graz and the Medical University of Graz have managed to functionally characterise the three-dimensional interaction between red-light receptors and enzymatic effectors. The results, with implications for optogenetics, have been published in *Science Advances*.



Schematic representation of the illumination of the sensor domain of a photo-receptor and the molecular propagation of the light signal to the effector (in red on the right-hand edge of the image). © TU Graz/IBC

The aim of optogenetics is to control genetically modified cells using light. A team of Graz scientists led by Andreas Winkler from the Institute of Biochemistry at TU Graz have set a milestone in the future development of novel red-light regulated optogenetic tools for targeted cell stimulation. For the first time ever, they were able to observe molecular principles of

sensor-effector coupling in the full-length structure of a red-light responsive protein and describe detailed mechanisms of signal transmission over long distances at a molecular level. The results of the research have been published in the open access journal *Science Advances*.

Helix as light switch

To survive, cells and organisms have to adapt to new environmental conditions. This is the job of “protein building blocks” which interact with each other in different ways, thus creating cellular networks which allow adaptations to be made to changed environments. The sensors or “receptors” of external stimulation, such as light, are at least in part coupled to specific effectors in order to specifically activate or inhibit cellular signal molecules depending on need. The Graz research group, which comprises not only researchers from TU Graz but also scientists from the Medical University of Graz, presents molecular details of a red-light photo-receptor, involved in the production of a central bacterial messenger molecule, and describes the structure of a full-length light-receptor together with its enzymatic effector for the first time. The architecture and composition of the linker element connecting the sensor and effector is very important in light regulation. TU Graz biochemist Andreas Winkler, head of the research group: “By using a combination of x-ray structural analysis and hydrogen-deuterium exchange, by which the structural dynamics and conformational changes can be analysed, we managed to better understand the functional characteristics of this helical coupling element. We were able to show that illuminating the sensor with red light resulted in a rotation-like change in the coiled coil linker region, which in turn effects the enzymatic activity of the neighbouring effector.” The Graz researchers were thus able to determine structural details of a red-light regulated full-length system and describe molecular mechanisms of signal transduction.

Towards a rational design of proteins

The research contributes to better understanding the modularity of naturally occurring protein domains and being able to develop new optogenetic tools. Diverse combinations of different sensor modules are found in nature, such as red-light sensors, blue-light sensors and pH

sensors – sometimes with identical and sometimes different effectors. From this, the researchers conclude that there are molecular similarities in signal transduction and therefore that rational and completely arbitrary combinations of sensors and effectors which do not occur in nature are conceivable. Andreas Winkler: “We are currently limited to naturally occurring systems to a great extent in the use of directly regulated enzymatic functionalities. The long-term aim is to generate new light-regulated systems which can overcome the limitations of nature and which would be of great interest for different applications in optogenetics.”

Original publication in *Science Advances*:

Geoffrey Gourinchas, Stefan Etzl, Christoph Göbl, Uršula Vide, Tobias Madl, Andreas Winkler: Long-range allosteric signaling in red light–regulated diguanylyl cyclases. Science Advances Vol. 3, No. 3, e1602498 (2017). doi: 10.1126/sciadv.1602498

This project is anchored in the Field of Expertise “Human & Biotechnology”, one of five research foci of TU Graz. The researchers involved are also members of BioTechMed-Graz, a joint project of TU Graz, the Medical University of Graz and the University of Graz.

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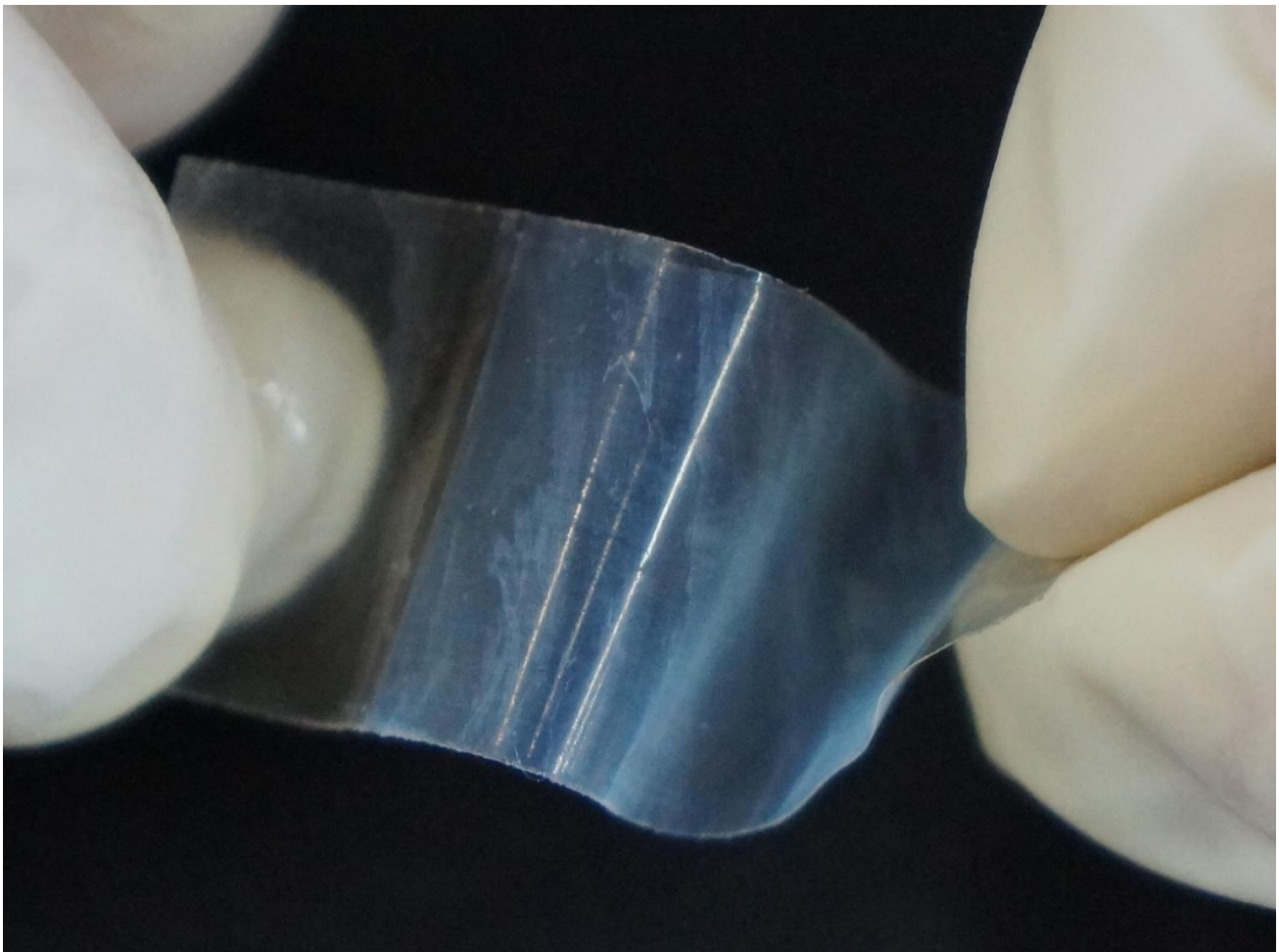
Contribution of Graz University of Technology, Institute of Physical and Theoretical Chemistry

Porous crystalline materials: TU Graz researcher shows method for controlled growth



A research group lead by Paolo Falcaro from TU Graz describes a method of growing porous cystalls called MOFs on a comparatively large surface area of one square centimetre - precisely aligned and oriented. © Nature Materials 2017, Falcaro et.al.

Microporous crystals (MOFs) have a great potential as functional materials of the future. Paolo Falcaro of TU Graz et al demonstrate in *Nature Materials* how the growth of MOFs can be precisely controlled on a large scale.

