

The European Materials Conference
European Materials Research Society Fall Meeting
Scientific/Technical Symposia & Exhibition

E·MRS

2014 Fall Meeting

15th-19th September
Warsaw University of Technology - POLAND

**Final Announcement
and Call for Papers**

DEADLINE FOR ABSTRACT SUBMISSION
June 9, 2014



Warsaw University of Technology,
Plac Politechniki 1 - Warsaw, Poland

www.european-mrs.com



E-MRS 2014 FALL MEETING

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Introduction

The European Materials Research Society (E-MRS) was established in 1983 through the initiative of individual European Materials scientists. A number of European materials scientists who attended the MRS meetings in the U.S.A. realised that such a society could be of benefit to Europe to enhance the links between materials science and industry and to provide a voice for the materials community. Most of the problems facing the world such as energy supply and health will be solved only by breakthroughs in materials science. It is vital that the outcomes of research are utilised through technological experience and innovation for the benefit of mankind. The Fall Meeting provides the opportunity to exchange ideas, expand one's knowledge and make new contacts. The conference will consist of 24 parallel symposia and a plenary session and provides an international forum to discuss recent advances in the field of materials science. The conference will be augmented by an exhibition of products and services of interest to the conference participants. The Conference will be held at the Central Campus of the Warsaw University of Technology, from 15th to 19th September 2014. It is the 13th E-MRS Fall Meeting following its launch in 2002 to run in parallel to the well-established Spring Meeting in France. The Fall Meeting has become increasingly multi-national with a steadily growing number of symposia and participants from all over the world. Don't miss it! We look forward to welcoming you to Warsaw and your active contribution and participation in the conference.

The Conference Chairpersons:

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The Conference Organizers:



European Materials Research Society



Polish Materials Research Society



Warsaw University of Technology



Institute of Physics, PAS



Institute for High Pressure Physics, PAS

Plenary Session (Wednesday afternoon, 17th September):

1. Presentation of the Jan Czochralski Award to **Professor George M. Whitesides**, Harvard University. Lecture by Professor Whitesides.
2. Plenary Lecture by **Professor Clément Sanchez**, Collège de France, "*Integrative strategies to advanced nanostructured inorganic and hybrid materials*"
3. Plenary Lecture by **Professor Hidenori Takagi**, Max Planck Institute for Solid State Research, Stuttgart, "*Emergent phase change functions of correlated electrons*"

Poster Sessions:

1. Monday, 16th September
2. Tuesday, 17th September

Scheduled Symposia (15th - 19th September):**NANO BIOMATERIALS**

- | | | | |
|-----------|---|---|--|
| Symposium | E | : | Biomimetics and regenerative medicine |
| Symposium | R | : | Bioceramics for bone and joint repair |
| Symposium | W | : | Harnessing nano-bio-engineering tools for tissue engineering and regenerative medicine applications |
| Symposium | U | : | Bioinspired and biointegrated materials as frontiers nanomaterials IV: healthcare nanomaterials and systems in biomedical nano –chips, -robots |

NANOMATERIALS AND NANOTECHNOLOGY

- | | | | |
|-----------|---|---|---|
| Symposium | C | : | Inorganic nanoarchitectonics and nano-objects: fabrication to sustainable solutions |
| Symposium | I | : | Magnetic quantum dots and nanostructures |
| Symposium | K | : | Computer modelling in nanoscience and nanotechnology: an atomic-scale perspective III |
| Symposium | B | : | Organized nanostructures and nano-objects: fabrication, characterization and applications |

SEMICONDUCTOR MATERIALS AND SPINTRONICS

- | | | | |
|-----------|---|---|--|
| Symposium | J | : | Alternative semiconductor integration in Si microelectronics: materials, techniques & applications 2 |
| Symposium | Q | : | Terahertz and infrared optoelectronics: from materials to devices |
| Symposium | T | : | Topological materials II |
| Symposium | X | : | Antiferromagnetic spintronics: materials, characterization, functionalities |

OXIDE MATERIALS

- | | | | |
|-----------|---|---|---|
| Symposium | V | : | Functional perovskite systems |
| Symposium | A | : | Oxide materials for energy harvesting: In-silico study coupled with experiments |
| Symposium | O | : | Recent progress in new high-Tc superconductors and related multifunctional and magnetic materials |
| Symposium | F | : | Superconductivity in low dimensional systems |
| Symposium | L | : | Copper- and Zinc oxide based materials for sustainable energy technologies |
| Symposium | D | : | Transparent conducting oxides and related materials |

ADVANCED FUNCTIONAL MATERIALS

- | | | | |
|-----------|---|---|--|
| Symposium | G | : | Materials, processing, and characterization techniques for future nuclear technologies |
| Symposium | P | : | Advanced on functional doped glasses: technologies, properties and applications |
| Symposium | M | : | Functional textiles – from research and development to innovations and industrial uptake |
| Symposium | S | : | Composite materials and structures: from research and practical demands to application |

MATERIALS CHARACTERIZATION

- | | | | |
|-----------|---|---|--|
| Symposium | N | : | Crystallography in materials science: novel methods for novel materials |
| Symposium | H | : | Local probing techniques and in-situ measurements of energy storage and conversion materials |

Deadline For Abstract Submission: June 9, 2014

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**Introduction and scope:**

Scientists of different communities exploring the new possibilities for energy materials through their investigations, especially on the oxide based materials. Hence, there should be a symposium dedicated to the connection between theory and experiments of energy materials in E-MRS for a new flavor.

The prolific growth of energy demand all over the world can be procured by the renewable energy harvesting. Oxide materials promise great potential for helping to solve important technological challenges in energy efficiency and the conversion of renewable energy into useable forms. Performing experiments in the laboratory can be quite expensive to test wide range of materials and their physical and chemical properties, which paves the way of computer aided theoretical prediction. Thus materials modeling come into the picture of our daily scientific life. In this symposium, computational and experimental materials scientists throughout the world can discuss profoundly the future of oxides materials for energy applications. We will also know the desired computation from a development perspective, which will be needed for such theoretical predictions. We know quite a few renowned scientists of this area who can give Plenary and Invited talks, which will enrich our symposium scientifically and motivate the young researchers in this field as well. The proposed workshop aims at bringing together world-leading experts in all these fields to improve interdisciplinary cooperation overcoming traditional boundaries between scientific disciplines.

The scientific objectives of the proposed workshop are:

- Bring together researchers from materials science, chemical synthesis, catalysis, electrochemistry and photovoltaics to highlight recent progress and discuss challenges and opportunities in the materials aspect of oxides research and development for energy applications.
- To discuss possibilities for optimizing the materials properties and device design. The interdisciplinary character of the workshop will help finding solutions for overcoming current limitations.
- Provide opportunity to form new worldwide interdisciplinary collaborations on nanostructured oxide materials for the mutual benefit of theoretical, experimental and applied researchers.

Hot topics to be covered by the symposium:

According to the theme of our symposium, which is primarily motivated by the fact of energy applications of oxides materials, the following area would be given emphasize in our symposium:

- Solar hydrogen fuel production based on oxide materials;
- Organic and inorganic solar cell and photovoltaic;
- Hybrid interfaces for the quest of novel energy efficient materials;
- Catalytic mechanism of hydrogen evolution reaction and oxygen reduction reactions
- Organic and inorganic battery materials

Tentative list of scientific committee members:

- T. K. Kang
- K. V. Rao
- B. Johansson
- C. G. Granqvist

Tentative list of invited speakers:**A. Experiments:**

- Ulrike Diebold (University Vienna) diebold@iap.tuwien.ac.at
- Wey Yang Theo (City-University Hongkong) wyteoh@cityu.edu.hk
- Yasushi Hirose (University of Tokyo) hirose@chem.s.u-tokyo.ac.jp
- Detlef Bahnemann (Hannover University) bahnemann@iftc.uni-hannover.de
- Tobias Voss (University of Bremen) voss@ifp.uni-bremen.de
- Carsten Ronning (University of Jena) Carsten.Ronning@uni-jena.de

B. Theory and Computation:

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- Filip Tuomisto (Aalto Helsinki) fillip.tuomisto@aalto.fi
- Jisoon Ihm (Seoul National University) jihm@snu.ac.kr
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- Benjamin J. Morgan (The University of Liverpool) bmorgan@liv.ac.uk
- Hideyuki Kamisaka (University Tokyo) kami@chem.s.u-tokyo.ac.jp
- Julia E. Medvedeva (Missouri University of Science and Technology) juliagem@mst.edu
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**Introduction and scope:**

The symposium covers all the scientific and technological aspects related to the synthesis of semiconductor or metallic nanodots and nanowires, with special emphasis on the multiscale organization and auto-organization of these nano-objects in ordered structures, in view of their future integration in functional devices.

Due to their appealing size dependent properties, semiconductor and metallic nano-objects (nanocrystals, nanowires) have been predicted to be used as technological boost in various fields including nano-electronics, optoelectronics, photonics, magnetism, and photovoltaic. The capability to control size, shape, composition and doping of these nano-objects is crucial to finely tailor their properties. Nevertheless the future implementation of these elemental building blocks in functional devices at nano-scale requires precise control of the organization of the nano-objects in terms of density and relative positioning within well organized structures. The capability to fabricate ordered arrays of nano-objects and to precisely organize the nano-objects on appropriate substrates or inside various matrices is the key point to support the technological development of new device concepts with predictable characteristics based on these novel nano-materials. Following a very successful symposium organized in 2012, this symposium intends to draw on previous experience that demonstrated the wide interest of these specific topics. In particular the analysis of the participants and presentations clearly indicated that a special focus on multiscale fabrication, organization and auto-organization is requested by the scientific community working in the field of nanotechnology. The symposium will provide the opportunity to present insights on advanced nano-structures and nano-device architectures at different stages of development. The symposium is open to all experimental and theoretical results on organized nano-structures, aiming to control the main parameters of the nano-objects in relation with their tunable properties and functionalities. As a consequence the symposium is expected to create a platform in order to bring together researchers coming from academia and industry and to stimulate interactions among scientists, engineers and students working on all the aspects of semiconductor and metallic nano-structures, from fundamental physics and material science issues to the final application in functional devices.

Hot topics to be covered by the symposium:

This symposium will include but will not be limited to the following topics:

- Synthesis of nano-structures: Top-down and Bottom-up processes
- Metal and semiconductor nano-structures
- Self and induced organization of nano-structures
- Nano-structures on surface and in volume
- Doping issues in nano-structures
- Advanced methodology to control synthesis and positioning of nano-structures
- Light emission and optical gain in semiconductor nano-structures
- Advanced nano-lithographic strategies based on self assembly approaches
- Applications of nano structure in microelectronics, optoelectronics and photovoltaics

Scientific committee:

- S. Spiga, Laboratorio MDM, IMM-CNR, Agrate Brianza (Italy)
- A. W. Weeber, ECN - Solar Energy, Petten (Holland)
- F. Falk, Photovoltaic Systems Dept. Institute of Photonic Technology, Jena (Germany)
- C. A. Ross, Massachusetts Institute of Technology, Cambridge (USA)
- A. Garcia Santiago, Universitat de Barcelona, Barcelona (Spain)
- J. Valenta, Charles University, Prague (Czech Republic)
- S. Schamm-Chardon, CEMES/CNRS, Toulouse (France)
- T. Baron, Laboratoire des Technologies de la Microelectronique-CNRS (France)
- D. Bimberg, Berlin's Technical University, Berlin (Germany)
- P. Dimitrakis, Institute of Microelectronics, NCSR 'Demokritos', Athens (Greece)
- J.A. Yater, Freescale Semiconductor Inc., Austin (USA)
- D. Hiller, IMTEK, Freiburg University, Freiburg (Germany)
- J. M. de Teresa, Zaragoza University, Zaragoza (Spain)
- M. Buljan, Rudjer Boskovic Institute, Zagreb (Croatia)
- Paolo Bettoti, University of Trento, Trento (Italy)

Invited speakers:

- Luca Boarino, INRIM, (Italy): "3 dimensional nanostructures for metrology and surface analysis"
- Guillaume Fleury, LCPO, University of Bordeaux, (France) "Directed Self-Assembly of Block Copolymers for Lithographic Applications: from Materials Design to Pattern Transfer Demonstration"
- Justin D. Holmes, University College Cork, (Ireland) "Manipulating Defects Through Nanoscale Patterning"
- Michele Laus, Universita del Piemonte Orientale, (Italy) "Structural Design and Chemical Implications of the Macromolecular Systems for Block Copolymer-Based Technologies"
- Erik Garnett, FOM-Institute for Atomic and Molecular Physics, Amsterdam (The Netherlands), "Solar Highways: core-shell nanowires for high-efficiency, low-cost solar conversion"
- Manuel Schnabel, Fraunhofer Institute for Solar Energy Systems, Freiburg "Self-Assembled Silicon Nanocrystal Arrays for Photovoltaics"
- F. Ruffino, CNR - IMM, Catania, Italy "Approaches for nano-structuring and patterning metallic films"
- Stefano Cabrini, Berkeley Lab "Direct Nano imprinting of High Refractive Index Material for Printable Photonic Devices"
- Leonhard Grill, Fritz-Haber-Institut (Max-Planck-Society) "Assembly and manipulation of functional molecules at the atomicscale"
- Joel Moser, ICFO Spain "Force detection and frequency fluctuations in carbon nanotube mechanical resonators"
- Dominique Drouin, UMI-LN2 Canada/Québec "Integration of nanoelectronic devices within BEOL of CMOS circuit"

Symposium Organizers:**Gerard Ben Assayag**

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**Introduction and scope:**

Nanoarchitectonics is a novel paradigm in nanotechnology aimed at designed assembling of nanoscaled structural units and elaborating strategies for achieving a versatile functionality through their controlled assemblies into higher dimensions. In these perspectives, inorganic nanoarchitectonics can trigger innovation and give sustainable solutions in nanocatalysis, nanoelectronics, nanomedicine, light-energy conversion and not only.

