



Keynote and Invited Presenters PROFILES

Prof. Dr. **Bert Mueller**,
Thomas Straumann Chair
Director of the Biomaterials Science Center (BMC)
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Prof. Dr. **Bert Müller** has been Thomas Straumann-Chair for Materials Science in Medicine at the University of Basel, Switzerland, since September 2006. In 1994, he obtained a Ph.D. in experimental physics from the University of Hannover, Germany. For his achievements, he was granted with the Morton M. Traum Award of the American Vacuum Society. Since April 2001, he has been teaching as faculty member of the Physics Department at ETH Zurich. The Biomaterials Science Center, founded by Müller in March 2007, hosts researchers from many fields dealing with nanotechnology-based artificial muscles for incontinence treatment, compliant electrodes for brain stimulation, mechano-responsive nano-containers for targeted drug delivery for the treatment of cardiovascular diseases, highresolution X-ray imaging to visualize the human body down to the molecular level in health and disease, and further applications of nanosciences in medicine and dentistry. The mission of the research team can be summarized by employing physical principles for human health. Professor Müller is author of more than 300 publications in a wide variety of journals, many of them have been the result of doctoral thesis he supervised in the fields of medicine, *dentistry*, *physics*, *nanosciences*, and *biomedical engineering*. In 2014, he was elected as Fellow of SPIE and in 2015 as an active member of the European Academy of Sciences and Arts.

The activity in the E-MRS: Professor Dr. Bert Mueller is the E-MRS Member 2017, 2018 with a special invited Presentation and common presentation with Graduate Student (Young Investigator FORUM 2017): Invited, by The Symp. E SciCom Board, for Keynote Lecture at Symposia “Bioinspired and Biointegrated Materials as New Frontiers Nanomaterials VII and VIII”. For The Symposium V –IX th Edition, Professor Dr. Bert Mueller is a Principal Organizer and Keynote Presenter

Employing physical stimuli present at atherosclerotic blood vessels to structurally modify liposomal nano-containers

Sofiya Matviyukiv¹, Marzia Buscema¹, Hans Deyhle¹², Thomas Pfohl¹³, Andreas Zumbuehl⁴,
Till Saxer⁵, Bert Mueller¹

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Peter Scharff,

Univ.-Prof. Dr. rer. nat. habil.,
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Peter Scharff graduated at TU Clausthal as a chemist. He holds a PhD (1987) and his habilitation followed in 1991 in the field of inorganic chemistry. He worked as a visiting professor at University of Torun, Poland and was appointed associate professor. In 1999 he went as a C4-Professor to TU Ilmenau in the subject of physics. In the time from 2000 till 2004 he was head of the department of chemistry in TU Ilmenau and was selected as rector of this university in 2004. In this position, he is until now.

Professor Peter Scharff selected for high functions in scientific committees and associations. For about ten years he is chairman of the local chapter Erfurt Ilmenau of the German Chemical Society. Further honorable calls followed with the election as president of the European Carbon Association as well as the senator of the academy of charitable sciences to Erfurt. For his work in the field of graphite and fullerene chemistry, Peter Scharff was honored in 1998 by the Sigr Great Lakes Carbon AG with the "SGL-CARBON-Award".

<https://www.sglgroup.com/> <https://idw-online.de/de/news?print=1&id=5716>

Research activity: Professor Sharff is the author and co-author of more than 250 scientific publications (citations – 3500, h-index 36). He is presented 200 reports at International Conferences and Congresses, specially at the E-MRS Spring Meetings at Focused Sessions on Nanocarbons and Carbon based Biomaterials (31).

The activity in E-MRS: Professor Peter Scharff is The E-MRS Member during 2003-2004 and 2009 -2017 has working as Principal Organizer for The Symposia 2003-2004 on Nanocarbons Materials and is Founder for The EMRS Symposia ‘Bioinspired and Biointegrated Materials as New Frontiers Nanomaterials: I 2009 with his active working during next Symposia II – IX th Editions. Keynote Presentation by Prof. Dr. Peter Scharff

Carbon materials chemistry and processing for multi-functionality: graphite to fullerenes-tubes-graphene

Prof. **Peter Scharff**, Univ.-Prof. Dr. rer. nat. habil., Dr. h. c. mult. Prof. h. c. mult.

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Prof. Dr. **Peilin Chen**

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<http://www.rcas.sinica.edu.tw/faculty/peilin.html>

<https://loop.frontiersin.org/people/663281/overview>



Prof. **Peilin Chen** received his Bachelor degree in Chemistry from National Taiwan University in 1990 and obtained his Ph.D. degree in Chemistry from University of California, Irvine in 1998. He worked as a postdoctoral fellow in the Chemistry department of University of California, Berkeley between 1999 and 2001. Prof. Chen joined Research Center for Applied Sciences, Academia Sinica, Taiwan as an Assistant Research Fellow in 2001. He was promoted to Associate Research Fellow and Research Fellow in 2005 and 2010, respectively. He served as the deputy director of the Research Center for Applied Sciences between 2010 and 2012 and the Chief Executive Officer of the thematic center of Optoelectronic in 2012. Prof. Chen was a visiting Professor in RIKEN and Kyoto University. Prof. Chen received several prestigious awards in Taiwan including Research Award for Junior Research Investigators in Academia Sinica, Ta-You Wu Memorial Award of National Research Council and Career Development Award in Academia Sinica. Prof. Chen has authored or co-authored more than 130 papers in refereed journals and conference proceedings, he has delivered more than 60 invited talks in international meetings and conferences. He organized more than 10 international symposia.

The activity in E-MRS: Professor Dr. Peilin Chen is The E-MRS Member 2014 -2018 with special invited presentations for The E-MRS Symposia “Bioinspired and Biointegrated Materials as New Frontiers Nanomaterials IV-VIII” and this Symposia Sci Comm BOARD Invited Organizer/Chair for Special SESSIONS with invited presenters from Taiwan, Japan and Switzerland (2017 Strasbourg and 2018 Warsaw). For The Symp Bioinspired...IX th Edition, Prof. Peilin Chen is invited, by The Symp V SciComm Board Tutorial Lecturer.

Publications impact: More than 3342 citations, H-index=41, 8365 Readers

Toward Noninvasive Diagnostic: From Nanostructured Surfaces to the Isolation of Rare Cells

Prof. Dr. **Peilin Chen**

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Arzum Erdem received Bachelor in Pharmacy from Ege University, Izmir, Turkey in 1993. She received the master degree in 1996 and PhD degree in 2000 in Department of Analytical Chemistry at the same university in Izmir. She worked as an Assistant Professor from 2000 to 2003 and as an Associated Professor from 2003 to 2009 at the Analytical Chemistry Department of the Faculty of Pharmacy in Ege University. She has been working at the same department as a Full Professor since 2009. Prof. Arzum Erdem was awarded by the Turkish Academy of Sciences (TÜBA) as the one of highly skilled young twenty Turkish scientists elected in 2001, and she also received **Junior Science Award 2006 and Science Award 2015** given by **The Scientific and Technological Research Council of Turkey (TUBITAK)**. Prof. **Arzum Erdem** was elected as the Associate member of TÜBA in 2007, and elected as the Principal member of TÜBA in 2016. She was elected as a **Special Committee member of Association of Academies and Societies of Sciences in Asia (AASSA)-Women In Science and Engineering (WISE)** in August, 2017. She was elected as a **fellow of Royal Society of Chemistry (FRSC)** in December, 2017.

Prof. Arzum Erdem has authored or co-authored more than 150 papers in refereed journals and conference proceedings, she has given more than 20 invited talks in international meetings and conferences, is the co-author of 12 book chapters and review papers. She has received more than 5200 (without self-citations: 4300) citations according to the records on Web of Science (WoS) obtained in January 2019 with h-index: 39.

Prof. Arzum Erdem has initiated many national and international collaborative research on development and applications of electrochemical (bio)sensors based on drug, enzyme and nucleic acids. Her recent research is centred on the development of novel transducers and chemical and biological recognition systems by using different nanomaterials (e.g. graphenes, magnetic nanoparticles, carbon nanotubes, gold and silver nanoparticles, dendrimers, nanowires, nanorods etc.) designed for electrochemical sensing of nucleic acid (DNA, RNA) hybridization, and also the specific interactions between drug and DNA, or protein and DNA, aptamer-protein and also the development of integrated analytical systems for environmental, industry and biomedical monitoring.

The activity in E-MRS: Prof. Dr. Arzum Erdem was the one of organizers in EMRS spring 2004 meeting; “Symposium J: Synthesis, Characterisation and Advanced Applications of Amorphous Carbon Films”. She has been the E-MRS Member 2009-2018 with a special invited presentation in the symposium: “Bioinspired and Biointegrated Materials as New Frontiers Nanomaterials I (2009) –VIII (2018)” as well as the session of graduate students' invited presentations for the E-MRS Hq Grad Student Award in 2013. She has been working as the Symposium Principal Organizer invited by the symposium SciComm Board in 2013, 2018 and **Keynote Presenter at The Symposium V - IX th Edition.**

Recent Applications of Electrochemical Biosensors for Detection of Nucleic Acids

Professor, Dr. **Arzum ERDEM***

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Prof. Dr. **Insung S. Choi**
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Dr. **Insung S. Choi** is Professor of Chemistry and of Bio and Brain Engineering at KAIST, Korea, and the Director of the Center for Cell-Encapsulation Research (Creative Research Initiative; 2012-). He obtained his BS and MS degrees in Chemistry at Seoul National University in 1991 and 1993, and did his PhD degree in Chemistry at Harvard University in 2000 under the supervision of George M. Whitesides. After postdoctoral work with Robert Langer at the Department of Chemical Engineering of MIT, he joined the faculty at KAIST in 2002. He was awarded KCS-Wily Young Chemist Award (2003), Thieme Journal Award (2003), Presidential Young Scientist Award (2004; KAST), and JANG SEHEE Research Achievement Award (2013; KCS). His research interests include biomimetic chemistry, cell-material interfaces, and biosurface organic chemistry. He has published over 240 peer-reviewed papers (>10000 citations, h-index = 48). He is the editorial board member of Chemistry-An Asian Journal (Wiley-VCH), ChemNanoMat (Wiley-VCH), Scientific Reports (NPG), and Polymers (MDPI), and the editorial advisory board member of Advanced Healthcare Materials (Wiley-VCH).

The activity in E-MRS: Professor Insung S. Choi - The E-MRS Member from 2014 to present, Honorary Invited and Keynote Presenter for the E-MRS Symposia “Bioinspired and Biointegrated Materials as Frontiers Nanomaterials IV - IX” and Invited Principal Organizer for the Symposium Bioinspired X at 2020 due to this Symposium Scientific Board’s kind invitation. Professor I.S. Choi is the member of the E-MRS – Korea Working Committee.