Porous crystals called metal-organic frameworks (MOFs) consist of metallic intersections with organic molecules as connecting elements. Thanks to their high porosity, MOFs have an extremely large surface area. A teaspoonful of MOFs has the same surface area as a football pitch. These countless pores situated in an extremely small space offer room for “guests” and can, for example, be used for gas storage or as “molecular gate” for separation of chemicals.

But MOFs have a much greater potential and it is what Paolo Falcaro from TU Graz’s Institute of Physical and Theoretical Chemistry (PTC) wants to unlock. “MOFs are prepared by self-organisation. We don’t have to do anything other than mix the components, and the crystals will grow by themselves. However, crystals grow with random orientation and position, and thus their pores. Now, we can control this growth, and new properties of MOFs will be explored for multifunctional use in microelectronics, optics, sensors and biotechnology.” In the current issue of *Nature Materials*, a research activity lead by Paolo Falcaro and Masahide Takahashi (Osaka Prefecture University - Japan) together with Australian colleagues at the University of Adelaide, Monash University and The Commonwealth Scientific and Industrial Research Organisation (CSIRO) describes a method of growing MOFs on a comparatively large surface area of one square centimetre rapidly achieving an unprecedented controlled orientation and alignment of the crystals.

Directionally dependent properties

The big advantage of precisely oriented crystals in MOFs makes every materials scientist excited. Functional materials can be infiltrated in the pores of the crystals to generate anisotropic materials; in other words, materials with directionally dependent properties. In the journal *Nature Materials,* the research team shows how the controlled synthesis of a MOF film behaves in the presence of fluorescent dye. Just by rotating the film, the fluorescent signal is turned “on” or “off” and an optically active switch has been created.

Paolo Falcaro: “This has many conceivable applications and we’re going to try many of them with a variety of different functionalities. One and the same material can show different properties through different orientations and alignments. Intentional growth of MOFs on this scale opens up a whole range of promising applications which we’re going to explore step by step.”

Protecting enzymes

A major aim of Paolo Falcaro and his team at TU Graz is the development of MOFs for biotechnological applications: “We are trying to encapsulate enzymes, proteins and even DNA in MOFs and to immunise their activity against fluctuations in temperature. The crystalline structure surrounding the “guest” in the pore has a protective effect, like a tough jacket. We want to check out the possibilities more accurately,” explains Falcaro.

Paolo Falcaro: luminous fingerprints

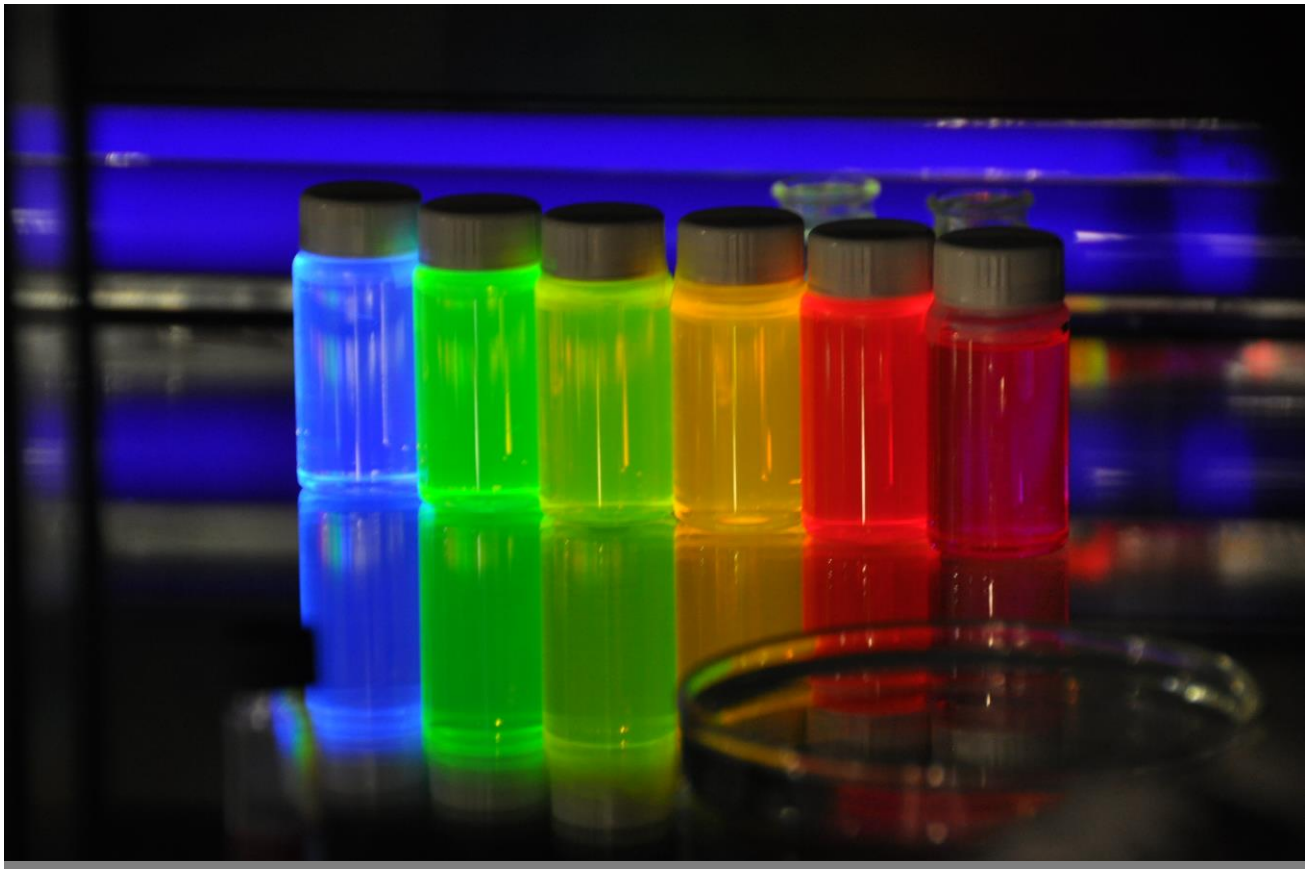
Born in Padua, Italy, Paolo Falcaro has spent a long time working with the synthesis, fabrication and orientation of porous and crystalline materials, and he publishes his discoveries in prestigious journals. Two years ago, he and colleagues from Australia managed to get invisible fingerprints to glow in UV light by using a drop of liquid with MOF crystals. This new forensic method appears to be fast and broadly applicable providing an alternative method to the previous way for fingerprint detection.

After studies at the Universities of Padua and Bologna and extensive professional experience in Italian commerce, Falcaro moved to the Commonwealth Scientific and Industrial Research Organisation (CSIRO) in Australia in 2009. Also, he was visiting professor at the Osaka Prefecture University, Kyoto University in Japan, and currently he is adjunct full professor at the University of Adelaide in Australia. Paolo Falcaro has been Professor of Bio-based Materials Technology at TU Graz’s Faculty of Technical Chemistry, Chemical and Process Engineering, Biotechnology since 1st April, 2016.

Original publication in *Nature Materials*:

Paolo Falcaro, Kenji Okada, Takaaki Hara, Ken Ikigaki, Yasuaki Tokudome, Aaron W. Thornton, Anita J. Hill, Timothy Williams, Christian Doonan, Masahide Takahashi: Centimetre-scale micropore alignment in oriented polycrystalline metal-organic framework films via heteroepitaxial growth. Nature Materials 16, 342-348 (2017). doi:10.1038/nmat4815

This research area is attributed to the Field of Expertise "Advanced Materials Science“, one of TU Graz' five strategic areas of research.



