



GESELLSCHAFT DEUTSCHER CHEMIKER



Dimensional Control of Polymer Materials – From Synthesis to Function

Biennial Meeting of the GDCh-Division
of Macromolecular Chemistry
together with SFB 1176

September 24 – 27, 2018
Karlsruhe



www.gdch.de/makro2018



This year's conference focus is "Dimensional Control of Polymer Materials - From Synthesis to Function".

The design of polymer materials from highly defined macromolecules is in the focus of the conference. Molecular definition can be one-dimensional, along a chain, two-dimensional, within a surface, or three-dimensional. Noteworthy, the function of macromolecular materials is primarily determined by their molecular structure and the thereof resulting spatial arrangement and linkages. The focus on the molecular structure of soft materials by a dimensional organizing principle – determining the function – opens the possibility to classify the synthetic challenges as well as to transfer the scientific findings from one to the next dimension.

This conference will address developments in functional polymers in all dimensions and aims at bringing together experts from both academia and industry to present and discuss novel ideas, applications, latest breakthroughs, developments, opportunities, and challenges of dimensional control of the macromolecular structure.

The scope of the conference covers all aspects of **Dimensional Control of Polymer Materials** with a special focus on the synthesis and characterization of polymers, the structuring of polymers on surfaces and in networks, their resulting functional aspects with applications as smart materials, as well as polymers derived from sustainable sources.

▶ ORGANISING COMMITTEE

S. Bräse	Karlsruhe/DE
G. Delaittre	Karlsruhe /DE
T. Früh	Leverkusen/DE
B. Luy	Karlsruhe/DE
M. Meier	Karlsruhe/DE
P. Roesky	Karlsruhe/DE
U. S. Schubert	Jena/DE
P. Theato	Karlsruhe/DE
D. Voll	Karlsruhe/DE
M. Wilhelm	Karlsruhe/DE

Monday, September 24, 2018

Tulla Lecture Hall

Post Graduate Workshop

- 8.30 a.m. **Publishing in Polymer and Materials Science – The view of an in-house editor**
M. Staffilani, Wiley-VCH, Macromolecular Journals Editor
 - 9.00 a.m. **Plastics between innovation, sustainability and circular economy**
R. Baunemann, PlasticsEurope Deutschland e.V.
 - 9.30 a.m. Coffee Break
 - 10.00 a.m. **COMPANY PRESENTATIONS**
BASF (V. Schädler)
COVESTRO (G. Langstein)
ARLANXEO (K. Wüst)
EVONIK (P. Glöckner)
FREUDENBERG (R. Bieringer)
HENKEL (A. Taden)
 - 11.15 a.m. **Karrieren sind kein Zufall. Erfolg braucht (auch) Planung und Perspektive. Was Chemie-Arbeitgeber von Bewerbern erwarten.**
C. Knappertsbusch, Chemie-Verbände Baden-Württemberg
 - 12.00 p.m. Lunch Break
 - 1.00 p.m. **Welcome – Polymer Science in Karlsruhe**
- Structuring on Surfaces**
- Chair: R. Bieringer*
- 1.15 p.m. **PLENARY LECTURE**
Precision Polymerizations and Precision Polymers: From Synthesis to Functions and Dimensional Control
M. Sawamoto, Kasugai City, Aichi/JP

Monday, September 24, 2018

Tulla Lecture Hall

- 2.00 p.m. **KEYNOTE LECTURE**
Polymers at Synthetic and Living Surfaces
H.-A. Klok, Lausanne/CH
- 2.30 p.m. **Correlating Structure and Function of Biomimetic Antimicrobial Polymers and Polymer Surfaces**
K. Lienkamp, Freiburg/DE
- 2.50 p.m. Coffee Break
- 3.20 p.m. **Spatially Resolved Multiple Surface Patterning of Metallopolymers**
R. Müller, Karlsruhe/DE, T. J. Feuerstein, Karlsruhe/DE, V. Trouillet, Karlsruhe/DE, P. W. Roesky, Karlsruhe/DE, C. Barner-Kowollik, Karlsruhe/DE
- 3.40 p.m. **Bio-functional Surfaces with Polymeric Nano-reactors that Catalyze Metabolic Reactions**
G. Gunkel-Grabole, Basel/CH, M. Lomora, Basel/CH, C. Spinnler, Basel/CH, S. Lörcher, Basel/CH, S. Mantri, Zürich/CH, C. Pavian, Basel/CH, W. Meier, Basel/CH

