Publications and Conference Papers: Overall Funding Periods SPP2170

Peer Reviewed Publications (Status 25.3.2025)

2020

1. Dusny, C., Grünberger, A. (2020). Microfluidic single-cell analysis in biotechnology: from monitoring towards understanding. Current Opinion in Biotechnology. Volume 63, 2020, Pages 26-33 https://doi.org/10.1016/j.copbio.2019.11.001

2. David JR., Noack S. (2020). Editorial overview: Causes and biotechnological application of microbial metabolic specialization. Curr. Opin. Biotechnol 62.

3. Noack S., Baumgart M. (2019.) Communities of Niche-Optimized Strains: Small-Genome Organism Consortia in Bioproduction. Trends Biotechnol 37(2):126-139.

4. Rosenbaum, M. et al. (2020). Consolidated bioprocessing of cellulose to itaconic acid by a co-culture of *Trichoderma reesei* and *Ustilago maydis",* Publication in *Biotechnology for Biofuels*

5. Schmideder, S., Müller, H., Barthel, L., Friedrich, T., Niessen, L., Meyer, V., & Briesen, H. (2020). Universal law for diffusive mass transport through mycelial networks. Biotechnology and Bioengineering, 118(2), 930–943. https://doi.org/10.1002/bit.27622

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6. Burmeister, B., Akhtar, Q., Hollmann, L., Tenhaef, N., Sokolowsky, S., Marienhagen, M., Noack, S., Kohlheyer, D., Grünberger, A. (2021)**.** (Optochemical) control of synthetic microbial co-culture interactions on a microcolony level. *ACS Synth. Biol.* 2021, 10, 6, 1308–1319 https://doi.org/10.1021/acssynbio.0c00382

7. Schlembach, I., Grünberger, A.; Rosenbaum, M.A.; Regestein, L. (2021). Measurement Techniques to Resolve and Control Population Dynamics of Mixed-Culture Processes. Trends in Biotechnology 2021 https://doi.org/10.1016/j.tibtech.2021.01.006

8. Kappelmann J., Klein B., Papenfuß M., Lange J., Blombach B., Takors R., Wiechert W., Polen T., Noack S. (2021)**.** Comprehensive Analysis of *C. glutamicum* Anaplerotic Deletion Mutants under Defined D-Glucose Conditions. Front Bioeng Biotechnol 8, 1549.

9. Stella RG., Gertzen CG., Smits SH., Gätgens C., Polen T., Noack S., Frunzke J. (2021). Biosensor-based growth-coupling and spatial separation as an evolution strategy to improve small molecule production of Corynebacterium glutamicum. Metab Eng, 68, 162-173.

10. Kremling, A. (2021). A counting-strategy together with a spatial structured model describes RNA polymerase and ribosome availability in Escherichia coli, Metabolic Engineering 67, pp 145.

11. Heins, A.L. Manh Dat Hoang, Weuster-Botz, D. (2021). Advances in automated real-time flow cytometry for monitoring of bioreactor processes. Eng Life Sci; 00, 1-20, https://doi.org/10.1002/elsc.202100082

12. Schneider M., Bäumler M., Lee NM, Weuster-Botz, D., Ehrenreich A., Liebl, W. (2021). Monitoring co-cultures of Clostridium carboxidivorans and Clostridium kluyveri by fluorescence in situ hybridization with specific 23S rRNA oligonucleotide probes. System Appl Microbiol 44: 126271.

13. Bäumler M., Schneider M., Ehrenreich A., Liebl W., Weuster-Botz D. (2021). Synthetic co-culture of autotrophic Clostridium carboxidivorans with chain elongating Clostridium kluyveri monitored by flow cytometry. Microb Biotechnol https://doi.org/10.1111/1751-7915.13941

14. Rosenbaum, M. et al. (2021). Measurement Techniques to Resolve and Control Population Dynamics of Mixed-Culture Processes", *Trends Biotechnology*.

