Intelligent materials with integrated functionalities are required to make devices more energy efficient, autonomous, self-responding, switchable, biocompatible, and antibacterial. They are also integrated into novel sensor and actuator devices, providing significantly increased sensitivity.

Intelligent materials with integrated functionalities are required to make devices more energy efficient, autonomous, self-responding, switchable, biocompatible, and antibacterial. They are also integrated into novel sensor and actuator devices, providing significantly increased sensitivity.

Such intelligent materials typically have complex internal structures: they can be composites of different material classes such as multiferroics; they might be nanostructured or hierarchically built-up; they could be bioinspired and possess functional elements ranging from single molecules to the macroscale.

All those materials and their design and development have to be accompanied by high-resolution analytical tools that are able to characterize the materials on all scales and, moreover, track and reveal their function-structure relations in situ or in operando.

After the successful conferences in 2013 and 2015, the 3rd European Symposium on Intelligent Materials will bring together experts in the field of intelligent materials to present and discuss recent developments and detect future trends.

The European Symposium on Intelligent Materials 2017 is an excellent forum to get in contact with international key researchers and stimulate new collaborations for developing novel intelligent material systems and characterizing their functionality, from molecular mechanisms to applications.

We are looking forward to seeing you in Kiel!

Christine Selhuber-Unkel
Christian-Albrechts-Universität zu Kiel (Germany)

Eckhard Quandt
Christian-Albrechts-Universität zu Kiel (Germany)
# General Information

## Conference venue
**ATLANTIC HOTEL**
Raiffeisenstrasse 2
24103 Kiel
T +49 (0) 431 / 374 99 -0
F +49 (0) 431 / 374 99 -500
kiel@atlantic-hotels.de
www.atlantic-hotels.de/kiel

## Date
07 - 09 June 2017

## Conference Chairs
Christine Selhuber-Unkel, Eckhard Quandt
Christian-Albrechts-Universität zu Kiel (Germany)

## Congress Office
INVENTUM GmbH
Alexia Ploetz
Marie-Curie-Straße 11-13
53757 Sankt Augustin (Germany)
T +49 (0) 151 2122 7448
intelligent-materials@dgm.de

## Conference Website
https://intelligent-materials2017.dgm.de

## Conference Language
The official congress language will be English.

## Conference Fees

<table>
<thead>
<tr>
<th>Category</th>
<th>DGM members*</th>
<th>DGM basic members</th>
<th>Non-members</th>
</tr>
</thead>
<tbody>
<tr>
<td>Young Researchers up to 30 years</td>
<td>220 EUR</td>
<td>250 EUR</td>
<td>280 EUR</td>
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<tr>
<td>Expert Researchers 31-40 years</td>
<td>400 EUR</td>
<td>430 EUR</td>
<td>460 EUR</td>
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<tr>
<td>Professionals University</td>
<td>550 EUR</td>
<td>580 EUR</td>
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<tr>
<td>Industry</td>
<td>730 EUR</td>
<td>760 EUR</td>
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</table>

## Poster Session
The oral poster session will be held on Wednesday 07 June 2017.

Snacks and beverages will be offered.

Awards to the best three posters will be given on Thursday evening at the social evening.

## Social Evening
The venue of the Social Evening, Thursday 18:15-22:00, will be the traditional ship and technical cultural monument the MS „Stadt Kiel“
Programme Committee

New intelligent materials
- Smart materials
- Multiferroics
- Bioinspired materials
- Multifunctional composites
- Biofunctional materials

Topics

Theory and characterization of intelligent materials

Microstructural characterization of intelligent materials and correlation with their functional properties

