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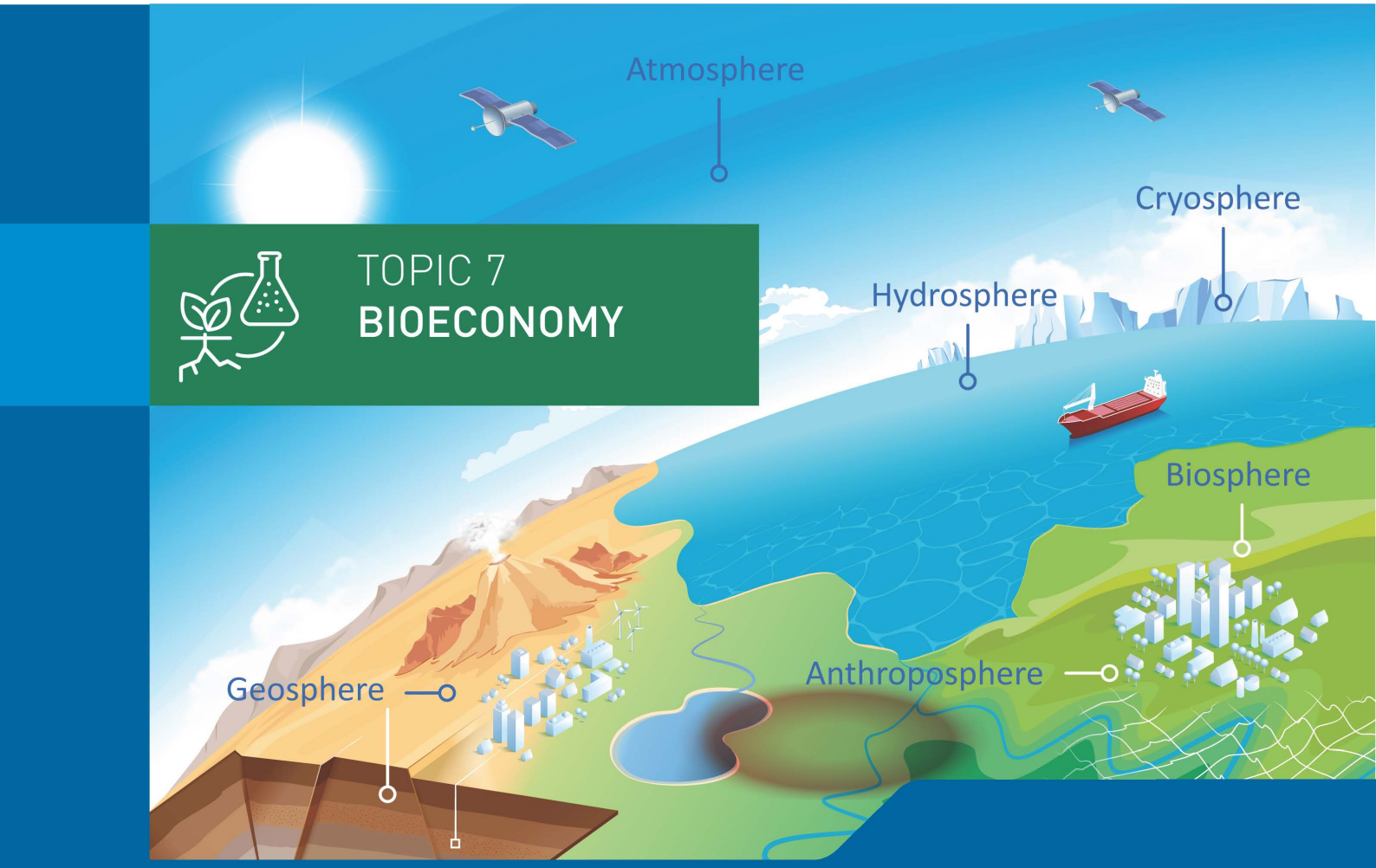

Publications

Helmholtz Centre for Environmental Research – UFZ

Topic 7: Towards a Sustainable Bioeconomy - Resources, Utilization, Engineering and AgroEcosystems

Preface

This list includes all publications of the year 2024 assigned to program topic 7 “Towards a Sustainable Bioeconomy - Resources, Utilization, Engineering and AgroEcosystems” of the Helmholtz research program "Changing Earth – Sustaining our Future" within the research field Earth and Environment which were authored, co-authored or edited by staff members of the Helmholtz Centre for Environmental Research - UFZ.

