

Veröffentlichungen

des Helmholtz-Zentrums für Umweltforschung GmbH – UFZ

Forschungsbereich Energie

Forschen für die Umwelt

Vorbemerkung

Das vorliegende Veröffentlichungsverzeichnis umfasst die im Jahre 2015 erschienenen Publikationen des Programmes "Erneuerbare Energien" im Forschungsbereichs Energie, die von Mitarbeitern der Helmholtz-Zentrum für Umweltforschung GmbH - UFZ verfasst, mitverfasst oder herausgegeben wurden.

Redaktionsschluss für diese Publikationsliste war der 15. März 2016.

Im Unterschied zu externen Autoren sind UFZ Angehörige bei allen Publikationen durch **fette Schrift** hervorgehoben.

Das anschließende alphabetische Register verzeichnet alle UFZ Autoren mit den jeweiligen laufenden Nummern ihrer Publikationen.

Inhaltsverzeichnis

Artikel in ISI und SCOPUS gelisteten Zeitschriften	3
Artikel in anderen Zeitschriften	10
Buchkapitel	11
UFZ-Autorenregister	12

Artikel in ISI und SCOPUS gelisteten Zeitschriften

1. Blöcher, G., Cacace, M., Reinsch, T., **Watanabe, N.** (2015):
Evaluation of three exploitation concepts for a deep geothermal system in the North German Basin
Comput. Geosci. **82**, 120 - 129
2. Brown, R.K., **Harnisch, F.**, Dockhorn, T., Schröder, U. (2015):
Examining sludge production in bioelectrochemical systems treating domestic wastewater
Bioresour. Technol. **198**, 913 - 917
3. **Centler, F., Thullner, M.** (2015):
Chemotactic preferences govern competition and pattern formation in simulated two-strain microbial communities
Frontiers in Microbiology **6**, art. 40
4. Collins, J., **Grund, M.**, Brandenbusch, C., Sadowski, G., **Schmid, A.**, Bühler, B. (2015):
The dynamic influence of cells on the formation of stable emulsions in organic-aqueous biotransformations
J. Ind. Microbiol. Biotechnol. **42** (7), 1011 - 1026
5. **David, C., Bühler, K., Schmid, A.** (2015):
Stabilization of single species *Synechocystis* biofilms by cultivation under segmented flow
J. Ind. Microbiol. Biotechnol. **42** (7), 1083 - 1089
6. **Dos Santos, T.R., Harnisch, F.**, Nilges, P., Schröder, U. (2015):
Electrochemistry for biofuel generation: transformation of fatty acids and triglycerides to diesel-like olefin/ether mixtures and olefins
ChemSusChem **8** (5), 886 - 893
7. **Dos Santos, T.R., Nilges, P., Sauter, W., Harnisch, F.**, Schröder, U. (2015):
Electrochemistry for the generation of renewable chemicals: electrochemical conversion of levulinic acid
RSC Advances **5** (34), 26634 - 26643
8. **Dusny, C., Grünberger, A., Probst, C., Wiechert, W., Kohlheyer, D., Schmid, A.** (2015):
Technical bias of microcultivation environments on single-cell physiology
Lab Chip **15** (8), 1822 - 1834
9. **Dusny, C., Schmid, A.** (2015):
Microfluidic single-cell analysis links boundary environments and individual microbial phenotypes
Environ. Microbiol. **17** (6), 1839 - 1856