15. Füting, P., Barthel, L., Cairns, T., Briesen, H., & Schmideder, S. (2021). Filamentous fungal applications in biotechnology: a combined bibliometric and patentometric assessment. Fungal Biology and Biotechnology 8, 23 (2021). https://doi.org/10.1186/s40694-021-00131-6

16. Meyer V., Cairns T., Barthel L., King R., Kunz P., Schmideder S., Müller H., Briesen H., Dinius A., Krull R. (2021). Understanding and controlling filamentous growth of fungal cell factories: novel tools and opportunities for targeted morphology engineering. Fungal Biol Biotechnol. 23;8(1):8. https://doi.org/10.1186/s40694-021-00115-6

17. Fitschen, J., Hofmann, S., Wutz, J., Kameke, A., Hoffmann, M., Wucherpfennig, T., Schlüter, M. (2021). Novel evaluation method to determine the local mixing time distribution in stirred tank reactors Chemical Engineering Science: X 10: 100098 (2021-05-01). https://doi.org/10.15480/882.3551

18. Anna-Lena Heins, Manh Dat Hoang, Dirk Weuster-Botz (2021). Advances in automated real-time flow cytometry for monitoring of bioreactor processes. Eng Life Sci; 00, 1-20, https://DOI.org/10.1002/elsc2021100082.

19. Fitschen, J., Hofmann, S., Wutz, J., A.v. Kameke, M. Hoffmann, T. Wucherpfennig, M. Schlüter (2021). Novel evaluation method to determine the local mixing time distribution in stirred tank reactors. Chemical Engineering Science: Volume 10, 2021, 100098, ISSN 2590-1400, https://doi.org/10.1016/j.cesx.2021.100098.

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20. Kratzl, F., Kremling, A. & Pflüger-Grau, K. (2022). Streamlining of a synthetic co-culture towards an individually controllable one-pot process for polyhydroxyalkanoate production from light and CO2. Eng Life Sci (2022) doi:10.1002/elsc.202100156

21. Kheirkhah, T., Neubauer, P. and Junne, S. (2022). Controlling Aspergillus niger morphology in a rocking motion bioreactor: An alternative investigation platform for fungi. Chemie Ingenieur Technik, 94: 1236-1237. https://doi.org/10.1002/cite.202255283

22. Finger, M., Sentek, F., Hartmann, L., Palacio-Barrera, AM., Schlembach, I., Rosenbaum, MA., Büchs, J. (2022). "Insights into Streptomyces coelicolor A3(2) growth and pigment formation with high-throughput online monitoring", Engineering in Life Sciences, DOI: 10.1002/elsc.202100151

23. Palacio-Barrera, AM., Schlembach, I., Finger, M., Büchs, J., Rosenbaum, MA. (2022). "Reliable online measurement of population dynamics for filamentous co-cultures", Microbial Biotechnology, https://doi.org/10.1111/1751-7915.14129.

24. Finger, M., Palacio-Barrera, AM., Richter, P., Schlembach, I., Büchs, J., Rosenbaum, MA. (2022). "Tunable population dynamics in a synthetic filamentous coculture", Microbiology Open, https://doi.org/10.1002/mbo3.1324

25. Müller, H., Barthel, L., Schmideder, S., Schütze, T., Meyer, V., & Briesen, H. (2022). From spores to fungal pellets: A new high-throughput image analysis highlights the structural development of Aspergillus niger. BIOTECHNOLOGY and BIOENGINEERING, 119(8), 2182–2195. https://doi.org/10.1002/bit.28124

26. Manh Dat Hoang, Dieu Thi Doan, Andreas Kremling, Anna-Lena Heins (2022). Application of a multiple Escherichia coli reporter strain to study population heterogeneity in a novel two-compartment bioreactor, Chemie Ingenieur Technik, DOI: 10.1002/cite.202255092, 94(9): 1238-1238