For The Symposium. – IX th Edition, Professor **Insung S. Choi - Invited, by The Symposium V SciComm Board, Tutorial Lecturer**

Single – cell nanoencapsulation

Prof. Dr. **Insung S. CHOI**

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Prof. Dr. **Bo ZHU**
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Prof. **Bo Zhu** received his Ph.D. from Tokyo Institute of Technology in 2004. He continued his research as a postdoctoral researcher from 2004 to 2006, and as a JSPS Postdoctoral Fellow from 2006 to 2008 at Tokyo Institute of Technology. He moved to RIKEN since 2008, and received a SPDR Fellowship to start his independent research from 2010, and became a research scientist in 2013. Since late 2013, he joined Donghua University as a full professor. From 2017, he moved to Shanghai University to found Organic Bioelectronic Materials Lab. He works on bioinspired conducting polymers, and their applications in bioelectronic devices. He has co-authored 1 book, more than 70 papers and obtained more than 10 patents.

The activity in the E-MRS: Professor Dr. Bo Zhu is the E-MRS Member 2013-2018 with a special invited Presentations/Lectures and with a special invited presentation his Grad Students/Postdoctoral researchers for The Symposia “Bioinspired and Biointegrated Materials as New Frontiers Nanomaterials III-VIII”. Professor Dr. Bo Zhu has working, as The Symposia Scientific Committee Member, Organizer/Chair for a special SESSION with invited Professors/Dr Lecturers and Presenters from China (2017, Strasbourg).

At the Symp. IX th Edition, Professor Dr. Bo Zhu - Keynote Presenter with Invited Poster Presentation

Biomimicking polymers toward spatially resolved and selective electro – coupling to cells

Prof. Dr. **Bo ZHU**

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Versatile Tubular Electroassembly of Functionalized PEDOT toward Bioelectronics

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Dr. **Maciej Cieplak** received his Doctoral degree of Chemistry in 2013, at the Institute of Organic Chemistry, Polish Academy of Science (PAS). In 2013 -2014, through the MPD Programme founded by the the Foundation for Polish Science (FNP), he has been a Postdoc fellow in the Institute of Physical Chemistry PAS, in the Molecular Films Research Group headed by prof. Włodzimierz Kutner. Since 2014, he continues his scientific career as an Assistant Professor of the Institute of Physical Chemistry PAS. Recently he is member of the Functional Polymers Research Group headed by dr Piyush Sindhu Sharma. Dr. Cieplak co-authored 16 papers, all published on international and prestigious peer reviewed journals, 2 book chapters and 8 patent applications

Dr. Maciej Cieplak – Invited Presenter for Symposia-VIIIth and - IXth Editions

**Protein imprinting. Better control over deposited polymer structure
for better sensor performance.**

Maciej Cieplak⁽¹⁾, Marcin Dąbrowski⁽¹⁾, Jakub Kałęcki⁽¹⁾, Agnieszka Zimińska⁽¹⁾,
Krzysztof Noworyta⁽¹⁾, Alexander Kuhn^(2,3) and Piyush Sindhu Sharma⁽¹⁾

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Prof. in Chemistry **Ioan Andricioaei**
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Professor in Chemistry Ioan Andricioaei Research Interests: Chemical Biology, Physical Chemistry and Chemical Physics, Theoretical and Computational.

Research explores theoretical topics at the interface between molecular biophysics and physical chemistry. It hinges on a two-fold central theme: (1) developing novel theoretical techniques and (2) applying computer and modeling methods to describe, in terms of dynamics and thermodynamics, biologically important molecular processes, with the aim to explain or predict experimental findings.

Computer Simulations of DNA-Binding Machines. Protein-DNA and nanoparticle-DNA interactions are essential in such crucial cellular functions as replication, repair, transcription or recombination, and in nanotechnology. Many enzymes at and ahead of the replication fork affect large DNA fragments. For instance, topoisomerases undo DNA knotting. Others, like helicases and polymerases, are biomolecular motors: they use the energy of binding and/or hydrolysis of nucleotides to do mechanical work on the DNA fragments to which they bind. Another example is the machinery that compacts DNA inside the capsid of viruses. I have an avid interest in the theoretical description of these fundamental genetic processes through massively parallel computer simulations.

Professor **Ioan Andricioaei** – **Invited, by The E-MRS The E-MRS Symposia Bioinspired... Scientific Committee Board, for Tutorial Lecture (The Symposium VIII th Edition) and Invited Lecture (The Symposium - IX th Edition)**

Understanding the interplay between local and global DNA dynamics using computer simulations

Professor of Chemistry **Ioan Andricioaei**

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Prof. Dr. **Richard B. Jackman**
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https://www.london-nano.com/our-people/%5Bfield_people_sectionraw%5D/richardjackman



Research Interest of Prof. Dr. **Richard B. Jackman - Diamond Nanotechnology**: Diamond is a truly remarkable material. It has very high carrier mobilities, saturated carrier velocities and electric field breakdown strength. It has the highest thermal conductivity of any material. It has a very low dielectric constant. It can display ‘negative electron affinity’. It can be considered to be a wide band gap semiconductor (5.5eV) that can be doped p-type or n-type. It is chemically and physically robust, and radiation ‘hard’ – electronics formed from diamond should not only perform at the highest levels, but should also be capable of operation in extreme environments. It has unusual optical properties. In short, using diamond as a gemstone is a waste of its true potential! It can also be considered to be biocompatible, in that it is simply carbon, and is also not prone to unwanted cell adhesion or particulate generation when inside a living body. The Diamond Electronics Group within the LCN, which I head, is actively engaged in the growth and doping of diamond using chemical vapour deposition methods, and its use within a wide range of nano-electronic devices.

The activity in E-MRS: Professor Richard B. Jackman is the E-MRS Member during 2016 -2018 with special Invited Presentations owns and with his Grad Students, Post Doc Investigators for Special Sessions on Nanocarbons at the Symposia “Bioinspired and Biointegrated Materials as New Frontiers Nanomaterials” VI-2016, VII-2017 and VIII- 2018 and Organizer own the E-MRS Symposium O “Diamond for electronics III” The E-MRS Fall Meeting 2018.

Professor **Richard B. Jackman** – **Keynote Presenter for The Symposia- VII, - VIII, and - IX th Editions**

Spontaneous differentiation of human neural stem cells on nanodiamond

Alice C. Taylor, Citladi Helenes Gonzalez, Patrizia Ferretti
and Prof. Dr. **Richard B. Jackman**

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*Stem Cell and Regenerative Medicine Section, UCL Institute of Child Health, University College
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Prof. Dr. **Martin Kaltenbrunner**

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Dr. Martin Kaltenbrunner is a full professor at the Johannes Kepler University, heading the Soft Matter Physics Department and the LIT Soft Materials Laboratory. He received his master's and PhD degrees in physics from the Johannes Kepler University in 2008 and 2012, respectively. He then joined the Someya-Sekitani Lab for Organic Electronics at The University of Tokyo as postdoctoral researcher prior to his present position. Kaltenbrunner's research interests include soft electronics and machines, biodegradable soft materials, photovoltaics, lightning and thin film transistors, soft transducers and robotics, flexible and stretchable electronics, and electronic skin.

Professor Dr. **Martin Kaltenbrunner** – **Keynote Lecturer for The Symposia - VIII th and - IX th Editions**

Soft electronic and robotic systems from resilient yet biocompatible and degradable materials

Prof. Dr. **Martin Kaltenbrunner**

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Dr. Oleksandr Ivanyuta

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Dr. Oleksandr Ivanyuta completed his studies in Radiophysics and Electronics at the Taras Shevchenko National University of Kyiv, Ukraine in 1993 and afterwards he performed at this University in the laboratory of solid physics his research work to receive the Master of Science Degree (1995) and the Ph. D – Candidate of Physical and Mathematical sciences (2003).

He worked as academic researcher at this Faculty (2001-2004). From September 2004 to March 2011 Dr. O. Ivanyuta has worked as academic researcher, and performed his Habilitation at this Faculty. After the successful Habilitation defense (March 2011) Dr. O. Ivanyuta became Private Docent at the Taras Shevchenko National University of Kyiv.

Research interest Characterization of nanostructures based on natural biopolymer films and adsorbed biomolecules on carbon nanomaterials (fullerenes, CNT) with particular emphasis their modification by added metal atom/nanoparticles. The applications of the nanostructures are aimed on for analytical detection of biomolecules in solutions. In addition to his skills in applied physic, He has profound experience in spectrometry and electro--physic methods as well as in the field of hybrid organometallic physic investigations. He is author /co-author more than twenty articles at refereed journals and co-author two invited chapters at special books (Publ. World Scientific).

Research activity: Researcher by microwave and optical, electrochemical methods of polymer, nanocarbons, biomolecular and their hybrids films at TSN University's State scientific Projects (2015-2020) № 11БФ052-01 "Fundamentals of creation and methods of research nanoscale structures with controlled parameters for the needs of the power complex". and № 11БФ052-04 "Study of the interaction of electromagnetic and acoustic fields with ordered, nanostructured and biologic systems for the creation of the newest technologies". Chief – Prof. Dr. V. Grygoruk

http://science.univ.kiev.ua/research/report/ZVIT_SCIENCE_2016.pdf

http://science.univ.kiev.ua/upload/ZVIT_SCIENCE_2017_fin.pdf

The activity in E-MRS: Dr. O. Ivanyuta is the E-MRS Member during 2016 -2018 and worked as Invited Organizer/Chair for Special Sessions on Nanocarbon materials at the E-MRS Symposia 'Bioinspired and Biointegrated Materials as New Frontiers Nanomaterials: VI 2016 and 2017 VII. For The E-MRS Symposia VIII th Edition and IX th Edition, Dr. O. Ivanyuta – Symposia Working Team Member and Keynote Presenter

Supramolecular ds DNA self –assembling: models and conductance characterization

and

Optical properties of biocomposites on hydroxyapatite

Dr., Docent **Oleksandr Ivanyuta**

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Dr. **Radosław Mrówczyński**
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Dr. **Radosław Mrówczyński** holds an adjunct position at NanoBioMedical Center at Adam Mickiewicz University in Poznan. He received his B.Sc. and M.Sci in Chemical Biology at Adam Mickiewicz University Poznan, Poland in 2008 and 2010, respectively. In 2014 he obtained Ph.D. at Humboldt University Berlin under supervision of Professor Jürgen Liebscher. Afterward, he had short-research stay in Korea and Canada. He also is a laureate of Bekker Program from the National Agency of Academic Exchange. In the frame of this project, he worked in the Catalan Institute of Nanoscience and Nanotechnology (ICN2) in Barcelona with Dr. Daniel Ruiz Molina. His research areas are multimodal nanoparticles based on polydopamine and related materials for combined chemo- and photothermal and chemo- and gene therapy aiming at liver and brain cancers. He also studies the chemistry of catechol-based materials both in macro and nanoscale. His awards include START scholarship granted by Foundation for Polish Science and Scholarship for Outstanding Young Scientist granted by the Minister of Higher Education