Construction of inorganic materials based on the concept of nanoarchitectonics give rise to powerful means to develop materials with complex functionalities, able to trigger innovative solutions in many fields. In this perspective, research on the exploration of the key features of inorganic nanoarchitectonics and further, how these can be used for obtaining novel, useful and clean technologies, might play a critically important role in developing a sustainable future. To address these issues, this symposium will cover general topics of inorganic nanostructures manufacturing, organization and elaborating techniques and strategies for their assembly into higher dimensions for giving rise to more complex architectures. Fundamental issues related to assembling and organizing at nanoscale, critically influence the functionalities and applications of inorganic nanostructures will be also included.

Specifically, this symposium will focus on:

- manufacturing of inorganic nanostructures and strategies to manipulate their nanoarchitectonics
- characterizations of inorganic nano-assemblies and emergence of collective behaviours and multifunctionality through inorganic nanoarchitectonics
- inorganic nanoarchitectonics for heterogeneous (photo)catalysis applications
- inorganic nanoarchitectonics for biomedical applications
- interfacial inorganic nanoarchitectonics.

To meet the challenge, researchers with diverse backgrounds need to work closely together across different disciplines. The symposium will contribute to spread the knowledge in nanoarchitectonics of inorganic materials by providing a platform for materials scientists, chemists, physicists and engineers, involved in fundamental, as well in applied research, to communicate their vision and the latest exciting new results.

Hot topics to be covered by the symposium:

- TiO₂ and MeNPs/TiO₂ nanoarchitectonics: from design to enhanced photocatalytic efficiency.
- Nanoarchitectonics based on graphene and 2-D layered oxides, nitrides and sulfides.
- Plasmonic metal nanoparticles (MeNPs) nanoarchitectonics.
- Layered double hydroxides nanoarchitectonics.
- Mesoporous inorganic nanoarchitectonics.
- Nanoarchitectonics of nanodiamonds.
- Inorganic nanoarchitectonics for photocatalytic water splitting, photocatalytic CO₂ fixation and energy storage.
- Multifunctional inorganic nanoarchitectonics for application in green chemistry
- Inorganic nanoarchitectonics for drug delivery and functional biomaterials
- Inorganic nanoarchitectonics for application in nanoelectronics and nanophotonics

Invited speakers:

- Jiefang Zhu, Uppsala University, Sweden
- Min Wei, University of Chemical Technology, Beijing, P. R. China
- Testuro Majima, University of Osaka, Japan
- James Durrant, Imperial College, London
- Paolo Fornasiero, University of Trieste, Italy
- Valérie Keller, University of Strasbourg, France
- Guido Müll, University of Twente, The Netherlands
- Jorge Gascón, University of Delft, The Netherlands

Scientific committee:

- Eduardo Ruiz-Hitzky, Materials Science Institute of Madrid, Spain
- Raffaele Molinari, University of Calabria, Italy
- Valerie Keller, University of Strasbourg, France
- Nobuhiro Matsushita, Tokyo Institute of Technology, Japan
- Rune Lødeng, SINTEF, Norway
- Kazunori Takada, National Institute for Materials Science, Japan
- Katsuhiko Ariga, World Premier International (WPI), Research Center for Materials Nanoarchitectonics (MANA), Japan
- Magnus Rønning, Norwegian University of Science and Technology, Norway
- Yusuke Yamauchi, National Institute for Materials Science (NIMS), Japan
- Barbara Malič, Jozef Stefan Institute, Slovenia
- Dragos Ciuparu, Petrol – Gaze University Ploiesti, Romania
- Vicente Rives, University of Salamanca, Spain
- Mateo Cargnello, University of Pennsylvania, USA
- Maria Dinescu, National Institute for Lasers, Plasma and Radiation Physics, Romania
- David Evans, University of Chemical Technology, P. R. China
- Yasuo Izumi, Chiba University, Japan
- Jaime S. Valente, Mexican Petroleum Institute, Mexico

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**Introduction and scope:**

Transparent conducting oxides and related materials are at the forefront of contemporary materials science with emerging novel materials and experimental and computational methods. The key challenge is to unravel the detailed microscopic structure – property relationships to be exploited targeting the lowest resistivity and highest transparency.

This symposium will address fundamental and applied aspects of transparent conducting oxides and related materials and will highlight recent developments in both experimental and theoretical/computational approaches. Special attention will be paid to:

- Advances in basic science of traditional transparent conducting oxides, covering both traditional n-type (e.g. doped ZnO, SnO₂, In₂O₃ as well as their ternary and quaternary counterparts including IZO and ITO) and p-type materials (e.g. delafossite CuAlO₂, SrCu₂O₂)
- Progress in our understanding of the electronic structure and properties of strongly defected, doped, or degenerate semiconducting oxides (e.g. a simple rock salt CdO or perovskite structured oxides such as BaSnO₃ or rutile PbO₂) as transparent conducting materials
- Progress in development Mo and W based transparent conducting oxides (e.g. MoOx) and related materials, tuning their performance, electrochromic applications
- Transition metal doping in nonmagnetic semiconducting oxides for TCO (e.g. titania).
- Multicomponent semiconducting glasses as TCO
- Non-oxide based transparent conducting materials (e.g. chalcogenides and pnictides) and their properties
- Redox processes in bulk and at the surfaces of pure and doped TCO and related materials. Defect - charge carrier formation, reaction and transport
- Nanostructuring as an approach to control and performance tuning of TCO
- Experimental techniques focused on TCO, structure characterization, spectroscopy, electronic response and transport, reactivity
- Development, validation and application of new computational techniques to TCO. Structure, prediction. Thermodynamics and kinetics

Hot topics to be covered by the symposium:

- Novel Transparent Conducting Oxides and related materials
- P-type TCO
- Defects and charge carriers in TCO and related materials
- Predictive modelling of electronic properties for TCO and related materials
- New Structure Characterisation Techniques
- Atomic Structure prediction for TCO and related materials
- Synchrotron based studies of TCO
- Surfaces and interfaces of TCO and related Materials
- Devices based on TCO and related Materials

Tentative list of scientific committee members:

- Prof. Russel Egdell (Oxford University) russell.egdell@chem.ox.ac.uk
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- Prof. John Vager (Oregon State University) jfw@eeecs.oregonstate.edu
- Dr Scott Woodley (UCL) scott.woodley@ucl.ac.uk
- Dr David Scanlon (Diamond) scanlond@gmail.com
- Dr Alexey Sokol (UCL) a.sokol@ucl.ac.uk

Tentative list of invited speakers:

- Prof. Karsten Albe (Technical University Darmstadt) albe@mm.tu-darmstadt.de
Free energy ab initio calculations for TCO
- Prof. Ulrike Diebold (Technical University Vienna) diebold@iap.tuwien.ac.at
Surface science of TCO
- Dr Roberts Eglitis (University of Latvia) reglitis@yahoo.com
Point defects and surfaces in perovskite structured oxides
- Prof. Elvira Fortunato (New University of Lisbon, CENIMAT/I3N) emf@fct.unl.pt
New horizons in transparent electronics
- Prof. Eugene Kotomin (Max Planck Institute Stuttgart) e.kotomin@fkf.mpg.de
Role of dopant and defect structures
- Prof. Aline Rougier (University of Bordeaux, ICMCB) rougier@icmcb-bordeaux.cnrs.fr
Thin films of TCO in electrochromic applications
- Prof. James Speck (University of California Santa Barbara) speck@mrl.ucsb.edu
Oxide thin films epitaxy and characterisation
- Prof. Andrzej Suchocki (Institute of Physics PAS) suchy@ifpan.edu.pl
Optical properties of low-dimensional semiconductor structures and thin films
- Prof. Filip Tuomisto (Aalto University) filip.tuomisto@aalto.fi
Application of positron spectroscopy and related methods to identification of defects in TCO
- Dr Tim Veal (University of Liverpool) T.Veal@liverpool.ac.uk
Surface electron accumulation in TCO
- Dr Aron Walsh (University of Bath) a.walsh@bath.ac.uk
New TCO by computer-aided design
- Dr Su-Huai Wei (National Renewable Energy Laboratory) s.wei@nrel.gov
Band alignment in TCO

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**Introduction and scope:**

The symposium "Bio-nanomaterials and regenerative medicine" focuses on the design, characterization and modelling of bio-inspired nanomaterials

This session focusses on medical applications of nanotechnology and nanomaterials. Harnessing the dynamic interaction between nanostructured materials and biosystems is the chief target of multi-disciplinary research at the interface of nanotechnology and biology with huge emerging markets in tissue engineering and regenerative medicine products. Target procedure areas with high volume and/or high growth potential include neurologic, orthopaedic, organ regeneration, cardiovascular, urologic, and wound care. However, the details of the product-body interaction are still poorly understood, especially at the molecular scale, the scale at which the most promise exists for rational design of cheaper, safer, more effective materials. Talks will range from fundamental studies up to more applied research into macroscale materials design and characterisation. A particular focus is the use of modelling and microscopy/spectroscopy to characterise the structure, dynamics and energetics of the surfaces and interfaces involved in synthesis of biomaterials. This will include examination of the details of the biomolecule-scaffold interaction up to the scale of the full cell-coated material, paying particular attention to novel rationally designed materials. More applied research to be presented will address both scientific and technological aspects of medical applications of nanotechnology and nanomaterials, including bioreactor design and operation.

This symposium is organized in collaboration with the Division of Physics in Life Science of the EPS.

Hot topics to be covered by the symposium:

The field of bio-nanomaterials is becoming one of the largest and rapidly growing research areas. Over the last years, important progress has been achieved in the design of nano-scale materials that are capable of performing multimodal functions in biological environment. The current status of this research field has been made possible due to interdisciplinary contributions from the material science, chemistry, physics, biology and medicine. Clearly, the future developments in this field, including practical applications of the multifunctional nanoparticles in biomedicine, will depend on mutually beneficial scientific exchange and contributions from the biomedical and exact sciences. Thus, this symposium will provide an interdisciplinary forum for discussions on new ideas in research and technology of multifunctional bio-nanomaterials towards their potential biomedical applications.

- Theranostics - merging of nanotechnologies with biology towards diagnostics and therapeutics at the molecular level
- Novel approaches to drug delivery, including nano-reactors
- Nano-bio-interfaces and nano-scale approaches to study bio-nano interactions
- Tissue engineering platforms
- Surface nano-patterning of polymers for mass-sensitive biodetection
- Bio-functionalization of nanoscale materials
- Multifunctional magnetic nano-particles
- Nano-containers for smart drug delivery - light- or magnetic field- triggered drug delivery and release
- Biomimetic materials

Tentative list of invited speakers:

- Jouni Ahopelto, VTT Helsinki, Finland (jouni.ahopelto@vtt.fi)
- Elisabeth Engel, Institute of Bioengineering of Catalonia, Barcelona, Spain (eengel@ibecbarcelona.eu)
- Lo Gorton, Lund University, Sweden (lo.gorton@gmail.com)
- David Hoey, University of Limerick, Ireland (david.hoey@ul.ie)
- Roman Marty, Ecole Polytechnique Lausanne, Switzerland (roman.marty@epfl.ch)
- Christophe Allan Monnier, University of Fribourg, Switzerland (Christophe.monnier@unifr.ch)
- Michael Nash, Ludwigs Maximilian University Munich, Germany (Michael.nash@physik.uni-muenchen.de)
- Grzegorz Nawrocki, Institute of Physics, Polish Academy of Sciences (nawrocki@ifpan.edu.pl)
- Brian Rodriguez, University College Dublin, Ireland (brian.rodriguez@ucd.ie)
- Neil R. Thomas, School of Chemistry, University of Nottingham, UK (neil.thomas@nottingham.ac.uk)
- Maximo Vassalli, Institute of Biophysics, NCR, Genova, Italy (Massimo.vassalli@cnr.it)

Tentative list of scientific committee members:

Symposium organized in collaboration with the Division of Physics in Life Sciences of the European Physical Society and its Board.

In addition :

- Cornelia Palivan (University of Basel, Switzerland)
- Giovanni Dietler (EPFL, Switzerland)
- Paolo de Los Rios (EPFL, Switzerland)

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Deadline For Abstract Submission: June 9, 2014

www.european-mrs.com

**Introduction and scope:**

Symposium focuses on the understanding of various novel aspects of superconductivity observed in low-dimensional systems, which differ from superconductivity in bulk materials. The issues such as design of low-dimensional structures, physical characterization, theories and the potential applications in novel devices will be discussed.

In recent years the continuous advancement in the fabrication methods has opened new areas of research of novel phenomena which appear in low-dimensional systems, such as ultrathin films, superlattices and nano-engineered mesoscopic structures. These systems are of enormous importance for applications in the modern nanoelectronic devices. The electronic states in these systems are greatly affected by the presence of surfaces or interfaces, resulting in many microscopic processes which differ greatly from those observed in the bulk materials. In particular, the phenomenon of superconductivity is expected to show novel features, and indeed experiments confirm many of these expectations. The effects such as interface superconductivity in oxides, superconductivity of Dirac fermions in topological insulators, or proximity-induced superconductivity in graphene are among these novel effects. In addition, new technologies allow for designing artificial hybrid systems containing constituent films with very different ground states, such as, for example, superconductor/ferromagnet hybrids. The close proximity between different ground states results in the interactions between these subsystems, leading to a wealth of unusual effects, including long-range proximity effect, modifications of the phase diagram, and magnetic-domain induced pinning of vortices. The symposium will provide a forum for discussion of these new phenomena, and their possible applications.