Applications of intelligent materials

Invited Speakers

- G. Eggeler, Ruhr-Universität Bochum (Germany)
- K. Haupt, Sorbonne Universités, Compiègne University of Technology, Compiègne, France
- L. Heyderman, Paul Scherrer Institut PSI (Switzerland)
- R.D. James, University of Minnesota (United States)
- A. Ludwig, Ruhr-Universität Bochum (Germany)
- X. Pan, University of California, Irvine (United States)
- Y. Politi, Max Planck Institute of Colloids and Interfaces (Germany)
- S. Priya, Virginia Tech (United States)
- K. Roßnagel, Christian-Albrechts-Universität zu Kiel (Germany)
- A. Sanchez, University of Warwick (UK)
- G. Schmidt, Christian-Albrechts-Universität zu Kiel (Germany)
- K. Shibuya, National Institute of Advanced Industrial Science and Technology AIST (Japan)
- N. Sun, Northeastern University Boston (United States)
- A. Taubert, University of Potsdam (Germany)
- S. Trolier-McKinsey, The Pennsylvania State University (United States)
- Z. Wang, Georgia Institute of Technology (United States)
Programme Overview Wednesday

<table>
<thead>
<tr>
<th>Time</th>
<th>Room Förde II</th>
<th>Room Förde III</th>
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<tbody>
<tr>
<td>10:00</td>
<td>Registration</td>
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<tr>
<td>11:30</td>
<td>Welcome Reception</td>
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<tr>
<td>12:00</td>
<td>Opening Ceremony</td>
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<tr>
<td>12:20</td>
<td>Invited Lectures</td>
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<tr>
<td>13:40</td>
<td>Short Break</td>
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<tr>
<td>13:50</td>
<td>Bioinspired Materials</td>
<td>Multifunctional Composites</td>
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<tr>
<td>14:50</td>
<td>Coffee Break</td>
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<tr>
<td>15:10</td>
<td>Invited Lectures</td>
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<tr>
<td>16:30</td>
<td>Short Break</td>
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<tr>
<td>17:00</td>
<td>Bioinspired Materials</td>
<td>Smart Materials</td>
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<tr>
<td>18:10</td>
<td>Short Break</td>
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<tr>
<td>19:30</td>
<td>Diels Planck Lecture</td>
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<tr>
<td>20:00</td>
<td>Networking Evening</td>
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</table>

**Networking Evening**

During the Networking Evening, there will be a poster session including a 2 min talk by each poster presenter. The poster prize committee will decide on the winners based on this talk and the poster. Furthermore, there will also be a speed dating between young researchers and established researchers. This evening is gratefully financed by the Joachim Herz Stiftung.

22:00 End of the 1st day

Programme Overview Thursday & Friday

<table>
<thead>
<tr>
<th>Time</th>
<th>Room Förde II</th>
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<tbody>
<tr>
<td>08:30</td>
<td>Invited Lectures</td>
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<td>10:30</td>
<td>Short Break</td>
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<tr>
<td>10:50</td>
<td>Multiferroics</td>
<td>Biofunctional Materials</td>
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<tr>
<td>12:50</td>
<td>Lunch Break</td>
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<td>13:30</td>
<td>Invited Lectures</td>
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<tr>
<td>14:50</td>
<td>Short Break</td>
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<tr>
<td>15:00</td>
<td>Multiferroics</td>
<td>Biofunctional Materials / Theory and characterization of intelligent materials</td>
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<tr>
<td>16:00</td>
<td>Short Break</td>
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<tr>
<td>16:20</td>
<td>Invited Lectures</td>
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<tr>
<td>18:15</td>
<td>Meeting for Social Evening</td>
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<tr>
<td>18:30</td>
<td>Departure of the MS Stadt Kiel</td>
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<tr>
<td>22:00</td>
<td>End of the 2nd day</td>
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**Friday, 09 June 2017**

<table>
<thead>
<tr>
<th>Time</th>
<th>Room Förde II</th>
<th>Room Förde III</th>
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<tbody>
<tr>
<td>08:30</td>
<td>Invited Lectures</td>
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<td>09:50</td>
<td>Short Break</td>
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<tr>
<td>10:00</td>
<td>Microstructural characterization of intelligent materials and correlation with their functional properties</td>
<td>Applications of intelligent materials</td>
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<tr>
<td>11:20</td>
<td>Coffee Break</td>
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<tr>
<td>11:40</td>
<td>Invited Lectures</td>
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<tr>
<td>13:00</td>
<td>Closing Remarks</td>
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<tr>
<td>13:15</td>
<td>End of the 3rd Intelligent Materials</td>
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## Programme Wednesday (10:00-15:10)