Example illustration: luminescent liquids. © TU Graz

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Contribution of JOANNEUM RESEARCH

"Light and Mobility" – the 7th JOANNEUM RESEARCH Future Conference

JOANNEUM RESEARCH held its seventh Future Conference at Messe Congress Graz on 1 March 2017. The general theme of "Light and Mobility" was reflected in the keynote as well as the sessions and the exhibition. JOANNEUM RESEARCH presented all its latest developments to customers and partners and offered them the opportunity to get involved in the company's planning processes through dialogue and exchange. Managing Director Univ.-Prof. Dr. **Wolfgang Pribyl** was delighted to welcome over 600 participants: "This is a record attendance - the number of visitors increased by around 200 compared to last year." The participants were greeted by Dr.in Sandra Holasek, Member of the Styrian Parliament, and Carinthian Governor Dr. Peter Kaiser. The highlight of this year's programme was the excellent keynote on "Light for autonomous vehicles" by Dr.-Ing. **Wolfgang Huhn** from Audi AG.

(Credit JOANNEUM RESEARCH/Bergmann): Wolfgang Pribyl, Wolfgang Huhn und Peter Kaiser (f. l.

For more information go to www.joanneum.at

Contribution of Medical University of Graz

International Partnering Day

21st of September 2017, Graz, Austria

The international Partnering Day – the biennial event of the WTZ-Süd under the leadership of the Med Uni Graz – will take place on Thursday 21 September 2017 in Graz, Austria and is dedicated to the topic "Health Tech Innovations for Successful Business"

The event is organised by the Wissenstransferzentrum Süd (WTZ Süd) – a knowledge transfer centre – which is a merger of the Styrian universities and the University of Klagenfurt. Supporters include the Austrian Federal Ministry for Science, Research and Economy (BMWFW), the austria wirtschaftsservice AWS (the Austrian federal promotional bank), the Steirische Wirtschaftsförderung SFG (the Styrian business promotion agency), the cluster Human Technology Styria and the Enterprise Europe Network. This is an international event open to all innovative universities, university-based research institutes and companies.

Pitches, Poster Exhibition and B2B Meetings: Speed Dating for Science

The basic idea of the Pitches, Poster Exhibition and B2B meetings at the **Partnering Day** is to allow university researchers and innovative companies to enter into open, creative information exchange on multiple levels. Participating universities and companies can put their collective expertise and future developments up for discussion.

The event offers a perfect opportunity to initiate intensive collaboration between science and industry. Researchers and companies meet face to face and can present their ideas and expertise to each other, while also setting out their particular set of requirements. In this way, both parties can benefit and personal meetings can pave the way to future sustainable cooperation.

Health Tech Innovations for Successful Business

There is probably no other area of our society where the discrepancy between tradition and innovation is as hotly debated as in the field of medical technology and health care. This is probably due to the fact that this is a topic that strikes a chord with so many. Of course, everyone wants to be happy and active at 100 years of age or older, and there is no doubt that considerable scientific and commercial resources should be dedicated to this sector. On the other hand, there can be a considerable degree of societal scepticism when technology and all its associated possibilities become the driving force or the benchmark. This is precisely the task and responsibility of innovative research facilities and their industry partners – to recognise, foster and develop future-oriented medical products which have potential in the present and which in the future will further push the boundaries of what is possible.

These objectives can only be achieved with the innovative exchange of different skills and interests. The international **Partnering Day** provides the ideal platform for this exchange. Feedback from the 2015 event shows that initial, brief meetings have since turned into cooperative projects. On this basis, the **Partnering Day on 21 September 2017** looks set to be a hot spot for “Health Tech Innovations and Successful Business” once again.

Registration and further information can be found on www.partneringday.at

© Gernot Muhr

Contribution of PAYER Medical GmbH, Austria

Printed Sensors Pilot Manufacturing Line

The Printed Sensors Pilot Manufacturing Line aims on enabling and accelerating the industrial deployment of innovative Printed Electronics products such as e.g. Sensors and Actuators. It shall bridge the gap between close-to-market prototype systems and full scale industrial production. In the last decade manifold innovative sensor solutions and products were developed for application in fields such as medical diagnostics, smart production, wearable devices, or environmental monitoring.

Printing processes are among the key technologies for industrial manufacturing such products by precisely controlled deposition of multiple functional materials with special electronic, photonic or (bio)chemical properties. Unlike silicon MEMS and semiconductor based technology, printed Sensor and Actuator Systems largely lack standardization in terms of design, interfaces and manufacturing processes. Chemical- and biochemical sensor technologies are often based on customized and partly unique materials and processes which cannot be directly transferred to standard industrial production

equipment. This impedes up-scaling to cost-effective industrial production and creates roadblocks, preventing many innovative and promising printed sensor technologies from being successfully introduced into the market.

The Printed Sensors Pilot Manufacturing Line implements the key technologies required for the manufacturing of printed sensor systems in a flexible and modular setup. It allows for process development and optimization followed by gradual ramp-up to pilot production and finally full scale industrial production.

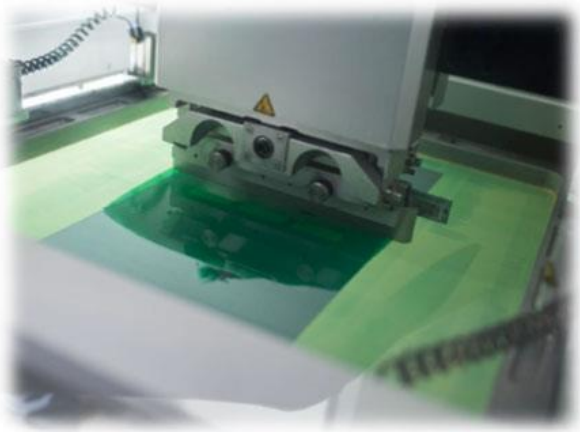
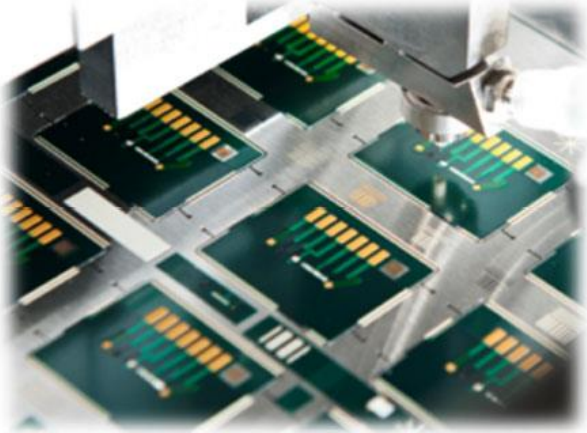
Active and passive sensor materials (polymers, biomolecules, metals, micro-/nanoparticles, etc.) are deposited onto a broad variety of sensor substrates (e.g. polymers, flexible films, ceramics, metals, PCB´s, etc.) via printing and dispensing technologies. The substrates are

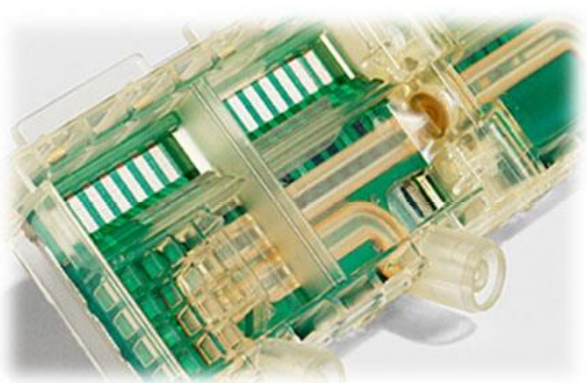
processed using handling frames with adjustable inserts. Key technologies implemented in the Printed Sensors Pilot Manufacturing

Line are screen printing and liquid dispensing methods. Industrial drying and curing processes of the deposited materials are available involving precisely controlled environmental conditions and extensive in-process quality control and inspection technology. Printed Sensor Substrates are integrated and assembled with e.g. (micro)- fluidic chips and cartridges or electronic microchips in a automated and controlled assembly and packaging line. Polymeric parts and consumables are available by 3D printing or by pilot series injection molding in original polymer materials via rapid tooling services.