If a publication belongs to more than one program topic, both primary and secondary assignments are indicated.

The editorial deadline for this publication list was 28 February 2025.

In contrast to external authors, UFZ staff names are highlighted in **bold type** in all publications.

The concluding index lists all UFZ authors in alphabetical order with the sequential numbers of their publications.

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Publications in ISI/Scopus listed journals/series

1. **Abbas, G., Jomaa, S., Fink, P.,** Brosinsky, A., **Nowak, K.M., Kümmel, S.,** Schkade, U.-K., **Rode, M.** (2024):
Investigating sediment sources using compound-specific stable isotopes and conventional fingerprinting methods in an agricultural loess catchment
Catena **246** , art. 108336 10.1016/j.catena.2024.108336
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2. **Abdulkadir, N., Saraiva, J.P., Zhang, J.,** Stolte, S., Gillor, O., **Harms, H., Nunes da Rocha, U.** (2024):
Genome-centric analyses of 165 metagenomes show that mobile genetic elements are crucial for the transmission of antimicrobial resistance genes to pathogens in activated sludge and wastewater
Microbiol. Spectr. **12** (3), e02918-23 10.1128/spectrum.02918-23

3. Acuña, J.J., Rilling, J.I., Inostroza, N.G., Zhang, Q., **Wick, L.Y.,** Sessitsch, A., Jorquera, M.A. (2024):
Variovorax sp. strain P1R9 applied individually or as part of bacterial consortia enhances wheat germination under salt stress conditions
Sci. Rep. **14** , art. 2070 10.1038/s41598-024-52535-0

4. **Akay, C., Ulrich, N., Ding, C., Nunes da Rocha, U., Adrian, L.** (2024):
Sequential anaerobic-aerobic treatment enhances sulfamethoxazole removal: From batch cultures to observations in a large-scale wastewater treatment plant
Environ. Sci. Technol. **58** (28), 12609 - 12620 10.1021/acs.est.4c00368
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5. Ali, M.H., **Khan, M.I.,** Naveed, M., Tanvir, M.A. (2024):
Microbe-assisted rhizodegradation of hydrocarbons and growth enhancement of wheat plants in hydrocarbons contaminated soil
Int. J. Environ. Sci. Technol. **21** (3), 3169 - 3184 10.1007/s13762-023-05174-3

6. Angenent, L.T., Casini, I., Schröder, U., **Harnisch, F.,** Molitor, B. (2024):
Electrical-energy storage into chemical-energy carriers by combining or integrating electrochemistry and biology
Energy Environ. Sci. **17** (11), 3682 - 3699 10.1039/D3EE01091K

7. Armanu, G.E., Secula, S., Cimpoesu, N., **Heipieper, H.J.,** Volf, I. (2024):
A biobased nano/micro-structured material for microorganisms' immobilization
24th International Multidisciplinary Scientific Geoconference: Nano, Bio, Green and Space - Technologies for a Sustainable Future, Albena, 1-7 July 2024
SGEM Conference Proceedings *SGEM 2024*
SGEM, p. 3 - 10 10.5593/sgem2024/6.1/s24.01

8. Arshad, M.J., **Khan, M.I.,** Ali, M.H., Farooq, Q., Hussain, M.I., Seleiman, M.F., Asghar, M.A. (2024):
Enhanced wheat productivity in saline soil through the combined application of poultry manure and beneficial microbes
BMC Plant Biol. **24** , art. 423 10.1186/s12870-024-05137-x

9. **Aslam, S.,** Arslan, M., **Nowak, K.M.** (2024):
Microbial activity, community composition and degraders in the glyphosate-spiked soil are driven by glycine formation
Sci. Total Environ. **907** , art. 168206 10.1016/j.scitotenv.2023.168206

10. **Aslam, S., Nowak, K.M.** (2024):
Nitrogen-fertilizer addition to an agricultural soil enhances biogenic non-extractable residue formation from 2-^{13}C,^{15}N-glyphosate
Sci. Total Environ. **918** , art. 170643 10.1016/j.scitotenv.2024.170643