4.00 p.m. Coffee Break

Award Ceremony

- 4.30 p.m. Musical Opening of the Award Ceremony
- 4.45 p.m. **Welcome / Opening Remarks**
Reimund-Stadler-Preis
Stimuli-Responsive Polymer Architectures as Optical Sensing Materials and Smart Membranes
M. Gallei, Darmstadt/DE
Musical intermezzo
Hermann-Staudinger-Preis
Responsive Nanocapsules and Multicompartment Systems
B. Voit, Dresden/DE
Dr. Hermann-Schnell Stipendien
tba
M. Barz, Mainz/DE
Novel Self-Assemblies via Double Hydrophilic Block Copolymers in Aqueous Solution
B.V.K.J. Schmidt, Potsdam/DE

7.00 p.m. **GET TOGETHER**

Tuesday, September 25, 2018

Tulla Lecture Hall

Defined Polymer Networks*Chair: D. Moatsou*

- 9.00 a.m. **PLENARY LECTURE**
The Puzzle of Smart Polymers in Miscible Solvent Mixtures
K. Kremer, Mainz/DE, D. Mukherji, Mainz/DE, C. Marques, Strasbourg/FR
- 9.45 a.m. **KEYNOTE LECTURE**
Using Light to Manipulate the Composition and Topology of Polymer Networks
J. A. Johnson, Cambridge/US
- 10.15 a.m. **Gelatin-based Materials – Tailoring Performance by Specific Chemical Functionalization and Network Formation**
A. T. Neffe, Hamburg/DE
- 10.35 a.m. Coffee Break
- 11.05 a.m. **Designing Conjugated Porous Polymers for Visible Light Photocatalysis**
K. Zhang, Mainz/DE
- 11.25 a.m. **Molecular Control of Coiled coil-crosslinked Hydrogels: a Bottom-up Approach toward Mechano-responsive and Self-reporting Extracellular Matrix Mimics**
K. G. Blank, Potsdam/DE, A. D. Sanz de Leon, Potsdam/DE, P. Lopez Garcia, Potsdam/DE, M. Goktas, Potsdam/DE, I. Tunn, Potsdam/DE, E. M. Grad, Nijmegen/NL
- 11.45 a.m. **Droplet-assisted Microfluidic Fabrication of Multifunctional Polysaccharide Microgels by Ugi-four Component Reaction**
N. Hauck, Dresden/DE, N. de Seixas Borges, Halle (Saale)/DE, D. Wöll, Aachen/DE, L. Wessjohann, Halle (Saale)/DE, J. Thiele, Dresden/DE
- 12.05 p.m. **Understanding the Dynamics and Healing Behaviour of Metallosupramolecular Polymers**
S. Schrettl, Fribourg/CH, L. N. Neumann, Fribourg/CH, E. Oveisi, Lausanne/CH, C. Weder, Fribourg/CH
- 12.25 p.m. Lunch Break

Tuesday, September 25, 2018

Tulla Lecture Hall

Smart Materials I*Chair: S. Bräse*

- 1.45 p.m. **KEYNOTE LECTURE**
Surfing Energy Landscapes to Create Autonomous Self-Assembling Materials Systems
 A. Walther, Freiburg/DE
- 2.15 p.m. **Conceptual Design and Application of Photo Polymers for Interference Recording of Volume Holograms**
 T. Rölle, Leverkusen/DE, H. Berneth, Leverkusen/DE, F.-K. Bruder, Leverkusen/DE, S. Hansen, Leverkusen/DE, C. Manecke, Leverkusen/DE, E. Orselli, Leverkusen/DE, C. Rewitz, Leverkusen/DE
- 2.35 p.m. **Light-triggered Degradation in Aliphatic Poly(carbonate)s via Intramolecular Cyclization**
 D. Kuckling, Paderborn/DE, J. Sun, Paderborn/DE, W. Birnbaum, Paderborn/DE, M.-T. Picker, Paderborn/DE, J. Anderski, Münster/DE, D. Mulac, Münster/DE, K. Langer, Münster/DE

