CARE 4BIO

Horizon Europe Brokerage Event
Cluster 6 Calls 2025

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Microbial electricity, electrosynthesis enable CO cycling

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HESSO Valais

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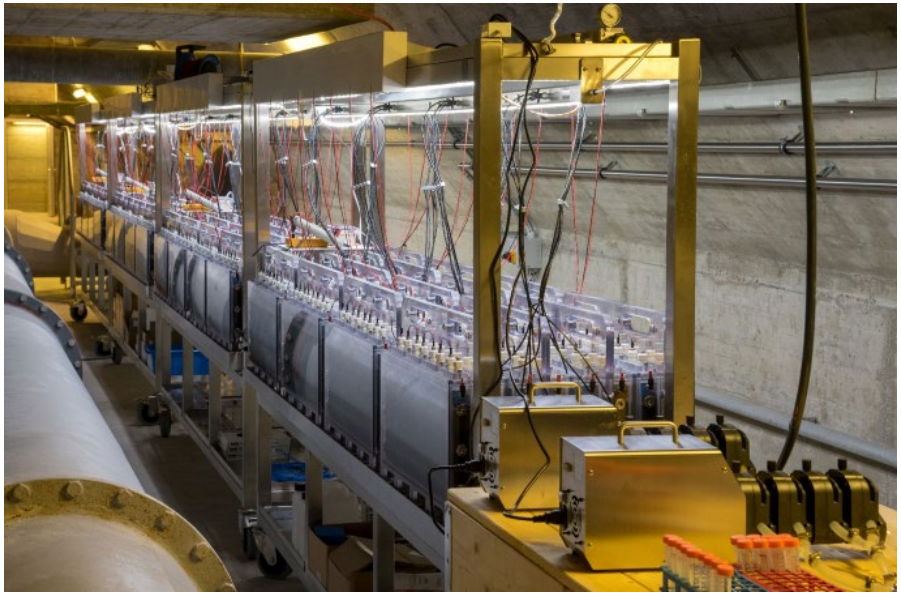
Topic(s) addressed :

- **HORIZON-CL6-2025-02-FARM2FORK-15: Nutrients produced by microbes utilising CO_2 from the air, with the support of biotechnology**
- **HORIZON-CL6-2025-01-CIRCBIO-08: Demonstration, deployment and upscaling of circular systemic solutions in cities and regions**
- **HORIZON-CL6-2025-01-ZEROPOLLUTION-04: Environmental biotechnology applications in service of remediation of polluted ecosystems**

Biophotovoltaic and bioelectric synthesis to cycle CO_2 into products and reduce waste

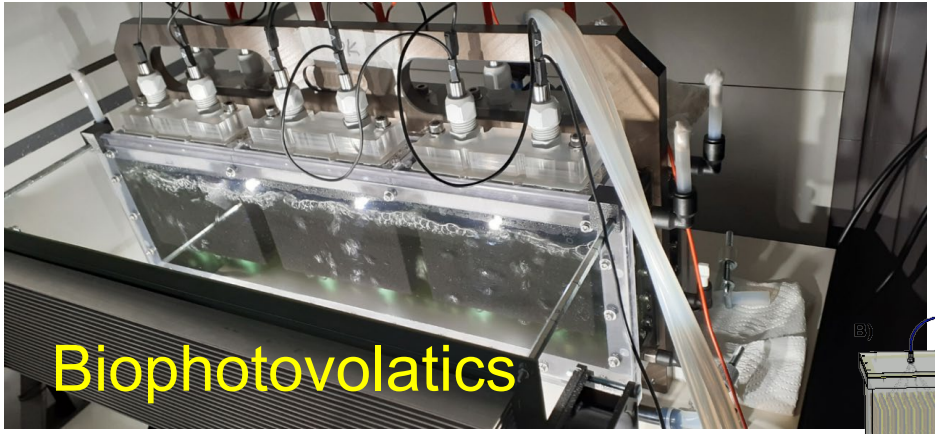
This project explores the **integration of biophotovoltaic and/or bioelectric synthesis to harness solar energy and microbial metabolism** for sustainable carbon recycling. By converting CO_2 into value-added products such as biofuels, bioplastics, or chemical feedstocks, the approach aims to **close the carbon loop** and reduce municipal and/or industrial waste. The project combines biological photosystems with electrochemical interfaces to optimize energy capture and conversion efficiency, **contributing to a circular bioeconomy** and addressing climate change challenges as waste is the CO_2 source.

Main expertise offered are bioelectric systems and their scale up.