Dr. **Radosław Mrowczynski** – **Invited, by The Symposia Scientific Committee Board, Presenter (The Symposium VIII th Edition) and Keynote Lecturer (The Symposium IX th Edition) with special poster presentation.**

Multitask nanostructures for liver and brain therapy

Radosław Mrówczyński¹, Artur Jędrzak^{1,2}, Bartosz F.Grześkowiak¹, Damian Maziukiewicz¹, Kosma Szutkowski¹, Małgorzata Grabowska³, Dariusz Wawrzyniak³, Jan Barciszewski⁴, Stefan Jurga¹, Katarzyna Rolle^{3,5}

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3 Department of Molecular Neurooncology, Institute of Bioorganic Chemistry Polish Academy of Science, Poznan, Poland

4 Department of Epigenetics, Institute of Bioorganic Chemistry Polish Academy of Science, Poznan, Poland

5 Centre for Advanced Technologies, Poznan, Poland

Bioinspired coating for nanodiamonds

Damian Maziukiewicz, Bartosz Grześkowiak, Stefan Jurga, **Radosław Mrówczyński**

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Asst. Prof. Dr. Angelo Accardo

Tenure Track Assistant Professor of Soft Micro- and Nanosystem Technology for Life Sciences and Biology
 Department of Precision and Microsystems Engineering (PME)
 Faculty of Mechanical, Maritime and Materials Engineering (3mE)
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Dr. Angelo Accardo received his Master's degree in Electronic Engineering from the University of Rome “La Sapienza”, Italy (2008) and his Ph. D. in Biomedical Engineering from the University Magna Græcia of Catanzaro, Italy (2012) in collaboration with the European Synchrotron Radiation Facility (ESRF) in Grenoble, France. After a Post-doc at the Italian Institute of Technology (IIT) in Genova, Italy (2012-2015), Dr. Accardo joined the Laboratory for Analysis and Architecture of Systems (LAAS-CNRS), Toulouse, France in 2016 as a Research Associate. In June 2019, He joins Delft University of Technology (TU Delft) as a Tenure Track Assistant Professor of Soft Micro- and Nanosystem Technology for Life Sciences and Biology within the Department of Precision and Microsystems Engineering (PME).

During his Ph. D. and Post-doctoral activity, Dr. Accardo acquired a strong knowledge of nano-fabrication processes in clean room facilities by means of which he designed several technological platforms that have been integrated in the context of synchrotron radiation scattering characterization of biological soft matter subjects. The main topic under investigation was the realization of superhydrophobic surfaces made of different materials, such as polymer and silicon, following a biomimetic approach and exploiting the characteristic evaporation mechanisms of droplets drying in quasi contact-free conditions. Currently, Dr. Accardo's main research activity involves instead the development of biomimetic 3D microenvironments, by exploiting laser assisted fabrication of hydrogel materials, for investigating neuronal cell adhesion, differentiation and mechanobiology aspects. In the framework of these investigations, He also conceived a multi-technique 3D imaging protocol combining conventional morphological characterization techniques (based on Scanning Electron Microscopy) and advanced 3D fluorescence imaging (Light Sheet Fluorescence Microscopy and Two-photon confocal imaging) for unveiling cellular features. Dr. Accardo is author of 34 publications in peer-reviewed journals (of which 20 as first/corresponding author, h-index=17), 3 book chapters (of which 1 as first author) and principal inventor of 1 industrial patent on electrowetting superhydrophobic surfaces.

Dr., Associate Professor **Angelo Accardo** – **Invited, by Symposia VIII and IX th Editions Scientific Committee Board, Presenter (The Symposium VII th Edition) and Keynote Lecturer with special Poster Presentation (The Symposium - IX th Edition)**

**“To scaffold or not to scaffold”, pros and cons in the realization
 of biomimetic neuronal microenvironments**

and

**Smart lotus-like nanostructured surfaces as a tool
 for synchrotron characterization of neurodegenerative peptides**

Dr. Angelo Accardo

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Dr. Géza I. Márk,
Senior researcher
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Dr. Géza I. Márk is a senior researcher of the Nanotechnology Department, Institute of Technical Physics and Materials Science, (MFA), Centre for Energy Research, Hungarian Academy of Sciences, Budapest, Hungary, <http://www.nanotechnology.hu>. Dr. Márk is an expert in computational quantum mechanics and computational electrodynamics. The title of his MSc Thesis is “*Computation of soft X-ray spectra of alloys*”, he received his MSc degree from the Roland Eötvös University in Budapest, Hungary, in 1984. The title of his PhD thesis is “*Wave packet dynamical simulation of scanning tunneling microscopy of carbon nanosystems*”, he received his PhD degree from the FUNDP University of Namur, Belgium, in 2006.

At the beginning of his career Géza I. Márk developed a wave packet dynamical software package for the investigation of electron tunnelling and transport phenomena in nanosystems. This software was successfully applied on a theoretical interpretation of data obtained on carbon nanotubes and graphene sheets by scanning tunneling microscopy (STM) and spectroscopy (STS), resulting in a series of papers in prestigious journals. Since 2003 Dr. Márk became interested in biological and bioinspired materials. He has investigated numerous photonic nanoarchitectures of biologic origin and has elucidated a number a puzzling experimental observation in the field of structural color of butterfly wing colours and beetle elytrons. He developed several semiempirical and *ab-initio* methods for exploring the relation of nanostructure and optical properties of biological and bioinspired photonic nanoarchitectures.

Number of publications: 98, Citations: 933, H-index: 16

Dr. Geza I.Mark – Invited Presenter for The Symposia - VII th and - IX th Editions

Simulation of the reflectance changes induced by vapor condensation in butterfly wing scales

G. I. Márk¹, K. Kertész¹, G. Piszter¹, Zs. Bálint², and L. P. Biró¹

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Dr. Mariia Vorobets

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of Food Products Department,
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Dr. **Mariia Vorobets** graduated from Chernivtsi State University in 1986. She continued postgraduate course and defended her Ph.D. Thesis at the Physical Chemistry. Associate Professor at the Department of Analytical Chemistry. Has more than 60 scientific publications and is co-author of more than 15 teaching and methodical publications and manuals for students of chemists, ecologists, engineer-technologists of food production.

Topics of researches: nanostructured semiconductors and their physical and chemical properties and applications in electrical engineering; methods of research, analysis and expertise of food products.

Selected Publications:

1. Igor Kobasa, Mariya Vorobets, Larysa Arsenieva. Basalt tufa as a bactericide filler fo packaging materials // J. Food and Environment Safety of the Suceava University. Food Engineering. – 2018. – Vol. XVII, Issue. 1.– P.81-86.
2. I. Kondratyeva, I. Kobasa, M. Vorobets Antibacterial activity of highly porous TiO₂ / NATO SPS ASI 984915, April 9-16, 2016 (Campora San Giovanni, Calabria, Italy).
3. Igor KOBASA, Mariia VOROBETS, Larysa ARSENIEVA, Nanosized titanium dioxide as an antibacterial admixture for the food packaging materials, Food and Environment Safety, Volume XV, Issue 4 – 2016, page. 306 – 311.

Dr. Maria Vorobets – **Invited by The Symposium V Scientific Committee Presenter with Oral and special poster presentations**

Advanced investigation of the fundamental properties and bioactive functionality of nanostructured titanium dioxide

Kobasa I.M.¹, Vorobets M.M.¹, Vorobets G.I.²

¹ *Chemical Analysis, Expertise and Safety of Food Products Department, Institute of Biology, Chemistry and Bioresources, Yuriy Fedkovych Chernivtsi National University, 58012 Chernivtsi, Ukraine, i.kobasa@chnu.edu.ua, m.vorobets@chnu.edu.ua*

² *Computer Systems and Networks Department, Institute of Physical-Technical and Computer Sciences, Yuriy Fedkovych Chernivtsi National University, 58012 Chernivtsi, Ukraine, g.vorobets@chnu.edu.ua*

The influence of nanodisperse dioxide titanium and basalt tuff on biofilm forming by microorganisms strain reference

Kobasa I.M.¹, Rotar D.V.², Vorobets M.M.¹, Vorobets G.I.³

¹ *Chemical Analysis, Expertise and Safety of Food Products Department, Institute of Biology, Chemistry and Bioresources, Yuriy Fedkovych Chernivtsi National University, 58012 Chernivtsi, Ukraine, i.kobasa@chnu.edu.ua, m.vorobets@chnu.edu.ua*

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Prof. Dr. **Li Song**

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Li Song is currently a Professor in National Synchrotron Radiation Lab at University of Science and Technology of China (USTC). He received his Ph.D. in 2006 from Institute of Physics, Chinese Academy of Sciences. After four years as Humboldt fellow at University of Munich in Germany and postdoctoral researcher at Rice University in USA, he became an associate professor at Shinshu University in Japan. He was promoted to professor at University of Science and Technology of China in 2012 by CAS Hundred Talent Program and Recruitment Program of Global Experts. His current research interests are synchrotron radiation study of low dimensional nanostructures and nanomaterials, as well as their applications in energy, biomedicine and related fields. He has authored and co-authored more than 200 SCI papers with over 10000 citations, H-index of 52. More details can be found from his research ID <http://www.researcherid.com/rid/B-1950-2010>

Professor Dr. **Li Song** - **Keynote Lecturer at The Symposium – IX th Edition**

Tailoring and integrating nanocarbons for multifunctional applications

Prof. Dr. **Li Song**,

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Full Professor **Paolo Antonio Netti**
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Prof. **Paolo A. Netti** graduated in Chemical Engineering in 1990 and PhD in 1994 at the University of Naples "Federico II". During his PhD and post-doctoral studies, he spent several years at prestigious international research centers, such as the IRC in Biomedical Materials of the University of London (1991-1992) and the HST of Harvard University (1994-1998) enriching his knowledge of chemical engineering with the basic elements of biological and biomedical engineering. His research interests range from a basic understanding of cell regulatory events taking place at the cell-material interface, to the technological development of a new class of biomaterials able to control and direct cell fate by interacting with multiple biomolecular signals active. He has published more than 200 scientific essays and over 30 book chapters, and holds numerous patents. Today he is full professor of Materials Science at the University of Naples "Federico II" where, since 2004, he is also director of the CRIB (Interdepartmental Research Center on Biomaterials), an important European structure at the forefront of biomaterials. Since 2009 he is also director of the Center for Advanced Biomaterials for Health Care of the Italian Institute of Technology (IIT). He has been a member of numerous scientific commissions at European level for the definition of a path for the development of new platforms on biomaterials (VII framework program). He is a member of the ERC's advanced grants evaluation committee and was a tutor for some MIUR research platforms (FIRB Program). He is also a consultant for many public and private company committees. Prof. Paolo A. Netti – Member of Technical Advisory Committee for Publications of Indian Chemical Engineer, Journal of Biomaterials Applications, Journal of Material Science: Materials in Medicine, Journal of Bioactive and Compatible Polymers, Journal of Applied Biomaterials and Biomechanics