2.55 p.m. Coffee Break

Smart Materials II*Chair: U. Schubert*

- 3.25 p.m. **Vinyl Ether Containing Polymers as Unique Photopolymer and Bioconjugation Platform**
 A. Taden, Düsseldorf/DE
- 3.45 p.m. **Polyphosphonates with Adjustable Hydrophilicity: Temperature-responsive Polymers with Controlled Blood Interactions**
 F. R. Wurm, Mainz/DE
- 4.05 p.m. **Incorporation of Biological Functions into Polymer Materials: The Use of Protein-Polymer-Conjugates**
 A. Böker, Potsdam/DE, H. Charan, Potsdam/DE, U. Glebe, Potsdam/DE, S. Zhang, Potsdam/DE, S. Reinicke, Potsdam/DE

Tuesday, September 25, 2018

Tulla Lecture Hall

- 4.45 p.m. **MITGLIEDERVERSAMMLUNG der GDCh-Fachgruppe Makromolekulare Chemie (General Meeting)**

Agenda/Tagesordnung

1. Begrüßung und Annahme der Tagesordnung
2. Bericht des Vorstands
 - Mitgliederentwicklung und Finanzlage der Fachgruppe
 - Hochschullehrer-Nachwuchs-Workshop 2017
 - Neue Homepage
 - Hochschullehrerführer 2018
 - Mitgliederprojekt
 - Wissenschaftsforum 2019 in Aachen
 - Jahr der Polymere 2020
3. Entlastung des Vorstands
4. Ergänzungswahlen zum Vorstand
5. Verschiedenes

- 7.00 p.m. **CONFERENCE DINNER AT ZKM**

INFORMATION FOR AUTHORS

For your presentation we provide a PC and a data beamer. Indicated lecture times (45 minutes; 30 minutes; 20 minutes) include 5' discussion – chairmen are strictly asked to keep presentation on time.

POSTER

The poster list confirmed by the Scientific Committee is available on the internet:

www.gdch.de/makro2018

It is still possible to submit last-minute-poster until **June 20, 2018**.

The poster session will take place in the foyer in front of the lecture hall. The best posters will be awarded.

Poster format: Portrait A0

Wednesday, September 26, 2018

Tulla Lecture Hall

Polymers and their Application*Chair: P. Théato*

- 9.00 a.m. **PLENARY LECTURE**
Precision Polymer Chemistry for BioNano Applications
S. Perrier, Coventry/GB
- 9.45 a.m. **KEYNOTE LECTURE**
Modification of Natural Rubber for an Increased Performance in Truck Tire Treads
A. Blume, Twente/NL
- 10.15 a.m. **Designing Low-fouling Coatings via Crosslinked Polyzwitterion Hydrogels**
A. Laschewsky, Potsdam/DE, E. Schönemann, Potsdam/DE, J. Koc, Bochum/DE, A. Rosenhahn, Bochum/DE
- 10.35 a.m. Coffee Break
- 11.05 a.m. **Metal-complexed Single-Chain Nanoparticles as Catalytic Nanoreactors**
H. Rothfuss, Karlsruhe/DE, N. Knöfel, Karlsruhe/DE, P. W. Roesky, Karlsruhe/DE, C. Barner-Kowollik, Brisbane/AU
- 11.25 a.m. **Resistive and Capacitive γ -Ray Dosimeters Based on Triggered Depolymerization in Carbon Nanotube Composites**
L. Zeininger, Cambridge/US, T. M. Swager, Cambridge/US
- 11.45 a.m. **Self-healing Car Paints from Cyclodextrin-polyrotaxanes**
G. Wenz, Saarbrücken/DE
- 12.05 p.m. **Do silsesquioxane cages and polymers offer semiconducting properties**
R. M. Laine, Ann Arbor/US, J. Guan, Ann Arbor/US, J. R. Arias, Ann Arbor/US
- 12.25 p.m. Lunch Break