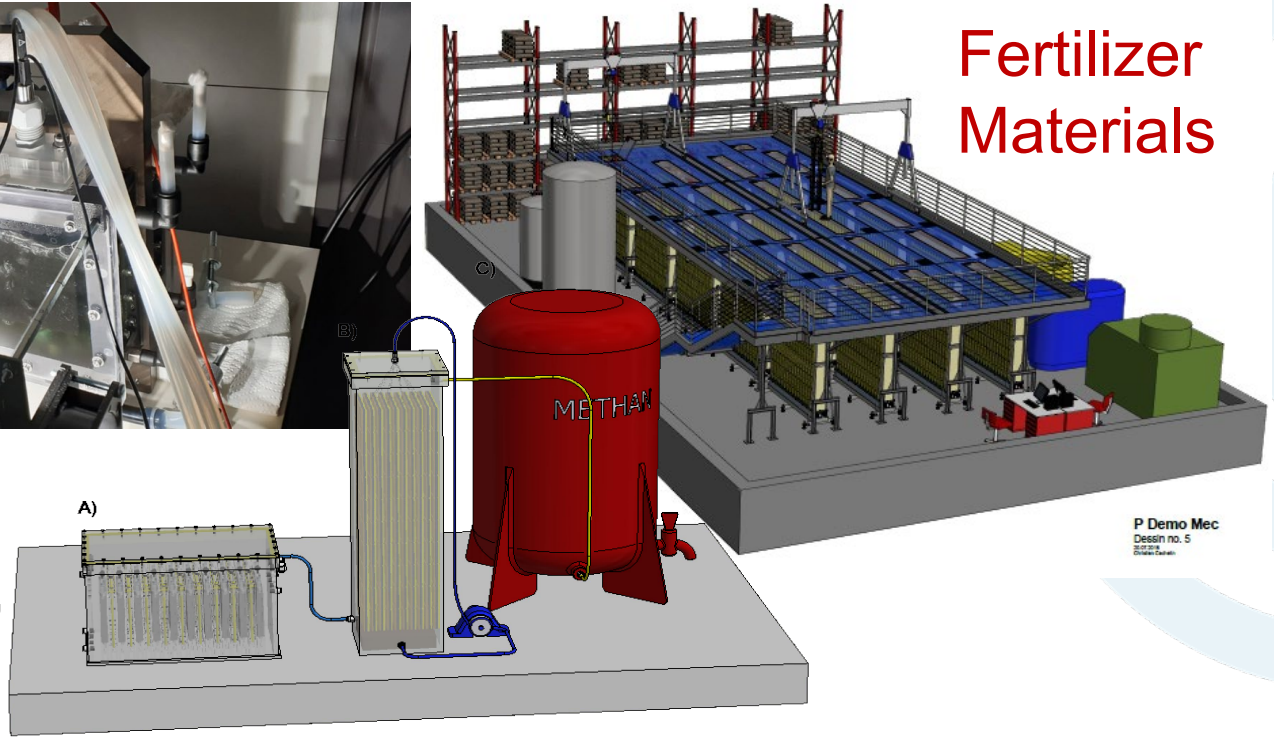


- All reactor sizes available up to 1000 L (plans to get even larger).

Main expertise offered



Fertilizer Materials



Power to Methane, Hydrogen or other.

Main expertise offered

- Our expertise: Testing of electrogenic microbes; Purify wastewater and generate electricity; Green power to X technologies; Bioelectric reactor design for the large scale; Testing of novel membranes in bioelectric systems; Field - testing of bioelectric systems/reactors; Convert bioelectrically CO_2 into chemicals; Biophotovoltaics .

  - Involvement in previous/ongoing projects: **Scale up version work, field application, technology evaluation.**
  - Role in projects: **lead and partner**

Main expertise sought

- Large surface electrodes
- Low power electronics
- Photoelectrodes
- Constructors of novel reactors
- Construction materials for bioelectric reactors
- Test Fertilizers
- Sequencing and Bioinformatics Knowledge

Contact details

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Please note:

- Presentations must be held in English;
- Presentations will last NO MORE THAN 5 MINUTES
- Do not overload your slides –provide links to additional material;
- Do not use videos and animations etc. as these may not be compatible with the IT system in the venue;
- The flash presentations will be made available as .pdf files on the event website after 26th September (unless you object);
- Please do not submit a flash presentation until your profile has been activated;
- Presentations should be submitted to nks-bio-umw@fz-juelich.de
- Submission deadline:
  - 13 April 2025 (if you intend to apply for a travel grant)
  - 4 May 2025