Publications Impact: More than 9955 citations, 63126 Readers, H-index 48

Professor Dr. **Paolo A. Netti** – Keynote Lecturer at The Symposium – IX th Edition

Dynamic cell instructive materials to control and guide tissue formation in vitro

Full Professor **Paolo Antonio Netti**^{ab}

a Center for Advanced Biomaterials for Health Care (CABHC), Istituto Italiano di Tecnologia, Largo Barsanti e Matteucci 53, Napoli, Italy paoloantonio.netti@unina.it

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Dr. Eoin M. Scanlan,

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Publications impact: More than 1200 citations, H-index=20 (Scopus)

**Dr. Paula E. Colavita**

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<http://ambercentre.ie/people/prof-paula-colavita>

<https://sites.google.com/site/colavitagroup/group>

Publications impact: More than 1400 citations, H-index=27 (Scholar)



Dr. Eoin M. Scanlan is a graduate of the National University of Ireland, Galway. He completed his PhD in synthetic organic chemistry at the University of St. Andrews in 2004. Following postdoctoral work with Prof. Philippe Renaud at the University of Bern, Switzerland and Prof. Benjamin Davis at the University of Oxford, UK, he started his independent academic career in Trinity College Dublin in 2008. He is currently Associate Professor of Organic and Medicinal Chemistry and a PI in the Trinity Biomedical Sciences Institute. He was elected Fellow of Trinity College Dublin in 2016 and was an SFI Career Development Award (CDA) recipient in 2016. He leads an international research team in Trinity College with a focus on the discovery of novel methods for biomolecular synthesis, including peptides, proteins and glycoconjugates and the development of novel therapeutics, diagnostics and biomaterials. He is author of 52 publications and is co-inventor of three patents. He is co-founder and CSO of Glycome Biopharma, a biotech start-up company based in Trinity College.

Dr. Paula E. Colavita joined the School of Chemistry at Trinity College Dublin in 2008 and in 2014 was elected College Fellow and promoted to Associate Professor. Her work focuses on understanding chemical reactions and achieving control of interfacial chemical processes at non-crystalline materials, particularly carbons and nanocarbons. Her group has used materials design in order to investigate fundamental processes such as charge transfer and photochemical surface transformations. In turn, molecular level understanding of surface reactivity can be leveraged to create smart interfaces with enhanced functionality. Fundamental understanding of interfacial transformations at carbons is relevant for important applications that are currently under investigation in her group: the development of antifouling coatings, the development of thin-film electrodes for the fundamental study of carbon electrocatalysis for energy conversion, and the rational design of metal/carbon composite materials. Prof. Colavita is the recipient of research funding from Science Foundation Ireland (SFI), the Environmental Protection Agency Ireland (EPA), Irish Research Council (IRC), Enterprise Ireland (EI) and EU FP7 Access funding from Rutherford Appleton Laboratories (UK). She has been a National Science Foundation (NSF) Postgraduate Research Fellow and a visiting researcher at Livermore National Laboratories (USA). She is the author of 77 publications and is co-inventor of three patents. She is co-founder of Glycome Biopharma, a biotech start-up company based in Trinity College.

Associate Professors Dr. **Eoin M. Scanlan** and **Paulina E. Colavita** - **Invited Presenters at The Symposium – IX th Edition**

Passive and active saccharide functional layers for sensing Applications

Adam Myles[†], James A. Behan[†], Brendan Twamley[†], Thomas K. Doyle,[‡]

Eoin M. Scanlan[†], Paula E. Colavita^{*†}

[†] School of Chemistry, Trinity College Dublin, College Green, Dublin 2, Ireland

[‡] National University of Ireland Galway, NUIG, Ireland

Associate Prof. Dr. **Zhu Qing**
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Zhu Qing is Associate Professor of Institute of Chemical Materials at China Academy of Engineering Physics (CAEP), China. She received her B. Sc. in Applied Chemistry from Harbin Institute of Technology University (China) in 2006, Ms Sc. in Applied Chemistry from Harbin Institute of Technology University (China) in 2008, and Ph.D. in Applied Chemistry from Harbin Institute of Technology University (China) in 2014. Then she joined the Institute of Chemical Materials at China Academy of Engineering Physics. Her research interests mainly focused on the biomimetic and surface properties designing, and energetic materials.

Associate Professor, Dr. **Zhu Qing** – **Invited Presenter at The Symposium – IX th Edition**

**Super anti-wetting surface with high repellency towards liquids
of extremely high viscosity and low surface tension**

Assoc. Prof. Dr. **Zhu Qing**,

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Dr. **B. Imran Akca** (Avci), Assistant Prof.
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Biophotonics and Medical Imaging Group
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Personal webpage: <http://imranakca.com/>



B. Imran Akca (Avci) got her BS degree in Electrical and Electronics Engineering from Bilkent University, Turkey in 2006 with a focus on photonics and medical imaging. She received her PhD degree from the Integrated Optical Microsystems Group at the University of Twente, The Netherlands in 2012. During her PhD research, she applied her strong integrated optics knowledge into an emerging imaging modality, i.e. optical coherence tomography (OCT) to reduce the cost and size of these bulky systems. She was one of the few researchers working on portable, cheap and compact OCT systems in the world. Between 2013-2015, she was a postdoctoral researcher at Prof. Seok-Hyun Yun's research lab at Harvard Medical School. She worked on a novel functional imaging system called OCT vibrography for assessing corneal biomechanical properties. In 2015, she received VENI grant and came back to the Netherlands as a post-doctoral researcher at the Academic Medical Center (AMC) in Amsterdam. In 2016, she received Marie-Curie Individual Fellowship for developing endoscopic OCT devices. As of September 2017, she is an assistant professor on the tenure track at the VU University Amsterdam, Department of Physics and Astronomy, Biophotonics and Medical Imaging Group. Her research combines integrated optics with different imaging and sensing modalities in order to realize novel, portable, affordable and high sensitivity devices.

For publication list and impact see: <https://scholar.google.com/citations?user=WSrfiIsAAAAJ&hl=nl>

Dr. B. Imran Akca (Avci) – Keynote Lecturer at The Symposium – IX th Edition

Optical coherence tomography in assessing tissue properties

Dr. B. I. Akca

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21.

Dr. **Karsten Haupt**, Full Professor
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Karsten Haupt studied Biochemistry at the University of Leipzig, Germany. In 1994 he obtained his PhD in Bioengineering from the Université de Technologie de Compiègne, France. He then spent several years as a research fellow at Lund University, Sweden, where he worked on molecular imprinting with Klaus Mosbach. Back in France he was a researcher at INSERM, Paris and worked on erythrocyte membrane proteins (blood group antigens), before joining the University of Paris 12 as an associate professor. In 2003 he was appointed full professor of Nanobiotechnology at Université de Technologie de Compiègne, France, where he is now the Head of the CNRS Institute for Enzyme and Cell Engineering. Karsten Haupt is also holding positions as an Adjunct Professor at the University of Sonora, Hermosillo, Mexico, at the University of Arizona Tucson, USA, and at Jiangsu University, China. In 2018 he has become a senior member of the Institut Universitaire de France. He is one of the founders of the start up company Polyintell (now Affinisep). His present research interests include affinity technology, chemical and biosensors, molecularly imprinted polymers and synthetic receptors, biomimetic polymers and nanomaterials for biomedical applications.

For publication list and impact see: https://scholar.google.fr/citations?user=d_suiyQAAAAJ&hl=fr&oi=ao

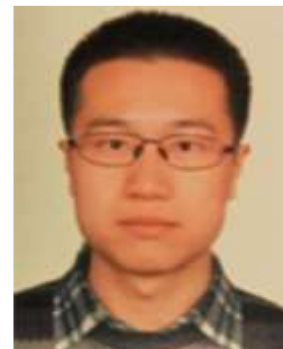
Professor **Karsten Haupt** – **Invited Presenter at The Symposia – VI-VIII th Editions and Keynote Presenter, Round Table’s Speaker at The Symposium – IX th Edition**

Molecularly imprinted polymers as plastic antibodies for immunotherapy

Full Professor, Dr. **K. Haupt**

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Yong Yan is Associate Professor of College of Environmental & Energy Engineering at the Beijing University of Technology (BJUT), China. He received his B. Sc. in Applied Chemistry from Xi'an Petroleum University (China) in 2009, Ms Sc. in Physical Chemistry from Beijing University of Technology (China) in 2012, and Ph.D. in Electronic Materials from Technology University of Ilmenau (Germany) in 2016. Before joining BJUT in 2018, he has worked at University of Central Florida in U. S. as postdoctoral fellow. His research interests mainly focused on the biomimetic and plasma-assisted synthesis of TiO₂ for green energy devices, including polyamines induced micro- and nanostructured TiO₂ and their application for as anode materials for high-power lithium-ion battery, and plasma hydrogenated TiO₂ and their microstructure investigations. In these processes, the size, morphology, polymorph, and even defective microstructure could be precisely regulated at relative mild condition, which might provide a new perspective from "green chemistry" to "green energy". Based on these researches, he has won several awards included Research excellence award in Beijing University of Technology (2011), Chinese Government Award for Outstanding Self-financed Students Abroad (2015), and Sea Poly Project of Beijing Overseas Talents for Youth (2018). He acts as a reviewer in scientific journals of Journal of Materials Chemistry A and Dalton Transactions, and has more than 20 journal publications, including more than 5 Highly Cited Papers.

Associate Professor, Dr. **Yong Yan** – **Keynote Presenter with special poster presentation at The Symposium - IX th Edition**

Bio-mimetically synthesis of micro- and nano-structured titania with induced by polyamines and related molecules at room temperature

Assoc. Prof. Dr. **Yong Yan**,

*Beijing University of Technology, College of Environmental and Energy Engineering,
Beijing Key Laboratory for Green Catalysis and Separation, Beijing, P.R. China.*
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Plasma-assisted synthesis of hydrogenated TiO₂ for energy storage and conversion

Assoc. Prof. Dr. **Yong Yan**,

*Beijing University of Technology, College of Environmental and Energy Engineering,
Beijing Key Laboratory for Green Catalysis and Separation, Beijing, P.R. China.*
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Niroj Kumar Sahu is currently working as an Associate Professor of Centre for Nanotechnology Research at the Vellore Institute of Technology, Vellore, Tamil Nadu, India. He received his B. Sc. in Physics from Sambalpur University, Odisha (India) in 2003, M.Sc. in Physics from Sambalpur University, Odisha (India) in 2005, M.Tech. in Ceramic Engineering from NIT Rourkela (India) in 2009 and Ph.D. in Materials Science from IIT Bombay (India) in 2015. He is currently working on multifunctional anisotropic magnetic nanomaterials for biomedical applications such as drug delivery, hyperthermia and MRI. His research group is also investigating on graphene-based metal oxides, ceramics, ferrites, for energy storage devices such as supercapacitors, batteries and on environmental applications such as photocatalysis. He has authored in 30 reputed journal publications.