27. Dieu Thi Doan, Manh Dat Hoang, Anna-Lena Heins, Andreas Kremling (2022). Applications of Coarse-grained models in Metabolic Engineering. Front Mol Biosci, DOI: 10.3389/fmolb.2022.806213

28. Manh Dat Hoang, Dieu Thi Doang, Andreas Kremling, Anna-Lena Heins (2022). Application of an Escherichia coli triple reporter strain for at-line monitoring of single-cell physiology during L-phenylalanine production. Eng Life Sci, DOI: 10.1002/elsc.202100162

29. Kremling, A. (2021). A counting strategy together with a spatial structured model describes RNA polymerase and ribosome availability in Escherichia coli. Metabolic Engineering 67, 145 DOI: 10.1016/j.ymben.2021.06.006

30. Schito S., Zuchowski R., Bergen D., Strohmeier D., Wollenhaupt B., Menke P., Seiffarth J., Noh K., Kohlheyer D., Bott M., Wiechert W., Baumgart M. & Noack S., (2022). Communities of Niche-optimized Strains (CoNoS) - Design and creation of stable, genome-reduced co-cultures. Metab. Eng. 73: 91-103. (http://dx.doi.org/10.1016/j.ymben.2022.06.004)

31. Bäumler M, Schneider M, Ehrenreich A, Liebl W, Weuster-Botz D (2022). Synthetic co-culture of autotrophic *Clostridium carboxidivorans* with chain elongating *Clostridium kluyveri* monitored by flow cytometry. *Microb Biotechnol* 15: 1471–1485.

32. Mittermeier F, Bäumler M, Arulrajah P, García Lima JJ, Hauke S, Stock A, Weuster-Botz D (2022): Artificial microbial consortia for bioproduction processes. *Eng Life Sci* DOI: 10.1002/elsc.202100152.

33. Herzog J, Mook A, Guhl L, Bäumler M, Beck MH, Weuster-Botz D, Bengelsdorf FR, Zeng A-P (2022): Novel synthetic co-culture of *Acetobacterium woodii* and *Clostridium drakei* using CO_2 and *in situ* generated H_2 for the production of caproic acid via lactic acid. *Eng Life Sci* DOI: 10.1002/elsc.202100169

34. Rehnert, M., Takors, R. (2022). FAIR research data management as community approach in bioengineering. Eng.Life Sci. DOI 10.1002/elsc.202200005.

35. Mook, A., Beck, M.H., Baker, J.P. et al. (2022). Autotrophic lactate production from H2 + CO2 using recombinant and fluorescent FAST-tagged *Acetobacterium woodii* strains. Appl. Microbiol Biotechnol 106, 1447-1458.

36. Hofmann, S., Weiland, C., Fitschen, J., Kameke, A., Hoffmann, M., Schlüter, M. (2022). Lagrangian sensors in a stirred tank reactor: Comparing trajectories from 4D-Particle Tracking Velocimetry and Lattice-Boltzmann simulations, Chemical Engineering Journal, Volume 449, 137549, ISSN 1385-8947, https://doi.org/10.1016/j.cej.2022.137549.

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37. Müller, T., Schick, S., Beck, J., Sprenger, G., Takors, R. (2023). Synthetic mutualism in engineered E. coli mutant strains as functional basis for microbial production consortia. Eng Life Sci.; 23: e2100158.

38. Gaugler, L., Mast, Y., Fitschen, J., Hofmann, S., Schlüter, M., Takors, R. (2023). Scaling-down biopharmaceutical production processes via a single multi-compartment bioreactor (SMCB). Eng Life Sci.; 23: e2100161. https://doi.org/10.1002/elsc.202100161

39. Hoang MD, Polte I, Frantzmann L, von den Eichen N, Heins AL, Weuster-Botz D (2023): Impact of mixing insufficiencies on L-phenylalanine production with an Escherichia coli reporter strain in a novel two-compartment bioreactor. Microb Cell Fact 22: 153.