The facilities are set up in cleanroom environment (ISO8, ISO 7) and are fully EN ISO 13485 certified and FDA registered for the manufacturing of medical products. It provides all technical, personal, and logistic capabilities to directly transfer pilot and preseries production into full industrial scale series production.

Furthermore, extensive complementary infrastructure like chemical and biochemical laboratories are available for materials and process development, characterization, and quality control.



Contact:

PAYER Medical GmbH
Reiteregg 6, A-8151 St. Bartholomä
Web: www.payergroup.com

Printed Sensors Pilot Manufacturing Line – At a Glance

Industrially viable process development and upscaling for a broad range of printed sensor and electronics technologies.

Process development > Up-scaling > Pilot production > Inudstrialisation - serial production

Technologies:

- Industrial Screen and Stencil Printing
- Materials deposition and dispensing technologies
- Various drying and curing technologies
- Injection Moulding and Rapid Tooling
- Various assembly, bonding and packaging capabilities

Framework:

- Qualified automation equipment, validated processes and clean room facilities (ISO 8, ISO 7)
- Extensive in-process quality control and inspection technology
- Process Data Analytics & Management, Balanced Score Card System
- Complementary Chemical and Biochemical Laboratory infrastructure for materials characterization, process development and QC.
- EN ISO 13485:2012 certified, FDA registered

Product and Process Examples:

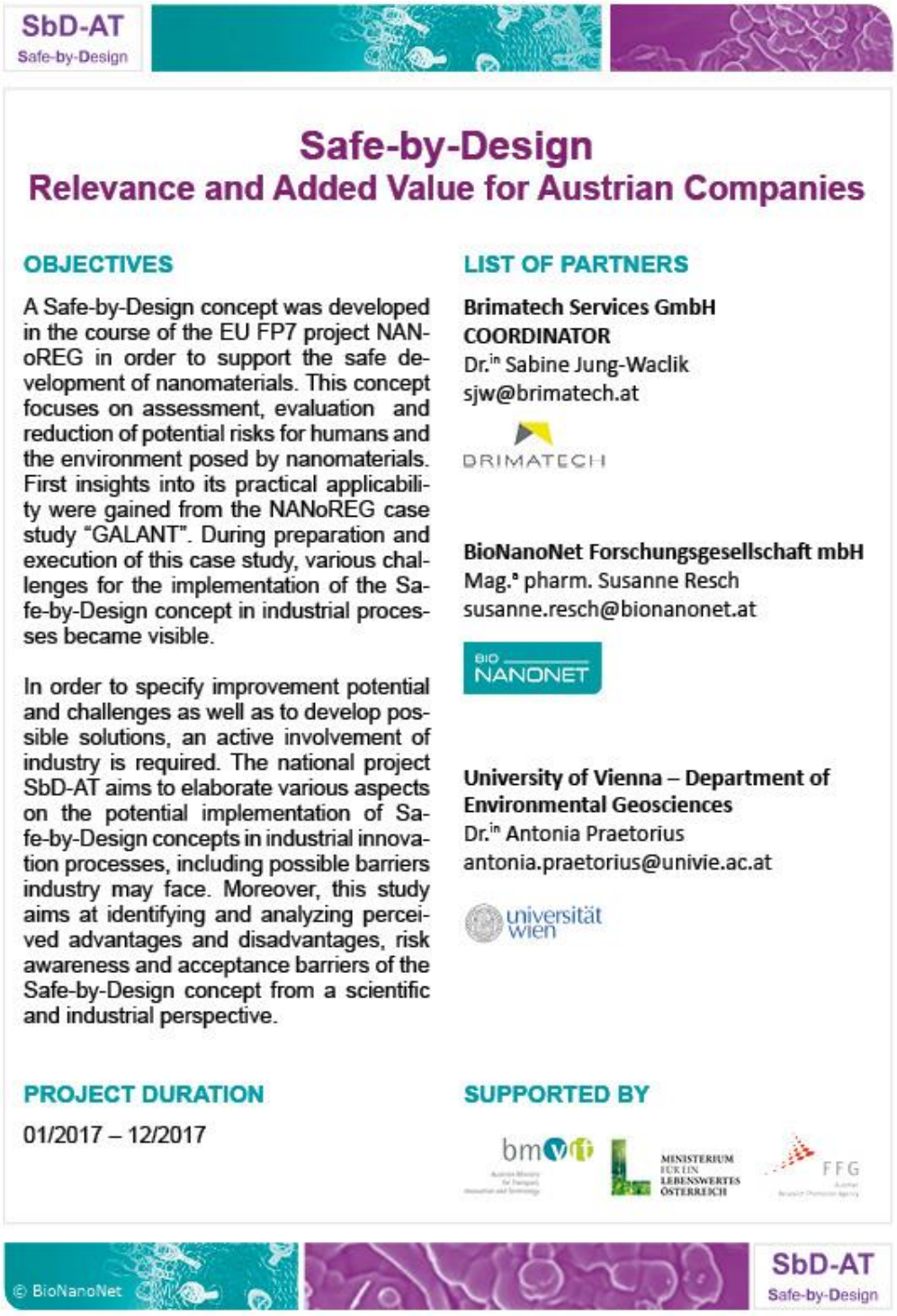
- Complete Electrochemical (Bio)-Sensor Systems
- Complete Optical Chemo- and Biosensor Systems and Cartridges
- Capacitive, piezoelectric or impidimetric sensor structures
- Electrode Structures for Sensors & Actuators
- Functionalization of PCB or microchip based platforms
- Assembly of BioSensor cartridges, in-vitro diagnostics tests, etc.

Application Areas:

- Smart Sensor & Actuator Systems (IoT, Automotive, etc.)
- Printed Electronics
- Medical Technology (in-vitro Diagnostics, Point-of-care, …)
- Process control for Chemistry and Biotechnology
- Environmental Monitoring
- Etc.

BioNanoNet *project presentations*

Sbd-AT – Safe-by-Design
Relevance and Added Value for Austrian Companies



BioNanoNet *success stories*

EU project NANoREG ended

A common European approach to the regulatory testing of nanomaterials

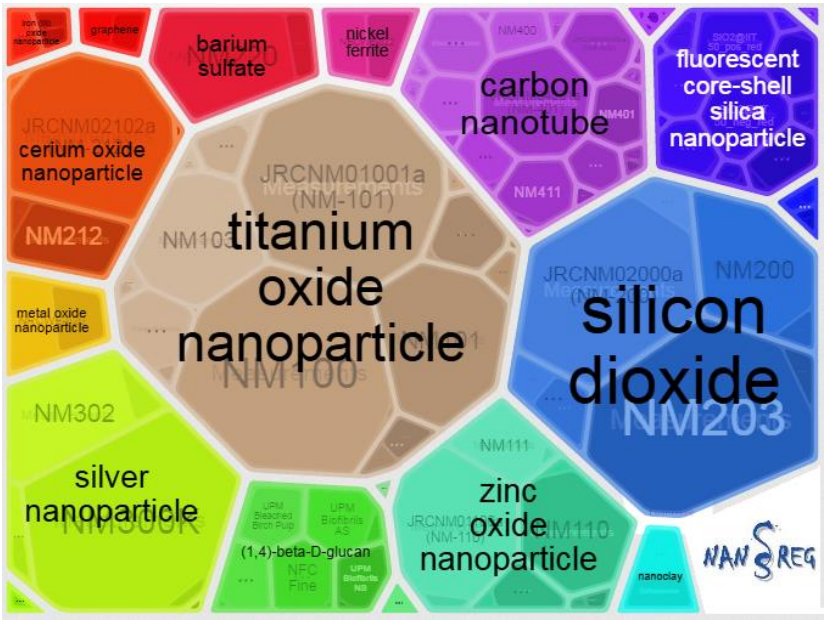
After four project years the FP7 NANoREG project ended on 28 February 2017. The project was aimed at developing reliable, reproducible and relevant methods for testing and assessing the effects of nanomaterials in a regulatory context. The project has resulted in a great number of scientific as well as policy and regulatory-oriented deliverables, about 60 SOPs and a huge set of well-defined experimental data.