<table>
<thead>
<tr>
<th>Room Förde II</th>
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</table>

**Invited Lectures**

Chair:
E. Quandt, Christian-Albrechts-Universität zu Kiel (Germany)

**12:20**
Similarities and differences between magnetic hysteresis and hysteresis in phase transformations
R.D. James (Sp), University of Minnesota (United States)

**13:00**
Discovery and Design of Multifunctional Materials using Combinatorial and High-Throughput Experimentation
A. Ludwig (Sp), Ruhr-Universität Bochum (Germany)

**13:40**
Short Break

**Session Chair**

Bioinspired Materials:
C. Selhuber-Unkel, Christian-Albrechts-Universität zu Kiel (Germany)

**13:50**
Mechanical evaluation of biopolymer composites concerning moisture-driven movements
R. Scholz (Sp), F. Walther, TU Dortmund University (Germany); J. Doerstein, C. Zolfrank, Technical University of Munich (TUM) (Germany)

**14:10**
A reversibly strain stiffening material - the biomimetic approach
M. Timmermann (Sp), C. Selhuber-Unkel, Christian-Albrechts-Universität zu Kiel (Germany)

**14:30**
Smart wooden actuators
M. Rüggeberg (Sp), C. Vallati, F.K. Wittel, ETH Zurich (Switzerland); P. Grönquist, Empa (Switzerland)

**14:50**
Coffee Break

## Programme Wednesday (15:10-18:10)

<table>
<thead>
<tr>
<th>Room Förde II</th>
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<tr>
<td><strong>15:10</strong></td>
<td>Invited Lectures</td>
</tr>
</tbody>
</table>

Chair:
C. Selhuber-Unkel, Christian-Albrechts-Universität zu Kiel (Germany)

**15:10**
Tuning Mechanical Properties of Spider Cuticle by its Composition and by Structural Gradients
Y. Politi (Sp), P. Fratzl, Max Planck Institute of Colloids and Interfaces (Germany); F.G. Barth, University of Vienna (Austria)

**15:50**
Surfaces and Gels for controlling Calcium Phosphate Deposition
A. Taubert (Sp), University of Potsdam (Germany)

**16:30**
Short Break

**Session Chair**

Bioinspired Materials:
C. Selhuber-Unkel, Christian-Albrechts-Universität zu Kiel (Germany)

**16:50**
Bend and twist your crystals! - New crystal design principles taught by Nature
S.E. Wolf (Sp), Friedrich-Alexander-Universität Erlangen-Nürnberg (FAU) (Germany)

**17:10**
Adding Function by Placing Molecular Switches in Complex Environments
A. Staubitz (Sp), University of Bremen (Germany); R. Adelung, S. Gorb, X. Jin, E. Kizilkan, S. Shree, J. Strueben, Christian-Albrechts-Universität zu Kiel (Germany)

**17:30**
UV timer inspired by the human skin: A polymer composite based on photochromes
S. Shree (Sp), Christian-Albrechts-Universität zu Kiel (Germany)

**17:50**
Gecko-Inspired Hierarchical Arrays Comprising a Composite Material for Durable Dry-Adhesion Characteristics
H.K. Raut (SP), J.G. Fernandez, Singapore University of Technology and Design (Republic of Singapore)

**18:10**
Short Break
Programme Wednesday (18:30-20:00)

18:30

**Diels-Planck-Lecture**

**Bioactive Materials and Biofabrication for Regenerating Tissues: Progress and Challenges**

Aldo R. Boccaccini, Friedrich-Alexander-Universität Erlangen-Nürnberg (FAU) (Germany)

**About the Diels-Planck-Lecture**

The Diels-Planck lecture is awarded annually to an outstanding scientist and established leader in the field of nano and surface science. Nominations are assessed by the members of the KiNSIS and the winner is hosted by the Christian-Albrechts-Universität zu Kiel. The Diels-Planck lectures are open to the public.