Associate Professor, Dr. **Niroj Kumar Sahu** – **Keynote Presenter at The Symposium – IX th Edition**

**Multifunctional Mesoporous Fe₃O₄ nanoparticle loaded with doxorubicin
and polyphenolic drug for cancer treatment**

Dr. Niroj Kumar Sahu,

*Associate Professor, Centre for Nanotechnology Research, Vellore Institute of
Technology, Vellore-632014, Tamil Nadu, India,*

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Valerio Voliani is a researcher at Center for Nanotechnology Innovation, Istituto Italiano di Tecnologia. He has obtained his MSc in Chemistry and PhD in Molecular Biophysics from Scuola Normale Superiore (Pisa, Italy). His efforts are devoted to the translation of noble metal nanomaterials to clinical practice by addressing the issue of metal persistence, in order to promote innovative and non-invasive treatments for neoplasms and infectious diseases. His main interests are related to photothermal conversion, drug delivery, photoacoustic/ultrasound imaging. He is also actively engaged in scientific disseminations to students and community.

Selected Publications:

- (1) Cassano, D., Pocoví-Martínez, S., and Voliani, V. (2018) Ultrasmall-in-Nano Approach: Enabling the Translation of Metal Nanomaterials to Clinics. *Bioconjug. Chem.* 29, 4–16.
- (2) Vlamidis, Y., and Voliani, V. (2018) Bringing Again Noble Metal Nanoparticles to the Forefront of Cancer Therapy. *Front. Bioeng. Biotechnol.* 6, 143.
- (3) Cassano, D., Rota Martir, D., Signore, G., Piazza, V., and Voliani, V. (2015) Biodegradable hollow silica nanospheres containing gold nanoparticle arrays. *Chem. Commun.* 51, 9939–9941.
- (4) Cassano, D., David, J., Luin, S., and Voliani, V. (2017) Passion fruit-like nano-architectures: a general synthesis route. *Sci. Rep.* 7, 43795.
- (5) Armanetti, P., Pocoví-Martínez, S., Flori, A., Avigo, C., Cassano, D., Menichetti, L., and Voliani, V. (2018) Dual photoacoustic/ultrasound multi-parametric imaging from passion fruit-like nano-architectures. *Nanomedicine Nanotechnology, Biol. Med.* 14, 1787–1795.
- (6) Cassano, D., Santi, M., Cappello, V., Luin, S., Signore, G., and Voliani, V. (2016) Biodegradable Passion Fruit-Like Nano-Architectures as Carriers for Cisplatin Prodrug. *Part. Part. Syst. Charact.* 33, 818–824.
- (7) Mapanao, A. K., Santi, M., Faraci, P., Cappello, V., Cassano, D., and Voliani, V. (2018) Endogenously Triggerable Ultrasmall-in-Nano Architectures: Targeting Assessment on 3D Pancreatic Carcinoma Spheroids. *ACS Omega* 3, 11796–11801.
- (8) Cassano, D., Santi, M., D’Autilia, F., Mapanao, A. K., Luin, S., and Voliani, V. (2019) Photothermal effect by NIR-responsive excretable ultrasmall-in-nano architectures. *Mater. Horizons* 6, 531–537.

Publications impact: More than 30 peer-reviewed papers and over 600 citations, 3 international patents, H-index=16 (from G. Scholar)

Dr. Valerio Voliani – Invited Presenter at The Symposium -IX th Edition

Bringing again plasmonic nanotheranostics to the forefront of cancers treatments: the ultrasmall-in-nano design

Dr. Valerio Voliani

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RNDr. **Jiří Kratochvíl**,

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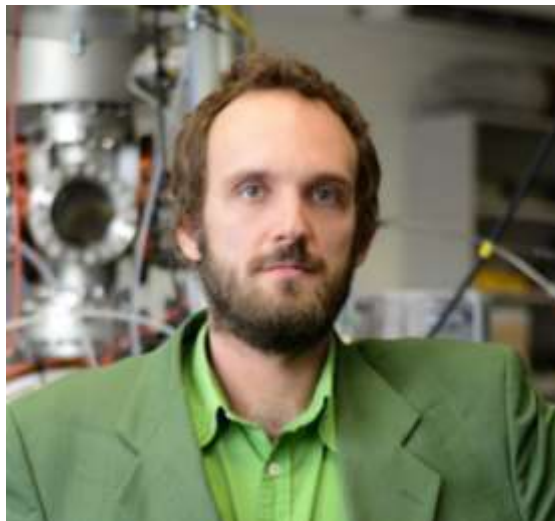
(2) Department of Macromolecular Physics
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Teaching: prf.jcu.cz/ufy/struktura/lide/kratochvil.html

Research: prf.jcu.cz/plasma

RG: researchgate.net/profile/Jiri_Kratochvil4



RNDr. **Jiří Kratochvíl** is young surface science physicist who performs multidisciplinary research at the intersection of material science, biology, and chemistry. His principal research topic is the investigation and development of nanostructured functional thin-films grown by means of low-temperature plasma. Main focus in his work is given to the gas-phase synthesis of nanoparticles their incorporation into various matrices and subsequent use of such produced materials for (bio)sensing, (bio)medicine or (bio)chemistry. He started his scientific career by co-authorship of two papers that were published in the frame of his bachelor study at Charles University, in which a novel method that utilized nanoparticles for the fabrication of coatings with tailor-made wettability was developed. His first authored publication written in the frame of his Master's study compared two methods for nanoparticle production and was awarded in the Best Student Paper Award competition organized by Charles University. At the same time, he became a professional programmer and won the Mobile Application of the Year competition in the games category. After getting the Master's degree with honors in solid state physics, he started doctoral studies at Charles University. His research in the field of immobilization of biomolecules in thin plasma polymer films was awarded by the Scholarship for Important publication activity, by the "Michael Cantarel Student Grant" at ITFPC conference and by the "Young Scientist Award" at E-MRS conference. Based on his nanomaterial research activities he was chosen to participate at Lindau Nobel Laureate Meetings. Currently, he is a researcher at Charles University as PI of project aiming on the development of novel novel coatings with improved antibacterial performance, and the University of South Bohemia, where he also teaches Solid State Physics, Plasma and Vacuum Technology, and Software for Scientific Computing. So far, he is a co-author of 17 scientific papers and presented 12 international conference contributions.

RNDr **Jiri Kratochvil** – **Keynote Presenter with special poster presentation at The Symposium – IX th Edition**

Nano-objects for (bio)applications

Jiří Kratochvíl^{1,2*}, Ondřej Kylián², David Kahoun¹, Ján Štěrba¹, Vítězslav Straňák¹

(1) *Faculty of Science, University of South Bohemia in Ceske Budejovice Branisovska 1760, 37005, Ceske Budejovice, Czech Republic, *jkratochvil@prf.jcu.cz, kratji@seznam.cz*

(2) *Faculty of Mathematics and Physics, Charles University V Holesovickach 2, 18200, Prague, Czech Republic, *jiri.kratochvil@mff.cuni.cz, kratji@seznam.cz*

Nanoparticles for (bio)applications

Jiří Kratochvíl (1,2), Ondřej Kylián (2), David Kahoun (1), Ján Štěrba (1), Vítězslav Straňák (1)

(1) *Faculty of Science, University of South Bohemia in Ceske Budejovice, Branisovska 1760, 37005, Ceske Budejovice, Czech Republic, jkratochvil@prf.jcu.cz, kratji@seznam.cz*

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Dr. Nanasaheb D. Thorat did his Master's degree in Physics in the year 2008 from the Department of Physics, Shivaji University Kolhapur, India. In 2010, he joined Center for interdisciplinary research department, D. Y. Patil University, Kolhapur, India for doctoral studies under the guidance of Prof. S. H. Pawar. He received his PhD in Physics with Gold Medal and awarded with 'Certificate of Research Excellence' by D. Y. Patil University, Kolhapur for the excellent contribution in research area for the year 2013-14. After completion doctoral studies in the year 2014, he joined as senior researcher at Samsung Biomedical Research Institute, Sungkyunkwan University, Suwon South Korea. In 2015, he was awarded Irish Research Council Fellowship at the at the University of Limerick, Ireland with Prof. Tofail Syed (www.mosaicteam.eu). In 2018 Dr. Thorat received European Commissions H2020 Marie Skłodowska-Curie Fellowship (IF) in Poland/Switzerland. He is a recipient of various other prestigious fellowships including, Japanese Society for the Promotion of Science (JSPS) Fellowship in Japan 2017, Government of Ireland IRC fellowship Ireland 2015, Government of Israel PBC Outstanding Fellowship in Israel 2015. Science and Engineering Research Board, Government of India Overseas Fellowship 2016. He has also received a second Marie Curie Fellowship at the University Oxford to start in 2020. Dr. Thorat has published 45 peer reviewed journal research papers and articles, 3 Book, 6 book chapters, H index: 25, Total citations: 1400, presented 5 Keynote Speech, 5 invited talks and 5 oral presentations at prestigious scientific peer-conferences, received international acclaims and awards for research contribution, generated research fund in excess of > €550,000, supervised students/junior researchers and actively participated in outreach and scientific dissemination for the service of wider community.

Assistant Professor, Dr. **Nanasaheb D.Thorat** – **Keynote Presenter at The Symposium – IX th Edition**

Light-mediated cancer theranostic for next generation cancer treatment**Nanasaheb D. Thorat** and Joanna Bauer

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Hiromasa Murata is PhD student of University of Tsukuba supervised by Assoc. Prof. Dr. Kaoru Toko. His research interests are Synthesis of high-quality multilayer graphene (MLG) at low temperature through the metal-induced layer exchange technique. This technique enables us to synthesize MLG on arbitrary substrates. The layer exchanged MLG was the highest crystal quality among the MLG synthesized directly on insulators. Reflecting the excellent crystallinity, the electrical conductivity showed a value comparable to bulk graphite. He has written papers as a first author (five papers) and a corresponding author (one paper). One of the papers has been highlighted in Nature Index [<https://www.natureindex.com/article/10.1063/1.5010982>]. Moreover, he has won three awards at conferences held in Japan.

