



# German-Polish-Baltic Conference on Organic Chemistry

Hamburg, 15<sup>th</sup>-19<sup>th</sup> May 2018,  
Book of Abstracts



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Prof. Jacek Mlynarski, Jagiellonian University, Cracow

## Venue

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Elsa Brändström Haus

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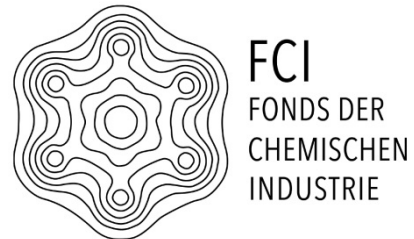
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## Programme

| Tuesday 15 May 2018  |  |
|--|--|
| 15:00-18:00  | Arrival, Registration and Check in   |
| 18:30  | Dinner   |
| Wednesday 16 May 2018  |  |
| 8:00   | Breakfast  |
| <b>Synthetic Methodology I</b> Chair: <u>Christian B. W. Stark</u> , Hamburg |  |
| 9:00-9:10  | Welcome  |
| 9:10-9:40  | <b>Jacek Mlynarski</b> , Cracow, Keynote Lecture:<br><i>Zinc Instead of Noble Metals: Enantioselective Reduction and Carbon-Carbon Bond Forming Reactions Promoted by Zinc Complexes</i> |
| 9:40-10:00   | <b>Krista Suta</b> et al., Riga:<br><i>Application of Liquid SO<sub>2</sub> as a Solvent for Organic Synthesis</i>   |
| 10:00-10:10  | <b>Krzysztof Gutkowski</b> et al., Warsaw:<br><i>Synthesis and Photophysical Properties of N-Arylated Diketopyrrolopyrroles</i>  |
| 10:10-10:30  | <b>Lukasz Albrecht</b> , Łódź, Invited Lecture:<br><i>Vinylogous synthetic strategies in asymmetric organocatalysis</i>  |
| 10:30-10:50  | Coffee break   |
| <b>Glycoscience I</b> Chair: <u>Ernst Schaumann</u> , Clausthal              |  |
| 10:50-11:20  | <b>Slawomir Jarosz</b> , Warsaw, Keynote Lecture:<br><i>Stereoselective Synthesis of Sugar Mimetics from Simple Monosaccharides</i>  |
| 11:20-11:30  | <b>Sven O. Jaeschke</b> et al., Kiel:<br><i>Maltose as a Scaffold Molecule for the Synthesis of Heteromultivalent Glycoclusters</i>  |
| 11:30-11:40  | <b>Sophia Boden</b> et al., Düsseldorf:<br><i>Varying Hydrophobicity of Precision Glycomacromolecules and the Effect on Lectin Binding</i>   |
| 11:40-11:50  | <b>Matylda Stefaniak</b> et al., Cracow:<br><i>Synthesis of Ulosonic Acids via Zinc- and Iron-promoted Asymmetric Hetero Diels-Alder Reaction</i>  |
| 11:50-12:10  | <b>Ulrika Westerlind</b> , Dortmund, Invited Lecture:<br><i>Exploring Bacterial Lectin Recognition Events of Synthetic Mucin Glycopeptide Ligands</i>                                    |
| 12:10-14:00  | Lunch break  |