The previous Diels-Planck lecture award winners are:

- 2016 Professor Sotiris Pratsinis, ETH Zurich (Switzerland)
- 2015 Professor Ben Feringa, Universität Groningen (The Netherlands)
- 2014 Dr. Gerhard Meyer, IBM Research Laboratory, Zürich (Switzerland)

The lectures series honors the originators of the nanosciences in Kiel, the Nobel laureates Max Planck and Otto Diels.

Max Planck was born 1858 in Kiel and was appointed as professor of theoretical physics by the Christian-Albrechts-Universität zu Kiel in 1897. In 1918 he was awarded the Nobel Prize in Physics for his groundbreaking work on quantum theory, which is the fundamental theory to describe nanostructures.

Otto Diels was professor of chemistry at the Christian-Albrechts-Universität zu Kiel from 1915 until his retirement in 1945. Together with his graduate student Kurt Alder he discovered and developed a class of chemical reactions that was later coined Diels-Alder reaction which is one of the most powerful methods to synthesize chemical compounds including nanomaterials. Otto Diels was awarded the Nobel Price in Chemistry in 1950.

The Diels Planck Lecture will be accompanied by the music of EMMA. The young band from Kiel sings "vocal pop" - modern pop and rock, influenced by electronical and classical music, but without any instruments.

Programme Wednesday Networking Evening

20:00

**Networking Evening**

**Sustainable magnetostrictive thin films**

W. Hüttener, Z.H. Barber, L.A. Greer, University of Cambridge (United Kingdom)

**Electrically modulated magnetoelectric sensors**


**Rapid Assembly of Polymer Composite-Nanofibers by Centrifugal Spinning**


**Hydrogel Coatings on a NiTi-Thin films for Controlled Cell Growth**

K. Siemens, E. Quandt, C. Selhuber-Unkel, Christian-Albrechts-Universität zu Kiel (Germany); R. Lima de Miranda, Christian-Albrechts-Universität zu Kiel/Acuandas GmbH (Germany)

**AFM-based Microindentation for the Mechanical Characterization of Soft Polymers**

S. Sindt, S. Huth, C. Selhuber-Unkel, Christian-Albrechts-Universität zu Kiel (Germany)

**Enzyme mimicry by coatings with embedded CeO2-x nanoparticles combatd marine fouling**

W. Tremel, H. Frenichs, K. Herget, F. Pfitzner, Johannes Gutenberg University Mainz (Germany)

**Mechanically- and chemically-active nanostructured antibacterial surfaces fabricated by glancing angle sputter deposition**

N. Ziegler, A. Ludwig, K. Tschulik, Ruhr-Universität Bochum (Germany); M. Köller, C. Sengstock, University Hospital Bergmannsheil (Germany)
Programme Wednesday Networking Evening

Room Förde II Room Förde III

B-35 Uncovering Planar Defects: Combined X-Ray Diffraction and Electron Microscopy to Study Elastic Coupling at Epitaxial Multiferroic Interfaces
N. Wolff, M. Abes, S.B. Hrkac, V. Hrkac, P. Jordt, L. Kienle, H. Kohlstedt, C.T. Koops, O.M. Magnussen, B.M. Murphy, A. Petraru, J. Stettner, Christian-Albrechts-Universität zu Kiel (Germany); G. Nisbet, Harwell Science and Innovation Campus (United Kingdom); O.H. Seeck, Deutsches Elektronen Synchrotron DESY (Germany)

D-21 Co-gradient evolution in sputtered TiNiCuCo thin films for elastocaloric cooling
L. Bumke, C. Chluba, E. Quandt, Christian-Albrechts-Universität zu Kiel (Germany); F. Brüderlin, M. Kohl, H. Ossmer, Karlsruhe Institute of Technology (KIT) (Germany); R. Lima de Miranda, Acquandas GmbH (Germany)