Referred Journals Publication List:

1. H. Murata, K. Toko, and T. Suemasu, Multilayer graphene on insulator formed by Co-induced layer exchange, *Japanese Journal of Applied Physics* 56, 05DE03 (2017).
2. H. Murata, K. Toko, N. Saitoh, N. Yoshizawa, and T. Suemasu, Direct synthesis of multilayer graphene on an insulator by Ni-induced layer exchange growth of amorphous carbon, *Applied Physics Letters* 110, 033108 (2017).
3. H. Murata, N. Saitoh, N. Yoshizawa, T. Sumasu, and K. Toko, High-quality multilayer graphene on an insulator formed by diffusion controlled Ni-induced layer exchange, *Applied Physics Letters* 111, 243104 (2017). (Highlighted in Nature INDEX.)
4. Y. Nakajima, H. Murata, N. Saitoh, N. Yoshizawa, T. Sueamsu, and K. Toko, Metal Catalysts for Layer Exchange Growth of Multilayer Graphene, *ACS Appl. Mater. Interfaces* 10 41664 (2018).
5. H. Murata, Y. Nakajima, N. Saitoh, N. Yoshizawa, T. Suemasu, and K. Toko, High-Electrical-Conductivity Multilayer Graphene Formed by Layer Exchange with Controlled Thickness and Interlayer, *Scientific Reports* 9, 4068 (2019).

Associate Professor, Dr. **Kaoru Toko** and PhD student **Hiromasa Murata** - **Invited Presenters (Oral and Poster) at The Symposia – VIII th and – IX th Editions**

Multilayer Graphene: Layer-exchange synthesis of multilayer graphene for flexible carbon electronics

and

High-quality multilayer graphene formed by thickness-controlled metal-induced layer exchange

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Prof. Dr. Naoki Komatsu received his bachelor's, master's and doctor's degrees from Kyoto University in 1986, 1988 and 1993, respectively. He joined Okayama University in 1993 and moved to Kyoto University as Assistant Professor in 1994. In 1997, he worked at Florida State University for one year. In 2003, he moved from Kyoto University to Shiga University of Medical Science as Associate Professor. He promoted to Professor in Kyoto University in 2015. His research focuses on the structural separation and medicinal application of nanocarbon materials including nanodiamond, carbon nanotube and graphene.

The activity in E-MRS: Prof. Dr. Naoki Komatsu organized symposia related to “chemistry of nanocarbons” with Dr. Jean-Charles Arnault, Dr. Nianjun Yang and Dr. Olga Shenderova in Spring EMRS Meeting in 2012, 2014, 2016 and 2018, and will organize symposium R “Surface and Interfaces of Nanocarbons” in The E-MRS Fall Meeting 2019 Warsaw.

Professor, Dr. **Naoki Komatsu** – **Keynote Lecturer at The Symposium – IX th Edition**

**Diamond and Micelle:
Hard and Soft Materials for Nanomedicine**

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Yoshie Harada is a Professor of Institute for Protein Research, Osaka University, Japan since 2016. She received her B. Sc. in Biology from Ibaraki University (Japan) in 1982, Ms. Sc. in Biology from Ibaraki University (Japan) in 1984, and Ph. D. in Biophysics from Osaka University (Japan) in 1988. She has been working on molecular mechanism of motor proteins since 1986. She developed acto-myosin in vitro motility assay system and show that two headed myosin structure is not essential for muscle contraction (1987). She joined Yanagida BioMotron Project since 1992 and developed single molecule imaging system that can visualize single fluorophores in solution under an optical microscope (1995). Using that technique, she observed single molecule enzyme reaction (1995) and sliding movement of single motor proteins (1996). She applied single molecule imaging techniques to approach the mechanism of DNA-based molecular motors and observed interactions between single RNA polymerase molecules and a single molecule of DNA (1999). She moved to Department of Molecular Physiology, The Tokyo Metropolitan Institute of Medical Science and started her own laboratory in 2000. She succeeded to observe DNA rotation during transcription by individual RNA polymerase molecules (2001). She analyzed trafficking of single fluorescent labeled nerve growth factor-receptor complexes on the growth cones (2005). She moved to Institute for Integrated Cell-Material Sciences (iCeMS), Kyoto University as a professor in 2008. She started a project to develop nanodiamonds as a new fluorescent probe for analyzing the functions of biomolecules and a project to measure the local temperature in cells using a polymer fluorescence thermometer. She won Inoue Research Award for Young Scientists in 1991 and JAUW-Morita Award for Scientific Research in 1999.

Professor, Dr. **Yoshie Harada** – **Keynote Lecturer with special poster presentation**
at The Symposium – IX th Edition

Fluorescent nanodiamonds as a robust temperature sensor inside a single cell

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Jonathan Heddle heads the Bionanoscience and Biochemistry Laboratory. His interests include designing and understanding natural and artificial natural nanomachines using DNA and protein building blocks. In the field of natural nanomachines his interest lies mainly in DNA gyrase. His work with DNA has used produced artificial structures using the DNA origami technique including structures with potential for detection/treatment of malaria. In protein nanoscience he has made artificial structures using the ring-shaped protein “TRAP”. Most recently this has resulted in a novel artificial cage-shaped protein with interesting geometry and physico-chemical properties. The Heddle lab hopes to understand design and build more of these systems looking towards potential applications in new medicines and materials. www.heddlelab.org

Artur Biela is a senior scientist at Bionanoscience and Biochemistry Laboratory (Heddle Lab). His interests include designing and understanding natural and artificial protein supramolecular structures. His work with protein building blocks focuses mainly on protein cages. In this field of nanoscience he has been involved in making artificial structures using the ring-shaped protein “TRAP”. Most recently this has resulted in a novel artificial cage-shaped protein with interesting geometry and physico-chemical properties. As a part of the Heddle lab, he hopes to understand design and build more of these protein cages looking towards new, potential applications in nanomedicine and nanomaterials. www.heddlelab.org

1. Malay, A.D.; Miyazaki, N.; Biela, A.; Chakraborti, S.; Majsterkiewicz, K.; Stupka, I.; Kaplan, C.S.; Kowalczyk, A.; Piette, B.M.A.G.; Hochberg, G.K.A.; Wu, D.; Wrobel, T.P.; Fineberg, A.; Kushwah, M.S.; Kelemen, M.; Vavpetič, P.; Pelicon, P.; Kukura, P.; Benesch, J.L.P.; Iwasaki, K.; Heddle, J.G. An ultra-stable gold-coordinated protein cage displaying reversible assembly. *Nature* 2019, doi:[10.1038/s41586-019-1185-4](https://doi.org/10.1038/s41586-019-1185-4)

Dr. Jonathan Heddle and Dr. Artur Biela – Keynote Presenters at The Symposium – IX th Edition

**Boxes, Tubes, Cages and Beyond:
 Designing Nanostructures with DNA and Protein**

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Dr **Chakraborti** is presently working in the Bionanoscience and Biochemistry Laboratory headed by Professor Jonathan G Heddle, and his main objective is to develop DNA/protein based functional nano-robots. Dr Chakraborti is highly trained profession and having expertise in the field of protein engineering, synthetic and chemical biology. Dr Chakraborti did his PhD at the Bose Institute, India and he studies protein nanoparticle interaction. Before joining the present lab, Dr Chakraborti was in the USA and France for his postdoctoral training. He is authored of more than 30 publications with a H-index of 16. Assistant Professor,

Dr. Soumyananda Chakraborti – Invited Presenter at The Symposium – IX th Edition

Ferritin: The most interesting bionano component?

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Martin Ziegler is Professor of Mikro- and Nanoelectronics and head of the department nano- and microelectronic systems at the Technical University Ilmenau, Germany. He received his M.Sc. and Ph.D. in Physics from the University of Kiel, Germany, in 2006 and 2009, respectively, followed by a Habilitation in 2016 in electronics and an associate professorship (Privatdozent) at the faculty of engineering of the University Kiel in 2017. Since 2018 he is Professor and head of MNES at TU Ilmenau. His research interests include the development of memristive devices and their integration in neuromorphic circuits. For this purpose, neurobiological mechanisms of information acquisition, processing, and storage are reconstructed in a way that they can be emulated with micro- and nanoelectronic systems. This particularly involves the development of cutting edge micro- and nanoelectronic technologies. Since 2010 he is working in the field of memristive device for neuromorphic circuits. Martin Ziegler is principle investigator of the DFG research group 2093 entitled: “Memristive Devices for neuronal System”, and Project coordinator of the in 2018 BMBF-funded Research Laboratories Microelectronics Germany (ForLab) Ilmenau für neuromorphic electronics. He acts as organizer and chairperson of international conferences, as reviewer in scientific journals and is currently editorial board member of Scientific Reports. He has more than 40 journal publications and more than 50 conference contributions, including more than 20 invited talks.

Univ.-Prof. Dr.rer.nat.habil. **Martin Ziegler** – Tutorial Lecturer at The Symposium – IX th Edition

Concepts for closely Mimicking Biological Learning with Memristive Devices: Principles to Emulate Cellular Forms of Learning

Univ.-Prof. Dr.rer.nat.habil. **Martin Ziegler**

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gml.messina@unict.it<http://www.lamsun.it/messina.html>http://www.csgi.unifi.it/index.php?option=com_jresearch&view=member&task=show&id=78**Fields of Interest and Expertise:**

Dr. Messina research focuses on the specific organization processes at the liquid-solid interface, based onto the active role played by the surfaces to promote the orientation and organization of single molecules as the prime processes at nanometer scale, followed by the aggregation process at the mesoscopic scale.

Another field of interest is the nanostructuring of surfaces and the interaction of biomolecules with these systems studied as a function of the pore geometrical features, including volume, aspect ratio and diameter, as well as the chemical contrast. The driving chemical factors are identified in terms of surface free energy gradients, chemical termination and geometrical resonance curvature of nanostructured interface.

