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Gesellschaft für Chemische Technik
und Biotechnologie e.V.

PROGRAMME

19 - 21 February 2025
Kloster Irsee

37th Irsee Natural Product Symposium

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SAVE THE DATE
38th Irsee Natural Product Symposium
25.-27.2.2026

PROGRAMME

Wednesday, 19 February 2025

11:30	**Board Meeting (on invitation – only for members)**
13:30	Welcome Snack
	OPENING SESSION *Chair: Ingo Hartung; Merck KgaA, Darmstadt/DE*
14:30	**Opening of Irsee Natural Product Symposium** Ingo Hartung[1] [1] Merck Healthcare KGaA, Darmstadt
14:40	**Discovery and Application of Microbial Natural Product Biosynthetic Enzymes** Tobias A. M. Gulder[1] [1] Helmholtz Institute for Pharmaceutical Research Saarland, Saarbrücken/DE
15:15	Short break
	POSTER SESSION *Chair: Stephanie Grond; Eberhard Karls Universität Tübingen, Tübingen/DE*
15:30	**Poster presentations (Part I)**
16:50	Break at the posters
17:25	**Poster presentation (Part II)**
18:45-20:30	**Get-together at the posters**

PROGRAMME

Thursday, 20 February 2025

YOUNG RESEARCHERS' SESSION
Chair: Christine Beemelmanns;
Helmholtz-Institut für Pharmazeutische Forschung Saarland

09:00 **Artificial Intelligence-based Expansion of Natural Product Biosynthetic Space**
Eric Helfrich[1]
[1] Goethe University Frankfurt, Frankfurt/DE

09:25 **Deciphering recombination schemes in the evolution of natural product diversity**
Martin Baunach[1]
[1] Rheinische Friedrich-Wilhelms-Universität Bonn, Bonn/DE

09:50 **Monitoring penicillin ring formation through a crystallographic and spectroscopic lens**
Patrick Rabe[1]; Allen Orville[2]; Jan Kern[3]; Christopher Schofield[1]
[1] University of Oxford, Oxford/GB; [2] Diamond Light Source, Didcot/GB;
[3] Lawrence Berkeley National Laboratory, Berkeley/US

10:15 Coffee break

YOUNG RESEARCHERS' SESSION
Chair: Roderich D. Süssmuth; Technische Universität Berlin, Berlin/DE

10:55 **SynBio and AI-Driven Optimization of Microbial Megasynthetases**
Kenan Bozhüyük[1]; SeounGun Bang[1]; Biyan Chen[1]; Kevin George[2]; Olga Kalinina[1]; Emre Bülbül[1]; Dietrich Klakow[2]
[1] Helmholtz-Institut für Pharmazeutische Forschung Saarland (HIPS), Saarbrücken/DE;
[2] Universität des Saarlandes, Saarbrücken/DE

11:20 **Shedding Light on Fungal Defense: Phototoxic Pigments as a Source of Therapeutic Agents**
Bianka Siewert[1]
[1] Universität Innsbruck, Abteilung für Pharmakognosie, Institut für Pharmazie, Innsbruck/AT

11:45 **Autologous DNA mobilization and multiplication expedite natural products discovery from bacteria**
Chengzhang Fu[1]
[1] Helmholtz Institute for Pharmaceutical Research Saarland, Saarbrücken/DE

12:10 Lunch break

SYNTHESES
Chair: Till Opatz; Johannes Gutenberg-Universität Mainz

13:40 **On the synthesis of Complex Taxane Diterpenes**
Tanja Gaich[1]
[1] Universität Konstanz, Konstanz/DE

PROGRAMME

Thursday, 20 February 2025

14:05 **New Methods for the Chemical Synthesis of Post-Translationally Modified Peptides and Proteins**
Nina Hartrampf[1]
[1] Universität Zürich, Zürich/CH

14:30 **Towards A Total Synthesis of Dimeric Nuphar Alkaloids**
Anand Acharya[1]; Thomas Scholz[1]; Christoph Schneider[1]
[1] Universität Leipzig, Leipzig/DE

14:55 **Chemistry Innovation and Biological Discovery through Natural Product Total Synthesis**
Mingji Dai[1]
[1] Emory University, Atlanta/US