Hot topics to be covered by the symposium:

- Interfacial superconductivity in oxides
- Topological insulators
- Graphene
- Superconductor-insulator transition in 2D systems
- Ferromagnet/superconductor heterostructures
- Mesoscopic superconductors, nano-engineered structures and devices
- Nano-characterization techniques

Scientific committee:

- Helen Bouchiat, Laboratoire des Physiques des Solids, Orsay (France)
- Mikhail V. Feigel'man, Landau Institute for Theoretical Physics, Moscow (Russia)
- Jochen Mannhart, Max Planck Institute, Stuttgart (Germany)
- Dmitry Roditchev, Institut des Nanosciences de Paris, Université Pierre et Marie Curie-Paris 6 (France)

The symposium will be co-organized by the project REGPOT-CT-2013-316014 (EAGLE).

Invited speakers:

- C. Africh, Laboratorio TASC Trieste (Italy), *Growth mechanisms and electronic structure of CVD graphene on Ni*
- E. Y. Andrei, Rutgers University (USA), *Scanning tunneling microscopy and spectroscopy of graphene*
- N.P. Armitage, The Johns Hopkins University (USA), *Microwave studies of superconductor-insulator transition in InO*
- M.G. Blamire, University of Cambridge (UK), *Ferromagnetic insulator Josephson junctions*
- H. Boschker, Max Planck Institute (Germany), *Interface superconductor with gap behaviour like a high-temperature superconductor*
- V. Bouchiat, Institut Neel (France), *Gate controlled superconductor-insulator transition and exotic metallic states in Graphene decorated with tin nano dots*
- D. Di Castro, Università di Roma Tor Vergata (Italy) (tentative)
- K. Dybko, Institute of Physics PAN (Poland), *Proximity effect in manganite/cuprate heterostructures*
- M. Ferrier, Laboratoire des Physiques des Solids (France), *Dissipation and Supercurrent Fluctuations in a Diffusive Normal-Metal-Superconductor Ring*
- S. Gariglio, University of Geneva (Switzerland), *Superconductivity at the LaAlO₃/SrTiO₃ interface*
- I. Guillamon, Universidad Autónoma de Madrid (Spain), *STM of the 2D vortex lattice at very low temperatures*
- T. Hanaguri, RIKEN Center for Emergent Matter Science (Japan) (tentative)
- P. Ioselevich, Landau Inst. (Russia), *Theory of Majorana states in superconductor-topological insulator hybrids*
- L. Krusin-Elbaum, The City College of New York (USA), *Superconductivity of disordered Dirac fermions*
- J. Lesueur, Paris Tech (France), *Superconductivity and quantum phase transition at oxides interface*
- V.V. Ryazanov, ISSP RAS Chernogolovka (Russia), *Hybrid Josephson superconductor-ferromagnet-superconductor structures for superconducting electronics and spintronics*
- K. S. Tikhonov, Landau Inst. (Russia) (tentative)
- B. Sacepe, Institut Neel, Grenoble (France) - *Localization of preformed Cooper pairs*
- C. Strunk, University of Regensburg (Germany), *Size-dependent conduction near the superconductor-insulator transition in TiN thin films*

Symposium Organizers:**Marta Z. Cieplak, Prof.**

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Deadline For Abstract Submission: June 9, 2014

www.european-mrs.com


Introduction and scope:

The development of new and more efficient nuclear reactors working at higher temperatures than the present ones will require materials that could withstand high irradiation doses/high temperatures without compromising their properties. During special events some parts of the reactor could be exposed to much higher temperatures/radiation doses than anticipated. There is a clear need to investigate the effect of radiation and temperature on their thermochemical, electronic and mechanical properties and elucidates the role played by the stoichiometry, defects, or crystallite sizes.

The role of nuclear reactors as major energy sources alternative to those based on fossil fuels, which have caused dramatic increases of CO₂ levels in atmosphere and the accompanying greenhouse effect, is well-known. However, the safety of nuclear reactors is paramount and there are major scientific and technological efforts to develop better and safer designs such as very high temperature gas cooled nuclear reactors (VHTR). These reactors are very efficient and could also produce hydrogen to be used as an energy source. The operation temperature for these reactors will be much higher than that of the present day reactors. Therefore, there is a need for special materials that are both compatible with the design of nuclear reactors, having low neutron absorption cross sections and could withstand temperatures up to 1500 C and even higher under intense irradiation conditions without severe degradation of their properties. Also, space exploration or special microelectronic devices require materials that could operate under extreme conditions and sometime intense irradiation fluxes.

Many scientific questions regarding the role of chemical composition, interfaces, defects, stress and crystallites size on their properties after irradiation are still to be answered. The aim of this symposium is to bring together scientists and engineers working on different areas of deposition, processing, irradiation and characterization of nuclear materials in an interdisciplinary forum for the discussion of most recent advances and future trends, with particular emphasis on the relationship among the structure, composition and stability under irradiation.

Hot topics to be covered by the symposium:

- radiation induced defect
- defect recovery
- amorphization/recrystallization
- modification of mechanical properties
- interaction with fission products

Tentative list of scientific committee members:

- Bill Weber
- Roger Smith

Tentative list of invited speakers:

- Arthur T. Motta
- Rodney Ewing
- L Desgranges
- G Baldinozzi

Symposium Organizers:
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Deadline For Abstract Submission: June 9, 2014

www.european-mrs.com

**Introduction and scope:**

Micro- and nanoscale properties of materials and interfaces are crucial for the operation and the stability of efficient energy conversion and storage devices. Appropriate local and in-situ characterization techniques and their combinations as well as physical models are required and will be disseminated and discussed in the symposium.

The grand challenges of the clean energy future require new breakthroughs in materials and systems, in which precision measurement techniques, particularly nondestructive, real time, in-situ, and local probing techniques will play a critical role. These new emerging characterization techniques will allow to identify the microscopic mechanisms underpinning the performance and lifetime of energy storage and conversion systems.

This symposium is devoted to disseminating original research in applying various characterization techniques on organic and inorganic materials for clean energy applications, to energy systems optimization, safety analysis, failure diagnosis, and lifetime prediction. The targeted characterization techniques include Scanning Probe Microscopy, Transmission Electron Microscopy, Scanning Electron Microscopy, Helium Ion Microscopy, Secondary Ion Mass Spectrometry, Atom Probe Tomography, Raman micro-spectroscopy and any ex-situ and in-situ combinations between these techniques.

It is the goal of this symposium to bring together the experts from materials science, advanced characterization techniques, theoretical community, and industry interested in development of experimental techniques capable of addressing elementary mechanisms involved in material optimization and device operation. In addition to providing a platform for discussing state-of-the-art local and in-situ characterization methods, this symposium will help in formulating the outstanding research needs, grand challenges, applications, and development pathway for this rapidly emerging field.

Hot topics to be covered by the symposium:

- Recent advances in characterization techniques at the nanoscale
- In-situ microscopy, spectroscopy, tomography, scanning probe, and electromechanical methods
- Theories, simulations and modeling in conjunction with local measurements
- New instruments and new data visualization, analysis, mining and modeling tools
- Techniques for high resolution measurements in ambient and UHV conditions
- Targeted characterization techniques include Scanning Probe Microscopy, Transmission Electron Microscopy, Scanning Electron Microscopy, Helium Ion Microscopy, Secondary Ion Mass Spectrometry, Atom Probe Tomography, Raman micro-spectroscopy
- Multimodal analytical approach, in-situ and ex-situ combination of characterization techniques
- Detection and quantification of trace elements
- Silicon and carbon nanomaterials, organic semiconductors
- Role of grain boundaries, phase boundaries, hetero-junctions and interfaces

Invited speakers:

- E. Van Veldhoven, TNO Delft, The Netherlands
- H. Gnaser, TU Kaiserslautern, Germany
- Th. Dittrich, HZB Berlin, Germany
- Y. Rosenwaks, Tel Aviv University, Israel
- Ch. Kisielowski, NCEM, LBL Berkeley, USA
- M. Luysberg, ER-C, FZ Jülich, Germany
- M. A. Verheijen, Eindhoven University of Technology, The Netherlands
- M. Hopstaken, IBM, USA

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**Symposium Organizers:****Thilo Glatzel**

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Deadline For Abstract Submission: June 9, 2014

www.european-mrs.com

Introduction and scope:

The meeting will cover material issues and growth methods of magnetic quantum dots focusing on self-assembled quantum dots as well as colloidal dots consisting of magnetically active materials. Other type of nanostructures (e.g., nanorods) are within the scope of interest. Physical properties (optical in particular) of such dots will be discussed.

It is proposed to organize a two (or 2.5) days long symposium on magneto-optically active nanostructures, especially quantum dots containing magnetic components such as self-assembled or colloidal quantum dots made of diluted magnetic semiconductors. Attention will be paid also to nanorods (nanowires) grown by VLS mechanism of magnetic materials. Dots made of metallic magnets (or hybrid materials) will remain within the scope as well. We shall also devote time for discussion of fictionalization of the nanoobjects especially having in mind their possible applications in biology and medicine.

From the point of view of physical properties we shall focus on optical activity exhibited by magnetic nano structures such as polarized light emission (polarized photons on demand), optical trapping, dots as fluorescent markers.

We shall cover issues external magnetic field guiding and targeting of dots in situ in biological structures. Also the focus will be on optically addressed (both writing as well as read out) information memory and processing devices stressing their application as qubits.

The number of invited talks to be presented is estimated as 9 (each 50 minutes long) and we estimate the number of contributed presentations as about 18 (each 20 minutes duration). We estimate that the attendance should be 50-60 persons.

Hot topics to be covered by the symposium:

- Strength of magnetization and long term effects in photo-induced magnetism in semiconductors core/shell quantum dots
- Cancer treatment by thermal effects in functionalized quantum dots excited by ac currents
- Metalloorganic MOFs by mechanochemistry - comparison with quantum dots
- Magnetic semiconductor nanorods - optical properties - polarization of emitted light induced by quantization of carriers
- Quantum dots as information storage and light sources
- Metallic magnetic dots and nanoclusters

Tentative list of scientific committee members:

- Danek Elbaum (Institute of Physics of the Polish Academy of Sciences)
- Łukasz Kłopotowski (Institute of Physics of the Polish Academy of Sciences)
- Piotr Kossacki (University of Warsaw)
- Jan Misiewicz (Wrocław University of Technology)
- Denis Scalbert (University of Montpellier)
- Christophe Testelin (Inst Nanosciences de Paris, Univ P. and M. Curie)
- Piotr Wojnar (Institute of Physics of the Polish Academy of Sciences)

Tentative list of invited speakers:

- G. Bacher (University of Duisburg): Time-resolved and magneto-optical spectroscopy on magnetically doped colloidal nanostructures – confirmed;
- M. Brust (University of Liverpool): Gold nanoparticles, non-magnetic agents for biomedical imaging and photodynamic therapy – confirmed;
- J. Cibert (Institut Néel CNRS Grenoble): Stability of magnetic polarons in CdMnTe QDs inserted in ZnTe nanowires – confirmed;
- S. Crooker (Los Alamos National Laboratory): Colloidal dots with Copper – unconfirmed;
- B. Dubertret (Paris Tech, ESPCI, France): Mn fluorescence in colloidal core/shell nanocrystals - unconfirmed;
- A. Golnik (University of Warsaw): New systems of quantum dot with single magnetic ion - cobalt and perspectives – confirmed;
- N. Kotow (University of Michigan): Semiconductor hybrid nanoparticles – tentatively confirmed;
- A. Podhorecki (Institute of Physics, Wrocław University of Technology): Colloidal nanocrystals (fluorides and semiconducting: PbS, CdS) and their use in bioimaging – confirmed.
- P. Reiss (CEA/INAC Grenoble, France): Europium doped In(Zn)P/ZnS colloidal dots – unconfirmed.

Symposium Organizers:

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Deadline For Abstract Submission: June 9, 2014

www.european-mrs.com

Introduction and scope:

The symposium is a follow-up of the very successful symposium A organized at the E-MRS Fall Meeting 2013. It is devoted to highlight breakthroughs in the field of alternative semiconductor integration on the mature Silicon technology platform. This research area paves the way towards high performing (More Moore) and / or highly functionalized (More than Moore) Silicon-based microelectronics technologies that will address challenges in modern societies.

Over the past 50 years, Silicon (Si) became the predominant material of choice for manufacturing integrated circuit (IC) technologies, achieving an unbeaten level of system integration. However, fundamental physical limits of Si present major stumbling blocks for further miniaturization ("More Moore") and/or functionalization ("More than Moore") of Si ICs. Future microelectronics applications for society (such as: low-power electronics for green technologies, merging of photonics & electronics for ultra-fast data communication, biomedical systems for aging society etc.) are thus the driving forces for the integration of alternative semiconductors on the mature Si technology platform. The symposium will be devoted to highlight novel breakthrough approaches in terms of materials science (group IV (graphene, Ge, SiGe, (Si)GeSn etc.); III-V (Arsenides, Phosphides, Nitrides etc.); II-VI (ZnO etc.)), semiconducting oxides etc.), advanced material characterization, hetero-integration techniques (advanced hetero epitaxy, wafer bonding, microstructure printing etc.) and innovative hybrid technologies (optoelectronics, high mobility CMOS, universal memories, biomedical sensors etc.). It is by the productive interaction of "More Moore" (i.e. increase of CMOS circuitry computing power) and "More than Moore" (i.e. diversification of Si circuitries) approaches that materials scientists drive today the exciting transition towards higher-value Si microelectronics, from supporting technology towards supporting society.

Hot topics to be covered by the symposium:Materials science:*Group IV semiconductors:*

SiGe, Ge, and (Si)GeSn heterostructures, SOI, GOI, graphene and carbon nanotubes.

III-V semiconductors:

Arsenides, phosphides, nitrides and antimonides

Semiconducting oxides:

ZnO, high electron mobility heterostructures, topological insulators, etc.

Advanced Material Characterization:

Synchrotron based characterization, transmission electron microscopy, optical spectroscopy, scanning probe techniques, in-situ characterization, etc

Integration Techniques:*Advanced heteroepitaxy:*

Epitaxial lateral overgrowth, patterned wafer approaches, self-assembly techniques

Layer Transfer:

Wafer bonding, microstructure printing, die to wafer etc.