11. **Avila Santos, A.P.,** de Almeida, B.L.S., Bonidia, R.P., Stadler, P.F., Stefanic, P., Mandic-Mulec, I., **Nunes da Rocha, U.,** Sanches, D.S., de Carvalho, A.C.P.L.F. (2024):
BioDeepfuse: a hybrid deep learning approach with integrated feature extraction techniques for enhanced non-coding RNA classification
RNA Biol. **21** (1), 1 - 12 10.1080/15476286.2024.2329451

12. **Balda, M., Georgi, A., Kopinke, F.-D., Mackenzie, K.** (2024):
Generating colloidal Fe/C composites via hydrothermal carbonization – A critical study
Sep. Purif. Technol. **335** , art. 126082 10.1016/j.seppur.2023.126082

13. **Balseiro-Romero, M., Wick, L.Y.,** Vila, J., Grifoll, M., Ortega-Calvo, J.J. (2024):
Drivers for efficient bioaugmentation and clean-up of contaminated soil
In: Ortega-Calvo, J.J., Coulon, F. (eds.)
Soil remediation science and technology
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Springer, Berlin, Heidelberg, p. 261 - 291 10.1007/698_2023_1064

14. **Beihsner, J.,** Hausdorf, S., Friedrich, J., Kaskel, S. (2024):
High performance of the metal organic framework CPO-27 for toxic gas capture (NO_2)
Eur. J. Inorg. Chem. **27** (29), e202400253 10.1002/ejic.202400253

15. **Bertelmann, C., Bühler, B.** (2024):
Strategies found not to be suitable for stabilizing high steroid hydroxylation activities of CYP450 BM3-based whole-cell biocatalysts
PLOS One **19** (9), e0309965 10.1371/journal.pone.0309965

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Biospektrum **30** (5), 593 - 595 10.1007/s12268-024-2261-3

17. **Bertelmann, C., Mock, M., Schmid, A., Bühler, B.** (2024):
Efficiency aspects of regioselective testosterone hydroxylation with highly active CYP450-based whole-cell biocatalysts
Microb. Biotechnol. **17** (1), e14378 10.1111/1751-7915.14378

18. **Bertoldi, S., Mattos, P.D.M.A.S.,** de Carvalho, C.C.C.R., Kruse, L., Thies, S., **Heipieper, H.J., Eberlein, C.** (2024):
Evaluation of the robustness under alkanol stress and adaptability of members of the new genus *Halopseudomonas*
Microorganisms **12** (11), art. 2116 10.3390/microorganisms12112116

19. Bitzenhofer, N.L., Höfel, C., Thies, S., Weiler, A.J., **Eberlein, C., Heipieper, H.J.,** Batra-Safferling, R., Sundermeyer, P., Heidler, T., Sachse, C., Busche, T., Kalinowski, J., Belthle, T., Drepper, T., Jaeger, K.-E., Loeschcke, A. (2024):
Exploring engineered vesiculation by *Pseudomonas putida* KT2440 for natural product biosynthesis
Microb. Biotechnol. **17** (1), e14312 10.1111/1751-7915.14312

20. Boussouga, Y.-A., Joseph, J., **Stryhanyuk, H., Richnow, H.H.,** Schäfer, A.I. (2024):
Adsorption of uranium (VI) complexes with polymer-based spherical activated carbon
Water Res. **249** , art. 120825 10.1016/j.watres.2023.120825

21. **Brandenburg, F., Röhring, K., Hunger, S., Kuchenbuch, A., Harnisch, F.** (2024):
Elektrobioreaktoren für alle! – Technische Anforderungen und Innovationen [Electrobioreactors for everyone! - Technical requirements and innovations]
Biospektrum **30** (1), 120 - 122 10.1007/s12268-024-2094-0

22. **Breulmann, M., Müller, R., van Afferden, M.** (2024):
Modeling urban stormwater and irrigation management with coupled blue-green infrastructure in the context of climate change
Blue-Green Syst. **6** (1), 100 - 113 10.2166/bgs.2024.101

23. Burr, D.J., Drauschke, J., Kanevche, K., **Kümmel, S., Stryhanyuk, H.,** Heberle, J., Perfumo, A., Elsaesser, A. (2024):
Stable isotope probing-nanoFTIR for quantitation of cellular metabolism and observation of growth-dependent spectral features
Small **20** (36), art. 2400289 10.1002/smll.202400289