15:20 Coffee break

APPLIED NEW PRODUCT RESEARCH
Chair: Ingo Hartung; Merck KGaA, Darmstadt/DE

16:00 **Tailored Payload-Linker Design for Antibody- and Small Molecule- Drug Conjugates: Inspired by Nature and Going Beyond**
Hans-Georg Lerchen[1]
[1] Vincerx Pharma GmbH, Monheim am Rhein/DE

16:25 **Elaborate Mechanisms of Natural Product Antibiotics**
Heike Brötz-Oesterhelt[1]
[1] University Tübingen, Tübingen/DE

18:00 **Dinner**

EVENING LECTURE AND AWARD CEREMONIES
Chair: Tobias A. M. Gulder;
Helmholtz Institute for Pharmaceutical Research Saarland, Saarbrücken/DE

20:00 **Of Natural Products and the Chemistry they Inspire**
Alois Fürstner[1]
[1] Max-Planck-Institut für Kohlenforschung, Mülheim an der Ruhr/DE

21:00 - 21:15 **Award Ceremonies**

PROGRAMME

Friday, 21 February 2025

	BIOSYNTHESIS & CHEMO-ENZYMATIC APPROACHES *Chair: Tobias A. M. Gulder;* *Helmholtz Institute for Pharmaceutical Research Saarland, Saarbrücken/DE*
08:30	**Engineering protein catalysts for synthetic applications** Rebecca Buller[1] [1] Zurich University of Applied Sciences (ZHAW), Wädenswil /CH
08:55	**Molybdenum-mediated carbon-sulfur bond making and breaking** Florian Seebeck[1] [1] University of Basel, Basel/CH
09:20	**Enzyme Discovery, Engineering and Applications in Stereoselective Organic Synthesis** Uwe Bornscheuer[1] [1] Universität Greifswald, Greifswald/DE
09:45	Coffee break
	BIOSYNTHESIS & CHEMO-ENZYMATIC APPROACHES *Chair: Elke Dittmann; Universität Potsdam, Potsdam-Golm/DE*
10:25	**Teixobactin-like antibiotics – differential attack on the bacterial cell wall** Tanja Schneider[1] [1] University of Bonn, University Hospital Bonn, Bonn/DE
10:50	**Directed Evolution of Nonribosomal Peptide Synthetases** Hajo Kries[1] [1] University of Stuttgart, Stuttgart/DE
11:15	**A small thiazoline originating from a two-domain RiPP precursor** Jethro Hemmann[1]; Michael Lammers[2]; Gerald Lackner[3] [1] Leibniz Institute for Natural Product Research and Infection Biology – Hans Knöll Institute (Leibniz-HKI), Jena/DE; [2] University of Greifswald, Greifswald/DE; [3] University of Bayreuth, Kulmbach/DE
11:40	**Closing of Irsee Natural Product Symposium**
12:00	Farewell Snack
12:30	**Bus Transfer to Kaufbeuren station**

As of November 2024. All speakers and titles are subject to change.

POSTER

P 01	**Light-induced benzoxazole production in Myxococcus xanthus** Dustin Joshua Vollmann[1]; Markus Nett[1] [1] TU Dortmund University, Dortmund/DE
P 02	**Transport of steroidal glycoalkaloids across the intestinal barrier** Lucas Keuter[1]; Matthias Behrens[1]; Hans-Ulrich Humpf[1] [1] Universität Münster, Münster/DE
P 03	**A NMR probe for monitoring photoreactions** Thomas Paululat[1] [1] Universität Siegen, Siegen/DE
P 04	**Identifying specialized metabolites from a novel Streptomyces found in the microbiome of the European spruce bark beetle** Anne Goll[1]; Thomas Paululat[2]; Andreas Bechthold[1] [1] University of Freiburg, Freiburg/DE [2] Universität Siegen, Siegen/DE
P 05	**Purification of Natural Products Using Mass Directed Fractionation** Nina Meszaros[1]; Maik Kranz[1] [1] Axel Semrau GmbH, Sprockhövel/DE
P 06	**Teixobactin-like antibiotics – differential attack on the bacterial cell wall** Robin Teufel[1] [1] Universität Basel, Basel/CH
P 07	**Modular Platform for the Synthesis of Syrbactins** Olivier Loiseleur[1], Georg Späth[1] [1] Syngenta Crop Protection AG, Stein/CH
P 08	**A Total Biosynthesis Platform for Known and New Cytochalasans** Russell J. Cox[1]; Jennifer Gerke[1] [1] Leibniz University Hannover, Hannover/DE
P 09	**SARP-guided activation of secondary metabolite gene clusters in actinomycetes** Yvonne Mast[1]; Roman Makitrynskyy[1]; Juan-Pablo Gomez-Escribano[1]; Felix Gonther[1]; Ole Tiemann[2]; Wulf Blankenfeldt[2]; Tobias Mentzel[3]; Carlos Henrique Correa dos Santos[4]; Ludger Wessjohann[4] [1] Leibniz Institut DSMZ - Deutsche Sammlung für Mikroorganismen und Zellkulturen GmbH, Braunschweig/DE; [2] Helmholtz-Zentrum für Infektionsforschung, Braunschweig/DE; [3] BASF, Limburger Hof/DE; [4] Leibniz Institut für Pflanzenbiochemie, Halle/DE
P 10	Merging Organic Synthesis and (Oligo)Enzyme Catalysis for Expanding the „Terpenome“ Henry Struwe[1]; Andreas Kirschning[1] [1] Leibniz Universität Hannover, Hannover/DE