Heterointegration:

Through Silicon Via techniques etc.

Applications:*Logics:*

CMOS high - mobility channels (Ge & III-V), SiGe & III-V high-power / frequency transistors;

Photonics:

III-V & Ge based IR and THz lasers; modulators, photodetectors, resonators etc.

Sensors:

Biomedical applications, gas sensors etc.

Scientific committee:

- Czeslaw Skierbiszewski (Polish Academy of Sciences, Warsaw; Poland)
- Francesco Montalenti (Università Milano Bicocca; Italy)
- Philippe Boucaud (IEF- Université Paris Sud, France)
- Leo Miglio (L'Ness Como, Italy)
- Catherine Dubourdieu (CNRS, Institut des Nanotechnologies de Lyon, France)
- Jean-Michel Hartmann (LETI, France)
- Dieder Landru (SOITEC, France)
- Kerstin Volz (Philipps-Universität Marburg Germany)
- Inga Fischer (IHT, Stuttgart)
- Dmitri Lubyshev (IQE PA, USA)

Student awards:

A number of student awards are available to honor and encourage young scientists whose academic achievements and current research display a high level of excellence and distinction. The awardees should be the main author of a manuscript and must be entrusted with the presentation of the paper. The winners will be selected during the conference by the members of the organization and scientific committee as well as by invited speakers.

Application (for best student award):

The applicant must submit BY EMAIL the following items to the main symposium organizer (roger.loo@imec.be) in order to be considered for the Graduate Student Award competition:

- A short description of work associated with the abstract to be considered (max 300 words)
- One copy of the concerned abstract
- Letter of support submitted by the thesis advisor

Deadline: All application materials must be received by AUGUST 20th, 2014.

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Deadline For Abstract Submission: June 9, 2014

www.european-mrs.com

**Introduction and scope:**

Atomic-scale resolution is nowadays attainable in most modern nanoscience experiments. However, the systematic determination of atomic/molecular coordinates remains far from trivial and particularly challenging, especially when the resolution and/or the capabilities of diffraction or microscopy techniques reach their limits. A viable counterpart on the theoretical side, capable of complementing and enriching the experimental findings is therefore highly desirable in many areas, such as condensed matter physics and chemistry, materials science, biological chemistry, up to health sciences and geophysics, where the atomistic structural information can be readily exploited to explore the interplay between structure and electronic, magnetic, optical, and dynamical (transport) properties. Indeed, the predictive power of atomic scale approaches extends now even to biomedical sciences or geophysics, thanks to the possibility to perform increasingly more extensive and accurate calculations. In these fields, structural determination is not only extremely challenging, because of the increased structural complexity and the very long time-scales involved, but it can be considered as the ultimate goal following synthesis and characterization through spectroscopy techniques.

The main scope of our bi-annual meetings in Warsaw is to follow, critically discuss and review recent advances in the area of atomic-scale modeling of complex materials. This has to be intended as a broad research field (going well beyond the traditional domain of application of solid-state physics and chemistry) in which theoretical methodologies and practical applications, based on the calculation of reliable interatomic forces and energy landscapes, do coexist effectively. As a second goal, the Symposium will set the scene for a thorough understanding of the complex multi-scale nature of materials processes. This can be achieved by investigating the links between the detailed theoretical/computational description at the electronic and atomic scales and alternative approaches suitable for intermediate and large scales.

The symposium will also be open to significant contributions from the field of macro-molecules of organic and biological interest, and to new computational challenges originating from the vast domains of geophysical materials, non conventional materials for energy harvesting, conversion and storage, or bio-mimetic and natural materials (e.g., wood, paper, bone, silk as well as their artificial counterparts).

This symposium represents a unique opportunity to celebrate, at the European scale, the increasing importance and success of atomistic modelling techniques, including first principle methods, as a tool to complement, elucidate, inspire and guide new experiments.

Hot topics to be covered by the symposium:

(but not limited to)

- First-principles molecular dynamics: what role for linear scaling methods? Is the simulation of metallic systems at finite temperatures fully handled and understood? What are the most recent implementation advances? (e.g. real space methods, new dynamical algorithms, QM/MM...)
- How the study of complex magnetic properties (super-exchange, strong correlation effects, spintronics) can be coupled to the determination of the structure, without sacrificing accuracy?
- Toward simpler total energy recipes: new applications of effective interatomic potentials in the area of nano-structures?
- Can we define general strategies for the coarse-graining of microscopic data? How to approach long-time scales, especially in relation to the application of slow deformation and slow heating/cooling rates?
- Is it possible to define computational routes complementary to experimental studies, for the design of atomic clusters, and self-assembled molecular superstructures?
- How to identify atomistic mechanisms for diffusion and growth of nanostructures, in combination with the synthesis of e.g. nanoelectronics, biomedical, or energy-storage devices?

Invited speakers:

With the aim of stimulating the participation especially from younger and promising scientist, the **about 12 Invited Talks will be selected among the best submitted abstracts.**

Symposium Organizers:

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Deadline For Abstract Submission: June 9, 2014

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Introduction and scope:

Energy conversion technologies, especially photovoltaics, exhibit enormous growth aiming to extremely high power capacities per year. Therefore, nontoxicity and abundance of the materials in the earth are among the key requirements to energy conversion technologies. Some of the materials presently used in such technologies, like CdTe, III/Vs and CIGS (CuInGaSe_2), may not be abundant enough for large scale use in energy conversion technologies involving conventional thin films. From this point of view, copper- and zinc based materials like ZnO, ZnS, Cu₂O, CZTS, CuSCN are of special interest both in the form of thin films and nanostructures as active layers, electron and hole transporting layers or transparent contacts. This symposium will focus on recent advances in synthesis of copper- and zinc oxide-based materials and on their various functionalities for sustainable energy technologies.

Crystalline silicon is the dominant material used in energy conversion technologies, especially solar cells, but alternative materials are a key-factor of achieving long-term sustainable energy economic goals. Binary and ternary oxides and related materials are promising to reach these goals. For instance, combination of ZnO and Cu₂O is shown as one of the promising approaches for the next generation photovoltaics. Theoretical predictions promise efficiencies of such solar cells up to 18%. Recently, a breakthrough has been reported demonstrating ZnO/Cu₂O thin film solar cell with efficiency of ~5%. Nevertheless further investigations are needed in order to improve its efficiency. Alternatively, other combinations involving ZnO and compound semiconductors as absorbing layers in the form of thin films or nanostructures are also promising for the next generation photovoltaics. Materials issue is the key factor for improving efficiency of energy conversion technologies and reducing cost through the use of low-cost deposition techniques or of a small amount of materials via nanostructures for instance. The symposium will be focused on areas of growth technologies, advanced characterizations, novel device concepts and corresponding modeling. Progresses in the growth of thin films, heterostructures and nanostructures as well as new growth approaches will be discussed. Fabrication of oxides employing CVD, ALD, sputtering, deposition in solution will be discussed. A special attention will be given to the effects of the materials properties on the device efficiency, phenomena at interfaces, surface passivation, new precursors for CVD, ALD, deposition in solution and related growth mechanisms. Also, nanoparticles and nanowire arrays are considered as potential candidates for a variety of novel applications in different fields of energy conversion technologies and will be addressed. The use of oxides nanowires in axial and radial heterojunctions will be discussed.

The symposium will be an interdisciplinary event for scientists working in the field of oxides growth, characterization, and device fabrication. It should give an excellent opportunity to discuss the trends and challenges in the oxides-based sustainable energy technologies and to find partners for new breakthroughs in this area.

Hot topics to be covered by the symposium:

- Novel device concepts for energy conversion
- Fabrication of thin films, heterostructures and nanostructures (i.e., nanowires, nanoparticles) by ALD, VPE, sputtering, pyrolysis, electro-deposition, hydrothermal methods,
- Band gap engineering, strain engineering, surface passivation,
- Emerging technologies,
- Characterization, advanced analytical tools
- Oxides for photovoltaics,
- Heterojunctions involving oxides nanostructures (nanoparticles, nanowires),
- Investigation of the buffer layer / absorber interface phenomena,
- Materials for transparent contacts,
- Theory

Tentative list of scientific committee members:

- Marius Grundmann, Leipzig University, Germany
- Ewa Placzek-Popko, Wrocław Technical University, Poland
- Alexander Efros, Naval Research Laboratory, Washington, USA
- Daniel Lincot, IRDEP, Paris, France
- Carsten Ronning, Jena University, Germany

Tentative list of invited speakers:

- Reinhard Carius, Institute of Energy and Climate Research, Jülich Germany
- NEXCIS Photovoltaic Technology, France
- Bartłomiej Witkowski, Institute of Physics, Warsaw, Poland
- Tomasz Stapinski, AGH University of Science and Technology, Poland
- Atsushi Suzuki, University of Shiga Prefecture, Japan
- Meng Tao, Dept. of Electr. Eng., University of Texas at Arlington, Arlington, USA
- Ming Li, College of Physics and Information Technology, Shaanxi Normal University, Xi'an, China
- H. Brückl, Austrian Institute of Technology, Vienna, Austria
- Kwang-Leong Choy, Faculty of Engineering, Energy and Sustainability Research Division, University of Nottingham, Nottingham, NG7 2RD, United Kingdom
- W. Walukiewicz, Solar Energy Materials Research Group, Lawrence Berkeley National Laboratory, USA
- C. Lévy-Clément, Institut de Chimie et des Matériaux, Paris, France
- Thierry Pauporté, Chimie Paris Tech, Paris, France
- Steve Dunn, Queen Mary University of London, London, United Kingdom

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Deadline For Abstract Submission: June 9, 2014

www.european-mrs.com

**Introduction and scope:**

Functional textiles are one of the most important fields in textile industry and textile materials science. They include breathable, heat and cold resistant materials, ultra strong fabrics (e.g. as reinforcement for composites), new flame retardant fabrics (e.g. intumescent materials), optimisation of textile fabrics for acoustic properties.

This symposium will provide a forum to present and discuss the latest scientific achievements, developments and innovations in the field of functional textiles and to present the possibilities for their industrial applications.

The symposium will bring together all innovation actors in the field fostering a multidisciplinary approach between universities, research institutes, SMEs (in textiles 95% of the companies are SMEs) and sector associations. It will help to identify technological gaps and will eliminate barriers resulting in a faster industrial uptake of added value functional materials with new functionalities and improved performance and resulting in creation of new business worldwide. The symposium will help to boost the international cooperation in different complementary research areas to allow enhanced development of functional textile structures and textile related materials through collaboration at European level between researchers in different universities, research institutes and industry.

This session intends to give an overview of the developments of functional textile-based structures of tomorrow. As an example the combination of novel materials such as ceramics, metal powder and foam, glass powder and other down-scaled materials into new structural textile-based elements can be mentioned. Also surface modification of textile based materials using modern technologies such as physical vapour deposition, sol-gel coatings, laser cladding, plasma treatment, etc. will provide new opportunities.

The symposium will be organized in conjunction with the Coordination Action 2BFUNTEX and supported by members of the COST Action MP1105FLARETEX and COST Action MP1206 "Electrospun Nano-fibres for bio inspired composite materials and innovative industrial applications"

Hot topics to be covered by the symposium:

- Functional Fibres,
- Health & Medical textiles,
- Textile composites,
- Nanotextiles,
- Protective textiles,
- Flame retardant textiles,
- Technical Textiles,
- Smart and interactive textiles,
- Textile membranes,
- Surface functionalisation and coating of textile based materials,
- Combination of novel materials (ceramics, metal, glass powders) into structural textile based materials,
- Industrial applications of functional textiles,
- Industrial needs in the field of functional textiles.

Tentative list of scientific committee members:

- Rimvydas Milasius
- Paul Kiekens
- Francesco Branda
- Lieva Van Langenhove
- Viktorija Vlasenko
- Fatma Kalaoglu
- Huseyin Kadoglu
- Victoria Dutschk
- Antonela Curteza
- Daiva Mikucioniene
- Jozef Masajtis
- Ana Marija Grancaric
- Celeste Pereira
- Erich Kny
- Ali Harlin
- Krzysztof Pielichowski
- Thomas Graule
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Deadline For Abstract Submission: June 9, 2014

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**Introduction and scope:**

Crystal structure is one of principal factors determining the material properties. X-ray, neutron and electron diffraction methods of crystal and defect structure investigation are continuously developing, leading to new opportunities in materials investigation. The symposium will be a forum of presentation of such methods and their applications.

Crystallography provides multiple tools for solving scientific and technological problems in materials science. X-ray, neutron and electron diffraction methods of crystal and defect structure investigation are helpful in design and understanding of physical properties and chemistry of advanced materials, at each stage of the work on materials properties, design, manufacturing and applications. Such sophisticated tools, both experimental and theoretical ones, serve for studies of crystal structure and the defect structure of modern materials. The progress is observed in:

- in instrumentation
- availability of improved X-ray beams (high intensity, collimation down to tens of nanometers)
- elaboration of new software and databases for structure analysis).

Diffraction methods have been developing rapidly during last decades. They can be used for solving a variety of problems including crystal structure solution, defect structure determination, understanding of thin film structure and quality, structure variation mapping, structure dynamic changes, chemical reactions. Generally, the knowledge of structure may serve for:

- construction of phase diagrams
- explanation of physicochemical properties of materials
- materials design
- materials applications at specific conditions
- structure property relationship in specific materials
- dynamic changes (chemical reactions), even those occurring at the femtosecond scale,
- solving energy related problems,
- biological applications,
- solving geophysical problems

The symposium

- will bring together scientists contributing to the development of methods of structure determination and those using such methods in studies of specific materials.
- will become a forum for exchanging ideas between crystallographers and materials scientists.
- will provide an overview of applications of crystallographic methods in materials science, solid state physics/chemistry and related domains.
- will collect presentations mostly focused on applications of modern diffraction-based techniques in materials science.
- will give particular emphasis to the exchange of information on advances in methodics and in promoting its use by materials scientists.
- will serve for establishing the current state-of-the-art of their applications in materials design and analysis, crystal structure solving, design of materials fabrication including crystal growth and thin film deposition, etc. Applications to specific materials and/or their groups such as semiconductors, superconductors, will constitute a considerable part of lectures (tentatively up to 50%).

