

WELCOME!

Photobiotechnology has the potential to deliver value added products like chemicals as well as energy carriers like hydrogen and solar fuels in a sustainable way using carbon dioxide, sunlight and water as resources. Today, the large scale technical use of natural photosynthesis is restricted to indirect transformations and valorization of biomass with inherently low yields. What is needed to meet challenges like cheap production and use of catalytically active photosynthetic biomass? What is still limiting high yields and rates?

The symposium will address these key issues of photobiotechnology by discussing the current state of knowledge and technology in cultivation, physiology, metabolic engineering, and process design for new products. Our conference language is English, the number of attendees unfortunately is limited.

The MIKAT – Center for Biocatalysis is an expert cluster connecting institutes, SMEs, industry, and Universities in the regions of Leipzig, Halle, Dresden, and Freiberg.

We are happy to invite you to this symposium and are looking forward to exciting science and interesting discussions.

With warm regards, on behalf of all organizers,



MONDAY, DECEMBER 10TH, 2018

12:00-12:30	Registration & Lunch
12:30-12:40	Andreas Schmid (UFZ) "Welcome"
Cultivation (Chair: Katja Bühler)	
12:40-13:10	Clemens Posten (KIT, Karlsruhe) "Rational design of photo-bioreactors: kinetics, balance boundaries, scaling"
13:10-13:40	Felix Krujatz (TU Dresden) "Oxygen detection in immobilized microalgal cultures via nanoparticle functionalized biomaterial"
13:40-14:10	Lars Bähr (CellDEG, Berlin) "The CellDEG cultivation system: high-density cultivation using membrane-mediated CO ₂ supply"
14:10-14:30	Coffee break
Physiology (Chair: Jens Krömer)	
14:30-15:00	Christian Wilhelm (Leipzig University) "The dream in green biotechnology: continuous production of organic carbon by solar energy without harvesting under homeostatic conditions"
15:30-16:00	Marcel Grund (SOMA/ UFZ) "The sink-effect in cyanobacteria – from myths to facts: systematic and quantitative investigation in the model organism <i>Synechocystis sp. PCC6803</i> "
Metabolic Engineering (Chair: Magdalena Mock)	
16:00-16:30	Ralf Steuer (HU Berlin) "Eating the sun: computational models of phototrophic metabolism"
16:30-16:45	Bio Break
16:45-17:15	Simon von Berlepsch (Algenol, Berlin) "Cyanobacterial biotechnology: from biofuels to new products"
17:15-17:45	Kyle J. Lauersen (Bielefeld University) "Strategic transgene design and mature engineering concepts in the green microalga <i>Chlamydomonas reinhardtii</i> "
17:45-18:15	Anna Hoschek (SOMA/ UFZ) "Whole-cell oxyfunctionalization biocatalysis driven by photosynthesis"
18:30	Dinner

TUESDAY, DECEMBER 11TH, 2018

Processes (Chair: Bruno Bühler)	
9:00-9:30	Matthias Rögner (Bochum University) "Model systems and design cells: What are the limits of photosynthesis and its application?"
9:30-10:00	Rohan Karande (SOMA/ UFZ) "Designing a continuous photobiocatalytic process for the conversion of cyclohexane to cyclohexanol"
10:00-10:30	Coffee break
10:30-11:00	Torben Schädler (TU München) "Microalgae processes in open photobioreactors at physically simulated climate conditions"
11:00-11:30	Ingolf Petrick (BTU, Cottbus) "Conversion from microalgae to biofuels - hydrothermal liquification and hydrotreating"
Products (Chair: Anna Hoschek)	
11:30-12:00	Robert Kourist (TU Graz) "Cascade reactions using recombinant oxidoreductase enzymes in cyanobacteria"
12:00-13:00	Lunch
13:00-13:30	Timo Niedermeyer (MLU Halle) "Cyanobacteria in natural product research"
13:30-14:00	Martin Dippe (Leibniz IPB, Halle) "Plant natural products synthesized by engineered enzymes"
14:00-14:30	Jan Hoyer (GICON, Wolfen) "Inspired by nature: „Christmas Tree“ photobioreactor for stable cultivation of microalgae"
14:30-15:00	Andreas Schmid (SOMA/ UFZ) Discussion and Conclusion

GENERAL INFORMATION

LOCATION:

Helmholtz-Zentrum für Umweltforschung – UFZ

Building 1.0, Room 254

Permoserstrasse 15

04318 Leipzig

DIRECTIONS:

<http://www.ufz.de/index.php?en=34272>

WEBSITE:

<http://www.ufz.de/index.php?en=45234>

Leipzig 2018

The poster features a central graphic with the word "MIKAT" in large, bold, black letters, enclosed in a thick black oval. Above the oval are three Erlenmeyer flasks containing green liquid, with a black arrow pointing from the right flask towards the "MIKAT" text. To the left of the flasks are several chemical structures, including a carboxylate group ($\text{OOC-CH}_2\text{-COO}^-$), a cyclic amine (H-H), and a diol ($\text{HO-CH}_2\text{-CH}_2\text{-OH}$). Below the "MIKAT" text are three green, textured, spherical structures resembling microorganisms or cells, with a target symbol overlaid on the largest one. At the bottom of the poster is a black line graph with multiple peaks, resembling a chromatogram or mass spectrum. The background is a light blue and green gradient with faint icons of a person and a lightbulb.

MIKAT

Symposium Photobiotechnology

MIKAT – CENTER FOR BIOCATALYSIS