Wednesday, September 26, 2018

Tulla Lecture Hall

Characterization of Polymers*Chair: M. Wilhelm*

- 1.45 p.m. **KEYNOTE LECTURE**
Surface Sensitive Neutron Scattering for Studying Structure and Dynamics of Polymer Coatings
R. von Klitzing, Darmstadt/DE
- 2.15 p.m. **Dimensional Control in Semicrystalline Polymers: the Role of Intra-crystalline and Amorphous Chain Motions**
K. Saalwächter, Halle (Saale)/DE, R. Kurz, Halle (Saale)/DE, M. Schäfer, Halle (Saale)/DE, A. Seidlitz, Halle (Saale)/DE, M. Schulz, Halle (Saale)/DE, T. Thurn-Albrecht, Halle (Saale)/DE
- 2.35 p.m. **Analysis of Solid Polymers by NMR**
A. Adams, Aachen/DE, B. Blümich, Aachen/DE
- 2.55 p.m. Coffee Break
- 3.25 p.m. **NMR Studies of Swollen Superabsorbent Hydrogels**
X. Guo, Karlsruhe/DE, S. Theissen, Karlsruhe/DE, C. Pfeifer, Karlsruhe/DE, M. Wilhelm, Karlsruhe/DE, B. Luy, Karlsruhe/DE, G. Guthausen, Karlsruhe/DE
- 3.45 p.m. **Small Angle X-Ray Scattering to Measure the Effects of Strain during Tensile Testing of TPU**
B. Eling, Lemförde/DE, A. Stribeck, Hamburg/DE

Sustainable Polymers*Chair: H. Mutlu*

- 4.05 p.m. **KEYNOTE LECTURE**
From Polymer Chemistry to Industrial Solutions
S. Buchholz, Marl/DE
- 5.00 p.m. **Poster Session & Get together**

Thursday, September 27, 2018

Tulla Lecture Hall

- 9.00 a.m. **PLENARY LECTURE**
Photoinduced Polymerizations
 E. Harth, Cambridge/GB
- 9.45 a.m. **Polysaccharide Phenyl Carbonates – From Polymer-analogous Synthesis and Post-functionalization to Nano Self-assembling**
 M. Gericke, Jena/DE, L. Gabriel, Jena/DE, T. Heinze, Jena/DE
- 10.05 a.m. Coffee Break
- 10.35 a.m. **Sustainable Cellulose Solubilization and Derivatization in a DBU-CO₂ Switchable Solvent**
 K. N. Onwukamike, Karlsruhe/DE, S. Grelier, Bordeaux/FR, E. Grau, Bordeaux/FR, H. Cramail, Bordeaux/FR, M. A. R. Meier, Karlsruhe/DE
- 10.55 a.m. **Metathesis Polymerization of Bio-sourced Disulfide-containing Monomers**
 H. Schlaad, Potsdam/DE, F. N. Behrendt, Potsdam/DE, A. Hess, Potsdam/DE
- Sequence Control and Definition**
- Chair: G. Delaître*
- 11.15 a.m. **Brick by Brick – Precision Glycomacromolecules as Building Blocks in the Bottom-up Design of Polymeric Materials**
 L. Hartmann, Düsseldorf/DE, C. Gerke, Düsseldorf/DE, M. Baier, Düsseldorf/DE, S. Boden, Düsseldorf/DE, M. F. Ebbesen, Düsseldorf/DE, C. Zelmer, Düsseldorf/DE, M. Karg, Düsseldorf/DE
- 11.35 a.m. **Rapid Synthesis of Well-defined Star-shaped Polymers via SET-LRP**
 R. Aksakal, London/GB, M. Resmini, London/GB, C. R. Becer, London/GB
- 11.55 a.m. Lunch Break