POSTER

P 11	**Biomarker Identification for Depressive Disorders via Untargeted Metabolomics** Mansha Soni[1] [1] Max Planck Institute of Molecular Physiology, Dortmund, Germany, Bochum/DE
P 12	**Synthesis and Biology of Pseudomonal Cyclic Lipodepsipeptides** Yuko Bando[1]; Hans-Dieter Arndt[1] [1] Friedrich-Schiller Universität Jena, Jena/DE
P 13	**Progress toward the total synthesis of Echinoflorine A** Vladyslav Aharkov[1]; Ulrich Koert[1] [1] Phillips University of Marburg, Marburg/DE
P 14	**Towards the Total Synthesis of Rubradirin** Micha D. Hofer[1]; Anja Eugster[1]; Fabienne Fisch[1]; Karl Gademann[1] [1] Universität Zürich, Zurich/CH
P 15	**Hop compounds as alternative to antibiotic growth promoters for poultry: A study of their antimicrobial and cytotoxic effects** Luisa Kober[1]; Kathrin Castiglione[1] [1] FAU Erlangen-Nürnberg, Erlangen/DE
P 16	**Metabolic engineering of Aspergillus violaceofuscus enables discovery of violafuranone A** Carsten Wieder[1]; Clara Laubenstein[2]; Linda Marie Fischer[2]; Rainer Wiechert[2]; Kevin Seipp[2]; Anja Schüffler[1]; Till Opatz[2]; Eckhard Thines[1] [1] Institut für Biotechnologie und Wirkstoff-Forschung gGmbH, Mainz/DE; [2] Johannes Gutenberg-University, Mainz/DE
P 17	**Mechanistic Investigations on Microbial Terpene Synthases** Heng Li[1]; Jeroen Dickschat[2] [1] University of Bonn, Bonn/DE; [2] university of Bonn, Bonn/DE
P 18	**“Towards the Total Synthesis of two Cytotoxic Triterpenes from Cultures of a Kenyan Laetiporus sp. (Basidiomycota)”** Raffaele Schettino[1]; Oliver Spieß[1]; Dieter Schinzer[1] [1] OVGU Otto-von-Guericke-University Magdeburg, Magdeburg/DE
P 19	**MyxoTech GmbH: harnessing the power of microbial evolutionary diversity** Ronald Garcia[1]; Peter Sullivan[1]; Jennifer Herrmann[1]; Thomas Hesterkamp[1]; Olga Kalinina[1]; Rolf Müller[1] [1] MyxoTech GmbH, Saarbrücken/DE
P 20	**Novel-to-Nature NRPS-Like Benzoquinone Products** Nicholas Moody[1]; Matthias Brock[1] [1] University of Nottingham, Nottingham/GB

