



Polydays 2019

Polymer Science
and Engineering
in View of Digitalization

Erwin Schrödinger Centre
Humboldt-Universität zu Berlin
Rudower Chaussee 26
12489 Berlin

15:00-17:00 Registration

17:00-19:00 Welcome Reception

 **Helmholtz-Zentrum
Geesthacht**
Centre for Materials and Coastal Research



HUMBOLDT-UNIVERSITÄT
ZU BERLIN





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Thursday 12, September

2019

Session 1, Chair: J. P. Rabe, Humboldt-Universität zu Berlin

Room: 0`119

8:00-8:15

Opening

Plenary talk:

8:15-9:00

S. Perrier, University of Warwick, U.K.

Molecular Engineering for the Design of Nanostructured Materials

Plenary talk:

9:00-9:45

H. J. Qi, Georgia Institute of Technology, USA

Additive Manufacturing of Active Polymer Composites for 4D-Printing

Invited talk:

9:45-10:15

M. S. Sakar, Ecole Polytechnique Fédérale de Lausanne, Switzerland

Untethered Hydrogel Microdevices for Biomedical Applications

10:15-10:30

C. Dingler, University of Stuttgart

Stimuli-Responsive Behavior of the Conducting Polymer PEDOT:PSS

10:30-11:00

Coffee Break

Plenary talk:

11:00-11:45

E.W. Meijer, Eindhoven University of Technology, The Netherlands

Supramolecular Polymerizations and Chirality – a Happy Marriage

M. Brzeziński, Polish Academy of Sciences, Poland

11:45-12:00

Supramolecular PLA Polymers Building Blocks of Nano- and Microparticles for the Controlled Delivery of the Drugs

C. Mertens, Ghent University, Belgium

12:00-12:15

Sequence-defined Macromolecules: From Multi-functional Oligomers towards Applications

12:15-12:30

Y. Bao, ETH Zurich, Switzerland

The Development of Bioresorbable Personalized Airway Stents by Digital Light Processing

12:30-14:00

Lunch Break

Session 2, Chair: H. Börner, Humboldt-Universität zu Berlin

Room: 0`119

Plenary talk:

14:00-14:45

J.-F. Lutz, Institut Charles Sadron, France

Digital Polymers: Emergence of a New Class of Functional Macromolecules

Invited talk:

14:45-15:15

M. A. R. Meier, Karlsruhe Institute of Technology (KIT)

Sequence-definition by Multicomponent Reactions: Synthesis and Applications

15:15-15:30

P. Besenius, Johannes Gutenberg-University Mainz

Regulated Supramolecular Assembly and Hydrogelation of Peptide-Polymer Conjugates

15:30-15:45

J. S. J. Tang, Fraunhofer Institute for Applied Polymer Research (IAP)

Functional Glyco-Nanogels for Multivalent Interaction with Lectins

15:45-16:15

Coffee Break

16:15-17:00

Hot topic poster presentations (5 minutes each)

R. Aksakal, Ghent University, Belgium

Antibody-Recruiting Sequence-defined Oligomers

J. D. Cojal González, Humboldt-Universität zu Berlin

Flexible Nano-Pores of 2D Materials: Beyond Replication of (Macro)molecules

A. Grafmüller, Max-Planck-Institute of Colloids and Interfaces

Structure and Function in Polysaccharides: Sticky (virtual) Sugars?

Z. Kochovski, Helmholtz-Zentrum Berlin für Materialien und Energie

Insights into protein and polymer self-assembly by Cryo-TEM

T. Debsharma, University of Potsdam

Cellulose-derived Functional Thermoplastics

J. Jelken, University of Potsdam

Reversible surface structuring of photosensitive polymer films: In-situ atomic force microscopy and diffraction efficiency measurements

D. Klinger, Freie Universität Berlin

From Striped Ellipsoids to Janus Nanoparticles: Controlled Phase Separation of Functional Polymers

D. Mutruc, Humboldt-Universität zu Berlin

Modulating Guest Uptake in Core-Shell MOFs with Visible Light

B. Rodriguez, Fraunhofer Institute for Applied Polymer Research (IAP)

Design of PLA Block Copolymer Structures for Film Applications

17:00-18:30

Poster session (room 0`101)

19:00

Social event (Boat trip)



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Friday 13, September

Session 3, Chair: A. Lendlein, Helmholtz-Zentrum Geesthacht

Room: 0`119

08:00-08:30 Invited talk:

M. J. Bojds, Humboldt-Universität zu Berlin
Organic Materials "Beyond Graphene" in Electronic Devices

Plenary talk:

08:30-09:15 **A. Barnard**, CSIRO, Data61, Australia
Data-driven Constraints in Materials Design

Invited talk:

09:15-09:45 **J.-U. Sommer**, Leibniz-Institute of Polymer Research (IPF)
The Role of Entanglements in Polymer Crystallization: Insights from Computer Simulations and Primitive Path Analysis

Invited talk:

09:45-10:15 **S. K. Smoukov**, Queen Mary University of London, U.K.
Droplet Robotics - Emerging Bottom-up Intelligence

10:15-10:30 **S. Schrettl**, University of Fribourg, Switzerland
Tunable and Responsive Supramolecular Polymer Materials

10:30-11:00 Coffee Break

11:00-11:15 **M. Ballauff**, Helmholtz-Zentrum Berlin für Materialien und Energie (HZB)
Interaction of Lysozyme with a Dendritic Polyelectrolyte: Quantitative Analysis of the Free Energy of Binding and Comparison to Molecular Dynamics Simulations

11:15-11:30 **A. F. Thünemann**, Bundesanstalt für Materialforschung und -prüfung (BAM)
The Single Chain Architecture of Bio(Polymers) in Contact with Nanoplastics

11:30-11:45 **E. Dormidontova**, University of Connecticut, USA
Hydration induced Coil-helix Transition of Polyethylene Oxide: Computer Simulation Insights

11:45-12:00 **J. Yuan**, Stockholm University, Sweden
Double-gradient Membrane Actuator derived from Poly(ionic Liquid) for Real-time Chemical Reaction Monitoring

Invited talk:

12:00-12:30 **F. Du Prez**, Ghent University, Belgium
Precision Macromolecular Engineering: From Cold Data Storage to Macromolecular Pin Codes for Data Encryption

12:30-14:00 Lunch Break

Session 4, Chair: M. Behl, Helmholtz-Zentrum Geesthacht

Room: 0`119

Plenary talk:

14:00-14:45 **R. J. M. Nolte**, Radboud University, The Netherlands
Encoding Polymers with Information. A Supramolecular Approach

Invited talk:

14:45-15:15 **J. M. J. Paulusse**, University of Twente, The Netherlands
Versatile Single Chain Polymer Nanoparticles in Controlled Drug Delivery

Invited talk:

15:15-15:45 **D. Auhl**, Technische Universität Berlin
Closed-Loop Design of Polymer Materials, Processing, and Properties

15:45-16:15 Coffee Break

16:15-16:30 **M. Hartlieb**, University of Potsdam
Sequence Control in Macromolecular Architectures for Efficient Antimicrobial Materials

16:30-16:45 **M. Balk**, Helmholtz-Zentrum Geesthacht (HZG)
Hydrogels with Quadruple-Shape Capability

16:45-17:00 BVP /Poster Awards

17:00-17:15 Farewell Talk

17:15-17:45 BVP General Assembly (for BVP members only)