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|-------------|--|
|             | <b>Natural Product Chemistry I</b> Chair: <u>Daniel T. Gryko</u> , Warsaw  |
| 14:00-14:30 | <b>Jeroen Dickschat</b> , Bonn, Keynote Lecture:<br><i>Tracing Terpenes with Isotopes</i>  |
| 14:30-14:45 | <b>Christian B. W. Stark</b> , Hamburg:<br><i>Biomimetic Natural Product Synthesis</i>   |
| 14:45-15:00 | <b>Nina Schützenmeister</b> et al., Hamburg:<br><i>Total Syntheses of Marine Natural Products</i>  |
| 15:00-15:20 | <b>Malte Brasholz</b> , Rostock, Invited Lecture:<br><i>New Catalytic Photooxygenations of Indole Alkaloids</i>  |
| 15:20-15:30 | <b>Gunnar Ehrlich</b> et al., Hamburg:<br><i>Synthesis of Cytosporides D, M, O, and Q and Late-Stage Diversification of Derivatives Thereof</i>                |
| 15:30-15:40 | <b>Christian Bartens</b> et al., Hannover:<br><i>New seco-Progeldanamycin Derivatives: Tools to Study the Substrate Flexibility of the Amide Synthase GdmF</i> |
| 15:40-15:50 | <b>Fabian Schneider</b> et al., Konstanz:<br><i>Studies towards the Total Synthesis of Canataxpropellane</i>   |
| 15:50-16:30 | Coffee break   |
| 16:30-16:45 | <b>Johannes Panten</b> , Holzminden:<br><i>Aroma Molecules from Renewable Resources</i>  |
| 16:45-16:55 | <b>Dominik Rekow</b> et al., Stuttgart:<br><i>A Chemoenzymatic Approach to Cembranoid Analogue</i>   |
| 16:55-17:05 | <b>Caroline Poock</b> et al., Hannover:<br><i>Total Synthesis of Nannocystin Ax</i>  |
| 17:05-17:15 | <b>Jevgenija Luginina</b> et al., Riga:<br><i>Synthesis of Novel Betulin Conjugates</i>  |
|             | <b>Supramolecular Chemistry</b> Chair: <u>Paul Margaretha</u> , Hamburg  |
| 17:20-17:40 | <b>Riina Aav</b> , Tallinn, Invited Lecture:<br><i>Hemicucurbiturils and their Dynamic Chemistry</i>   |
| 17:40-18:00 | <b>Marcin Stępień</b> , Wrocław, Invited Lecture:<br><i>From Coronoid Macrocycles to Stable Biradicaloid Systems</i>   |
| 18:00-18:10 | <b>Monika Chwastek</b> et al., Warsaw:<br><i>Towards New Macrocyclic Scaffolds</i>   |
| 18:10-18:20 | <b>Agnieszka Czapik</b> et al., Poznań:<br><i>Trityl Group as a Tool for Construction of Multicomponent Supramolecular Materials</i>                           |
| 18:20-18:30 | <b>Sandra Kaabel</b> et al., Tallinn:<br><i>Template-driven Assembly of Hemicucurbit[n]uril Macrocycles in the Solid State</i>                                 |
| 18:30-18:50 | <b>Agnieszka Szumna</b> et al., Warsaw, Invited Lecture:<br><i>Dynamic Peptidic Containers - a Road towards Bio-inspired Self-assembly</i>                     |
| 19:30       | Dinner   |