24. Cabezas, A., Cercado, B., Chouchane, H., Corton, E., Gomaa, O., **Harnisch, F.,** Limson, J., Reginatto Spiller, V., Vargas, I. (2024):
Microbial electrochemistry and technology capacity building challenges—focus on Latin America & Caribbean and Africa
J. Solid State Electrochem. **28** (3-4), 1023 - 1039 10.1007/s10008-023-05761-x

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Ex-situ electrochemical characterisation of fixed-bed denitrification biocathodes: A promising strategy to improve bioelectrochemical denitrification
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Pasture-crop rotations modulate the soil and rhizosphere microbiota and preserve soil structure supporting oat cultivation in the Pampa biome
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In situ anchoring of bimetal (Cu, Fe) sulfides featured by sulfur vacancy and phosphorus doping within porous carbon nanocubes derived from Prussian blue analogs to activate peroxymonosulfate for the efficient degradation of organic pollutants
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Back flux during anaerobic oxidation of butane supports archaea-mediated alkanogenesis
Nat. Commun. **15** , art. 9628 10.1038/s41467-024-53932-9
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30. **Chen, S.-C.,** Musat, F., **Richnow, H.-H.,** Krüger, M. (2024):
Microbial diversity and oil biodegradation potential of northern Barents Sea sediments
J. Environ. Sci. **146** , 283 - 297 10.1016/j.jes.2023.12.010

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Waste-to-Energy technologies for municipal solid waste management: Bibliometric review, life cycle assessment, and energy potential case study
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Unbalanced predatory communities and a lack of microbial degraders characterize the microbiota of a highly sewage-polluted Eastern-Mediterranean stream
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Influence of the 3D architecture and surface roughness of SiOC anodes on bioelectrochemical system performance: a comparative study of freeze-cast, 3D-printed, and tape-cast materials with uniform composition
Mater. Renew. Sustain. Energy **13** (1), 81 - 96 10.1007/s40243-023-00253-4

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Microbial electricity-driven anaerobic phenol degradation in bioelectrochemical systems
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Proton motive force generation in *Dehalococcoides mccartyi* strain CBDB1 through intracellular proton uptake during organohalide respiration
FEBS Open Bio **14** (S2), 199 - 200 10.1002/2211-5463.13837

37. Diefenbach, T., Sumetzberger-Hasinger, M., Braunschmid, V., Konegger, H., **Heipieper, H.J.,** Guebitz, G.M., Lackner, M., Ribitsch, D., Loibner, A.P. (2024):
Laccase-mediated degradation of petroleum hydrocarbons in historically contaminated soil
Chemosphere **348** , art. 140733 10.1016/j.chemosphere.2023.140733

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Cable bacteria skeletons as catalytically active electrodes
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Climate induced microbiome alterations increase cadmium bioavailability in agricultural soils with pH below 7
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Biocalorimetry-aided monitoring of fungal pretreatment of lignocellulosic agricultural residues
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Author correction: Effect of model methanogens on the electrochemical activity, stability, and microbial community structure of *Geobacter* spp. dominated biofilm anodes
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42. Dzofou Ngoumelah, D., Bjerkan Heggeset, T.M., Haugen, T., Sulheim, S., Wentzel, A., **Harnisch, F.,** Kretzschmar, J. (2024):
Effect of model methanogens on the electrochemical activity, stability, and microbial community structure of *Geobacter* spp. dominated biofilm anodes
npj Biofilms Microbiomes **10** , art. 17 10.1038/s41522-024-00490-z

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Front. Microbiol. **15** , art. 1457014 10.3389/fmicb.2024.1457014

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Linking the transcriptome to physiology: response of the proteome of *Cupriavidus metallidurans* to changing metal availability
Metallomics **16** (12), mfae058 10.1093/mtomcs/mfae058

51. Garcia-Garcia, G., Parra-López, C., Siddiqui, M.A., Lin, C.S.K., Maalej, H., Njeh, F., Galve, E., Ghrab, S., Belhassen, S., Hassoun, A., **Rojas-Serrano, F.,** Rodríguez-Pleguezuelo, C.R., Sayadi, S. (2024):
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Bioengineering **11** (2), art. 165 10.3390/bioengineering11020165

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