40. Hoang MD, Riessner S, Oropeza Vargas JE, von den Eichen N, Heins AL (2023): Influence of varying pre-culture conditions on the level of population heterogeneity in batch cultures with an Escherichia coli triple reporter strain. Microorganisms 11: 1763.

41. Hoang MD, Doan DT, Schmidt M, Kranz H, Kremling A, Heins A-L (2023): Application of an Escherichia coli triple reporter strain for at-line monitoring of single-cell physiology during L-phenylalanine production. Eng Life Sci 23: e2100162.

42. Bäumler M, Burgmaier V, Herrmann F, Mentges J, Schneider M, Ehrenreich A, Liebl W, Weuster-Botz D (2023): Continuous production of ethanol, 1-butanol and 1-hexanol from CO with a

synthetic co-culture of Clostridia applying a cascade of stirred-tank bioreactors. Microorganisms 11: 1003.

43. Herzog J, Mook A, Guhl L, Bäumler M, Beck MH, Weuster-Botz D, Bengelsdorf FR, Zeng A-P (2023): Novel synthetic co-culture of Acetobacterium woodii and Clostridium drakei using CO2 and in situ generated H2 for the production of caproic acid via lactic acid. Eng Life Sci 23: e2100169.

44. Mittermeier F, Bäumler M, Arulrajah P, García Lima JJ, Hauke S, Stock A, Weuster-Botz D (2023): Artificial microbial consortia for bioproduction processes. Eng Life Sci 23: e2100152.

45. Müller, H., Deffur, C., Schmideder, S., Barthel, L., Friedrich, T., Mirlach, L., Hammel, J.U., Meyer, V., Briesen, H., (2023). Synchrotron radiation-based microcomputed tomography for three-dimensional growth analysis of *Aspergillus niger* pellets. Biotechnol. Bioeng.120:3244-3260 bit.28506. https://doi.org/10.1002/bit.28506

46. Cairns, T.C., de Kanter, T., Zheng, X.Z., Zheng, P., Sun, J., Meyer, V. (2023). Regression modelling of conditional morphogene expression links and quantifies the impact of growth rate, fitness and macromorphology with protein secretion in Aspergillus niger. Biotechnol Biofuels 16, 95. https://doi.org/10.1186/s13068-023-02345-9

47. Kheirkhah, T., Neubauer, P. and Junne, S., 2023. Controlling Aspergillus niger morphology in a low shear-force environment in a rocking-motion bioreactor. Biochemical Engineering Journal, 195, p.108905. https://doi.org/10.1016/j.bej.2023.108905

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48. Oehlenschläger K., Volkmar M., Stiefelmaier J., Langsdorf A., Holtmann D., Tippkötter N., Ulber R. (2024) New insights into the influence of pre-culture on robust solvent production of C. acetobutylicum. Appl Microbiol Biotechnol https://doi.org/10.1007/s00253-023-12981-8

49. Oehlenschläger K., Schepp E., Stiefelmaier J., Holtmann D., Ulber R. (2024) Simultaneous fermentation and enzymatic biocatalysis—useful process option?. Biotechnol Biofuels https://doi.org/10.1186/s13068-024-02519-z

50. Schrader, M., Hoffmann, N., Schmideder, S., Deffur, C., Schilde, C., Briesen, H., Kwade, A., (2024). Simulation of the compression of pellets out of filamentous microorganisms using DEM. Comput. Part. Mech. 11, 2519–2540. https://doi.org/10.1007/s40571-024-00805-z

51. Dinius, A., Müller, H., Kellhammer, D., Deffur, C., Schmideder, S., Hammel, J.U., Krull, R., Briesen, H., (2024). 3D imaging and analysis to unveil the impact of microparticles on the pellet

morphology of filamentous fungi. Biotechnol. Bioeng. 121, 3128–3143. https://doi.org/10.1002/bit.28788