Hot topics to be covered by the symposium:

Methods and their applications to specific materials modern crystallographic methods for

- structure solution: methods and applications
- structure refinement: methods and applications
- defect structure of single crystals and thin films: methods and applications
- use of specular reflectivity for film analysis
- new instruments
- use of X-ray, neutron and electron diffraction, including a combined use
- use of classical and synchrotron beams
- study of phase diagrams by diffraction methods
- chemical reactions on very short time scale
- in-situ studies at extreme conditions

The materials will include:

- nanocrystals, polycrystals, bulk single crystals
- materials of various dimensionality including quantum dots, thin films, heterostructures
- semiconductors, superconductors, ferroelectrics etc.
- energy related materials
- biological materials

Financial support:

International Union of Crystallography will sponsor a limited number of young researchers registered at Symposium N.

**Scientific committee:**

- Anatoly Balagurov, Joint Institute of Nuclear Research, Dubna, Russian Federation
- Dave Billing, Univ. of Witwatersrand, Johannesburg, South Africa
- Robert Cernik, Univ. of Manchester, Manchester, UK
- François Fauth, ALBA Synchrotron, Barcelona, Spain
- Maria Gdaniec, Adam Mickiewicz Univ., Poznań, Poland
- Carmelo Giacobazzo, Institute of Crystallography, CNR, Bari, Italy
- Peter Gille, Univ. of Munich, Munich, Germany
- Fabia Gozzo, Excelsus Structural Solutions, Villigen, Switzerland
- Yuri Grin, Max Planck Institute for Chemical Physics of Solids, Dresden, Germany
- Alex Hannon, Rutherford Appleton Laboratory, Harwell Oxford, Didcot, UK
- Jürgen Härtwig, European Synchrotron Radiation Facility, Grenoble, France
- Jung Ho Je, Pohang Univ. of Science & Technology, Pohang, South Korea
- Giora Kimmel, Ben Gurion Univ. of Negev, Beer Sheva, Israel
- Maciej Kozak, Adam Mickiewicz Univ., Poznań, Poland
- Krzysztof J. Kurzydłowski, Warsaw Univ. of Technology, Warsaw, Poland
- Radomir Kužel, Charles University, Prague, Czech Republic
- Mike Leszczynski, Institute of High Pressure Physics PAS, Warsaw, Poland
- Janusz Lipkowski, Institute of Physical Chemistry PAS, Warsaw, Poland
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- Anton Meden, Univ. of Ljubljana, Slovenia
- Wladek Minor, Univ. of Virginia, Charlottesville, VA, USA
- Pierre Ruterana, ENSICAEN, Caen, France
- Henk Schenk, University of Amsterdam, Amsterdam, The Netherlands
- Jochen Schneider, Deutsche Elektronen-Synchrotron DESY, Hamburg, Germany
- Ewa Talik, Univ. of Silesia, Katowice, Poland
- Ekkehart Tillmanns, Institute of Mineralogy and Crystallography, Univ. of Vienna, Vienna, Austria
- Leonid Vasylechko, Lviv Polytechnic National Univ., Lvov, Ukraine
- Evgeny V. Zharikov, Prokhorov General Physics Institute RAS, Moscow, Russian Federation
- Zuzanna Liliental-Weber, Lawrence Berkeley National Laboratory, Berkeley, CA, USA

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Deadline For Abstract Submission: June 9, 2014

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Introduction and scope:

The ongoing discoveries of new superconductors and other multifunctional materials do not only challenge to explore their microscopic mechanisms but also open new fields of applications. Since both, mechanism and applications, go hand in hand, we pursue to assemble experts of both fields to exchange news and stimulate discussions and teamwork.

The Symposium is meant as an international discussion and presentation forum of novel scientific approaches in the field of complex superconductivity, magnetism, and multiferroic materials (including experimental results, new materials, novel theoretical models). Especially, it is aimed at interchanging material properties from, e.g., superconducting to magnetic, in order to explore common or unlike aspects which can elucidate the microscopic physics behind the relevant phenomenon. Special emphasis will be put on the following subjects:

- High temperature superconductors;
- New materials with strong correlations;
- Novel metallic oxides and anomalous magnetoresistive materials;
- Low dimensional quantum magnets;
- Magnetic multilayers, surfaces, nanostructures, and magnonic crystals;
- Electronic properties under extreme conditions;
- Magneto-electronics and spintronics;
- Data storage and logic devices;
- Magnetic nanoparticles and granular materials;
- Clusters and low dimensional magnetism;
- Magnetocaloric effects and systems;
- Structured materials (ultra-thin films and surface effects, multi-layer films and superlattices, patterned films, nanoparticles and self-assembling);
- Exchange bias, especially in nanostructures;
- Magnetic applications in medicine, biomagnetic applications;
- Multiferroic compounds and their prospective applications.

Hot topics to be covered by the symposium:

- Iron based superconductors
- Cuprate superconductors
- Magnesium diboride
- Multiferroics
- Magnetic perovskites
- Models of electron-lattice interactions
- Hubbard type approaches
- Antiferromagnetic fluctuation induced phenomena
- Polaron and bipolaron physics

Scientific committee

- A. Bussmann-Holder, Max Planck Inst., Germany
- K. Conder, PSI, Switzerland
- H. Keller, Univ. Zurich, Switzerland
- R. Puzniak, Inst. Phys., Polish Acad. Sci., Poland
- H. Szymczak, Inst. Phys., Polish Acad. Sci., Poland
- A. Wisniewski, Inst. Phys., Polish Acad. Sci., Poland

Invited speakers:

- M. Angst, Forschungszentrum Julich, Germany
- B. Barbara, Grenoble, France
- A. Bianconi, Rome, Italy
- J. Bonca, Ljubljana, Slovenia
- C. W. Chu, Houston, USA
- M. Doria, Rio de Janeiro, Brasil
- T. Egami, Univ. Tennessee, USA
- M. Ghafari, KIT / INT, Germany
- R. S. Gonnelli, Politecn. Torino, Italy
- A. F. Hebard, Gainesville, USA
- J. E. Hirsch, Univ. California, San Diego, USA
- D. Johrendt, Univ. Munich, Germany
- S. Kamba, Prague, Czech Republic
- H. Kamimura, Tokyo, Japan
- R. Khasanov, PSI, Switzerland
- R. K. Kremer, Stuttgart, Germany
- E. Liarakis, Athens, Greece
- J. Mannhart, Stuttgart, Germany
- R. Micnas, Poznan, Poland
- J. Nogues, ICREA, Barcelona, Spain
- T. T. M. Palstra, Groningen, The Netherlands
- E. Pomjakushina, PSI, Switzerland
- B. Raveau, Univ. Caen, France
- S. Sebastian, Cambridge, United Kingdom
- A. Shengelaya, Tbilisi Univ., Georgia
- L. Sun, Inst. Phys., Chinese Acad. Sci., China

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Deadline For Abstract Submission: June 9, 2014

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**Introduction and scope:**

Doped glasses exhibit unique properties for a wide range of applications, ranging from optoelectronics and photonics to systems for energy and environment. The production and the characterization of these materials are key factors for the design of new devices contributing to the advancement of material science and technology.

Glass doping allows the production of unique functional materials which are nowadays used for a huge amount of applications. Processing techniques are very different, like ion exchange, ion implantation, sol-gel synthesis, glass melting, etc. The kind of produced doped glasses range from rare earth and transition metal ion containing glasses to nanostructured systems with metal or oxide nanoparticles. Applications can also range from photonics, optoelectronics for communication networks, optical amplifiers, sensors, smart windows, memory storage systems, to intelligent glasses with peculiar mechanical properties.

The control of the production procedures coupled with accurate characterizations, modeling and theoretical understanding of the resulting materials are key factors for the development and the improvement of the performances of these systems. In this field, a great amount of work is still being carried on by several research groups, as testified by the works presented at international congresses like "International Conference on the Structure of Non-Crystalline Materials (NCM12)", held every year (last in 2013) and "SiO₂ and Advanced Dielectrics", which is held every two years (next in 2014). Moreover, in 2007, a symposium of the E-MRS Fall Meeting was dedicated to ion exchange in glass, attracting several scientists.

The aim of this symposium is to provide a forum for scientists working on different areas of synthesis, processing, characterization and device integration of doped glasses, including students and people involved in companies that develop new processes and materials. The exchange of ideas on the design and the characterization of doped glass systems will allow both to improve the processes for the production of functional doped glasses suitable for high performance devices and to create research networks between scientists coming from different areas and countries.

Hot topics to be covered by the symposium:

Synthesis, processing and characterization of doped glasses.

- Ion exchange and ion diffusion for glass doping.
- Ion implantation and irradiation.
- Sol gel synthesis of doped glasses.
- Nanostructured doped glasses.
- Rare earth and transition metal doped glasses.
- Doped chalcogenide glasses.

Advances on applications of doped glasses

- Doped glasses photonics and optoelectronics.
- Doped glasses for sensors.
- Doped glasses for solar energy conversion.
- Doped glasses with smart mechanical properties.

Tentative list of scientific committee members:

- Paolo Mazzoldi (University of Padua, Italy)
- Giancarlo Righini (CNR-IFAC - Firenze, Italy)
- Maurizio Ferrari (CNR-IFN Trento, Italy)
- Stefano Pelli (CNR-IFAC - Firenze, Italy)
- Gino Mariotto (University of Verona, Italy)
- Elise Ghibaudo (IMEP-LAHC - University of Grenoble, France)
- Alicia Duran (ICV - Madrid, Spain)
- Elti Cattaruzza (Ca' Foscari University - Venice, Italy)
- Michel Mortier (CNRS-ENSCP Paris, France)
- Angela Seddon (University of Nottingham, UK)
- Rolindes Balda (CSIC-UPV Bilbao, Spain)
- Marian Marciniak (NIT Warsaw, Poland)
- Dominik Dorosz (Bialystok University of Technology, Poland)

Invited speakers:

- Miguel Angel Garcia (ICV - Madrid, Spain): Plasmonic and magnetic nanoparticles in glass.
- Francesco Gonella (Ca' Foscari - Venice, Italy): Solid state procedures for glass doping.
- Jean-Luc Adam (Institut des sciences chimiques de Rennes, France): Rare-earth-doped chalcogenide glasses.
- Klaus Rademann (Humboldt-Universität Berlin, Germany): Silver and gold interfaces with glass: luminescence and recuperation devices.
- Anna Lukowiak (Wroclaw Academy of Sciences, Poland): Sol-gel as a useful technique for fabrication of erbium-activated photonic structures
- Andrei Lipovskii (St.-Petersburg Academic University, Russia): Nanostructured glasses for optoelectronics.
- Jean-Emmanuel Broquin (IMEP-LAHC - University of Grenoble, France): Optoelectronic devices by ion exchange.
- Miguel Jiménez de Castro (IO-CSIC - Madrid, Spain): Bi nanoparticles in alumina thin films and bulk germanate glasses.
- Anna Vedda (Università Milano-Bicocca, Italy): Scintillating fibers for in-vivo radiation dosimetry
- Seppo Honkanen (University of Eastern Finland): Ag nanoparticles in glass for SERS.
- Rui M. Almeida (Instituto Superior Técnico Rovisco Pais, Portugal): Rare-earth doped up-conversion coatings for solar cell applications.
- Animesh Jha (University of Leeds): Advanced Rare-earth doped glasses for thin film devices.
- Chiara Maurizio (University of Padova): Nucleation mechanisms in doped glasses analyzed by X-Ray absorption spectroscopy.

Publication:

A selected number of peer-reviewed papers will be sent for publication to Ceramics International.

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**Introduction and scope:**

Detection of far-IR and THz radiation is resistant to the commonly employed techniques as the use of detectors and sources is hampered by different reasons. Especially in THz range the quanta energy is substantially smaller the thermal energy at room and even at liquid nitrogen temperature. Thus realization of THz emitters and receivers is a challenge to classical devices.

Compact THz and IR detectors, powerful sources and associated electronics are key-points that define the ultimate performance of both passive and active imaging and spectroscopic systems. It is expected that the future development of high performance systems for different applications (e.g. surveillance and non-intrusive border security applications, standoff detection of explosives, military and security) will be based on a new physical phenomena, ingenious design and advanced materials. Particular attention will be devoted to the realization of sensors with a large potential for real-time imaging while maintaining a high dynamic range and room-temperature operation. CMOS process technology is especially attractive due to their low price tag for industrial, surveillance, scientific, and medical applications. The purposes of the Symposium will be connected with the discussions on the experience acquired over the past years in developing of advanced THz and IR detectors, sources and associated electronics in USA, Asia and Europe. It is supposed that the Meeting will involve specialists in modelling, simulation and fabrication of these components (e.g., matrix arrays, antennas simulation and optimization, etc.). The objectives of this Symposium are to review the current state of the art in THz and IR detectors and sources as well as associated electronics for imaging and spectroscopy systems. The purpose is also to provide a clear view on the current technologies and the required advances to achieve more efficient systems. The Symposium's aim is also the baseline establishment of current uncertainty estimations in physics-based modelling and simulation to identify key areas requiring further research and development.

Hot topics to be covered by the symposium:

Topics will address physics of detectors and sources, detectors design and fabrication. Also questions concerning associated electronics design, physics modelling and simulations of devices, electronic circuits and antennas for THz and IR applications will be included.