Results of the project have been integrated in the NANoREG framework for the Safety Assessment of Nanomaterials. It provides a detailed overview of how the safety of NMs can be assessed in the context of the European REACH Regulation. It also proposes forward-looking strategies aiming at making the nanomaterial safety assessment in the REACH context more practical and economically efficient. The NANoREG Toolbox supports the implementation of the Framework by listing methods, datasets, models, guidance documents, decision trees, etc., from within and beyond NANoREG.

All results of the project, deliverables, SOPs, and data, will be publicly available directly after the end of the project. The results will be available under the Commons Attribution-NonCommercial-ShareAlike 4.0 International License. Commercial use of data and information is possible but needs an agreement with the owner(s) of the data and information.

The opening up of the NANoREG Legacy fits in – and expresses - the growing awareness in the nanosafety community that collaboration and sharing of information is the only way to make real progress in nanosafety research.

All the NANoREG results will be stored in the "NANoREG Results Repository". The results will also be accessible via the NANoREG web site and via links in the NANoREG Final report that will be published in April this year. The NANoREG experimental data are stored in the NANoREG eNanoMapper instance.



Furthermore, the NANoREG results will feed into the ProSafe White Paper that will provide recommendations for regulators and policy makers with respect to the risk assessment of nanomaterials for the short and long term. A draft of the White Paper will soon become available for consultation.

For further information do not hesitate to contact the BioNanoNet team.

This project is funded by the EU Framework 7 Programme, contract no 310584

BioNanoNet *retrospect*

Nano World Cancer Day 2017

2nd of February, 2017, Graz, Austria

The Austrian event "**NanoWorldCancerDay2017**" took place on the premises of the Center for Medical Research at Medical University Graz. The event was **organized by BioNanoNet Forschungsgesellschaft mbH, supported by the Medical University Graz (MUG)**.

Rector Univ.-Prof. Dr. **Hellmut Samonigg** (MUG) opened the press conference with his statement in which he expressed the importance of nanomedicine in and for Austria, especially in the treatment of cancer. In written statements three Austrian Federal Ministries (Federal Ministry of Health and Women, Federal Ministry of Science, Research and Economy, and Federal Ministry of Traffic, Innovation and Technology), acknowledged also the importance of nanotechnological development in the field of medical research and mentioned their willingness to support nanotechnological research and development, enabling improvements in patient treatment for Austrian society.

Former Federal Minister of Science and Technology and now member of the Austrian Parliament, NR-Abg. Univ.-Prof. Mag. Dr. **Beatrix Karl**, also representing the Governor of the Province of Styria, LH Hermann Schützenhöfer, stated in her opening speech the importance of collaboration as it is shown by NanoMedicine-Austria initiative likewise with the NanoWorldCancerDay2017-event and to collaborate enabling breakthroughs in science and research for the benefit of patients, thus for all of us.

The scientific part of the event was started by **Andreas Falk**, MSc, CEO of BioNanoNet Forschungsgesellschaft mbH, member of the Executive Board of the European Technology Platform Nanomedicine (ETPN). The ETPN initiated the NanoWorldCancerDay 5 years ago, an event celebrated on the same day in 15 countries. As organiser of this event, which took place in Austria the third time, he presented an introductory lecture on "what is nanomedicine", the activities and success story of "NanoMedicine-Austria", which brings together the Austrian nanomedicine-community and the ETPN. Mag. **Elisabeth Andritsch** (MUG, department oncology) presented the needs of patients, emphasized that the personal treatment strongly depends on the emotional involvement of the treated person, her/his social environment and that science, research and medical disciplines can create hope for patients. To take this into account is the key to successful treatment, especially in the field of cancer treatment.

Univ.-Prof. Dr. **Michael Speicher** (MUG, Institute for human genetics) gave insights into the impact of nanotechnology towards monitoring the effects of therapies, to find out the reasons for resistance against therapy, and thus to be able to use the knowledge of making visible nanosized genetic information in the peripheral blood to do all these analysis from this sample. Hence, no painful sampling needed any more for this high-precise and personalized diagnosis. And these technologies on the nanosized level enable to select the most effective therapy to fight against cancer. He described the significant influence nanotechnology has in the medical sector and how important it is to have national resources dedicated to this important topic. Univ.-Prof. Dr. **Berthold Huppertz** (BioBank Graz), pointed out the importance of high quality samples, that are available in the BioBank for all kinds of (nano)medical studies, and that starting from its sampling, the documentation all along the samples life time is key for a successful BioBank. Final speaker of the event was Assoz.Prof. Dr. **Roland Malli** (NGFI Next Generation Fluorescence Imaging GmbH) presenting their nanotechnology based, novel genetically encoded fluorescent probes which enables diagnostic developments in the field of cancer screening. Thus, nanoenabled medical research could be successfully

translated to the market by which the importance of support (by installing dedicated funding) of nanomedical research in Austria was emphasized.

More than 50 participants from media (TV, radio), press (journalists), universities, politics and the broad public could realize by the presented content, that Austria is an important player in translational nanomedical research and can show already success stories how to pave the way from research to market (start-ups) in this challenging field. However, if there is no dedicated national funding for nanomedical research put in place, Austria will lose its high level position. Thus, it is a perfect time to re-start funding nanomedical research and development, also to be prepared for upcoming international initiatives like ESTHER.

from left to right: Berthold Huppertz, Michael Speicher, Roland Malli, Beatrix Karl, Elisabeth Andritsch, Hellmut Samonigg, Andreas Falk © Medical University Graz

BioNanoNet as organiser of this event is grateful to give special thanks to all speakers, and especially to Sylvia Gollner and Gerald Auer (both from Medical University Graz) for their support in organizing this successful event.

Further information about the event and NanoMedicine-Austria: https://www.bio-nanonet.at/national-technology-platforms/nanomedicine-austria

Nanomaterial Safety Assessment Conference (NMSA)

New tools and approaches for nanomaterial safety assessment

February 7th – 9th, 2016, Malaga, Spain

From 7th - 9th of February 2017, the Nanomaterial Safety Assessment Conference took place in Malaga, Spain. This event was jointly organized by five major EU-FP7 projects NANOSOLUTIONS, GUIDEnano, SUN, NanoMILE and eNanoMapper. The conference aimed at presenting the main results achieved in the course of the projects fostering a discussion about their impact in the NanoSafety field and possibilities for future research programmes.

More than 200 participants at this well organised event had the opportunity to get presented the BioNanoNet scientific poster called “Industrial Innovation Liaison (i2L) – NSC-subgroup as supporting infrastructure for real-life application of NanoSafety assessment”. Furthermore, we also presented a poster introducing the EU-project “ACEnano - Analytical and Characterisation Excellence in nanomaterial risk assessment: A tiered approach” according to BioNanoNet’s role in the project dissemination.

NanoSafety Cluster Meeting

New coordination team for NanoSafetyCluster

February 6th, 2017, Malaga, Spain

BioNanoNet participated in the NanoSafety Cluster meeting on February 6th. During this meeting the NanoSafety Cluster (NSC) decided to continue its successful work under a new coordination team, involving Eva Valsami-Jones (coordinator) and Iseult Lynch at the University of Birmingham, Flemming Cassee at RIVM, and Andreas Falk at BioNanoNet.

The ambition of this new coordination team is to make the NSC stronger and engage with the NanoSafety community more, in ways that are mutually beneficial. For example NSC shall bring more prominence in the work of individual projects especially to industry and regulatory bodies. Thus, we would also like to invite you all to become members of the NSC community and to discuss the potential role that you and your teams would wish to play in the Cluster.

BioNanoNet is very happy to be part of the coordination team having a very important function in European NanoSafety landscape with special focus on innovation, and will try its very best to support this important activity. If you are interested to become part of the NSC community and/or to become member of the BioNanoNet community, do not hesitate to contact us.

