



Circular Bioeconomy at :metabolon



15.02.2024

Prof. Dr. Christian Wolf; Dr. Himanshu

:metabolon Institute – Sustainable Technologies and Resources
Faculty for Computer Science and Engineering

Seite 1

Technology
Arts Sciences
TH Köln

Resource Recovery at :metabolon

Industrial Scale plants:

- Biogas plant
 - Throughput: 65,000 Tons/year
- Process water treatment plant
- Microalgae Cultivation
 - ammonia load up-to 1000 mg l⁻¹ and COD up-to 2000 mg l⁻¹



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Seite 2

:metabolon is situated on a landfill site
Technology and Sites
TH Köln

2023/6/12 15:42

Resource Recovery at :metabolon

Our technology offer:

- Biofuel production
 - Lab to Pilot scale
- Microalgae production
 - Lab to Pilot scale



Microalgal purification of high N load process waters

Transformation of nitrogen compounds and CO₂

- Alternative, resource-efficient process water treatment method
- Production of biomass as a resource, i.e. energy production

Cultivation of micro-algae

- in undiluted process waters, i.e. landfill leachate
- in biofilms to improve the light yield, nutrient assimilation and biomass harvest

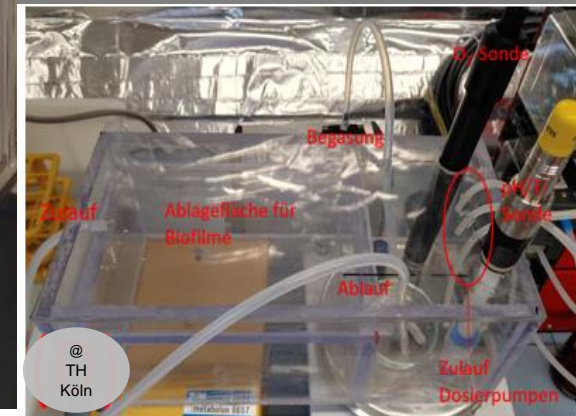
Research on the nutrient and climate dependant metabolism activity

- Photo-respirometer and
- Photo bioreactor

Photo-bioreactor



Photo-respirometer



Resource Recovery at :metabolon

Our Current Projects:

- Green Hydrogen from Organic Waste and Slurry with Dark Fermentation and Microbial Electrolysis
- Bioremediation of Plastic Waste
- Biomethanation of Landfill Gas
- Treatment of Landfill Leachate producing Biomass as microalgae

Our experience:

- Research & Innovation Action (RIA) Calls as participant and as consortium leader
- Participation in Horizon 2020 projects
- Consortium leader of EU projects
- Network of European Research partners



Partners requested:

Industry and University partners for topics of Circular Economy:

- Green hydrogen production
- Circular economy technologies for waste reuse
- Technologies for water networks and energy saving
- Carbon capture and utilisation

Calls:

- HORIZON-CL5-2024-D3-02-03: Development of smart concepts of integrated energy driven bio-refineries for co-production of advanced biofuels, bio-chemicals and biomaterials (**January 2025**)
- CET-Partnership
- Pathfinder Open

:metabolon

Our kids are our future!



Contact / Communication:
Prof. Dr. Michael Bongards
TH Köln – University of Applied Sciences
Mail: michael.bongards@th-koeln.de

Dear Professor Bongards,

We are pleased to inform you that your proposal "Renewable Energy Technologies at :metabolon - From Laboratory to Pilot-Scale Plants" has been accepted.

You can now start to prepare your presentation, which you should please upload by 2 February (17:00 CET).

Since each speaker has only a limited time slot (approx. 6 minutes), your presentation should not exceed six transparencies. Working language is English.

Your presentation should include: - Title - Topics you would like to explore in future Horizon Europe projects or results from an EU-funded project - Short description of the type and role of partner(s) you are seeking - Brief outline of your previous scientific and technological expertise (max. one slide) Please note that only PDF presentations (16:9) are accepted and that the file size must not exceed 5.0 MB.

You are free to bring the final version on 15-16 February (in this case please update it before the session starts!). To upload your presentation, please go to the Conference Control Center and click on "View submitted proposal". This will take you to the page "Presentation", where you can upload or edit your presentation. Please click on the "Actions" button to do this.

We will send you an email in the next days with details of the time slot allocated to you (day, time, workshop).

We look forward to receiving your presentation and to welcoming you to Düsseldorf!

Kind regards

Katharina Fuchs

Successful R & I in Europe 2024: 11th European Networking Event

Ms. Katharina Fuchs

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Seite 8

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