POSTER

P 21	**Ribosomal pentapeptide nitration for nonribosomal peptide antibiotic precursor biosynthesis** Max Crüsemann[1] [1] Universität Bonn, Bonn/DE
P 22	**Chemoselective mono- and dimethylation of aromatic compounds by the SAM-dependent C-methyltransferase NapB5** Juliane Breiltgens[1]; Michael Müller[1] [1] Albert-Ludwigs-Universität Freiburg, Freiburg/DE
P 23	**Exploring the structural diversity of cyclic pentapeptides using precursor-directed biosynthesis in the heterologous production platform Aspergillus nidulans** Wolfgang Wohlleben[1]; Julia Bischof[1]; Hannes Maier[1]; Andreas Kulik[1]; Harald Groß[1] [1] University Tübingen, Tübingen/DE
P 24	**Triple homologation of leucine is required for oligopeptide biosynthesis in a fungal mycoparasite** Robin Sonnabend[1]; Johannes Rassbach[1]; Benjamin Bartels[2]; Kerstin Voigt[1]; Christian Hertweck[2]; Markus Greßler[1] [1] Friedrich-Schiller-Universität Jena, Jena/DE; [2] Leibniz-Institut für Naturstoffforschung und Infektionsbiologie, Hans-Knöll-Institut e.V., Jena/DE
P 25	**AI driven Engineering of Non-Ribosomal Peptide Synthase Domains** SeoungGun Bang[1]; Emre F. Bülbül[1]; Kevin George[2]; Olga Kalinina[1]; Dietrich Klakow[2]; Kenan A. J. Bozhüyük[1] [1] Helmholtz-Institut für Pharmazeutische Forschung Saarland (HIPS), Saarbrücken/DE; [2] Universität des Saarlandes, Saarbrücken/DE
P 26	**The path to uncovering hidden biologically active metabolites from Stachybotrys chartarum** Svetlana A. Kalinina[1]; Katharina Steinert[1]; Alica Fischle[1] [1] University of Münster, Münster/DE
P 27	**Out of Pandora‘s Box: Antibacterial Siderophores of Pandoraea Pathogens and Their Impact on the Diseased Lung Microbiota** Elena Herzog[1]; Christian Hertweck[1] [1] Leibniz Institut für Naturstoff-Forschung und Infektionsbiologie - Hans-Knöll-Institut e.V., Jena/DE
P 28	**In Vitro Psilocybin Synthesis by Co-Immobilized Enzymes** Tim Schäfer[1]; Dirk Hoffmeister[1] [1] Friedrich-Schiller Universität Jena, Jena/DE
P 29	**Xanthohumol C: A Natural Chalcone with Neurogenic Potential from Hops** Corinna Urmann[1]; Lara Bieler[2]; Sebastian Couillard-Després[2]; Herbert Riepl[1] [1] TUM Campus Straubing; Weihenstephan-Triesdorf University of Applied Sciences, Straubing/DE; [2] Paracelsus Medical University Salzburg, Salzburg/AT