10. **Dusny, C., Schmid, A.** (2015):
Challenging biological limits with microfluidic single cell analysis
Microb. Biotechnol. **8** (1), 23 - 25
11. Gannon, A.R., **Nagel, T.**, Bell, A.P., Avery, N.C., Kelly, D.J. (2015):
Postnatal changes to the mechanical properties of articular cartilage are driven by the evolution of its collagen network
Eur. Cells Mater. **29**, 105 - 123
12. Gannon, A.R., **Nagel, T.**, Bell, A.P., Avery, N.C., Kelly, D.J. (2015):
The changing role of the superficial region in determining the dynamic compressive properties of articular cartilage during postnatal development
Osteoarthr. Cartilage **23** (6), 975 - 984
13. **Gimkiewicz, C., Hunger, S., Stang, C., Rosa, L.F.M., Zehnsdorf, A., Harnisch, F.** (2015):
Bioreactors go electro – Bioreaktoren für Bioelektrotechnologie aufrüsten
Biospektrum **21** (4), 453 - 454
14. Grobblér, C., Virdis, B., Nouwens, A., **Harnisch, F.**, Rabaey, K., Bond, P.L. (2015):
Use of SWATH mass spectrometry for quantitative proteomic investigation of *Shewanella oneidensis* MR-1 biofilms grown on graphite cloth electrodes
Syst. Appl. Microbiol. **38**, 135 - 139
15. **Günther, S., Müller, S.** (2015):
Facilitated gate setting by sequential dot plot scanning
Cytom. Part A **87** (7), 661 - 664
16. **Harnisch, F., Rosa, L.F.M.**, Kracke, F., Virdis, B., Krömer, J.O. (2015):
Electrifying white biotechnology: engineering and economic potential of electricity-driven bio-production
ChemSusChem **8** (5), 758 - 766
17. Hou, Z., Xie, H., Zhou, H., Were, P., **Kolditz, O.** (2015):
Unconventional gas resources in China
Environ. Earth Sci. **73** (10), 5785 - 5789
18. **Huang, Y., Kolditz, O., Shao, H.** (2015):
Extending the persistent primary variable algorithm to simulate non-isothermal two-phase two-component flow with phase change phenomena
Geothermal Energy **3**, art. 13
19. **Jahn, M., Günther, S., Müller, S.** (2015):
Non-random distribution of macromolecules as driving forces for phenotypic variation
Curr. Opin. Microbiol. **25**, 49 - 55

20. Janke, A., Leite, A., Batista, K., Weinrich, S., Sträuber, H., Nikolausz, M., Nelles, M., Stinner, W. (2015):
Optimization of hydrolysis and volatile fatty acids production from sugarcane filter cake: effects of urea supplementation and sodium hydroxide pretreatment
Bioresour. Technol. **199**, 235 - 244
21. Janke, L., Leite, A., Nikolausz, M., Schmidt, T., Liebetrau, J., Nelles, M., Stinner, W. (2015):
Biogas production from sugarcane waste: assessment on kinetic challenges for process designing
Int. J. Mol. Sci. **16** (9), 20685 - 20703
22. Karande, R., Debora, L., Salamanca, D., Bogdahn, F., Engesser, K., Buehler, K., Schmid, A. (2015):
Continuous cyclohexane oxidation to cyclohexanol using a novel cytochrome P450 monooxygenase from *Acidovorax* sp. CHX100 in recombinant *P. taiwanensis* VLB120 biofilms
Biotechnol. Bioeng. **113** (1), 52 - 61
23. King, N., Müller, S. (2015):
Environmental microbiology: revisiting the physiology of microorganisms on the single cell scale. Editorial overview
Curr. Opin. Microbiol. **25**, v - vi
24. Koch, C., Kuchenbuch, A., Kretzschmar, J., Wedwitschka, H., Liebetrau, J., Müller, S., Harnisch, F. (2015):
Coupling electric energy and biogas production in anaerobic digesters – impacts on the microbiome
RSC Advances **5** (40), 31329 - 31340
25. Köhler, K.A.K., Rühl, J., Blank, L.M., Schmid, A. (2015):
Integration of biocatalyst and process engineering for sustainable and efficient *n*-butanol production
Eng. Life Sci. **15** (1), 4 - 19
26. Kolditz, O., Xie, H., Hou, Z., Were, P., Zhou, H. (2015):
Subsurface energy systems in China: production, storage and conversion
Environ. Earth Sci. **73** (11), 6727 - 6732
27. Korth, B., Rosa, L.F.M., Harnisch, F., Picioreanu, C. (2015):
A framework for modeling electroactive microbial biofilms performing direct electron transfer
Bioelectrochemistry **106**, 194 - 206