D-33 How to detect magnetically labeled cells using magnetoelectric sensors

D-37 Piezoelectric Thin Film Hydroacoustic Sensors for Acoustic and Turbulent Boundary Layer Investigations
H. Lewitz, E. Quandt, Christian-Albrechts-Universität zu Kiel (Germany); J. Abshagen, D. Küter, WTD 71 - Centre for Underwater, Structure-borne, and Airborne Sound, Kiel (Germany)

D3-51 Magnetic labelling of living cells for a magnetoelectric sensor application
N. Lukat, F. Faupel, C. Selhuber-Unkel, Christian-Albrechts-Universität zu Kiel (Germany)

22:00 End of the 1st day

Programme Thursday (08:30-12:10)

Room Förde II Room Förde III

Invited Lectures
Chaired by E. Quandt, Christian-Albrechts-Universität zu Kiel (Germany)

08:30 Titanium-Tantalum High Temperature Shape Memory Spring Actuators
G. Eggeler (Sp), Ruhr-Universität Bochum (Germany)

09:10 Vortex-antivortex topological structures in multiferroic tunnel junctions
A. Sanchez (SP), J.J.P. Peters, G. Apachitei, University of Warwick (UK)

09:50 Artificial Ferroic Systems
L. Heyderman (Sp), Paul Scherrer Institut PSI (Switzerland)

10:30 Short Break

Session Chair
Multiferroics
N. Sun (Sp), Northeastern University Boston (United States)

Biofunctional Materials
R. Willumeit-Römer, Helmholtz-Zentrum Geesthacht (Germany)

10:50 Thin film magnetoelectric composites for magnetic field measurements

11:10 Understanding enhanced strain in piezotronic ZnO micro structures using operando Nanofocus diffraction
P. Jordt (Sp), R. Adelung, J. Gröttrup, S. Hrkac, L. Kienle, B. Murphy, N. Wolff, Christian-Albrechts-Universität zu Kiel (Germany)

11:30 Magnetoelastic modeling of delta-E effect magnetic field sensors for sub nT
B. Spetzler (Sp), F. Faupel, C. Kirchhof, E. Quandt, S. Zabel, Christian-Albrechts-Universität zu Kiel (Germany)

11:50 Influence of a magnetostrictive layer on the mode shape and wave velocity of a Love-wave based SAW-device
J. Schmalz (Sp), F. Faupel, M. Gerken, A. Kittmann, E. Quandt, E. Yarar, S. Zabel, Christian-Albrechts-Universität zu Kiel (Germany)

12:00 End of the 2nd day

Ecofriendly and durable antifouling coatings
I. Hölken (Sp), R. Adelung, M. Baum, Christian-Albrechts-Universität zu Kiel (Germany)

12:20 Tunable carbon microstructures for tissue engineering
M. Taale (Sp), R. Adelung, F. Schütt, C. Selhuber-Unkel, Christian-Albrechts-Universität zu Kiel (Germany)

12:40 Near infrared fluorescent nanobiosensors for neurotransmitter and pathogen detection
S. Kruss (Sp), A. Hagemann, F. Mann, M. Meyer, S. Mischke, E. Polo, Georg-August-Universität Göttingen (Germany)

13:00 Nanostructured multifunctional polymer films as hematopoietic stem cell culture substrates
D. Kratzer (SP), C. Barner-Kowollik, C. Lee-Thedieck, T. Tischer, Karlsruhe Institute of Technology (KIT) (Germany)
Programme Thursday (12:10-15:00)