Recent Publications:

1. Grazia Maria Lucia Messina, Benedetta Di Napoli, Marta De Zotti, Claudia Mazzuca, Fernando Formaggio, Antonio Palleschi, Giovanni Marletta, A Molecular Sponge: pH-driven Reversible Squeezing of Stimuli-Sensitive Peptide Monolayers, *Langmuir*, 2019, DOI: [10.1021/acs.langmuir.8b03895](https://doi.org/10.1021/acs.langmuir.8b03895)
2. Laura Maria De Plano, Grazia Maria Lucia Messina, Domenico Franco, Maria Giovanna Rizzo, Sara Crea, Salvatore Guglielmino, Giovanni Marletta, M13 Bacteriophages as Bioreceptors in Biosensor Device: An Analysis of Chemosensory Afferents and the Projection Pattern in the Central Nervous System, In book: *Topographic Organization of the Pectine Neuropils in Scorpions*, 2019, pp.147-155, DOI: [10.1007/978-3-030-04324-7_20](https://doi.org/10.1007/978-3-030-04324-7_20)
3. Nunzio Tuccitto, Grazia Maria Lucia Messina, Giovanni Li Destri, Aleksandra Wietecka, Giovanni Marletta, Chelating Surfaces for Oriented HSA molecules, *Langmuir* 35(9), 2019, DOI: [10.1021/acs.langmuir.9b00068](https://doi.org/10.1021/acs.langmuir.9b00068)
4. G.M.L. Messina, C. Bonaccorso, A. Rapisarda, B. Castroflorio, Domenico Sciotto, Giovanni Marletta, Biomimetic protein-harpooning surfaces, *RS Communications*, 8(02):1-7, June 2018, DOI: [10.1557/mrc.2018.54](https://doi.org/10.1557/mrc.2018.54)

Dr. Grazia Maria Lucia Messina – Invited Presenter at The Symposia - VII th and - IX th Editions

Biomolecules orientation by tailored nanostructured surface

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Inga Anita Fischer – Chair of Experimental Physics and Functional Materials at Brandenburg Technical University. She obtained her PhD in theoretical solid-state physics from the University of Cologne, Germany, in 2006 for research on phases and quantum phase transitions in metallic magnets. From 2007 to 2010 she was first a research scientist, then a program manager at Siemens Corporate Technology in Munich, Germany. Her projects and research comprised the development of efficient numerical algorithms for robust optimization in the presence of parameter uncertainties as well as their application to the optimization of products and processes. Inga Anita Fischer obtained her Habilitation from Stuttgart University in 2016 and joined the Brandenburg Technical University in 2018. Her research is oriented towards the application of nanostructures in CMOS-compatible, group-IV-based semiconductor devices, e.g. the fabrication and utilization of SiGeSn nanostructures for optoelectronic devices. Furthermore, her research activities comprise group-IV-based spintronics and plasmonics in close collaboration with national and international groups. She is the author or co-author of more than 100 papers in scientific journals and conference contributions, including invited talks.

Professor, Dr. rer. nat. habil **Inga Anita Fisher** – **Keynote Presenter at The Symposium – IX th Edition**

Integrated refractive index sensing with Ge PIN photodiodes

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Dr. **Karsten Fleischer** is an Associate Professor on Surface and Interface Science and Characterisation of Advanced Materials/Nanomaterials in the School of Physical Sciences in Dublin City University since 2018. He received his PhD at the TU Berlin in 2005. He was an IRCSET Postdoctoral Fellow at Trinity College Dublin till 2007 and continued to work as Postdoctoral Fellow in TCDs Applied Physics Research Group. Dr. Fleischer's research focuses on thin film oxides and oxide surface modifications for energy and ICT applications. This includes their thorough characterisation in terms of stoichiometry, optical-, electrical-, and crystallographic properties using various deposition and characterisation techniques. His research also includes the investigations of the surface states in such oxides by electrical and surface sensitive optical characterisation methods.

Associate Professor, Dr. **Karsten Fleischer** – Invited Presenter at The Symposium – IX th Edition

Nanoscale amorphous oxides – complex dependencies of properties and composition

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Dr. **Dong Wang** is a Privatdozent in the institute of materials science and engineering and institute of micro- and nanotechnology at TU Ilmenau. He received his BS degree in chemical engineering from Wuhan University of Technology, his MS degree in materials science from RWTH Aachen University, and his PhD in 2007 from Karlsruhe Institute of Technology. In 2016, he has finished his Habilitation (teaching thesis) at TU Ilmenau. His research is focused on tailored nanostructures and nanomaterials for energy application and nanophotonics. He has co-authored more than 50 journal papers.

Publications Impact: More than 1000 citations, H- index 17

The E-MRS Activity: He was the E-MRS member 2012-2013 and 2017.

Priv.- Doz., Dr. **Dong Wang** – **Keynote Presenter with special poster presentation at The Symposium – IX th Edition**

Plasmonic Nanosponges

Dong Wang and Peter Schaaf

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Hydrogenated Black TiO₂ Nanoparticles for Cancer Photothermal Therapy

Wenzthi Ren¹, Yong Van², Leyong Zeng¹, Zhennzhi Shi¹, An Gong¹,
 Peter Schaaf², **Dong Wang**² and Augen Wu¹

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Dr. **Heorhii Vorobets** graduated from Chernivtsi State University in 1985. He continued postgraduate course and defended his Ph.D. thesis at the Taras Shevchenko Kyiv State University in 1989. In 2016 at the Department of Computer Systems and Networks of the Chernivtsi National University named after Yuri Fedkovich a laboratory on advanced technologies of Internet of things and cyber-physics systems was organized. Complex researches are conducted and the concepts of analysis and synthesis of optimized self-reconfigurable embedded and distributed computer tools of cyber-physics and bio-cybernetic systems are proposed on the basis of bioinspiring approach and "smart" analysis of data and functional algorithms of systems. The laboratory conducts a full cycle of research of "smart" systems: from the synthesis of semiconductor sensors of physical quantities and environmental parameters, measurement of their electrical parameters and laser correction, to the development of microprocessor systems for information processing and control. Spectral properties of nanostructured semiconductor materials and organic compounds are also investigation in the laboratory.

Topics of researches: Specialized computer systems for laser technology of synthesis and correction of parameters of semiconductor sensors and nanostructured and nanodisperse systems; Primary converters of information signals for computerized information-measuring devices, automatic control systems, telemetry and data transmission; Self-configurable computer cyber-physics systems and intelligent data processing algorithms.

1. Heorhii Vorobets, Volodumyr Strebezhev, Viktor Strebezhev, Ruslan Hurjui, Roman Rogov. Application of the infrared semiconductors interference filters for optical sensors in express spectroscopy of organic materials. // Journal of Faculty of Food Engineering, Ștefan cel Mare University of Suceava, Romania Volume XIV, Issue 1 - 2015, pp. 93 – 100.
2. George Vorobets, Olexandr Vorobets, Volodymyr Strebezhev, Viktor Strebezhev, Yuriy Khalavka, Vitaliy Balazyuk. Elements for Photodetectors Based on Epitaxial Layers In₄Se₃, In₄Te₃ and CdSb. // IEEE 35th International Conference on Electronics and Nanotechnology, ELNANO 2015 - Conference Proceedings. –Kyiv, Ukraine, 21-24 April, 2015. – P. 225-227.
3. Vorobets G.I., Gurzhu R.D., Kuz M.A. Computerized system with reconfigurable architecture for monitoring environmental parameters. // East European Journal of Advanced Technologies. - 2015-№2, P. 55-59.
4. Vorobets G.I. Application of the system approach for the synthesis of models of basic elements of reconfigurable structures in information systems / G.I. Vorobets, O.I. Vorobets, V.E. Gorditsa // Electrical and computer systems. - 2018. - No. 28. - P. 257-267. - Access mode: http://nbuv.gov.ua/UJRN/etks_2018_28_34

**Dr. Heorhii Vorobets – Invited Presenter with special poster presentation
at The Symposia - IV, - VII th, and – IX th Editions**

Methods and Computerized Equipment of Identification and Express Analysis of Carcinogenic Components in Bioactive Environments

Heorhii Vorobets¹, Mikhailo Solomiychuk², Aurelia Zelya², Viktor Strebezhev³, Maria Vorobets⁴,
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Simulation of interference filters for the study of narrow-band spectra of visible and near-infrared wavelength

Heorhii Vorobets¹, Olexandr Vorobets¹, Viktor Strebezhev², Ivan Yuriychuk²

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Pavel Troshin is an Associate Professor in Skoltech, the head of the Laboratory of Functional Materials for Electronics and Medicine at the Institute for Problems of Chemical Physics of Russian Academy of Sciences (IPCP RAS). He also serves as Chair of the Research Center of Nanostructured Materials for Energy Conversion and Storage co-founded by Skoltech and IPCP RAS. Dr. Troshin graduated with a specialist degree in Organic and Physical Chemistry from Higher Chemical College of RAS at D. I. Mendeleev University of Chemical Technology. In 2006, he obtained his PhD degree in Physical Chemistry from the Institute for Problems of Chemical Physics of Russian Academy of Sciences. Over the last 10 years, he coordinated and led more than 30 different research projects, for which he raised state & industry grants, including grants from the Russian Science Foundation, Russian Foundation for Basic Research, Russian Ministry of Science and Education, grants of European Science Foundation and contracts with Russian and foreign companies and research centers. He has published over 200 peer-reviewed papers and presented >30 invited and plenary talks at high-profile international conferences.

Selected publications:

1. S. A. Adonin, L.A. Frolova, M. N. Sokolov, G. V. Shilov, D. V. Korchagin, V. P. Fedin, S. M. Aldoshin, K. J. Stevenson, P. A. Troshin, Antimony (V) complex halides: lead-free perovskite-like materials for hybrid solar cells. *Adv. Energy Mater.* **2018**, 8, 1701140
2. Hsieh, F.-Y.; Zhilenkov, A. V.; Voronov, I. I.; Khakina, E. A.; Mischenko, D. V.; Troshin, P. A.; Hsu, S.-h. Water-soluble fullerene derivatives as brain drugs: surface chemistry determines neuroprotective and antitumor effects. *ACS Appl. Mater. Interfaces* **2017**, 9, 11482–11492
3. A. F. Akbulatov, S. Luchkin, L. A. Frolova, N. N. Dremova, K. J. Stevenson, P. A. Troshin. Probing the intrinsic thermal and photochemical stability of the hybrid and inorganic lead halide based perovskites. *J. Phys. Chem. Lett.* **2017**, 8, 1211-1218

Dr. Pavel Troshin – Keynote Presenter with special poster at The Symposium –IX th Edition

Realizing efficient and selective gas sensing platform with a potential application in medical diagnostics

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Highly sensitive gas sensors based on complex lead halides with perovskite structure

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Prof. Dr. **Thomas J. Webster**, Editor of *Nanomedicine J.* (5 year IF= 5.038)

<https://www.dovepress.com/journal-editor-international-journal-of-nanomedicine-eic5>

Thomas J Webster is the Zafiropoulo chair and professor, chemical engineering at Northeastern University and the Center of Excellence for Advanced Materials Research, King Abdulaziz University, Jeddah 21589, Saudi Arabia. Previously he was associate professor for the Division of Engineering at Brown University and the Division of Orthopedic Surgery at Brown University Medical School. He has degrees in chemical engineering from the University of Pittsburgh (BS, 1995) and in biomedical engineering from Rensselaer Polytechnic Institute (MS, 1997; PhD, 2000). Prof Webster's research addresses the design, synthesis, and evaluation of nanophase materials (that is, materials with fundamental length scales less than 100 nm) as more effective biomedical implants. Prof Webster is the current director of the Nanostructured Biomaterials Laboratory and has completed extensive studies on the use of nanophase materials as implanted materials. His lab group has produced four books, 15 book chapters, 62 invited presentations, 157 literature articles and conference proceedings, 245 conference presentations, and 15 provisional or full patents on the study of nanophase materials and implantable devices. Prof Webster's research on nanophase materials has received attention in numerous recent media publications such as MSNBC News, June 1, 2004; the *Economist*, June 5, 2004; and *Chemical and Engineering News*, Feb 28, pp. 39–42, 2000. He has organized more than 25 symposia at academic conferences highlighting the use of nanomaterials in biological applications. Other honors include: 2000, Karen and Lester Gerhardt Graduate Student Award in recognition of outstanding academic achievement and promise for a successful career, Rensselaer Polytechnic Institute; 2002, Biomedical Engineering Society Rita Schaffer Young Investigator Award; 2004, Purdue University Young Investigator Award from the Schools of Engineering; 2005, finalist for the Young Investigator Award for the American Society for Nanomedicine; and 2004, Early Career Award from the Coulter Foundation. He currently serves as the editor-in-chief of the *International Journal of Nanomedicine* and is on the editorial board of *Biomaterials*, *American Society for Artificial Internal Organs*, *International Journal of Nanomanufacturing*, and *Journal of Biomedical Nanotechnology*.