POSTER

P 30	**Precision in Complex Molecule Assembly: Advancing Alkylation Techniques with Prenyltransferases** Simon Przetak[1]; Jörg Pietruszka[1] [1] Heinrich Heine University Düsseldorf, Jülich/DE
P 31	**Identification and biosynthesis of an antifungal lipopeptide from the Burkholderia cepacia complex** Lei Zhong[1]; Agnes Mühlenweg[1]; Dou Hong[1]; Sarah Yammine[2]; Annette Poch[1]; Dingchang Xu[1]; Yasemin Kirimlioglu[1]; Lisa Großgloß[1]; Melek Bittermann[1]; Franziska Graeger[1]; Maria Seidel[1]; Manuel Gemander[1]; Sebastian Kemper[1]; Tam Dang[1]; Andi Mainz[1]; Stéphane Cociancich[2]; Monique Royer[2]; Roderich D. Süssmuth[1] [1] Technische Universität Berlin, Berlin/DE; [2] CIRAD, Montpellier/FR
P 32	**Studies toward the Synthesis of 15(14⋯22)abeo-8,9-Secosteroids** Henrik Schwarz[1]; Maximilian Bauer[1]; Philipp Heretsch[1] [1] Leibniz Universität Hannover, Hannover/DE
P 33	**Pathway reconstitution in Nicotiana benthamiana reveals the first three oxidative steps of withanolide biosynthesis** Jian Peng[1] [1] Leibniz University Hannover, Hannover/DE
P 34	**Harnessing Polyketide Synthases for Hydrogen-Driven Biotechnology: Developing a Next-Generation Platform for Value-Added Biochemicals** Ram Prasad Awal[1]; Lisa Heitmann[1]; Frank Hahn[1] [1] University of Bayreuth, Bayreuth/DE
P 35	**Fragmenting and Combining Natural Products: Hybrid Macrolides with Uncharted Biological Activity** Maximilian Schick[1]; Golo Storch[1] [1] Technical University of Munich, Munich/DE
P 36	**Mining phosphonate natural products at the DSMZ** Chambers Hughes[1]; Shu-Ning Xia[1]; Maximillian Knab[1]; Yvonne Mast[2]; Alina Zimmermann[2]; Juan-Pablo Gomez-Escribano[2]; Judith Boldt[2]; Ulrich Nübel[2] [1] Eberhard Karls Universität Tübingen, Tuebingen/DE; [2] Leibniz Institut DSMZ - Deutsche Sammlung für Mikroorganismen und Zellkulturen GmbH, Braunschweig/DE
P 37	**Lienhwalides: Unique Tropolone-Maleidride Hybrids from Hypoxylon lienhwacheense** Esteban Charria-Girón[1]; Katharina Schmidt[2]; Tatiana Gorelik[1]; Eric Kuhnert[2]; Jennifer Gerke[2]; Russell Cox[2]; Marc Stadler[1]; Frank Surup[1] [1] Helmholtz Center for Infection Research, Braunschweig/DE; [2] Leibniz University Hannover, Hannover/DE
P 38	**S-Adenosyl-L-homocysteine Hydrolase - From Drug Target to Biocatalyst for Nucleoside Analogue Synthesis** Lars-Hendrik Köppl[1]; Philipp Germer[1]; Désirée Popadić[1]; Raspudin Saleem-Batcha[1]; Jennifer Andexer[1] [1] Albert-Ludwigs-Universität Freiburg, Freiburg im Breisgau/DE

POSTER

P 39	**A Photoredox Approach for the total Synthesis of (–)-Strychnine** Rainer Wiechert[1]; Leander Geske[1]; Jasmin Hammes[1]; Dogus Tuncer[1]; Till Opatz[1] [1] Johannes Gutenberg University Mainz, Mainz/DE
P 40	**The Minimum Information about a Tailoring Enzyme data standard/repository** Mitja Zdouc[1]; Adriano Rutz[2]; Daniel Probst[1]; Justin van der Hooft[1]; Kai Blin[3]; Marnix Medema[1] [1] Wageningen University, Wageningen/NL; [2] ETH Zürich, Zürich/CH; [3] Technical University of Denmark, Kongens Lyngby/DK
P 41	**Structure Elucidation of Novel Compounds From Collembola** Anton Möllerke[1]; Marc Tschiersch[1]; Stefan Schulz[1] [1] TU Braunschweig, Braunschweig/DE
P 42	**Homoterpene biosynthesis widespread in actinobacteria** Lars Dieminger[1]; Tatjana Reuter[1]; Lena Barra[1] [1] Universität Konstanz, Konstanz/DE
P 43	**Concise Asymmetric Total Synthesis of (–)-Aspidospermidine** Christian B. W. Stark[1]; Charlotte R. O'Donnell[1] [1] Universität Hamburg, Hamburg/DE
P 44	**Natural products mediating prophage induction** Thomas Böttcher[1] [1] Universität Wien, Wien/AT
P 45	**Megasynthetase engineering for the generation of bioactive molecules and the analysis of enzyme specificity** Leonard Präve[1]; Helge B. Bode[1] [1] Max-Planck-Institut für terrestrische Mikrobiologie, Marburg/DE
P 46	**Characterization of a novel bacterial RiPP biosynthetic pathway** Abeer Badiab[1]; Krishna Patel[2]; Javier Santos-Aberturas[3]; Andrew Truman[3]; Brian Smith[1]; Jesko Köhnke[2] [1] University of Glasgow, Glasgow/GB; [2] Leibniz University Hannover, Hannover/DE; [3] John Innes Centre, Norwich/GB
P 47	**Engineered Bimodular Metazoan Fatty Acid Synthase (FAS) Works in Sequence** Christian Gusenda[1]; Sofia Raskina[1]; Prof. Martin Grininger[1]; [1] Goethe University Frankfurt

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