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<tr>
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<tbody>
<tr>
<td><strong>Session</strong></td>
<td><strong>Biofunctional Materials (cont.)</strong></td>
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<tr>
<td><strong>Multiferroics (cont.)</strong></td>
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<tr>
<td>A Multi-Mode Model for the Signal-to-Noise-Ratio in Magnetoelectric Sensors Limited by Thermal-Mechanical Noise</td>
<td>Nanoporous Surfaces with Controlled Wetting</td>
</tr>
<tr>
<td>S. Fichtner (Sp), P. Durdaut, M. Höft, C. Kirchhof, E. Quandt, Christian-Albrechts-Universität zu Kiel (Germany); F. Lofink, B. Wagner, Fraunhofer Institute for Silicon Technology (Germany)</td>
<td>C. Aktas (Sp), F. Faupel, M.Z. Ghorai, S. Schröder, T. Strunkus, Christian-Albrechts-Universität zu Kiel (Germany)</td>
</tr>
<tr>
<td><strong>12:30</strong></td>
<td><strong>Magnetoelectric sensors – the impact of the mechanical quality factor on the signal to noise ratio</strong></td>
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<tr>
<td>C. Kirchhof (Sp), P. Durdaut, S. Fichtner, M. Gerken, M. Höft, M. Krantz, D. Meyners, E. Quandt, J. Reermann, G. Schmidt, E. Yarar, Christian-Albrechts-Universität zu Kiel (Germany); F. Lofink, B. Wagner, Fraunhofer Institute for Silicon Technology (Germany)</td>
<td>Controlling cellular mechanosensing by molecular photoswitches</td>
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<tr>
<td>L. Kadem (Sp), R. Herges, B. Hesseker, K.G. Suana, W. Wang, C. Selhuber-Unkel, Christian-Albrechts-Universität zu Kiel (Germany)</td>
<td>L. Kadem (Sp), R. Herges, B. Hesseker, K.G. Suana, W. Wang, C. Selhuber-Unkel, Christian-Albrechts-Universität zu Kiel (Germany)</td>
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<tr>
<td><strong>12:50</strong></td>
<td><strong>Lunch Break</strong></td>
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<td><strong>Invited Lectures</strong></td>
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<tr>
<td><strong>Chair</strong></td>
<td>E. Quandt, Christian-Albrechts-Universität zu Kiel (Germany)</td>
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<tr>
<td><strong>13:30</strong></td>
<td><strong>Declamping in Lead Magnesium Niobate – Lead Titanate Films</strong></td>
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<tr>
<td>S. Trolier-McKinsey (Sp), The Pennsylvania State University (United States)</td>
<td>A. Kittmann (Sp), P. Durdaut, F. Faupel, M. Höft, R. Knöchel, D. Meyners, E. Quandt, E. Yarar, S. Zabel, Christian-Albrechts-Universität zu Kiel (Germany)</td>
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<tr>
<td><strong>14:10</strong></td>
<td><strong>Integrated Magnetics and Multiferroics for Compact and Power Efficient Sensing, Power, RF, Microwave and mm-Wave Electronics</strong></td>
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<tr>
<td>N. Sun (Sp), Northeastern University Boston (United States)</td>
<td>M. Klug (Sp), J. McCord, D. Meyners, E. Quandt, V. Röbisch, N.O. Urs, Christian-Albrechts-Universität zu Kiel (Germany)</td>
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<tr>
<td><strong>14:50</strong></td>
<td><strong>Short Break</strong></td>
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Programme Thursday (15:00-18:15)