- New physical phenomena that can lead to new IR and THz devices
- New materials with IR or THz applications (Graphene, HgTe quantum wells,....)
- Design and fabrication of new detectors and sources
- Read out electronics design
- Microscopic modelling and simulations of devices

Tentative list of scientific committee members:

- M. Razeghi (USA),
- A.P. Shkurinov (Russia),
- V. Ryzhii (Japan, Russia),
- D. Vavriv (Ukraine),
- P. Norton (USA),
- M. Bugajski (Poland)

Tentative list of Invited speakers:

- Y. Roskos (Germany),
- V. Vaks (Russia),
- P. Siegel (USA),
- X.-C. Zhang (USA),
- P.U. Jepsen (Denmark),
- M. Vitiello (Italy),
- R. Rehm (Germany),
- P. Norton (USA),
- F. Teppe (France),
- L. Faraone (Australia),
- J. Lusakowski (Poland)

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Deadline For Abstract Submission: June 9, 2014

www.european-mrs.com

**Introduction and scope:**

The objective is to review the state of the art in the processing, characterization and clinical application of bioceramics (from inert ceramics for orthopedic or dental implants to bioactive ceramics to support tissue engineering). The symposium will be a forum for academy and industry to highlight common issues and point future research directions.

The advances in ceramic science during the last decades have led to a significant increase in the research and clinical use of bioceramics for bone substitution and engineering. Usually bioceramics are categorized as either "bioinert" or "bioactive" (able to promote bone formation). However, these terms should be used with care, since any material introduced into the physiological environment will induce a response.

Ceramics are currently making inroads in high volume applications such as dental or orthopedic implants but much work is still needed for them to reach their full potential. The mechanical properties of ceramics, in particular their low toughness and sensitivity to aging in the physiological environment are still a challenge for their general use in implants and scaffolds. In addition, the development and clinical application of optimum ceramic scaffolds for tissue engineering is still a pending issue. This is a very active area of research and recent progress in the fields of materials science, chemistry and biology can help to address these problems. The main objective of this symposium is to bring together scientists, clinicians and engineers in order to provide a truly multidisciplinary forum where to discuss the most current advances in the field and point at key research needs. One of the goals is to define common issues and terminology in order to trigger progress. The symposium will address key problems using a comprehensive approach that will encompass both bioinert and bioactive ceramics. Issues of interest are the development of new processing routes, drug delivery, the effect of biodegradation on the mechanical properties, the engineering of the material surfaces to promote osseointegration or the relationship between structure and mechanical properties at all length scales and the comparison with the natural counterpart: bone. The symposium will be supported through the joint effort of several European projects (Biobone, MATCh, Longlife, Restoration, Glacerc) dealing with the developing of new bioceramics and the training of young professionals. This group of projects involves directly more than 60 scientists and has links with multiple institutions and companies worldwide. It will help to disseminate both the workshop and its contribution as well as to attract a critical mass of attendants.

Hot topics to be covered by the symposium:

- Novel processing technologies for ceramic-based scaffolds for bone regeneration-Processing of hierarchical structures and assembly of materials from nano to macro dimensions.
- Ceramic-based structures for drug delivery
- New ceramic-based implant materials
- Osseointegration of ceramic implants
- Mechanical properties of implants and scaffolds
- Interaction of proteins and cells with ceramic surfaces
- Biodegradation of ceramics
- New bioactive glass formulations
- Structure and mechanical properties of bone
- Clinical use of bioceramic implants

Tentative list of scientific committee members:

- Julian Jones (bioactive glasses), Imperial College, UK.
- Aldo Boccaccini (bioactive glasses, tissue engineering scaffolds), University of Erlangen, Germany.
- Marc Anglada (mechanical properties of bioceramics), UPC, Spain.
- Joel de Conninck (surface engineering), University of Mon, Belgium.
- Xiang Zhang (calcium phosphate materials, implants), Ceram, UK.
- Meinhard Kuntz (ceramics for orthopedics), Ceramtec, Germany.
- Jaime Franco (calcium phosphates), Keramat, Spain.
- Nicolas Courtois, (Dental materials), Anthogyr, France.
- Enrica Verné (calcium phosphates, bioactive glasses), Politecnico di Torino, Italy.
- Jonathan Knowles (tissue engineering), University College London, UK.
- Mauro Alini (bone regeneration), AO foundation, Switzerland.

Symposium Organizers:

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Deadline For Abstract Submission: June 9, 2014

www.european-mrs.com

**Introduction and scope:**

Intensive development of the most engineering branches from micro- and nanoelectronic and nanobiomedicine till aeronautics, automobile industry, shipping building and space devices accompanied by formulating of new demands to the wide class of composite materials and structures based on the metals and alloys, oxide and nonoxide ceramics, polymers and filled by micro and nanoparticles and fibers. The aim of symposium is the discussion of main challenges of advanced composite materials with special emphasis on the novel areas of their practical using.

Composite materials and structures have been developed to meet increasing demands of the most areas of engineering such as micro- and nanoelectronics, nanobiomedicine, renewable energy sources, aeronautics, automobile, shipbuilding, space constructions and new vehicles for various applications

The development of materials science during last 50-60 years is inseparably linked with the creation of composite materials consist of two or more distinct components with interfaces to be distinguished by chemical composition, structure and physical and mechanical characteristics but at the same time together forming the new structure of material with the principally new useful complex of physical and mechanical and performance properties.

Only on the base of composite materials (natural, for example, metal eutectic and synthetic such as reinforced heterogenous inorganic and organic materials) and special structures it became possible the production of high temperature and high-strength details and constructions with high thermal and electrical conductivity, unique magnetic and tribotechnical properties. Composite materials can be characterized by various complex of functional properties. Manufacturing of the products from composite materials is realized by the means of solid and liquid phase technologies, chemical and physical sputtering and various ways of deposition and etc.

The unique advantages of composite materials such as high strength, high stiffness, long fatigue life, low density, light weight, adaptability to the intended function of the structure and many others will be discussed during symposium activity. Symposium topics concern various classes of composite materials such as composites reinforced by particles, fibers and woven structures. Furthermore various areas of application of metal-, ceramic, polymer-, carbon based composites and new possibilities of their applications in energy production, machine building, biomedicine and ect. will also be the themes of round tables. Special time will be devoted to innovative researches, to the questions of technology transfer and international cooperation in the field of composite materials. One of the main aim of symposium is the organization of open dialog between academicians and researches from one side and representatives of industrial sector from another side to find new possibilities of creation of materials with given complex of performance properties and to determine the new areas of application of such kind of materials.

Tentative list of scientific committee members:

- Uvarova Iryna (Kiev, Ukraine)
- Ragulya Andrey (Kiev, Ukraine)
- Turkevich Vladimir (Kiev, Ukraine)
- Panin Victor (Tomsk, Russian Federation)
- Logunov Vladislav (Moscow, Russian Federation)
- Gogotsi Yuriy (Drexel University, USA)
- Hipke Thomas (Chemnitz, Germany)
- Pakiela Zbigniew (Warsaw, Poland)

Tentative list of invited speakers:

- Yasunori Taga (Chubu, Japan)
- Zgalat-Lodzynsky Ostap (Kiev, Ukraine)
- Tedenac Jean-Claude (Montpelier, France)
- Papadopoulos Michael (Patras, Greece)
- Sanin Anatolii (Dnipropetrovsk, Ukraine)
- Prikhna Tatyana (Kiev, Ukraine)
- Frage Nahum (Beer-Sheva, Israel)
- Brziak Peter (Bratislava, Slovakia)
- Rumyantsev Vladimir (Sankt-Peterburg, Russian Federation)
- Tavadze Georgii (Tbilisi, Georgia)
- Vishnyakov Leon (Kiev, Ukraine)
- Singheiser Lorenz (Jülich, Germany)
- Mileiko Sergey (Russian Federation)
- Novikov Nikolai (Kiev, Ukraine)
- Kulu Priit (Tallinn, Estonia)

Symposium Organizers:

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Deadline For Abstract Submission: June 9, 2014

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Topological materials II

Introduction and scope:

Topological materials constitute a class of quantum materials exhibiting new electronic functionalities based on specific electronic properties of 3D and 2D topological insulator crystals: topological protection from electron backscattering, surface spin polarization or conductance quantization.

The symposium is a continuation of the event held during E-MRS 2011 Fall Meeting and is meant to provide a regular European forum for scientific exchange in the world-wide very actively studied field of quantum physics, materials science and solid-state technology of topological materials.

The main topics of the symposium will review the progress in theoretical understanding of the fundamental aspects of electronic and crystal structure of topological materials as well as development of new materials, e.g.: topological crystalline insulators of IV-VI semiconductors, correlated-electron systems of hexaborides, low-dimensional semiconductors like InAs-GaSb heterostructures or HgTe quantum wells, and magnetic topological insulators like transition metal-doped (Bi,Sb)₂Te₃ crystals.

The scientific program will also cover recent important developments in experimental studies of canonical topological insulator materials like Bi-Sb alloys, Bi₂(Se,Te)₃ or HgTe-based 2D heterostructures. In particular it concerns: angle-, spin- and time-resolved photoelectron and optical spectroscopies, micro-magnetometry, STM spectroscopy of topological Dirac states and the new analysis of magneto-transport experiments.

Practical exploitation of unique electronic and spin properties of topological materials requires development of new device concepts of electronic or spintronic systems useful, e.g. as spin current sources or quantum computation electronic platforms. In this respect, the symposium will address recent progress in development of practical methods for controlling topological electronic states with electrical gates or by the application of strain lowering crystal symmetry of surface or interface.

Hot topics to be covered by the symposium:

- New topological materials: theoretical proposals and experimental studies.
- Hybrid topological structures with superconductors and ferromagnets.
- Majorana fermions and topological quantum computing.
- Topological crystalline insulators.
- Real space and k-space spectroscopies of topological materials.
- Spin and charge transport in materials with topological protection.
- Device concepts exploiting topological materials.

Tentative list of scientific committee members:

- C. Beenakker, Leiden University (The Netherlands).
- R. Buczko, Institute of Physics PAS (Poland).
- H. Buhmann, Wuerzburg University (Germany).
- C. Felser, University of Mainz (Germany).
- E. Frantzeskakis, University of Amsterdam (The Netherlands)
- M. Kaminska, University of Warsaw (Poland).
- J. Moodera, MIT (USA).
- O. Tjernberg, KTH Stockholm (Sweden)
- A. Wojs, Wroclaw University of Technology (Poland)
- J. Zaanen, Leiden University (The Netherlands)

Invited speakers:

- N.P. Armitage, Johns Hopkins University (USA), "Quantum phase transitions in topological insulators".
- A. Brinkman, University of Twente (The Netherlands), "Josephson supercurrents through topological surface states".
- R.J. Cava, Princeton University (USA), "Crystal structure and chemistry of topological insulators".
- Y. Chen, Oxford University (UK), "Dirac semimetals".
- A. Damascelli, University of British Columbia (Canada), "Spin-orbital textures in 3D topological insulators".
- Riu-Riu Du, University of Houston (USA), "Edge transport in InAs/GaSb quantum wells".
- P.D.C. King, University of St. Andrews (UK) & Cornell University (USA), "Topological surface states and superconductivity in perovskites".
- Lu Li, University of Michigan (USA), "Quantum oscillations in SmB₆".
- Y. Okada, Tohoku University (Japan), "STM probing of topological crystalline insulator states".
- R.-J. Slager, Leiden University (The Netherlands), "Classification of topologically protected materials".
- E. Spanton, Stanford University (USA), "Quantum spin Hall state in HgTe wells and InAs/GaSb heterostructures".
- J. Tworzydło, University of Warsaw (Poland), "Disorder in topological insulators".
- B.M. Wojek, KTH Stockholm (Sweden), "Topological crystalline insulators".
- J. Denlinger, Advanced Light Source, Lawrence Berkeley National Laboratory, (USA), "Angle resolved photoemission of SmB₆ as a possible topological Kondo insulator".
- J.-P. Paglione, University of Maryland (USA), "Transport and thermodynamic properties of half-Heusler semimetals and superconductors".

Symposium Organizers:

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Deadline For Abstract Submission: June 9, 2014

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Introduction and scope:

This symposium, as FOURTH Symposium (IV) on "Bioinspired and Biointegrated Materials as New Frontiers Nanomaterials", is aimed to give overview of bioinspired and biointegrated materials multifunctional applications in biomedical healthcare field specially using biological and mimetic molecules, materials for design biointegrated and bioinspired ones and their multifunctional systems for biomedical applications. This is a newest nanomaterials, nanosystems field which is expected to rapidly grow further towards the next generation of biomaterials that are developed and designed using nanoscience and biomimetic bases, including mimetic skin, bone tissue and remodeling as well as biomedical applications, their functionality and adaptation to Bionic Human systems, Medical BioNanoRobots, in vivo systems for healthcare.

This symposium will cover the frontiers on the modeling, engineering, researching and multifunctional (nanomedicine, biosensors, photonics, electronics for BioNanoRobotics in vivo, and bioinformatics) applications of the Bioinspired and Biointegrated Nanomaterials and Nanosystems.

Starting from well-known biological structures, such as the complex structures with high toughness (biominerals like diatom and sponge silica, seashells and bone) and the structures with hierarchical organization and high mechanical strength (as organic fibers like spider silk), scientists and engineers develop the principles for design of novel nanomaterials with superior properties, using biomimetic and bioguided synthesis nanotechnologies. The design, engineering of these materials are aimed at obtaining of the properties which respond to external, biologically compatible stimuli (physical, chemical, biological) and to active electronic, photonic, magnetic nanosystems. The symposium will include completed sessions ranging from computational modeling, engineering of multifunctional biointerfaces and biotemplating, nanoscience to applications. A specific focus will be given to biomedical applications of biointerfaces in cell and tissue engineering, sensing and diagnosis.