28. Kurteva-Yaneva, N., Zahn, M., **Weichler, M.-T.**, **Starke, R.**, **Harms, H.**, **Müller, R.H.**, Sträter, N., **Rohwerder, T.** (2015):
Structural basis of the stereospecificity of bacterial B₁₂-dependent
2-hydroxyisobutyryl-CoA mutase
J. Biol. Chem. **290**, 9727 - 9737
29. Lang, K., **Buehler, K.**, **Schmid, A.** (2015):
Multistep synthesis of (S)-3-hydroxyisobutyric acid from glucose using *Pseudomonas taiwanensis* VLB120 B83 T7 catalytic biofilms
Adv. Synth. Catal. **357** (8), 1919 - 1927
30. **Lange, K.**, **Schmid, A.**, Julsing, M.K. (2015):
Δ⁹-Tetrahydrocannabinolic acid synthase production in *Pichia pastoris* enables chemical synthesis of cannabinoids
J. Biotechnol. **211**, 68 - 76
31. **Leite, A.F.**, Janke, L., **Harms, H.**, Zang, J.W., Fonseca-Zang, W.A., Stinner, W., **Nikolausz, M.** (2015):
Assessment of the variations in characteristics and methane potential of major waste products from the Brazilian bioethanol industry along an operating season
Energy Fuels **29** (7), 4022 - 4029
32. **Leite, A.F.**, Janke, L., Lv, Z., **Harms, H.**, Richnow, H.-H., **Nikolausz, M.** (2015):
Improved monitoring of semi-continuous anaerobic digestion of sugarcane waste: effects of increasing organic loading rate on methanogenic community dynamics
Int. J. Mol. Sci. **16** (10), 23210 - 23226
33. Lindmeyer, M., **Jahn, M.**, **Vorpahl, C.**, Müller, S., **Schmid, A.**, **Bühler, B.** (2015):
Variability in subpopulation formation propagates into biocatalytic variability of engineered *Pseudomonas putida* strains
Frontiers in Microbiology **6**, art. 1042
34. Lindmeyer, M., Meyer, D., Kuhn, D., **Bühler, B.**, **Schmid, A.** (2015):
Making variability less variable: matching expression system and host for oxygenase-based biotransformations
J. Ind. Microbiol. Biotechnol. **42** (6), 851 - 866
35. **Lucas, R.**, **Kuchenbuch, A.**, Fetzer, I., **Harms, H.**, **Kleinsteuber, S.** (2015):
Long-term monitoring reveals stable and remarkably similar microbial communities in parallel full-scale biogas reactors digesting energy crops
FEMS Microbiol. Ecol. **91** (3), fiv004

36. **Nagel, T., Beckert, S., Böttcher, N., Gläser, R., Kolditz, O.** (2015):
The impact of adsorbate density models on the simulation of water sorption on nanoporous materials for heat storage
Energy Procedia **75**, 2106 - 2112
37. **Otto, B., Beuchel, C., Liers, C., Reisser, W., Harms, H., Schlosser, D.** (2015):
Laccase-like enzyme activities from chlorophycean green algae with potential for bioconversion of phenolic pollutants
FEMS Microbiol. Lett. **362** (11), fnv072
38. **Poerschmann, J., Weiner, B., Koehler, R., Kopinke, F.-D.** (2015):
Organic breakdown products resulting from hydrothermal carbonization of brewer's spent grain
Chemosphere **131**, 71 - 77
39. **Poerschmann, J., Weiner, B., Woszidlo, S., Koehler, R., Kopinke, F.-D.** (2015):
Hydrothermal carbonization of poly(vinyl chloride)
Chemosphere **119**, 682 - 689
40. **Popp, D., Schrader, S., Kleinsteuber, S., Harms, H., Sträuber, H.** (2015):
Biogas production from coumarin-rich plants— inhibition by coumarin and recovery by adaptation of the bacterial community
FEMS Microbiol. Ecol. **91** (9), fiv103
41. **Porsch, K., Wirth, B., Tóth, E.M., Schattenberg, F., Nikolausz, M.** (2015):
Characterization of wheat straw-degrading anaerobic alkali-tolerant mixed cultures from soda lake sediments by molecular and cultivation techniques
Microb. Biotechnol. **8** (5), 801 - 814
42. Pous, N., **Koch, C., Vilà-Rovira, A., Balaguer, M.D., Colprim, J., Mühlenberg, J., Müller, S., Harnisch, F., Puig, S.** (2015):
Monitoring and engineering reactor microbiomes of denitrifying bioelectrochemical systems
RSC Advances **5** (84), 68326 - 68333
43. **Przybylski, D., Rohwerder, T., Dilßner, C., Maskow, T., Harms, H., Müller, , Müller, R.H.** (2015):
Exploiting mixtures of H₂, CO₂, and O₂ for improved production of methacrylate precursor 2-hydroxyisobutyric acid by engineered *Cupriavidus necator* strains
Appl. Microbiol. Biotechnol. **99** (5), 2131 - 2145
44. Richter, S., Fetzer, I., **Thullner, M., Centler, F., Dittrich, P.** (2015):
Towards rule-based metabolic databases: a requirement analysis based on KEGG
Int. J. Data Min. Bioinform. **13** (3), 289 - 319