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<tr>
<td><strong>Session</strong></td>
<td><strong>Theory and characterization of intelligent materials</strong></td>
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<tr>
<td><strong>Chair</strong></td>
<td>M. Gerken, Christian-Albrechts-Universität zu Kiel (Germany)</td>
</tr>
<tr>
<td><strong>15:00</strong></td>
<td><strong>Inverse-Bilayer Magnetoelastic Thin Film Sensor</strong></td>
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<tr>
<td>E. Yarar (Sp), V. Hrkac, M. Höft, R. Knöchel, A. Piorra, E. Quandt, S. Salzer, Christian-Albrechts-Universität zu Kiel (Germany)</td>
<td>M. Krantz (SP), M. Gerken, J. Schmalz, Christian-Albrechts-Universität zu Kiel (Germany)</td>
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<tr>
<td><strong>15:20</strong></td>
<td><strong>Surface Acoustic Wave Sensors for Magnetic Field Measurements</strong></td>
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<tr>
<td>A. Kittmann (Sp), P. Durdaut, F. Faupel, M. Höft, R. Knöchel, D. Meyners, E. Quandt, E. Yarar, S. Zabel, Christian-Albrechts-Universität zu Kiel (Germany)</td>
<td>Crystallographic properties and phase transition in the YTaO4-ZrO2 system</td>
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<tr>
<td><strong>15:40</strong></td>
<td><strong>Magneto-Optical Investigations of Tailored Exchange Biased Magnetoelectric Composites for Biomagnetic Field Sensing</strong></td>
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<tr>
<td>M. Klug (Sp), J. McCord, D. Meyners, E. Quandt, V. Röbisch, N.O. Urs, Christian-Albrechts-Universität zu Kiel (Germany)</td>
<td>Predicting the actuation of large-scale smart wooden bilayer systems</td>
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<tr>
<td><strong>16:00</strong></td>
<td><strong>Short Break</strong></td>
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<tr>
<td><strong>Invited Lectures</strong></td>
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<tr>
<td><strong>Chair</strong></td>
<td>F. Faupel, Christian-Albrechts-Universität zu Kiel (Germany)</td>
</tr>
<tr>
<td><strong>16:20</strong></td>
<td><strong>Magnetoelastic Composites for Energy Harvesting</strong></td>
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<tr>
<td>S. Priya (Sp), Virginia Tech (United States)</td>
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<td>G. Schmidt (Sp), Christian-Albrechts-Universität zu Kiel (Germany)</td>
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<td><strong>Biomimicry at the molecular level: Molecularly imprinted polymers as synthetic antibody mimics</strong></td>
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<td>K. Haupt (Sp), Sorbonne Universités, Compiègne University of Technology, Compiègne, France</td>
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**Programme Thursday (18:15-22:00)**

**18:30** Departure of the MS Stadt Kiel

The venue of the Social Evening will be the traditional ship and technical cultural monument the MS „Stadt Kiel“. Built in 1934 the ship looks back on an eventful history. Shortly after its completion, it was hit by a bomb and sank. The wreck was brought to Svendborg/DK and returned to Kiel in 1946.

Since 1983 the association „Förderverein MS ‘Stadt Kiel’ e.V.“, maintains the continuity of this landmark for the city of Kiel with the helpful support of volunteers.

Enjoy the beautiful views of the Kiel Fjord and a dinner buffet of regional dishes on board!

**22:00** End of the 2nd day

**Programme Friday (08:30-11:00)**

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<td>Metal–insulator transition in vanadium oxides films and its applications</td>
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<td>K. Shibuya (Sp), National Institute of Advanced Industrial Science and Technology AIST (Japan)</td>
<td>K. Shibuya (Sp), National Institute of Advanced Industrial Science and Technology AIST (Japan)</td>
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<td>Soft ferromagnetic Fe-Co-Hf-N films with in-plane uniaxial anisotropy on WC-Co substrates used as a sensor system for cutting tools</td>
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<td>D. Herbert (Sp), J. Bruce, M. Freund, P. Giesbrecht, O. Kang, University of Manitoba (Canada)</td>
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Programme Friday (11:00-13:15)

Room Förde II

11:00
Piezoresistivity and structural twin defects of anisotropic ZnO nanocrystals: An in situ electromechanical push-to-pull study and site specific FIB preparation for TEM.
N. Wolff (Sp), R. Adelung, J. Gröttrup, V. Hrkac, S. Kaps, L. Kienle, Y.K. Mishra, Christian-Albrechts-Universität zu Kiel (Germany); S. Bhowmick, D. Stauffer, O. Warren, Hysitron Inc. (United States); J. Ditto, D.C. Johnson, University of Oregon (United States); H. Guo, A. Minor, University of California, Berkeley (United States)

Effect of deposition process of photoresponsive nanoparticles and substrate choice on wettability properties
C. Kallweit (Sp), R. Adelung, M. Bremer, M. Gerken, T. Karrock, D. Smazna, Christian-Albrechts-Universität zu Kiel (Germany); S. Bhowmick, D. Stauffer, O. Warren, Hysitron Inc. (United States); J. Ditto, D.C. Johnson, University of Oregon (United States); H. Guo, A. Minor, University of California, Berkeley (United States)