The symposium will bring together researchers from bio - science and - nanotechnology for biomaterials, biological and biomimetic, nanomaterials sciences, technologies for nanomedicine and engineering bio - electronic, - photonic, - magnetic, -informatics nanosystems to discuss the latest advancement in the understanding of properties, and biosynthetic mechanism of biomaterials, as well as the use of biomaterials or their synthetic analogs for the synthesis of nanomaterials with controlled structures and functionalities.

A special young researcher Session for young scientist and graduate students' talks is planned at the symposium's first day on 5-7 p.m. Abstracts will be selected by the Scientific Committee and Invited Young Researchers as Chiefs for this special session on a competitive basis with the E-MRS's control number which the potential participant will obtain for submitted abstract.

Hot topics to be covered by the symposium:

- biodesign and nanotechnology sciences: from biological materials to bio - inspired and - mimetic materials synthesis;
- bioinspired routes for synthesis of multifunctional nanoparticles, systems, films;
- functional biointerfaces : nanoscience and nanotechnologies;
- biological nanosystems and their biomimetic analogs modeling;
- bio-hybrid nanostructures - bioimmobilized and biointegrated nanoparticles, nanocarbon molecules into biohybrids for biomedical applications;
- biological structures and biomimetic ones for regenerated biomedicine;
- bioimaging, biosensing of biological nanosystems and their analogs;
- electronic and photonic natural and mimetic materials science adaptation to Bionic Human systems science and BioNanoRobotics in vivo;
- single-, multi- biomolecular motors, machines;
- nano-, bio- photonics science, application to Bionic Eye systems

Tentative list of scientific committee members:

- Giovanni Marletta (Italy)
- Karsten Haupt, Genevieve Pourroy and Jean-Pierre Aime (France)
- Kysil Olena (Ukraine)
- Arianna Filoramo (France)
- László Forró (Switzerland)
- C.S. George Lee (USA)
- Michael Köhler (Germany)
- Andreas Schober (Germany)
- Jean-Pierre Sauvage (France)
- M. Jesus Ariza Camacho (Spain)
- Tomas Keller and Michael Müller (Germany)

Tentative list of invited speakers:

- Genevieve Pourroy (University of Strasbourg, Peptidomimetics to diagnosis method of breast cancer. Nano@Matrix EU Project)
- Simon Robert Hall (University of Bristol, Biotemplating Models: chitosan matrix from crab shells usage to control the synthesis of conductors nanowires)
- Praskovia Boltovets (ISP NAS of Ukraine, Surface Plasmon Resonance phenomena at biointerfaces to use for biosensing)
- Sergiy Zankovych, (Friedrich-Schiller-University Jena, Functionalized with biopolymer, bio-hybrid molecules titanium surface in medical implants)
- Marie Brut (Université de Toulouse, Static Mode method for the treatment of biomolecular flexibility)
- Thomas J. Webster (Brown University, Nanotechnologies for bone regeneration)
- Matthias Epple (Universität Duisburg-Essen, Recrystallization of synthesized biominerals at biointerface in living cell: biomimetic chemistry)
- Gerald Kada (Agilent Technologies, Development of the AFM Tip application in field of sensors for biomolecular processes)
- Karsten Haupt (Compiègne University of Technology, Novel synthesis of synthetic programmed receptors for biosensors and biochips)
- Jean-Bernard Fiche University of Montpellier, (The molecular mechanism of DNA pumping machines modeling)
- C.S. George Lee (Perdue University, USA. (From Robotics to BioNanoRobotics in vivo for healthcare).

Symposium Organizers:**Emmanuel Stratakis**

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Deadline For Abstract Submission: June 9, 2014

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**Introduction and scope:**

Multifunctional perovskite-type oxides and systems based thereon enable numerous device applications in electronics, sensing, energy and health sectors. The symposium will focus on experimental and theoretical advances in obtaining and understanding novel or enhanced properties of perovskites for emerging or improved devices.

Perovskite-type oxides are known to exhibit a full spectrum of electronic properties - from insulating to semiconducting, metallic, and superconducting - and possess ordering of magnetic spins or electric dipoles, or both. Among the best known perovskites are ferroelectrics, high-temperature superconductors, colossal magnetoresistive oxides, Mott insulators, and multiferroics. Their high sensitivity to external fields, as well as the variety of effects and couplings that they present, make many of these materials multifunctional and enable numerous device applications. Progress in the synthesis of perovskite crystals, thin films, multilayers, and nanostructures makes it possible to create systems with completely novel or enhanced functions allowing for conceptually new devices. Their application areas include microelectronics and information storage, sensors, actuators, acoustical transducers, high-frequency and micromechanical devices, solid-state coolers, devices for energy conversion, and many others in the electronics, energy and health sectors.

The spectacular variation in behavior of perovskites is mainly related to the large effects on electronic structure and ferroic order parameters caused by small changes in their chemical composition and atomic structure. Response functions of perovskites also depend on properties of phase boundaries such as domain walls, surfaces, or interfaces. Susceptibility of the atomic and electronic structures to external magnetic, electric, stress, and light fields contribute to multifunctional behaviour too. Additionally, latent heat of phase transitions under applied fields offers more functions. A fundamental understanding of the crystal structure, electronic structure and electronic processes, phase boundaries and phase transformations, is at the heart of the developments to design perovskite systems with enhanced or novel functions able to lead to application breakthroughs.

The symposium will be an interdisciplinary forum for researchers working on perovskite-based systems. It will bring together experimental and theoretical physicists, chemists, and material scientists working on both fundamental aspects and device applications. The recent advances, challenges, and foreseen future developments will be discussed.

Hot topics to be covered by the symposium:

- Crystal structure of advanced perovskite systems
- Electronic structure and processes
- Optical properties
- Phase boundaries
- Phase transformations

Invited speakers:

- M. Alexe (UK): Photoelectric effects in non-centrosymmetric materials
- U. Aschauer (Switzerland): Strain-defect interaction in oxides
- A. Bokov (Canada): Relaxor behavior of disordered perovskites
- G. Catalan (Spain): Metal insulator transitions in perovskite systems
- B. Dkhil (France): Relaxors: what can we learn from other systems with remarkable properties
- M. Fiebig (Switzerland): Domain walls in multiferroics as functional interfaces
- V. Fiorentini (Italy): Multiferroicity vs metallicity in layered perovskites
- J. Fontcuberta (Spain): Electronic reconstructions at oxide surfaces and interfaces
- Ph. Ghosez (Belgium): Oxide heterostructures and large-scale simulations
- J. Kreisel (Luxemburg): TBA
- A. Levanyuk (Spain): Phase transitions and domains in ferroelectric thin films and multilayers
- R. Mankowsky (Germany): Time-resolved studies of complex oxides
- B. Noheda (The Netherlands): Controlling domains and domain walls at the nanoscale
- S. Pennycook (USA): TBA
- L. Pintilie (Romania): Pyroelectric and photovoltaic properties of ferroelectric thin films
- R. Poprawski (Poland): Synthesis of novel composites
- E. Salje (UK): Structural and functional domain boundaries
- A. Tagantsev (Switzerland): Charged domain walls: experiment and understanding
- Z.G. Ye (Canada): Phase transitions, domain structures and local instabilities in PZT crystals

Symposium Proceedings will be published in a special issue of Phase Transitions.

Symposium Organizers:

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Deadline For Abstract Submission: June 9, 2014

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Introduction and scope:

The global market of the nanomaterial sector is expected to be worth over \$40 billion by 2017 with an annual compound growth rate of approximately 20%. Top-down (e.g. lithography, deposition, etching) and bottom-up (e.g. self-assembly, electro-spinning) nano- to micro-fabrication processes are extensively utilised in the field of tissue engineering and regenerative medicine to develop *in vitro* tools and implantable devices for a range of clinical targets. The supremacy of such technologies lies on the fact that they can closely imitate native extracellular matrix assemblies, resulting in a more accurate replication of the *in vivo* setting *ex vivo*. As such, natural, recombinant and synthetic in origin materials are customarily utilised to develop functionalised with biophysical, biochemical and biological signals two- and three-dimensional systems that offer control over cellular functions. Indeed, such elegant systems can be used in numerous biological processes, including: to maintain phenotype of permanently differentiated cells; to direct stem cell lineage commitment; to guide cell attachment and migration; to provide antibacterial properties to implantable devices; to guide functional neotissue formation and development; to develop *in vitro* pathophysiological models for drug and gene discovery purposes. This symposium will discuss current advancements, emerging technologies and shortfalls in the field of nano / micro fabrication technologies; tools that have been developed to assess interaction at the material – cell – tissue interface; and applications that such systems have found in the multifaceted field of tissue engineering and regenerative medicine.

Hot topics to be covered by the symposium:

This symposium will cover the full spectrum of current and emerging technologies in the field of nano- / micro- biomaterials, including fabrication methods, *in vitro* / *in vivo* assessment, as well as specific applications and shortfalls. Areas of discussion will include, but will not be limited to:

- Nano and micro-fabrication technologies
- Delivery of bioactive / therapeutic molecules technologies
- Natural, synthetic, peptide, hybrid, smart and stimuli-responsive biomaterials
- Biophysical, biochemical and biological signals
- Tissue engineering by self-assembly
- Cell-surface interactions
- Blood / tissue-material interactions
- Antibacterial surfaces
- Modulating foreign body response / implant failure
- Engineering functional *in vitro* microenvironments
- Cell phenotype maintenance
- Nano-toxicity
- Bioreactors
- Mechanobiology
- Glycobiology
- Imaging at the bio-nano-interface
- Extracellular matrix assemblies
- Nano / micro arrays
- Diagnostics
- Modelling

Scientific committee

- Dr Dimitrios Zeugolis, Ireland
- Prof Abhay Pandit, Ireland
- Prof Lokesh Joshi, Ireland
- Dr Graham Cross, Ireland
- Dr Manus Biggs, Ireland
- Dr Damien Thompson, Ireland
- Dr Alex Lomas, Ireland
- Dr Sunny-Akogwu Abbah, Ireland
- Dr Daniela Cigognini, Ireland
- Dr Akshay Srivastava, Ireland
- Dr Honorata Kraskiewicz, Ireland
- Dr Mathis Riehle, UK
- Dr Matteo Palma, UK
- Dr Nikolaj Gadegaard, UK
- Dr Ayse Begum Tekinay, Turkey
- Prof Mustafa O. Guler, Turkey
- Prof Carlos Jose Rodriguez Cabello, Spain
- Prof Oded Shoseyov, Israel
- Prof Ehud Gazit, Israel
- Prof Jan de Boer, The Netherlands
- Dr David Eglin, Switzerland
- Prof Mauro Alini, Switzerland
- Dr Maria Farsari, Greece
- Dr Anna Mitraki, Greece
- Prof Niren Murthy, USA
- Prof Shalom Wind, USA

Invited speakers:

- Prof Abhay Pandit, Ireland. *Hierarchical functionalisation of living substrates*
- Prof Lokesh Joshi, Ireland. *Applications of glycobiology in cell surface modifications and interactions*
- Dr Graham Cross, Ireland. *Nano-imprint replication for tissue scaffolds*
- Prof Niren Murthy, USA. *New strategies for imaging and treating bacterial infections*
- Prof Carlos Jose Rodriguez Cabello, Spain. *Smart recombinamers as advanced scaffolds for tissue engineering and cell harvesting*
- Prof Oded Shoseyov, Israel. *Nano crystalline cellulose-protein composites: Super-performing biomaterials for tissue engineering and regenerative medicine*
- Dr Ayse Begum Tekinay, Turkey. *Mimicking extracellular matrix for regenerative medicine*
- Prof Anna Mitraki, Greece. *Self-assembling peptides and 'scaffold-on-scaffold' approaches for biomedical applications*
- Dr Matteo Palma, UK. *Selective biomolecular nano-arrays for nano-biotechnology investigations*
- Prof Shalom Wind, USA. *Nano-scale architectures for probing cellular mechano-response*
- Dr Manus Biggs, Ireland. *Cellular adhesion on electron-beam patterned surfaces presenting nano-scale heterogeneous rigidity*
- Dr Damien Thompson, Ireland. *Atom-scale modelling at the nano-bio interface*
- Prof Jan de Boer, Netherlands. *A systems approach to uncover surface topography-induced cell signalling - Can cells read Braille?*
- Prof Mauro Alini, Switzerland. *Stimuli responsive hyaluronan materials for musculoskeletal repair*
- Prof Ehud Gazit, Israel. *Self-assembled nano-scaffolds, hydrogels and hydrogel nano-particles for drug delivery and tissue engineering applications*
- Prof Mustafa O. Guler, Turkey. *Self-assembled peptide nanostructures for functional biomaterials*
- Dr Nikolaj Gadegaard, UK. *Development of high-content screening platforms for stem cell research*

Symposium Organizers:

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Deadline For Abstract Submission: June 9, 2014

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**Introduction and scope:**

Antiferromagnetic spintronics is a new emerging field of materials science and device physics aiming at exploring unique properties of antiferromagnets. In particular, these materials do not generate stray magnetic fields, minimizing in this way cross-talking between nanodevices. At the same time, in addition to the well-known and the already exploited effect of exchange bias, they share with ferromagnets a number of worthwhile functionalities, including anisotropic magnetoresistance and tunnelling anisotropic tunnelling magnetoresistance. It is also expected that sublattice magnetization could be manipulated with electric currents and fields. The progress in this field, requires, however, the development of new materials, their heterostructures, and novel methods of characterizations. Furthermore, a number of conceptual and theoretical challenges awaits for further investigations. The symposium will gather pioneers and experts in this young field as well as materials scientists, physicists, and device engineers from related domains willing to contribute to the development and understanding of functional antiferromagnetic metals, semiconductors, oxides, and organic materials as well as their novel functionalities.