45. **Riedel, G., Koehler, R., Poerschmann, J., Kopinke, F.-D., Weiner, B.** (2015): Combination of hydrothermal carbonization and wet oxidation of various biomasses
Chem. Eng. J. **279**, 715 - 724
46. Rosenthal, K., Falke, F., **Frick, O., Dusny, C., Schmid, A.** (2015): An inert continuous microreactor for the isolation and analysis of a single microbial cell
Micromachines **6** (12), 1836 - 1855
47. **Schmutzler, K., Schmid, A., Buehler, K.** (2015): A three-step method for analysing bacterial biofilm formation under continuous medium flow
Appl. Microbiol. Biotechnol. **99** (14), 6035 - 6047
48. Schröder, U., **Harnisch, F.**, Angenent, L.T. (2015): Microbial electrochemistry and technology: terminology and classification
Energy Environ. Sci. **8** (2), 513 - 519
49. **Theodosiou, E., Frick, O., Bühler, B., Schmid, A.** (2015): Metabolic network capacity of *Escherichia coli* for Krebs cycle-dependent proline hydroxylation
Microb. Cell. Fact. **14**, art. 108
50. Volmer, J., **Schmid, A., Bühler, B.** (2015): Guiding bioprocess design by microbial ecology
Curr. Opin. Microbiol. **25**, 25 - 32
51. **Wang, W., Fischer, T., Zehner, B., Böttcher, N., Görke, U.-J., Kolditz, O.** (2015): A parallel finite element method for two-phase flow processes in porous media: OpenGeoSys with PETSc
Environ. Earth Sci. **73** (5), 2269 - 2285
52. **Wang, W., Kolditz, O., Nagel, T.** (2015): A parallel FEM scheme for the simulation of large scale thermochemical energy storage with complex geometries using PETSc routines
Energy Procedia **75**, 2080 - 2086
53. **Wei, M., Rakoczy, J., Vogt, C., Harnisch, F., Schumann, R., Richnow, H.H.** (2015): Enhancement and monitoring of pollutant removal in a constructed wetland by microbial electrochemical technology
Bioresour. Technol. **196**, 490 - 499

54. **Weichler, M.-T.**, Kurteva-Yaneva, N., **Przybylski, D.**, **Schuster, J.**, **Müller, R.H.**, **Harms, H.**, **Rohwerder, T.** (2015):
Thermophilic coenzyme B₁₂-dependent acyl-coenzyme A (CoA) mutase from *Kyrridia tusciae* DSM 2912 preferentially catalyzes isomerization of (*R*)-3-hydroxybutyryl- and 2-hydroxyisobutyryl-CoA
Appl. Environ. Microb. **81** (14), 4564 - 4572
55. **Willrodt, C.**, **Hoschek, A.**, **Bühler, B.**, **Schmid, A.**, Julsing, M.K. (2015):
Coupling limonene formation and oxyfunctionalization by mixed-culture resting cell fermentation
Biotechnol. Bioeng. **112** (9), 1738 - 1750
56. **Willrodt, C.**, **Karande, R.**, **Schmid, A.**, Julsing, M.K. (2015):
Guiding efficient microbial synthesis of non-natural chemicals by physicochemical properties of reactants
Curr. Opin. Biotechnol. **35** , 52 - 62

Artikel in anderen Zeitschriften

57. **Sträuber, H., Bühligen, F., Kleinstieber, S., Nikolausz, M., Porsch, K.** (2015): Improved anaerobic fermentation of wheat straw by alkaline pre-treatment and addition of alkali-tolerant microorganisms
Bioengineering **2** (2), 66 - 93