Focus of the research: The primary focus of the research is the design, synthesis, and evaluation of nanomaterials for various medical applications. This includes self-assembled chemistries, nanoparticles, nanotubes, and nanostructured surfaces. Medical applications include inhibiting bacteria growth, inflammation, and promoting tissue growth. Tissues of particular interest are bone, cartilage, skin, nervous system, bladder, cardiovascular, and vascular. There is also an interest in anti-cancer applications where nanomaterials can be used to decrease cancer cell functions without the use of pharmaceutical agents. There is also a large interest in developing in situ sensors which can sense biological responses to medical devices and respond in real time to ensure implant success. Lastly, there is an interest in understanding the environmental and human health toxicity of nanomaterials.

Research & Scholarship Interests: design, synthesis, and evaluation of nanomaterials for various medical applications, including self-assembled chemistries, nanoparticles, nanotubes, and nanostructured surfaces

Honors & Awards: American Institute for Medical and Biological Engineers; American Society for Nanomedicine; Biomaterials Science and Engineering; Biomedical Engineering Society; Ernst Strungmann Foundation; International College of Fellows - Biomaterials Science and Engineering

Prof. Dr. **Thomas J. Webster** – Keynote Presenter at the Symposium – IXth Edition

Translational medicine and biomaterials: Basics and relationship

and

Perspectives of novel biomaterials:

In celebration of 14 years of the International Journal of Nanomedicine

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Stefan Jurga is Professor of Physics and the Director of the NanoBioMedical Centre. He obtained his PhD degree in Physics at Adam Mickiewicz University in 1974, his habilitation in 1985 and the professorship in 1995. He was awarded numerous awards and two orders of state Order of Polonia Restituta (2002) and the Cross of Merit (1989). His research interests include Nuclear Magnetic Resonance Spectroscopy, Small and Wide Angle X-ray Scattering, Electron Microscopy, Optical and Atomic Force Microscopy, FTIR Spectroscopy. He has published over 200 peer-reviewed papers. He was involved in many national and European Grants among which European Soft Matter Infrastructure (ESMI), The International PhD Program in Nanoscience and Nanotechnology and Magnetic Nanoparticles and Thin Films for Spintronic Applications and High Performance Permanent Magnets can be mentioned.

Selected publications:

1. Maziukiewicz, D.; Grześkowiak, B.F.; Coy, E.; Jurga, S; Mrówczyński, R.; NDs@PDA@ICG Conjugates for Photothermal Therapy of Glioblastoma Multiforme *Biomimetics* 2019, 4(1), 3
2. T. Zalewski, P. Lubiowski, J. Jaroszewski, E. Szcześniak, S. Kuśmia, J. Kruczyński, S. Jurga, Scaffold-aided repair of articular cartilage studied by MRI, *Magnetic Resonance Materials in Physics, Biology and Medicine* 2008, 21(3), 177-185.
3. M. Olek, K. Kempa, S. Jurga, M. Giersig, Nanomechanical properties of silica-coated multiwall carbon nanotubes-poly(methyl Dmethacrylate) composite, *Langmuir* 2005, 12(7), 3146-3152.
4. Artur Jędrzak, Bartosz F Grześkowiak, Emerson Coy, Jacek Wojnarowicz, Kosma Szutkowski, Stefan Jurga, Teofil Jesionowski, Radosław Mrówczyński Dendrimer based theranostic nanostructures for combined chemo-and photothermal therapy of liver cancer cells in vitro *Colloids Surf. B.* 2019, 173,698-708
5. Radosław Mrówczyński, Artur Jędrzak, Kosma Szutkowski, Bartosz F. Grześkowiak, Emerson Coy, Roksana Markiewicz, Teofil Jesionowski, Stefan Jurga Cyclodextrin-Based Magnetic Nanoparticles for Cancer Therapy *Nanomaterials* 2018, 8(3),170

Professor, Dr. hab. **Stefan Jurga** – **Keynote Presenter at the Symposium – IX th Edition**

Application of nanostructures in medicine – Case of NanoBioMedical Centre

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Fields of interest and expertise: Dr. Antonini is the founder of SEFI Lab - Surface Engineering and Fluid Interfaces Laboratory, in the Department of Materials Science at the University of Milano-Bicocca, Italy. He joined the Department in 2018 with support of a Rita Levi Montalcini Fellowship.

Dr. Antonini received his PhD in Technologies for Energy and Environment from University of Bergamo (2011), Italy, with a thesis titled “Superhydrophobicity as a strategy against icing”. After a Marie Curie Fellowship at ETH Zurich (2012-2014) working on the project “ICE2: ICEphobicity for severe ICing Environments”, in 2015 he joined EMPA – Swiss Federal Laboratory for Material Science and Technology – as scientist, focusing on the control of surface wetting properties of cellulose-based materials for various engineering applications, ranging from liquid separation (oil remediation) to thermal insulation.

He recently established SEFI Lab brings about research and innovation for new technologies towards clean water and energy-efficient processes, two goals identified by UN for sustainable development. In particular, activities focus on understanding interfacial transport phenomena, for the design of innovative smart interfaces. SEFI Lab is characterized by an interdisciplinary approach, at the interface between thermofluidics, material science and surface micro- and nano-engineering.

Selected publications:

1. P. Orsolini, C. Antonini, A. Stojanovic, W. J. Malfait, W. R. Caseri, T. Zimmermann. Superhydrophobicity of nanofibrillated cellulose materials through polysiloxane nanofilaments. *Cellulose* 25 (2), 1127–1146 (2017).
2. J. B. Lee, S. dos Santos, **C. Antonini***. Water touch-and-bounce from a soft viscoelastic substrate: Wetting, dewetting and rebound on bitumen. *Langmuir* 32 (32), 8245–8254 (2016).
3. **C. Antonini**, T. Maitra, M. K. Tiwari, A. Mularczyk, Z. Imeri, P. Schoch, and D. Poulikakos. Supercooled water drops impacting superhydrophobic textures. *Langmuir* 30 (36), 10855–10861 (2014).
4. T. Maitra, M.K. Tiwari, **C. Antonini**, P. Schoch, S. Jung, P. Eberle, D. Poulikakos. On the Nanoengineering of Superhydrophobic and Impalement Resistant Surface Textures below the Freezing Temperature. *Nano Letters* 14 (1), 172–182 (2014).
5. **C. Antonini**, I. Bernagozzi, S. Jung, D. Poulikakos, M. Marengo. Water drops dancing on ice: how sublimation leads to drop rebound. *Physical Review Letters* 111, 014501 (2013).

Dr. Carlo Antonini – Invited Presenter at the Symposium – IX th Edition

Ultra-porous nanocellulose foams with tailored wetting properties

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O. Mohamed Lemine is professor of physics at Al Imam University in Riyadh, Saudi Arabia. Prior to his faculty position at Al Imam University, he was a faculty member at King Khalid University (Saudi Arabia), Picardie University (France) and Lorraine University (France).

Prof/ Lemine received his Ph.D. in Materials Physics in 1999 and M.Sc. degree in Materials Sciences in 1995 from Lorraine University (France). Current research interests touch all aspect of magnetic nanomaterials; these include, but not limited to, magnetic nanoparticles, diluted magnetic semiconductors and magnetic thin film.

He is research group leader and founder of research experimental laboratory at the college of science. His current projects involve synthesis, characterization and development of magnetic nanomaterials for hyperthermia applications and the removal of heavy metals from water. In parallel, he is working on the origin the ferromagnetism in dilute magnetic semiconductors (DMS). To date he is authored or co-authored more than 45 reviewed journal articles in high impact journals and contributed with chapters in 4 books. Prof Lemine is currently the PI and Co-PI on research grants from KACST and AL Imam University.

Selected publications:

1. Room temperature ferromagnetism in Ni, Fe and Ag co-doped Cu–ZnO nanoparticles: an experimental and first-principles DFT study, **O.M.Lemine**, A Modwi, A Houas, JH Dai, Y Song, M Alshammari, A Alanzi, R Alhathloul, M Bououdina, Journal of Materials Science: Materials in Electronics, Volume 29(2018), pp 14387–14395
2. Superparamagnetic iron oxide nanocargoes for combined cancer thermotherapy and MRI applications. Nanasheeb D. Thorat, **OM Lemine**, Raghvendra A. Bohara, KarimOmri, L. El Mir and Syed A. M. Tofail, Physical Chemistry Chemical Physics, (2016), 18, 21331 – 21339
3. Defect-induced room temperature ferromagnetism in mechanically milled nanocrystalline In₂O₃ powder, **O.M. Lemine**, M Bououdina, A Alyamani, K Omri, K Ibaouf, MA Ibrahim and R Alhathloul, Materials Letters 181, (2016) 152-155.
4. γ -Fe₂O₃ by sol-gel With Large Nanoparticles Size for Magnetic Hyperthermia Application, **O.M. Lemine**, K. Omri, L. El Mir, M Iglesias, V Velasco, P Crespo, P de la Presa, Houcine Bouzid, Ali A. Yousif and A.Hajry, Journal of Alloys and Compounds 607 (2014) 125–131

Professor, Dr. **O. Mohamed Lemine** – Invited Presenter at the Symposium –IX Edition

**Cancer cell treatment through magnetic hyperthermia produced
by-Fe₂O₃ and Co_{1-x}Fe_xO₄ nanocrystallines**

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