52. Barthel, L., Kunz, P., King, R., Meyer, V. (2024). Harnessing Genetic and Microfluidic Approaches to Model Shear Stress Response in Cell Wall Mutants of the Filamentous Cell Factory Aspergillus niger. In: Kwade, A., Kampen, I. (eds) Dispersity, Structure and Phase Changes of Proteins and Bio Agglomerates in Biotechnological Processes. Springer, Cham. https://doi.org/10.1007/978-3-031-63164-1_15

53. Barthel, L., Cairns, T., Duda, S., Müller, H., Dobbert, B., Jung, S., Briesen, H., Meyer, V. (2024). Breaking down barriers: comprehensive functional analysis of the Aspergillus niger chitin synthase repertoire. Fungal Biology and Biotechnology 11,3. https://doi.org/10.1186/s40694-024-00172-7

54. Hofmann, S., Lukas Buntkiel, Ryan Rautenbach, Lena Gaugler, Yifan Ma, Ingrid Haase, Jürgen Fitschen, Thomas Wucherpfennig, Sebastian Felix Reinecke, Marko Hoffmann, Ralf Takors, Uwe Hampel, Michael Schlüter (2024). Experimental analysis of lifelines in a 15,000 L bioreactor by means of Lagrangian Sensor Particles. Chemical Engineering Research and Design. Volume 205, Pages 695-712, ISSN 0263-8762, https://doi.org/10.1016/j.cherd.2024.04.015.

55. Rautenbach, R., Hofmann, S., Buntkiel, L., Schäfer, J., Reinecke, S. F., Hoffmann, M., Hampel, U., & Schlüter, M. (2024). Dynamics of Lagrangian Sensor Particles: The Effect of Non-Homogeneous Mass Distribution. Processes, 12(8), 1617. https://doi.org/10.3390/pr12081617

56. Gaugler, L., Hofmann, S., Schlüter, M., & Takors, R. (2024). Mimicking CHO large-scale effects in the single multicompartment bioreactor: A new approach to access scale-up behavior. Biotechnology and bioengineering, 121(4), 1243-1255.

57. Müller, T., Schick, S., Klemp, J. S., Sprenger, G. A., & Takors, R. (2024). Synthetic co-culture in an interconnected two-compartment bioreactor system: violacein production with recombinant E. coli strains. Bioprocess and biosystems engineering, 47(5), 713–724. https://doi.org/10.1007/s00449-024-03008-1

58. Schick S, Müller T, Takors R, Sprenger GA. (2024). Stability of a Mutualistic Escherichia coli Co-Culture During Violacein Production Depends on the Kind of Carbon Source Eng Life Sci. 2024 Sep 8;24(10):e202400025. doi: 10.1002/elsc.202400025. eCollection 2024 Oct. PMID: 39391271

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59. Oehlenschläger K., Hengsbach JN., Volkmar M., Ulber, R. (2025) From pre-culture to solvent: current trends in Clostridium acetobutylicum cultivation. Appl Microbiol Biotechnol https://doi.org/10.1007/s00253-025-13428-y

60. Deffur, C., Dinius, A., Pagel, J., Müller, H., Schmideder, S., Briesen, H., Krull, R., (2025). Oxygen Consumption in Filamentous Pellets of *Aspergillus niger* : Microelectrode Measurements and Modeling. Biotechnol. Bioeng. 122, 306–321. https://doi.org/10.1002/bit.28874

Conference contributions

2020

1. Müller, H., Schmideder, S., Barthel, L., Niessen, L., Meyer, V., & Briesen, H. (2020). Optimized X-ray microcomputed tomography and 3D volumetric image processing of filamentous fungal pellets. Conference Talk ProcessNet. Abstract appeared in Chemie Ingenieur Technik, 92(9), 1201. doi.org/10.1002/cite.202055040

2. Schmideder S., Barthel, L., Müller, H., L., Meyer, V., & Briesen, H. (2020). On the three-dimensional morphology and substrate-diffusion in filamentous fungal pellets. 15th European Conference on Fungal Genetics, Rom. Presentation.