11:20 Coffee Break

Invited Lectures

Chair
H. Kohlstedt, Christian-Albrechts-Universität zu Kiel (Germany)

11:40
Probing the Structure and Dynamic Behaviors of Ferroelectrics by Electron Microscopy with Atomic Resolution in Real Time
X. Pan (Sp), University of California, Irvine (United States)

12:20
In operando photoemission spectroscopy of PMN-PT interfaces
K. Roßnagel (Sp), Christian-Albrechts-Universität zu Kiel (Germany)

Closing Remarks

End of the 3rd Intelligent Materials

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About the RTG 2154

Research Training Group 2154 “Materials for Brain: Thin film functional materials for minimally invasive therapy of brain diseases”

Patients with brain diseases such as epilepsy, tumors or vascular diseases are usually treated with high doses of medication, which often have major side-effects. As an alternative, neurological implants can offer a localized, individualized and low-dosage treatment. These functional materials must be compact, biologically compatible, durable and highly flexible – i.e. they must fulfil extremely complex requirements. Defined, nano-scale, therapeutically active coatings as well as suitability of the implants for diagnostics with magnetic resonance imaging (MRI) can open up new prospects for novel therapies. In order to reach these goals, micro-structured, functional materials based on thin film technology are investigated for innovative local treatment of epilepsies, brain tumors and vascular diseases.

Additionally to this research program, a central aspect of the RTG “Materials for Brain” is the training of doctoral researchers in interdisciplinarity and internationality. The structured research and qualification program serves as a platform for international exchange.

At the 3rd Euro Intelligent Materials Conference there will be a special symposium with focus on the topics of the CRC 1261. Researchers from Kiel and from other universities will discuss their latest research results in the area of biofunctional materials.

Contact:
grk2154@tf.uni-kiel.de

Spokesperson of the RTG 2154:
Prof. Dr. Christine Selhuber-Unkel
Christian-Albrechts-Universität zu Kiel (Germany)
Institute for Materials Science

www.grk2154.uni-kiel.de

About the SFB 1261

bioelectric sensing SFB 1261

CRC 1261 - Magnetoelectric Sensors: From Composite Materials to Biomagnetic Diagnostics

The detection of magnetic field distributions in the region of the head or torso allows for powerful diagnosis practices of brain (magnetoencephalography MEG) or heart (magnetocardiography MCG) functions. Systems used as routine diagnostic tools need to be easy-to-handle and cost-effective, thus operation at room temperature is desirable. Magnetic field sensors based on miniaturized magnetoelectric composites, i.e. composites consisting of at least one magnetostrictive and one piezoelectric constituent, have revealed their potential to detect sub-pT fields at room temperature under certain conditions.

Thus, the general objectives of the Collaborative Research Centre CRC 1261 are the research and development of different magnetoelectric sensor approaches with a special focus on high sensitivity at biomagnetic frequencies and their evaluation and utilization in medically relevant questions. The research program to pursue these goals requires intensive interdisciplinary collaboration between materials scientists, electrical engineers and physicians (neurology and cardiology).

At the 3rd Euro Intelligent Materials Conference there will be a special symposium with focus on the topics of the CRC 1261. Researchers from Kiel and from other universities will discuss their latest research results in the area of magnetoelectric sensor development.

Contact:
sfb1261@tf.uni-kiel.de

Spokesperson for the SFB 1261:
Prof. Dr. Eckhard Quandt
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Institute for Materials Science

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Benefit from more than 20 years of experience. AHF analysentechnik has established a deep knowledge on optical filters for fluorescence microscopy and spectroscopy. In cooperation with renowned manufacturers the team of AHF offers customized solutions for spectral analysis to universities, research institutes and OEM partners. Beamsplitters and interference filters with maximum optical precision and high end quality are assembled according to the application and instrument specific requirements. The field of application covers wide-field fluorescence applications, multiphoton spectroscopy, super-resolution techniques like TIRF, STED, PALM, STORM, Raman spectroscopy (CARS, etc.), flow cytometry, etc. AHF can provide DEMO filters for testing to find the best customer-specific solution.

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