NANOGENTOOLS

Secondment of NIA to BioNanoNet

In the framework of the European Commission Horizon 2020 NANOGENTOOLS project, Guillaume Flament from the Nanotechnology Industries Association (NIA) from Brussels has been seconded for a month to BioNanoNet. This secondment was a great opportunity for a closer collaboration between NIA and BioNanoNet. During this secondment, Flament has built synergies and gathering opinions on safe-by-design from Austrian industries. NANOGENTOOLS has released its first newsletter and launched a short Survey on Nanomaterial Safety Management and the Safe-By-Design Concept to test the depth of knowledge within SMEs.

You can reply to the NANOGENTOOLS Survey on Nanomaterial Safety Management and the Safe-By-Design Concept here: https://goo.gl/forms/1MR6fFMT5bqgJRPv2

Impressions of the collaboration between NIA and BioNanoNet © BioNanoNet

Industrial Workshop on Safe-by-Design

24 April - 25 April 2017, Gaiker Centro Tecnológico in Bilbao, Spain

Together with six other Horizon 2020 projects, NANOGENTOOLS will host an industry workshop on the safe-by-design (SbD) of nanomaterials on 24-25 April at Gaiker, in Bilbao, Spain. Registration is free and companies interested in learning how to apply SbD in their products and processes are encouraged to register.

Draft agenda SbD Workshop

Organizing Committee

The workshop will start on 24 April at 12:00 p.m. and will end on 25 April at 1:00 p.m.

Participation is limited. Please notice that via your application you only confirm your interest in attending the workshop. Extended Deadline for application: 14th of April 2017.

REGISTRATION

Further information on the NANOGENTOOLS project and updates on developments can be obtained from www3.ubu.es/nanogentools .

This project has received funding from the European Union's Horizon 2020 research and innovation programme under the Marie Skłodowska-Curie grant agreement No 691095.

BioNanoMed 2017
8th International Congress

Nanotechnology in Medicine & Biology

March 20th – 22nd 2017, Krems, Austria

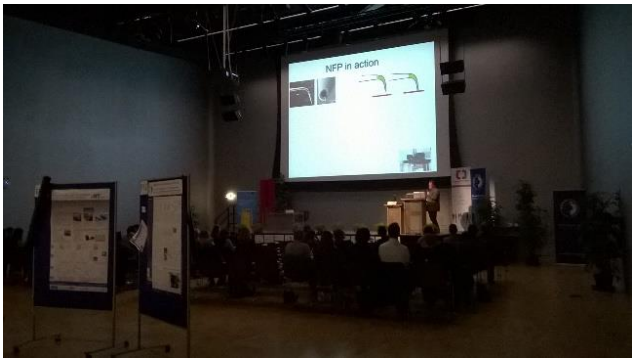
From 20th March to 22nd March 2017, the 8th International Congress of Nanotechnology in Medicine & Biology took place at the Danube University in Krems, Austria. The event provided a forum for researchers, engineers, students and practitioners from Natural Sciences, Medical Sciences and Engineering as well as from educational and non-governmental institutions to discuss current, emerging and future trends of the converging fields of nanotechnology, biotechnology and medicine. More than 50 exciting lectures and invited talks given by leading international scientists as well as poster presentations offered delegates an excellent opportunity to discuss pioneering developments and to initiate cooperation projects.

A great variety of different presentations were performed by international experts, addressing the key topic **„Nanotechnology enables Personalized Medicine“**.

The programme covered the following panel sessions:

- Advances in Nanomedicine
- Nanomaterials for Biomedical Applications
- Regenerative Nanomedicine - Nanotechnology and Stem Cells
  (co-organized by ESAO)
- Nanotechnology for Detection, Diagnosis, Imaging & Sensing
- NanoPharmaceuticals & Drug Design
  (co-organized by Swiss Academy of Pharmaceuticals Sciences - SAPhS)
- Drug Delivery & Nanotherapy
- NanoSafety Implementation in Nanomedicine
  (co-organized by EURO-NanoTox & NanoMedicine-Austria)

BioNanoNet participated the conference and contributed an oral presentation on the topic “Science-based Approaches to support Nanomedical Innovation by proactive Nanosafety Assessment”.



Photos © BioNanoNet

Conference Calendar

World Congress and Expo on Nanotechnology and Nanoengineering

When? 27 –29 March 2017

Where? Dubai, United Arab Emirates

For more information please visit the event website.

BIO NANONET on site *For BioNanoNet members only!*

BioNanoNet Networking mit Diskussion über wissenschaftliche Aktivitäten im Rahmen der Mitgliederversammlung des Vereins BioNanoNet

When? 27 March 2017, 12:30 – 3:30 p.m.,

Where? Graz, Austria

For more information please visit the event website.

BIO NANONET on site

Workshop zum Arbeitsprogramm 2018-2020 H2020 NMBP

When? 28 March 2017, 10:00 a.m. – 3:30 p.m.

Where? Vienna, Austria

For more information please visit the event website.

Graphene 2017

When? 28 – 31 March 2017

Where? Barcelona, Spain

For more information please visit the event website.

MIT Conference 2017 - International technology conference

When? 29 – 30 March 2017

Where? Vienna, Austria

For more information please visit the event website.

International Conference on Surfaces, coatings and interfaces - SurfCoat Korea 2017

When? 29 – 31 March 2017

Where? Incheon, Korea

For more information please visit the event website.

BIO NANONET on site

NIA 2017 Symposium & AGM

When? 30 March 2017

Where? Brussel, Belgium

For more information please visit the event website.

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2. Österreichische Konferenz "Die Klinikimmobilie der nächsten Generation"

When? 30 March 2017

Where? Graz, Austria (airport)

For more information please visit the event website.

14th Global Experts Meeting on Nanomaterials and Nanotechnology

When? 30 – 31 March 2017

Where? Madrid, Spain

For more information please visit the event website.

253rd American Chemical Society National Meeting & Exposition

When? 2 – 6 April 2017

Where? San Francisco, United States

For more information please visit the event website.

Innovation und Regulierung für die sichere Anwendung von Nanomaterialien

When? 3 April 2017

Where? Bern, Switzerland

For more information please visit the event website.

2nd International Nanotechnology Conference & Expo

When? 3 April 2017

Where? Dubai, United Arab Emirates

For more information please visit the event website.

2nd EUROPEAN CONFERENCE on Pharmaceutics

When? 3 – 4 April 2017

Where? Krakow, Poland

For more information please visit the event website.

European Nanomedicine Meeting

When? 3 – 4 April 2017

Where? London, Great Britain

For more information please visit the event website.

Training school on "Upconverting nanoparticles in bioaffinity assays - from bioconjugation to luminescence readout"

When? 3 – 5 April 2017

Where? Turku, Finland

For more information please visit the event website.

NanoMONITOR 1st stakeholders' day

When? 4 April 2017

Where? Valencia, Spain

For more information please visit the event website.

2nd International Conference on Nanotechnology Modeling and Simulation (ICNMS'17)

- 2nd International Conference on Nanobiotechnology (ICNB'17)
- 2nd International Conference on Nanomedicine, Drug Delivery, and Tissue Engineering (NDDTE'17)
- 2nd International Conference on Nanotechnology and Environmental Issues (ICNEI'17)
- 2nd International Conference on Nanomaterials, Nanodevices, Fabrication and Characterization (ICNNFC'17)

When? 4 – 6 April 2017

Where? Barcelona, Spain

For more information please visit the event website.

Future OP 2017 Fachtagung mit Best Practices und Besichtigung

When? 5 - 6 April 2017

Where? Graz, Austria

For more information please visit the event website.

1st EMMC International Workshop 2017

When? 5 - 7 April 2017

Where? Vienna, Austria

For more information please visit the event website.