Thursday, September 27, 2018

Tulla Lecture Hall

- 1.30 p.m. **KEYNOTE LECTURE**
Using self-assembly to prepare functional nanostructures
 R. O'Reilly, Birmingham/GB
- 2.00 p.m. **Highly Tactic and Regioregular Functional Precision Polymers Prepared From Chiral Mo/W Alkylidene N-Heterocyclic Carbene Catalysts**
 M. R. Buchmeiser, Stuttgart/DE, M. J. Benedikter, Stuttgart/DE, C. Lienert, Stuttgart/DE, G. Frater, Horw/CH
- 2.20 p.m. **Sequence-defined macromolecules by combination “click” chemistry and the Passerini three-Component Reaction**
 J. O. Holloway, Ghent/BE, K. S. Wetzel, Karlsruhe/DE, S. Martens, Ghent/BE, F. E. Du Prez, Ghent/BE, M. A. R. Meier, Karlsruhe/DE
- 2.40 p.m. **Block Number and Sequence of (AB)_n Multiblock Copolymers**
 H. Frey, Mainz/DE, E. Grune, Mainz/DE, M. Steube, Mainz/DE, P. von Tiedemann, Mainz/DE, C. Wahlen, Mainz/DE, T. Johann, Mainz/DE, H. E. Müller, Mainz/DE, G. Floudas, Ioannina/GR, M. Appold, Darmstadt/DE, M. Gallei, Darmstadt/DE
- 3.00 p.m. **From Sequence-definition to Complex Function: Artificial Mussel Foot Polymers**
 H. G. Börner, Berlin/DE, J. Horsch, Berlin/DE
- 3.20 p.m. **Poster Award**
- 3.30 p.m. **Closing Remarks**

ADDITIONAL SCIENTIFIC PROGRAMME

Monday, September 24, 2018 8.30 a.m. – 12.00 a.m.

Post Graduate Workshop

Karlsruhe Institute of Technology (KIT)
Campus South, Tulla Lecture Hall, Building 11.40
Englerstr. 11
76131 Karlsruhe, Germany
(booking required)

SOCIAL PROGRAMME

Monday, September 24, 2018 7.00 p.m.

Get-together

Karlsruhe Institute of Technology (KIT)
Campus South
Englerstr. 11
76131 Karlsruhe, Germany
(free of charge, booking required)

Tuesday, September 25, 2018 7.00 p.m.

Conference Dinner

ZKM – Zentrum für Kunst und Medien
Lorenzstr. 19
76135 Karlsruhe, Germany
Buffet and drinks free of charge. (booking required)

Tuesday, September 25, 2018 8.30 p.m. – 10.30 p.m.

Guided tour through the museum (ZKM)

(available in English and German)
Lorenzstr. 19
76135 Karlsruhe, Germany
(free of charge, booking required)

Wednesday, September 26, 2018 5.00 p.m.

Poster Session & Get-together

Karlsruhe Institute of Technology (KIT)
Campus South, Building 11.40

CONFERENCE VENUE

Karlsruhe Institute of Technology (KIT)

Tulla Lecture Hall, Building 11.40
Campus South
Englerstr. 11
76131 Karlsruhe, Germany



TRAVEL INFORMATION

By car

KIT campus south is located in the city center of Karlsruhe and has a good connection to the motorway network. Input for navigation devices: Adenauerring 7. The campus area may not be traveled by car!

From the north direction Frankfurt and Heidelberg (A5)
From the northwest direction Cologne and Koblenz (A61)
From the east direction Munich and Stuttgart (A8)
From the south direction Basel and Freiburg (A5)

By plane

For long distances, several airports are available for the journey to Karlsruhe.

Airport Stuttgart: Take the S-Bahn S2 or S3 in the direction of main station Stuttgart. From there by train to Karlsruhe (departure times at the timetable information of the „Deutsche Bahn“).

Airport Frankfurt: The station is located directly at the airport. From there continue by train to Karlsruhe (departure times at the timetable information of the „Deutsche Bahn“).

Airport Karlsruhe/Baden-Baden (Baden-Airpark): From the airport Karlsruhe/Baden-Baden there are bus connections to Rastatt and Baden-Baden as well as an express bus to the main station Karlsruhe.

By train

DB BAHN „Deutsche Bahn“ offers attractive conditions for traveling to GDCh-events. Further information can be found on following link en.gdch.de/railway

Public Transportation

The conference venue is centrally located in the city center of Karlsruhe and can be easily reached by public transport.

Karlsruhe main station forecourt to KIT Campus South with tram 2, S4, S7, S8 (stop Durlacher Tor / KIT Campus South)

GENERAL INFORMATION

REGISTRATION

Please register online no later than **August 13, 2018**.

www.gdch.de/makro2018

GESELLSCHAFT DEUTSCHER CHEMIKER e.V.