List of scientific committee members:

- Christian Back, Regensburg University, Germany
- Vincent Baltz, SPINTECH, Grenoble, France
- Allan MacDonald, The University of Texas, Austin, USA
- Hideo Ohno, Tohoku University, Sendai, Japan
- Stefano Sanvito, Trinity College Dublin
- Henryk Szymczak, Insitute of Physics, PAS, Warsaw, Poland

List of invited speakers:

- Manuel Bibes, Thales, Palaiseau, France
- Rembrant Duine, University of Utrecht, The Netherlands
- Claudia Felser, Max Planck Institute for Chemical Physics of Solids, Dresden, Germany
- Dominique Givord, CNRS, Grenoble, France
- Helen V. Gomonoy, National Technical University of Ukraine, Kyiv
- Sandrine Heutz, Imperial College London
- Xiao Hu, NIMS, Tsukuba, Japan
- Vit Novak, Institute of Physics, ASCR, Prague
- Feng Pan, Tsinghua University, Beijing
- Byong-Guk Park, KAIST, Korea
- Stuart Parkin, Halle University, Germany
- Maxim Tsoi, The University of Texas, Austin, USA
- Peter Wadley, University of Nottingham, U.K.

Symposium Organizers:

Tomasz Dietl

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Deadline For Abstract Submission: June 9, 2014

www.european-mrs.com

General information

Full information about the scientific programme, abstract submission, registration and accommodation can be found through the link to

www.european-mrs.com

For general information about the conference contact the E-MRS Fall Meeting Conference Secretary

CONFERENCE SECRETARIAT

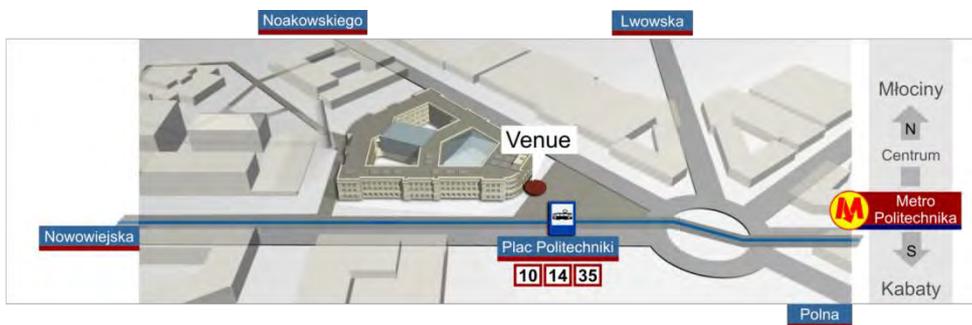
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Woloska 141
02-507 Warsaw, Poland
Phone: +48 22 234 87 35
Fax: +48 22 234 87 94
Email: emrs@inmat.pw.edu.pl

All additional information regarding a specific symposium should be obtained by making direct contact with the symposium organizers. The correspondence address will be found at the end of description of each symposium given in this announcement.

LANGUAGE

The conference language is English.

CONFERENCE VENUE



**Central Campus of
Warsaw University of Technology
Pl. Politechniki 1,
00-661 Warsaw, Poland**

Many places of interest are within an easy walking distance of the University. Area of the campus has a great student town atmosphere with many student pubs, which are great place to meet after symposia's and share experiences.

Good public transport connections, by metro, tramway, or by bus are available to the university from anywhere in Warsaw. Central campus lies just 10 minutes from city centre and 20-30 minutes from the Old Town.

GETTING TO WARSAW

By plane

Chopin Airport

Departures and Arrivals Information, phone + +48 22 650 4220

On-line timetable www.lotnisko-chopina.pl

Trains (SKM and SM) to Warsaw centre are leaving every 20 minutes from airport train terminal from 5 am till 11:50 pm.

Buses 175 and 188 operate between the airport and the city centre from 4:00am to 11:00pm. At all other times, a night bus N32 provides the service.

Modlin Airport

Airport webpage: <http://www.modlinairport.pl/>

Departures and Arrivals Information, phone +48 22 346 43 60

Train: By Modlin shuttle-bus to Modlin train station, then by train (KM) to Central Railway Station. (4-5 €)

Bus: Modlin-bus connects Modlin Airport and Central Railway Station

Taxis

When using taxis in Warsaw, it is strongly recommended that you use only those with the following: the symbol of Warsaw – a mermaid – on both front doors, yellow/red stripes affixed to the glass along the front doors, a number stuck to the side of the vehicle, a hologram with the license number and the vehicle's registration number on the upper right-hand corner of the front glass and a sticker with price information per kilometer that must be displayed on the glass of the right-hand side back door. It is recommended for you to use one of the city's official Radio-Taxi companies, and order a taxi by telephone. The airport (Arrivals) is served only by 3 Radio-Taxi companies: Ele Taxi, Sawa Taxi i Super Taxi.

By train

There are three train stations in Warsaw that handle international and domestic train traffic:

Warszawa Centralna (Central Warsaw) (AlejeJerozolimskie 54) - situated in the city center and very well connected to all of the city's districts.

Warszawa Zachodnia (West Warsaw) (AlejeJerozolimskie 144) - thanks to the neighbouring international bus terminal, this is where people travelling in or out of the country await their transfers.

Warszawa Wschodnia (East Warsaw) (Lubelska 1) - located on the east side of Vistula River (Praga)

Deadline For Abstract Submission: June 9, 2014

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General information

By car

The main access roads to Warsaw are sections of three principal European routes:

- From the north: route E77 - north-south European route which runs through Central Europe: Russia (Pskov) - Estonia - Latvia - Lithuania - Russia - Poland (National highway 7: Gdańsk, Elbląg, Warsaw, Radom, Kielce, Cracow) - Slovakia - Hungary (Budapest)
- From the south-east: route E67 - north-south European route which connects Central Europe with Scandinavia: Finland (Helsinki) - Estonia - Latvia (Riga) - Lithuania - Poland (National highway 8: Białystok, Warsaw, Wrocław) - Czech Republic (Prague)
- From the west: motorway A2, route E30 - East-west European route: Ireland (Cork) - Great Britain - The Netherlands - Germany (Berlin) - Poland (National highway 2: Poznań, Warsaw, Terespol) - Belarus - Russia (Moscow - Omsk)

LOCAL PUBLIC TRANSPORT

The WUT Central Campus can be easily reached using the local public transport. The tram stop "Plac Politechniki" for lines 10, 14 and 35 is 1 min. walking from the venue and the metro station "Politechnika" is 10 min. walking.

The main railway station "Warszawa Centralna" is located in the city centre about 20 min. walking or 3 min. by tram 10 from the conference venue. Tram 10 departures from the stop "Dworzec Centralny" in the direction "Wyscigi" every 10 minutes. You need to get out at "Plac Politechniki" tram stop.

Both local trains (SKM -Fast Urban Railway, and KM - Masovian Railways), buses, tramways and metro require a valid ticket – one-way price is 1-2 € and can be bought in any kiosk, in ticket machines (on most bus stops or inside trains and buses) or from the bus driver.

More information under <http://www.ztm.waw.pl/?l=2>

Parking's

There is no free public parking around the Conference Venue.

The whole area of Warsaw city centre is a controlled parking zone. This rule applies from Monday to Friday, from 8 am to 6 pm. On Saturdays, Sundays and public holidays parking is free.

Warsaw Car parks system "Park & ride":

<http://www.ztm.waw.pl/parkujjedz.php?c=116&l=2>

REGISTRATION

Online registration is mandatory, we highly recommend you make payment for registration on line to avoid waiting during on-site registration.

All participants (including chairpersons, authors, presenting authors, Invited Speakers, Scientific Committee members...) must register online (abstract submission and conference registration are separate items and are not linked).

Online registration must be made by 5p.m. (EST) on July 31st, 2014 to be eligible for the early registration fee.

On-site registration will begin on Sunday September 14th, from 12:00 to 18:00 p.m. Online registration and payment is recommended to avoid long queue.

On-site payment hours:

Sunday September 14 12:00 – 18:00

Monday September 15 8:00 - 18:00

Tuesday September 16 8:00 - 18:00

Wednesday September 17 8:00 - 18:00

Thursday September 18 8:00 - 18:00

REGISTRATION FEES

FULL RATE

Early registration fee (before July 31th, 2014): 430 EUR

Late (after July 31th, 2014) and on-site registration fee: 480 EUR

STUDENT RATE

Early registration fee (before July 31th, 2014): 280 EUR

Late (after July 31th, 2014) and on-site registration fee: 330 EUR

Students have to present evidence of their status

The registration fee for a Regular Participant includes:

1. Admission to the Plenary Sessions, all parallel symposia and workshops or schools
2. Programme and Book of Abstracts
3. Conference Badge
4. Lunches and refreshments during breaks
5. Evening reception on Wednesday 17th September 2014
6. Admission to the poster sessions
7. One copy of the proceedings of a named symposium

The following payment options are offered:

- Credit card (Carte Bleue, Visa, Eurocard/Mastercard)

- Cheque (to the order of E-MRS)

- Bank transfer (cf. BANK INFORMATION section)

NB: Purchase order from company are accepted too.

ABSTRACT SUBMISSION

Abstract length: Website submissions are limited to 1500 characters. (only plain text, no figures, no formulae...)

Note: All abstracts must be submitted via E-MRS website at www.european-mrs.com

Submitting abstracts via the E-MRS is very easy and convenient. Follow the step-by-step instructions on the template, making sure that complete mailing address information is included for the presenting and contact authors. After submitting your abstract, please use the given Control ID number in all communications with E-MRS regarding the abstract UNTIL a paper number (e.g., A 8) is assigned. After that date, any change must be submitted to: emrs@inmat.pw.edu.pl (Subject: Abstract Revision) and must include your Control ID number. Please state exactly where the revisions are located (e.g., title, author, body, etc)

Authors will be notified of acceptance and the mode of presentation of their paper by June 30th, 2014.

Deadline For Abstract Submission: June 9, 2014

www.european-mrs.com

IMPORTANT DEADLINES

- Deadline for abstract submission is 9th June, 2014
- June 30th, 2014: Notification of acceptance and mode of presentation.
- July 31st, 2014: Deadline for registration at the early registration fee.
- after July 31st, 2014: Late registration fees apply.

Please note that the early registration fee is applicable only for participants who register and pay by 31st July, 2014.

PROCEEDINGS

The submitted papers being considered for publication will be subjected to a peer review procedure. The decisions about the deadline and procedure for submitting the papers are made by the symposium organisers. Authors of papers accepted for the conference should ensure that they have the appropriate instructions for the preparation of the manuscript.

CONFERENCE SCIENTIFIC PROGRAMME

The complete scientific program will be available on the website from mid July 2014.

POSTER PRESENTATIONS

There will be two posters sessions on 15th and 16th of September. Authors presenting posters are obliged to be present at appropriate session to discuss or defend the paper.

Mandatory poster size is A0 (841 × 1189 mm);

No tapes or pins will be needed for hanging posters;

The posters must be removed directly after the session and the Conference Organisers assumes no responsibility for posters left up after this time.

Attendees can preview the posters during the morning, before the formal presentation.

EXHIBITION

The exhibition will be held from September 15th – 18th, 2014 in the historic Main Hall of Warsaw University of Technology, close to the technical session rooms.

The Main Hall is also the venue for all breaks between scheduled sessions to ensure maximum contact between exhibitors and participants.

The 2014 E-MRS Fall event will be an excellent opportunity for your company to meet prospective customers while you will have access to the largest group of materials specialists from over 50 countries gathered in Central Europe.

Exhibition is wonderful way to effectively spread of information about your products and to discuss or negotiate sales with participants.

July 31st, 2014: Deadline for registration of exhibitors

Companies interested in exhibiting should contact the E-MRS Fall Meeting Office, ul. Wołoska 141, 02-507 Warsaw, Poland

Tel.: +48 22 234 87 40

Fax: +48 22 234 87 94

Email: exhibition.emrs@inmat.pw.edu.pl

ACCOMMODATION & TOURISM PROGRAMME

Nobell Congressing, as an OFFICIAL HOTEL PROVIDER FOR E-MRS 2014 FALL MEETING, has a pleasure to offer you a various accommodation at discounted rates. We offer hotel accommodation in the hotels located just few steps away from a conference venue – walking distance. You may choose from a variety of hotel standards to suite all budgets. All prices are discounted especially for E-MRS 2014 Fall Meeting participants. Book your hotel at <https://emrs2014.nobell.pl/hotels>.

Booking's team

Nobell Congressing

Norbert Karczmarczyk

phone: +48 22 621 67 37

email: norbert@nobell.pl

Please note that hotel booking and conference registration are on separate systems and are not linked in any way.

SOCIAL EVENTS

All participants are invited to attend the Conference Reception on Wednesday September 17th, 2014 starting at 19:00. Music entertainment and refreshments will be provided as part of conference arrangements

PASSPORTS AND VISAS

All foreign visitors must possess a passport valid for at least 6 months following the conference. Some participants may require visas in order to enter Poland. Please check with your local Polish Consulate or Embassy for details regarding visa and entry requirements. Poland is now part of the Schengen area so that participants traveling within the Schengen area are not required to show passports on entering Poland.

LETTERS OF INVITATION

The Scientific Secretariat will, on request, send a personal invitation to participate. This invitation is only to assist potential participants to raise funds or to obtain a visa, and is not a commitment on the part of the organisers to provide any financial support.

LIABILITY

The E-MRS and Local Organizers of the 2014 Fall Meeting cannot accept liability for any personal accidents, loss of belongings or damage to the private property of participants, either during, or directly arising from, the E-MRS 2014 Fall Meeting. Participants are requested to make their own arrangements with respect to health, travel and property insurance before leaving for the conference. Participants who are citizens of a European Union member state may obtain an European Health Insurance Card which gives some entitlement to medical treatment whilst in Poland.

**E-MRS
BP 20
67037 Strasbourg Cedex 2
France**

Motif de non distribution / not deliverable for doe following reason :

- Adresse insuffisante / Insufficient address
- Inconnu / Unknown
- Refusé / Refused
- Parti sans laisser d'adresse / Moved without leaving address
- Autre / Other