| Thursday 17 May 2018 |  |
|----------------------|--|
| 7:30                 | Breakfast  |
|                      | <b>Synthetic Methodology II</b> Chair: <u>Maris Turks</u> , Riga   |
| 8:30-9:00            | <b>Daniel T. Gryko</b> , Warsaw, Keynote Lecture:<br><i>Pyrrulo[3,2-b]pyrroles - from Serendipitous Discovery to the Most Electron-rich Aromatic Heterocycles</i>            |
| 9:00-9:10            | <b>Asta Žukauskaite</b> et al., Kaunas:<br><i>Synthesis and Anti-mitotic Activity of Variously Substituted 2H-Pyrazolo[4,3-c]pyridines</i>                                   |
| 9:10-9:20            | <b>Szymon Buda</b> et al., Cracow:<br><i>Intramolecular Tandem Seleno-Michael/Aldol Reaction Promoted by in situ Generated Lithium n-Butylselenoates</i>                     |
| 9:20-9:30            | <b>Lukasz W. Ciszewski</b> et al., Warsaw:<br><i>Photoalkylation of Electron-rich Heteroarenes with <math>\alpha</math>-Diazo Esters</i>                                     |
| 9:30-9:40            | <b>Halina Zhylitskaya</b> et al., Wroclaw:<br><i>Donor-Acceptor Pyrrole Hybrids: Versatile Building Blocks for Electron-Deficient Chromophores with Multi-Redox Activity</i> |
| 9:40-9:50            | <b>Vilija Kriščiuniene</b> et al., Kaunas:<br><i>Synthesis of New Heterocyclic Building Blocks Bearing the Azetidine Structural Unit</i>                                     |
| 9:50-10:00           | <b>Maciej Stodulski</b> et al., Warsaw:<br><i>Visible Light Mediated Oxidation of N,N-Dimethylamines</i>   |
| 10:00-10:20          | <b>Marcin Kwit</b> , Poznań, Invited Lecture:<br><i>Tuning of Molecular and Supramolecular Properties of Polyimine Macrocycles and Organic Cages</i>                         |
| 10:20-10:50          | Coffee break   |
|                      | <b>Catalysis I</b> Chair: <u>Jacek Mlynarski</u> , Cracow  |
| 10:50-11:20          | <b>Lutz Ackermann</b> , Göttingen, Keynote Lecture:<br><i>Selectivity Control in C–H Activation</i>  |
| 11:20-11:30          | <b>Piotr Drelich</b> et al., Łódź:<br><i>Novel Organocatalytic Approach to Polysubstituted Tetrahydro-1,2-oxazines Employing a New Class of Aminooxylating Reagents</i>      |
| 11:30-11:40          | <b>Beata Gatlik</b> et al., Warsaw:<br><i>Pd-catalyzed Perfluoroalkylative Carbonylation of Alkynes: A Facile Route to <math>\alpha,\beta</math>-Unsaturated Esters</i>      |
| 11:40-11:50          | <b>Sebastian Frankowski</b> et al., Łódź:<br><i>Asymmetric Organocatalysis in the Synthesis of Nitrogen-containing Heterocycles</i>  |
| 11:50-12:20          | <b>Dorota Gryko</b> , Warsaw, Keynote Lecture:<br><i>Porphyrinoids as Catalysts for Light Induced C-C Bond Forming Reactions</i>   |
| 12:20-14:00          | Lunch break  |

|             |   |
|-------------|---|
|             | <b>Natural Product Chemistry II</b> Chair: <u>Slawomir Jarosz</u> , Warsaw  |
| 14:00-14:30 | <b>Roderich Süßmuth</b> , Berlin, Keynote Lecture:<br><i>Ribosomal and Non-ribosomal Peptides from Bacteria and Fungi – Structural and Biosynthetic Aspects</i>                       |
| 14:30-14:40 | <b>Daniel Lücke</b> et al., Hannover:<br><i>Total Synthesis of Pericoannosin A</i>  |
| 14:40-14:50 | <b>Jan Rinkel</b> et al., Bonn:<br><i>Labelling Studies on CYP-catalysed Terpene Oxidations</i>   |
| 14:50-15:00 | <b>Janina Meyer</b> et al., Hannover:<br><i>Syntheses of Carolactone Derivatives as Highly Potent Biofilm Inhibitors</i>  |
| 15:00-15:20 | <b>Katarzyna Duda</b> , Borstel, Invited Lecture:<br><i>Lipids from Pollen: what are the Structures Behind Neglected Players in the Allergic Airway Inflammation</i>                  |
| 15:20-15:30 | <b>Grete Hoffmann</b> et al., Münster:<br><i>Short and Protecting Group free Approach to t(-)-<math>\Delta^8</math>-THC-Motif: Synthesis of THC-Analogues, (-)-Machaeriol B and D</i> |
| 15:30-15:40 | <b>Kinga Kuczynska</b> et al., Warsaw:<br><i>The Transformation of Betulin Core</i>   |
| 15:40-16:10 | <b>Sabine Laschat</b> , Stuttgart, Invited Lecture:<br><i>Adventures and Detours in the Synthesis of Macrolides and Cembranoids</i>   |
| 16:10-16:40 | Coffee break  |
|             | <b>Various Topics in Organic Chemistry</b> Chair: <u>Thomas Hackl</u> , Hamburg   |
| 16:40-17:10 | <b>Maris Turks</b> , Riga, Keynote Lecture:<br><i>Fluorescent Triazolyl Purines and their Nucleoside Congeners</i>  |
| 17:10-17:20 | <b>Axel T. Neffe</b> et al., Hamburg and Teltow:<br><i>Fe-Catalyzed Access to Oligodepsipeptides and their Application in Biomedicine</i>   |
| 17:20-17:30 | <b>Lukasz G. Lukasiewicz</b> et al., Warsaw:<br><i>Symmetry Breaking in Pyrrolo[3,2-b]pyrroles: Synthesis, Solvatofluorochromism and Two-photon Absorption</i>                        |
| 17:30-17:40 | <b>Mykhaylo A. Potopnyk</b> et al., Warsaw:<br><i>N,O p-Conjugated (Benzo/Naphtho)Thiazole BF<sub>2</sub> Complexes</i>   |
| 17:40-17:50 | <b>Anke Bollen</b> et al., Hamburg:<br><i>SMART Metabolite ID: A Novel Strategy for the Identification of Unknown Metabolites from Complex Extracts</i>                               |
| 17:50-18:00 | <b>René Bachmann</b> et al., Hamburg:<br><i>Metabolic Change of Hazelnuts by Harming Processes and Quality Control by <sup>1</sup>H-NMR-Spectroscopy</i>                              |
| 18:00-18:10 | <b>Tomasz Madry</b> et al., Poznań:<br><i>Diarylmethane based new chromophoric probes for stereochemical assignments</i>  |
| 18:10-18:40 | <b>Gregorz Litwinienko</b> , Warsaw, Keynote Lecture:<br><i>Solvent Effects in Free Radical Chemistry - from Homogeneous Solutions to Dispersed, Biologically Relevant Systems</i>    |
| 19:00       | Dinner  |