MedTech.Factory // Idee - Produkt - Gründung

When? 6 April 2017, 1:30 – 6:00 p.m.

Where? Linz, Austria

For more information please visit the event website.

International Molecular Diagnostics Europe

When? 10 – 13 April 2017

Where? Lisbon, Portugal

For more information please visit the event website.

Money to Market - Das KMU-Instrument in Horizon 2020

When? 20 April 2017, 1:30 – 5:30 p.m.

Where? Graz, Austria

For more information please visit the event website.

Industrial Workshop on Safe-by-Design

When? 24 – 26 April 2017

Where? Bilbao, Spain

For more information please visit the event website.

Fluorofest Workshops

When? 24 - 26 April 2017

Where? Glasgow, Scotland

For more information please visit the event website.

International Conference and Exhibition on Pharmaceutical Development and Technology

When? 24 – 26 April 2017

Where? Dubai, United Arab Emirates

For more information please visit the event website.

Plant Based Summit - The Biobased Solutions international conference and exhibition

When? 25 – 26 April 2017

Where? Lille, France

For more information please visit the event website.

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conhIT - connecting healthcare IT

When? 25 – 27 April 2017

Where? Berlin, Germany

For more information please visit the event website.

3rd Edition International Smart Materials and Surfaces - SMS - Conference

When? 26 – 28 April 2017

Where? Paris, France

For more information please visit the event website.

Safety aspects of nanomaterials in the development of drugs, medical products and cosmetics

When? 27 – 28 April 2017

Where? Berlin, Germany

For more information please visit the event website.

Panel on Nanomedicine & Nanobiotechnology

When? 1 – 4 May 2017

Where? Athens, Greece

For more information please visit the event website.

NIL Industrial Day symposium

When? 2 – 3 May 2017

Where? Berlin, Germany

For more information please visit the event website.

Additive Manufacturing/3D-Druck - Relevante Aktivitäten in den Bundesländern und Initiativen auf EU-Ebene

When? 3 May 2017, 11:30 a.m. – 3:30 p.m

Where? Wiener Neustadt

For more information please visit the event website.

5th International Conference on Bio-Sensing Technology

When? 7 – 10 May 2017

Where? Riva del Garda, Italy

For more information please visit the event website

Single-use Technologies II: Bridging Polymer Science to Biotechnology Applications

When? 7 – 10 May 2017

Where? Tomar, Portugal

For more information please visit the event website

BIO NANONET on site

CLINAM 2017

When? 7 – 10 May 2017

Where? Basel, Switzerland

For more information please visit the event website.

SETAC Europe 27th Annual Meeting

When? 7 – 11 May 2017

Where? Brussels, Belgium

For more information please visit the event website.

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60. Österreichischer Kongress für Krankenhausmanagement

When? 8 – 10 May 2017

Where? Krems, Austria

For more information please visit the event website.

Lab-on-a-Chip & Microfluidics 2017

When? 10 – 11 May 2017

Where? Munich, Germany

For more information please visit the event website.

Online Training für "Main proposer" COST Programm

When? 11 May 2017, 2:00 – 3:30 p.m.

For more information please visit the event website.

REHAB 2017

When? 11 – 13 May 2017

Where? Karlsruhe, Germany

For more information please visit the event website.

Nanotech 2017 Conference & Expo

When? 14 – 17 May 2017

Where? Washington DC, United States

For more information please visit the event website.

MAMD 2017 - The World Congress on Global Markets for Medical Devices

When? 15 – 16 May 2017

Where? Amsterdam, Netherlands

For more information please visit the event website.

2nd World Congress on Polymer Science and Engineering

When? 15 – 17 May 2017

Where? Valencia, Spain

For more information please visit the event website.

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med.Logistica - Kongress für Krankenhauslogistik mit Fachausstellung

When? 17 – 18 May 2017

Where? Leipzig, Germany

For more information please visit the event website.

Meet the Experts - in einer Stunde zum Erfolg (Fokus auf klinische Studien)

When? 18 May 2017

Where? Linz, Austria

For more information please visit the event website.

15th World Medical Nanotechnology Congress & Expo

When? 22 – 23 May 2017

Where? Osaka, Japan

For more information please visit the event website.

NOM - NanoOstrava 2017

When? 22 – 25 May 2017

Where? Ostrava, Czech Republic

For more information please visit the event website.

7th Virtual Nanotechnology Poster Conference

When? 22 – 28 May 2017

For more information please visit the event website.

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eHealth Summit Austria

When? 23 – 24 May 2017

Where? Vienna, Austria

For more information please visit the event website.

EMBO Workshops on Brown Adipose Tissue

When? 24 – 27 May 2017

Where? Sitges, Spain

For more information please visit the event website.

BIO NANONET on site

8th International Conference and Exhibition on Materials Science and Engineering

When? 29 – 31 May 2017

Where? Osaka, Japan

For more information please visit the event website.

International Conference and Exhibition on Nanomedicine and Drug Delivery

When? 29 – 31 May 2017

Where? Osaka, Japan

For more information please visit the event website.

8th International Symposium on Nanotechnology, Occupational and Environmental Health

When? 29 May – 1 June 2017

Where? Elsinore, Denmark

For more information please visit the event website.

NanOEH2017 Conference

When? 29 May – 1 June 2017

Where? Elsinore, Denmark

For more information please visit the event website.

BIO NANONET on site

Maastricht Conclave 2017

When? 31 May – 1 June 2017

For more information please visit the event website.

Forum Produktion der FFG

When? 31 May – 1 June 2017

Where? Vienna, Austria

For more information please visit the event website.

16th World Nano Conference

When? 5 – 6 June 2017

Where? Milano, Italy

For more information please visit the event website.

TAPPI's 2017 Nano Conference

When? 5 – 8 June 2017

Where? Montreal, Canada

For more information please visit the event website.

8th International Conference on Nanotechnology: Fundamentals and Applications (IC-NFA'17)

When? 6 – 8 June 2017

Where? Rome, Italy

For more information please visit the event website.

International Workshop on Computational Nanotechnology

When? 6 – 9 June 2017

Where? Windermere, United Kingdom

For more information please visit the event website.

BIO NANONET on site

SusChem Stakeholder Event 2017

When? 8 June 2017

Where? Brussels, Belgium

For more information please visit the event website.

ADA 77th Scientific Sessions

When? 9 – 13 June 2017

Where? San Diego, United States

For more information please visit the event website.

9th World Congress on Materials Science & Engineering

When? 12 – 14 June 2017

Where? Rome, Italy

For more information please visit the event website.

2nd Conference on Computational Nanotoxicology

When? 12 – 16 June 2017

Where? Gdansk, Poland

For more information please visit the event website.

6th Annual World Congress of Advanced Materials 2017

When? 14 – 16 June 2017

Where? Xi'an, China

For more information please visit the event website.

23rd International Krutyn Summer School 2017

When? 18 – 24 June 2017

Where? Krutyn, Poland

For more information please visit the event website.

MedTech Summit

When? 21 – 22 June 2017

Where? Nürnberg, Germany

For more information please visit the event website.

ICNN 2017 : 19th International Conference on Nanotechnology and Nanomedicine

When? 21 – 22 June 2017

Where? Vienna, Austria

For more information please visit the event website.

EUFEP Kongress 2017 - Kinder -und Jugendgesundheit - ein Kinderspiel?

When? 21 – 22 June 2017

Where? Krems, Austria

For more information please visit the event website.

BIO NANONET on site

Euro Nano Forum 2017

When? 21 – 23 June 2017

Where? Valetta, Malta

For more information please visit the event website.

InterNanoPoland 2017 - 2nd Nanotechnology Conference and Expo

When? 22 – 23 June 2017

Where? Katowice, Poland

For more information please visit the event website.