Buchkapitel

58. Magri, F., Maßmann, J., **Wang, W.**, Benisch, K. (2015):
Coupled THM processes
In: Kolditz, O., Shao, H., Wang, W., Bauer, S. (eds.)
Thermo-hydro-mechanical-chemical processes in fractured porous media: Modelling and benchmarking. Closed-form solutions
Terrestrial Environmental Sciences
Springer, p. 221 - 245
59. Shao, H., Xu, W., Marschall, P., **Kolditz, O.**, Hesser, J. (2015):
Numerical interpretation of gas-injection tests at different scales
In: Shaw, R.P. (ed.)
Gas Generation and Migration in Deep Geological Radioactive Waste Repositories
Geological Society, London, Special Publications 415
Geological Society Publ. House, London,
60. **Singh, A.** (2015):
Multi-componential fluid flow
In: Kolditz, O., Shao, H., Wang, W., Bauer, S. (eds.)
Thermo-hydro-mechanical-chemical processes in fractured porous media: Modelling and benchmarking. Closed-form solutions
Terrestrial Environmental Sciences
Springer, p. 131 - 152
61. **Watanabe, N.**, Blöcher, G., Milsch, H., Reinicke, A. (2015):
Thermo-mechanics: stress-induced heating of elastic solids
In: Kolditz, O., Shao, H., Wang, W., Bauer, S. (eds.)
Thermo-hydro-mechanical-chemical processes in fractured porous media: Modelling and benchmarking. Closed-form solutions
Terrestrial Environmental Sciences
Springer, p. 247 - 254
62. **Weiner, B., Riedel, G., Köhler, R., Pörschmann, J., Kopinke, F.-D.** (2015):
Hydrothermaler Schadstoffabbau unter besonderer Berücksichtigung von
Medikamentenrückständen und PVC
In: Klemm, M., Glowacki, R., Nelles, M. (Hrsg.)
Innovationsforum hydrothermale Prozesse
Deutsches BiomasseForschungszentrum (DBFZ), Leipzig, S. 90 - 94

UFZ-Autorenregister

B

Batista, K.	20
Beuchel, C.	37
Böttcher, N.	36, 51
Bühler, B.	33, 34, 49, 50, 55
Buehler, K.	22, 29, 47
Bühler, K.	5
Bühligen, F.	57

C

Centler, F.	3, 44
-------------	-------

D

David, C.	5
Debor, L.	22
Dilßner, C.	43
Dos Santos, T.R.	6, 7
Dusny, C.	8, 9, 10, 46

F

Fischer, T.	51
Frick, O.	46, 49

G

Gimkiewicz, C.	13
Görke, U.-J.	51
Grund, M.	4
Günther, S.	15, 19

H

Harms, H.	28, 31, 32, 35, 37, 40, 43, 54
Harnisch, F.	2, 6, 7, 13, 14, 16, 24, 27, 42, 48, 53
Hoschek, A.	55
Huang, Y.	18
Hunger, S.	13

J

Jahn, M.	19, 33
----------	--------

K

Karande, R.	22, 56
-------------	--------

Kleinsteuber, S.	35, 40, 57
Koch, C.	24, 42
Koehler, R.	38, 39, 45
Köhler, R.	62
Kolditz, O.	17, 18, 26, 36, 51, 52, 59
Kopinke, F.-D.	38, 39, 45, 62
Korth, B.	27
Kretzschmar, J.	24
Kuchenbuch, A.	24, 35

L

Lange, K.	30
Leite, A.	20, 21
Leite, A.F.	31, 32
Lucas, R.	35
Lv, Z.	32

M

Maskow, T.	43
Müller, R.H.	28, 43, 54
Müller, S.	15, 19, 23, 24, 33, 42

N

Nagel, T.	11, 12, 36, 52
Nikolausz, M.	20, 21, 31, 32, 41, 57

O

Otto, B.	37
----------	----

P

Pörschmann, J.	62
Poerschmann, J.	38, 39, 45
Popp, D.	40
Porsch, K.	41, 57
Przybylski, D.	43, 54

R

Rakoczy, J.	53
Richnow, H.-H.	32
Richnow, H.H.	53
Riedel, G.	45, 62
Rohwerder, T.	28, 43, 54
Rosa, L.F.M.	13, 16, 27

S

Salamanca, D.	22
---------------	----

Schattenberg, F.	41
Schlosser, D.	37
Schmid, A.	4, 5, 8, 9, 10, 22, 25, 29, 30, 33, 34, 46, 47, 49, 50, 55, 56
Schmutzler, K.	47
Schrader, S.	40
Schumann, R.	53
Schuster, J.	54
Shao, H.	18
Singh, A.	60
Stang, C.	13
Starke, R.	28
Sträuber, H.	20, 40, 57

T

Theodosiou, E.	49
Thullner, M.	3, 44

V

Vogt, C.	53
Vorpahl, C.	33

W

Wang, W.	51, 52, 58
Watanabe, N.	1, 61
Wei, M.	53
Weichler, M.-T.	28, 54
Weiner, B.	38, 39, 45, 62
Willrodt, C.	55, 56
Woszidlo, S.	39

Z

Zehnsdorf, A.	13
---------------	----

Herausgeber

Helmholtz-Zentrum für Umweltforschung GmbH - UFZ

Permoserstraße 15
04318 Leipzig
Telefon 0341-235-0

Bearbeitung

Erika Schnauková

Michael Garbe

Heike Reichelt