| Friday 18 May 2018   |  |
|----------------------|--|
| 8:00                 | Breakfast  |
|                      | <b>Glycoscience II</b> Chair: <u>Thisbe K. Lindhorst</u> , Kiel  |
| 9:00-9:30            | <b>Laura Hartmann</b> , Düsseldorf, Keynote Lecture:<br><i>Synthesis and Applications of Sequence-controlled Glycomacromolecules</i> |
| 9:30-9:40            | <b>Sandra Behren</b> et al., Dortmund:<br><i>Chemistry Based Tools to Explore Tyrosine O-Glycosylation</i>                           |
| 9:40-9:50            | <b>Lukasz Szyszka</b> et al., Warsaw:<br><i>Chiral Cyclotrimeratrylene-based Molecular Containers with Sucrose Unit</i>              |
| 9:50-10:20           | <b>Guillaume Despras</b> , Kiel, Invited Lecture:<br><i>Design, Synthesis and Properties of Shape-switchable Glycomacrocyces</i>     |
| 10:20-10:50          | Coffee break   |
|                      | <b>Catalysis II</b> Chair: <u>Dorota Gryko</u> , Warsaw  |
| 10:50-11:20          | <b>Armido Studer</b> , Münster, Keynote Lecture:<br><i>Electron Catalysis</i>  |
| 11:20-11:35          | <b>Alexander Breder</b> et al., Göttingen:<br><i>Photocatalytic Aerobic Phosphatation of Alkene</i>                                  |
| 11:35-11:50          | <b>Rafal Loska</b> et al., Warsaw:<br><i>Aza-BODIPY Analogues with Exceptionally Large Stokes Shift Values</i>                       |
| 11:50-12:00          | <b>Aleksandra J. Wierzba</b> et al., Warsaw:<br><i>Vitamin B<sub>12</sub> as a Delivery Agent – a Chemical Point of View</i>         |
| 12:00-12:20          | <b>Wojciech Chaladaj</b> , Warsaw, Invited Lecture:<br><i>Pd-catalyzed Additions to Alkynes with Subsequent Cross-coupling</i>       |
| 12:20-12:25          | Closing  |
| 12:25-13:30          | Lunch break  |
| 13:30                | <b>Excursion</b> (Bus, Boat, Harbour, Elbphilharmonie, Hafencity, City) concluding at:   |
| 19:00                | <b>Symposium Dinner</b> at Restaurant "Parlament"  |
| Saturday 19 May 2018 |  |
| 8:00                 | Breakfast  |
|                      | Departure  |