3rd International Conference “Current Trends in Cancer Theranostics”

When? 25 – 29 June 2017

Where? Pakruojis, Lithuania

For more information please visit the event website

7th International Conference on Carbon NanoParticle based COMPosites

When? 26 – 29 June 2017

Where? Dresden, Germany

For more information please visit the event website

13th International Conference on Diffusion in Solids and Liquids - DSL2017

When? 26 – 30 June 2017

Where? Vienna, Austria

For more information please visit the event website

19th International Conference on Materials, Methods & Technologies

When? 26 – 30 June 2017

Where? Elenite, Bulgaria

For more information please visit the event website

Nanotech France 2017

When? 28 – 30 June 2017

Where? Paris, France

For more information please visit the event website

Workshop zur Ideen- und Kooperationsfindung // Schwerpunkt: MedTech.IT

When? 29 June 2017

Where? Linz, Austria

For more information please visit the event website

ISSON 2017 - 11th International Summer School on Nanosciences & Nanotechnologies, Organic Electronics & Nanomedicine

When? 1 – 8 July 2017

Where? Thessaloniki, Greece

For more information please visit the event website

8th International Nanomedicine Conference

When? 3 – 5 July 2017

Where? Sidney, Australia

For more information please visit the event website

BIO NANONET on site

NANOTEXNOLOGY 2017 - ISSON 2017

- 11th International Summer School on Nanosciences & Nanotechnologies, Organic Electronics & Nanomedicine
- 14th International Conference on Nanosciences & Nanotechnologies (NN17)NN 17 (4 – 7 July 2017)

When? 1 – 8 July 2017

Where? Thessaloniki, Greece

For more information please visit the event website

7th IC-EPSMSO - International Conference on "Experiments / Process / System Modeling / Simulation / Optimization"

When? 5 – 8 July 2017

Where? Athens, Greece

For more information please visit the event website

IAM Nano 2015

When? 8 – 10 July 2017

Where? Hamburg, Germany

For more information please visit the event website

(ICNN 2017) 19th International Conference on Nanotechnology and Nanomedicine

When? 9 – 10 July 2017

Where? Prague, Czech Republic

For more information please visit the event website

International Conference on Nanobiotechnology

When? 10 – 11 July 2017

Where? Chicago, United States

For more information please visit the event website

9th International Conference and Exhibition on Pharmacovigilance & Drug Safety

When? 17 – 19 July 2017

Where? Munich, Germany

For more information please visit the event website

Training and Innovation Course in Drug Design

When? 17 – 21 July 2017

Where? Milano, Italy

For more information please visit the event website

10th Advanced Study Course on Optical Chemical Sensors (ASCOS)

When? 20 – 28 July 2017

Where? Triest, Italy

For more information please visit the event website

10th International Conference on Emerging Materials and Nanotechnology

When? 27 – 29 July 2017

Where? Vancouver, Canada

For more information please visit the event website

ICANM 2017: International Conference & Exhibition on Advanced & Nano Materials

When? 7 – 8 August 2017

Where? Toronto, Canada

For more information please visit the event website

Biosimilars Congress 2017

When? 10 – 12 August 2017

Where? Vancouver, Canada

For more information please visit the event website

ICCE2016: 5th International Conference & Exhibition on Clean Energy

When? 21 – 23 August 2017

Where? Montreal, Canada

For more information please visit the event website

European Advanced Materials Congress

When? 22 – 24 August 2017

Where? Stockholm, Sweden

For more information please visit the event website

International Conference of Theoretical and Applied Nanoscience and Nanotechnology (TANN'17)

When? 24 – 25 August 2017

Where? Toronto Canada

For more information please visit the event website

ESB 2017 - 28th European Conference on Biomaterials

When? 4 – 8 September 2017

Where? Athens, Greece

For more information please visit the event website

BioTech 2017

When? 7 – 8 September 2017

Where? Zurich, Switzerland

For more information please visit the event website

Jahrestagung der BIOMEDIZINISCHEN TECHNIK und Dreiländertagung der MEDIZINISCHEN PHYSIK

When? 10 – 13 September 2017

Where? Dresden, Germany

For more information please visit the event website

China-Kooperation BMVIT: Einladung Delegationsreise

When? 10 – 15 September 2017

For more information please visit the event website

BIO NANONET on site *For BioNanoNet members only!*

SusChem-AT – 1st Annual Forum

When? 13 September 2017 – save the date!

Where? Laßnitzhöhe, Austria

More information coming soon!

BIO NANONET on site *For BioNanoNet members only!*

BioNanoNet Strategy Workshop & Networking Event

When? 14 September 2017 – save the date!

Where? Laßnitzhöhe, Austria

For more information please visit the event website

EUROMAT 2017

When? 17– 22 September 2017

Where? Thessaloniki, Greece

For more information please visit the event website

Partnering Day 2017 - Health Tech Innovations for Successful Business

When? 21 September 2017

Where? Graz, Austria

For more information please visit the event website

Meet the Experts - in einer Stunde zum Erfolg (Digitalisierung in der Medizintechnik)

When? 21 September 2017

Where? Linz, Austria

For more information please visit the event website

Workshop Ärzte-Forscher-Firmen // Interdisziplinäre Lösungsansätze für die Medizintechnik

When? 5 October 2017

Where? tba

For more information please visit the event website

NANOSAFETY 2017

When? 11 – 13 October 2017

Where? Saarbrücken, Germany

For more information please visit the event website

BIO NANONET on site

ETPN 2017 - 12th Annual Meeting

When? 17 – 19 October 2017

Where? Malaga, Spain

For more information please visit the event website

NANOCON 2017

When? 18 – 20 October 2017

Where? Brno, Czech Republic

For more information please visit the event website

NENS 2017 (Nanoenergy and Nanosystems)

When? 21– 23 October 2017

Where? Bejing, China

For more information please visit the event website

SIPS 2017 - Sustainable Industrial Processing Summit & Exhibition

When? 22 – 26 October 2017

Where? Cancun, Mexico

For more information please visit the event website

7th World Annual Congress of Nano Science & Technology (Nano S&T-2017)

When? 24 – 26 October 2017

Where? Fukuoka, Japan

For more information please visit the event website

13th International Conference and Exhibition on Materials Science and Engineering

When? 13 – 15 November 2017

Where? Las Vegas, United States

For more information please visit the event website

22nd International Conference and Expo on Nanoscience and Molecular Nanotechnology

When? 13 – 14 November 2017

Where? Vienna, Austria

For more information please visit the event website

BIT's 8th World Gene Convention-2017

When? 13 – 15 November 2017

Where? Macao, China

For more information please visit the event website

13th International Conference and Exhibition on Materials Science and Engineering

When? 13 – 15 November 2017

Where? Las Vegas, Nevada, United States of America

For more information please visit the event website

Medica 2017

When? 13 – 16 November 2017

Where? Düsseldorf, Germany

For more information please visit the event website

SHIFT 2017 - Spectral sHaplng For biomedical and energy applicaTions

When? 13 – 17 November 2017

Where? Costa Adeje, Teneriffe, Spain

For more information please visit the event website

2nd WPC World Preclinical Congress Europe

When? 15 – 17 November 2017

Where? Lisbon, Portugal

For more information please visit the event website

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nanoFIS 2017

When? 22 – 24 November 2017

Where? Graz, Austria

For more information please visit the event website

Digital Medtech 2017

When? 30 November 2017

Where? tba

For more information please visit the event website

Innovations in Cardiovascular Interventions - ICI Meeting

When? 3 – 5 December 2017

Where? Tel Aviv, Israel

For more information please visit the event website

EUROSENSORS 2018

When? 9 – 12 September 2018

Where? Graz, Austria

For more information please visit the event website

NanoTox 2018

When? 18 – 21 September 2018

Where? Düsseldorf, Germany

For more information please visit the event website

Finally

We hope you enjoyed our BioNanoNet newsletter!

Please do not hesitate to contact us if you would like to give us any suggestions or feedback!

Our next BioNanoNet newsletter will be published in June 2017.

BioNanoNet partners are welcome to send their contributions until 16th of June 2017!

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