Claudia Birkner – Event Team

P.O. Box 90 04 40

60444 Frankfurt am Main, Germany

Phone: +49 69 7917-366

Email: tg@gdch.de

Internet: www.gdch.de

All tickets and congress papers (incl. book of abstracts) will be handed to the participants upon check-in at the registration desk. Participants are requested to wear their congress badges at all times for identification and admittance to the conference rooms.

Upon online registration, payment by credit card or direct debit (only with German bank account) or bank transfer (free of bank commission) is possible. The invoice will be sent to you automatically.

Gesellschaft Deutscher Chemiker e.V.

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CANCELLATION

Requests for cancellation made prior to **August 13, 2018** will be subject to a € 25,- administration fee. After that date the full amount of the invoice has to be paid. Requests for refund will not be accepted; however, registration may be transferred to another member of your organisation. In this case please send a note to GDCh, congress team.

If the conference is cancelled for whatever reason, fees paid will be refunded. Further recourse is excluded.

GENERAL INFORMATION

REGISTRATION FEES*)

GDCh-member and member of EuCheMS-member societies from Academia	€ 350,-
GDCh-member and member of EuCheMS-member societies from Industry	€ 400,-
Member, unemployed or retired	€ 150,-
Non-member from Academia	€ 400,-
Non-member from Industry	€ 450,-
Student **) (GDCh-member and member of EuCheMS-member societies)	€ 100,-
Student **) (Non-member)	€ 150,- €
Gold member (from 50 years GDCh membership)	free of charge

Social Programme***)

Get-together Monday, September 24, 2018	free of charge
Conference Dinner Tuesday, September 25, 2018	free of charge
Guided tour museum Tuesday, September 25, 2018	free of charge
Lunch	free of charge

*) The registration fees are not liable to value added tax (tax exemption additional § 4 Nr. 22a UStG.)

**) Valid Student ID required

***) These positions included 19% VAT.

If fees are paid in advance, but after **September 10, 2018**, we kindly ask participants to show proof of payment when claiming their tickets and congress papers at the registration desk. At the registration desk only cash payment is possible.

▶ BEVERAGES

Coffee, tea and soft drinks will be provided for free during the breaks.

▶ LUNCH

Lunch can be taken at the University Mensa.

▶ ACCOMMODATION

Rooms are reserved in various hotels throughout the city. (see www.gdch.de/makro2018)

The customers will be held accountable for non-occupancy of reserved rooms.

▶ COPYRIGHT PERMISSION

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▶ DEADLINES

August 13, 2018	Personal registration
August 13, 2018	Cancellation of participation

▶ EXHIBITION

For enquiries concerning the exhibition please contact

Karlsruher Institut für Technologie (KIT)

Sonderforschungsbereich (SFB) 1176

Wolfgang-Gaede-Str. 1a

76131 Karlsruhe, Germany

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▶ INFORMATION BEFORE AND AFTER THE CONFERENCE

Gesellschaft Deutscher Chemiker e.V.

(German Chemical Society)

Claudia Birkner – Event Team

P.O. Box 90 04 40

60444 Frankfurt am Main, Germany

Phone: +49 69 7917-366

Email: tg@gdch.de

Internet: www.gdch.de

Executive director: Professor Dr. Wolfram Koch

Registered Charity No.: VR 4453 · Registergericht Frankfurt am Main

▶ INFORMATION AND REGISTRATION DURING THE CONFERENCE

The registration desk will be located in the Foyer of the Tulla Lecture Hall, Karlsruher Institut für Technologie (KIT), Campus South, Englerstr. 11, 76131 Karlsruhe, Germany.

Opening hours:

Monday, September 24, 2018	7.45 a.m. – 4.30 p.m.
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Tuesday, September 25, 2018	8.00 a.m. – 4.30 p.m.
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Wednesday, September 26, 2018	8.00 a.m. – 4.30 p.m.
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Thursday, September 27, 2018	8.00 a.m. – 4.00 p.m.
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Phone: +49 160 96213320

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