# **Abstracts**

**In Chronological Order**

## Application of Liquid SO<sub>2</sub> as a Solvent for Organic Synthesis

Krista Suta, Jevgeņija Lugiņina, Daniels Posevins and Māris Turks

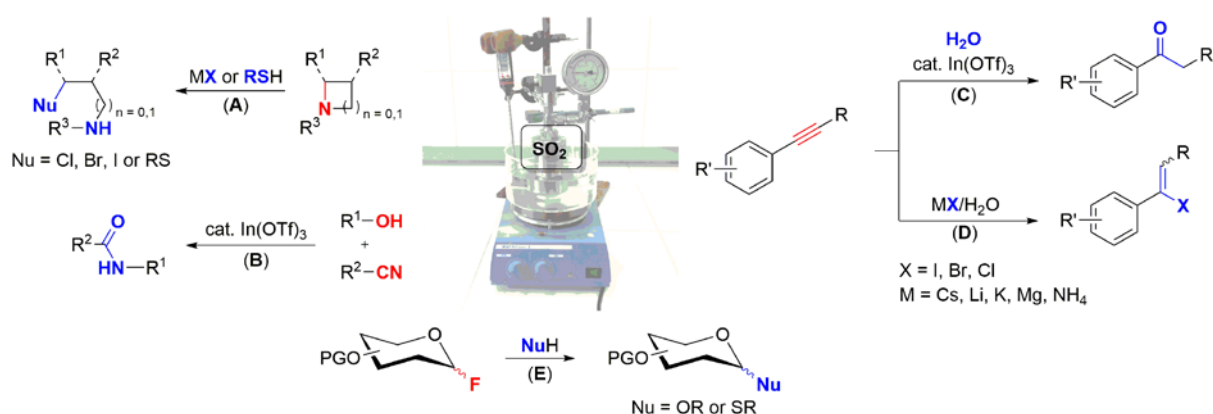
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**Keywords:** sulfur dioxide, solvent, Lewis acid

Due to relatively high boiling point (-10 °C) and low vapor pressure (8 bar at 60 °C), sulfur dioxide (SO<sub>2</sub>) can be easily liquefied and handled in its liquid state. Liquid SO<sub>2</sub> is one of the few polar solvents that possess Lewis acid properties. Besides, both organic and inorganic substances readily dissolve in liquid SO<sub>2</sub> due to its high dipole moment (1.6 D). All these facts make liquid SO<sub>2</sub> a unique solvent for organic synthesis, especially, for transformations involving charged intermediates.

Our group has: **(A)** discovered that unprotected and carbamate-protected aziridines and azetidines undergo efficient ring-opening reactions in liquid SO<sub>2</sub> with I and II group metal halides and thiols; [1,2] **(B)** found application of liquid SO<sub>2</sub> as an interesting solvent for the Ritter reaction in the presence of catalytic amount of In(III) triflate; [3] **(C)** developed In(III) or Hf(IV) triflate catalyzed conditions for hydration of aryl alkynes in liquid SO<sub>2</sub> without direct addition of Brønsted acid; **(D)** found that NH<sub>4</sub>I and also various I and II group metal halides (I, Br, Cl) in the presence of water can act as halide sources for synthesis of α-aryl vinyl halides from alkynes in liquid SO<sub>2</sub>.

Finally, our initial studies of glycosidic bond formation in liquid SO<sub>2</sub> have revealed promoting effect of this unconventional solvent for glycosylation of alcohols and thiols using glycosyl fluorides as glycosyl donors **(E)**.



### References

- [1] J. Lugiņina, J. Uzuleņa, D. Posevins, and M. Turks, *Eur. J. Org. Chem.* **2016**, 1760.  
 [2] J. Lugiņina, and M. Turks, *Synlett* **2017**, 28, 939.  
 [3] D. Posevins, K. Suta, and M. Turks, *Eur. J. Org. Chem.* **2016**, 1414.