3. Briesen, H., Schmideder, S. & Müller, H. **(**2020). Morphological characterization and modeling of filamentous fungi. 4th Indo-German Workshop on Advances in Reaction and Separation processes. Conference Talk.

4. Rosenbaum, M. (2019). Consolidated bioprocessing of cellulose to itaconic acid by a co-culture of Trichoderma reesei and Ustilago maydis", Lecture. Conference contribution, PYFF 2019

5. Rosenbaum, M. (2019). Filamentous microbial co-culture for biotechnological production of natural products" Poster. Conference contribution, PYFF 2019.

6. Wollenhaupt, B. et al. (2020). Microbial single-cell analysis under microfluidic batch cultivation. Conference: Microfluidics: Designing the Next Wave of Biological Inquiry. Online Poster.

7. Schlüter, M. et al. (2020). Multiscale Experimental Analysis of Lifelines in Bioreactors (1. Hamburg-Bochumer Mehrphasensymposium, Hamburg/Bochum, conference contribution, Online Poster.

8. Schlüter, M. et al. (2020). Measurement of Lagrangian Tracks in a 3 L Stirred Tank Reactor using 4D Particle Tracking Velocimetry with Shake-the-Box, 14th International Symposium on Particle Image Velocimetry – ISPIV, Lecture, Online conference.

9. Takors R. (2020).Transferring microbial processes from lab to industrial scale: Lessons learned for strain engineering and large-scale modeling. September 28th, symposium at University of Liège accompanying a PhD defense, Belgium (online).

10. Takors R. (2020). Scaling up microbial processes: Data-driven modeling and strain engineering for robust performance in large bioreactors. October 28th, Lectures at the Leading Edge, invited, University of Toronto, Canada, online.

2021

11. Müller, H., Schmideder, S., Barthel, L., Hammel, J., Meyer, V., & Briesen, H. (2021). Inside mycelium - synchrotron radiation and image processing to unveil the time-resolved three-dimensional growth of filamentous fungal pellets. at 13th European Congress of Chemical Engineering and 6th European Congress of Applied Biotechnology Berlin. Keynote presentation. Online conference.

12. Khajehesamedini, A., Müller, H., Yan, J., Schmideder, S., Barthel, L., Meyer, V., Briesen, H. (2021) Coupled Population Balance Models for the Aggregation/Growth of Aspergillus Niger Spores and Formation of Pellets. Presentation at 13th European Congress of Chemical Engineering and 6th European Congress of Applied Biotechnology, Berlin. Lecture, Online conference.

13. Schmideder, S., Briesen, H. (2021). Following fungal features - Micromorphology and diffusivity of filamentous fungal pellets revealed by three-dimensional imaging and simulation. Annual Conference of the Association for General and Applied Microbiology. *Lecture,* Online conference.

14. Kheirkhah, T., Neubauer, P., Junne, S., (2021). Control of macromorphology and the implications on product formation in Aspergillus niger. 6th BioProScale Lecture, Conference, Berlin.

15. Kheirkhah, T., Neubauer, P., Junne, S. (2021). Controlling Aspergillus niger morphology under low shear forces in a wave-mixed bioreactor. Presentation at 13th European Congress of Chemical Engineering and 6th European Congress of Applied Biotechnology, Berlin, Lecture. Online Conference.

16. Zuchowski, R. (2021). Communities of niche-optimized strains (CoNoS) for production of value-added compounds. 7-9 Jul 2021, EMBO EMBL Symposium: New Approaches and Concepts in Microbiology. Lecture, Online conference.

17. Schito, S, Zuchowski, R. (2021). Communities of Niche-optimized Strains (CoNoS) for production of value-added compounds. ECCE & ECAB, 20-23.9.2021, Lecture. Online conference.

18. Bäumler M., Schneider M., Ehrenreich A., Liebl W., Weuster-Botz, D. (2021). Fluorescence in-situ hybridization combined with flow cytometry for monitoring of clostridial co-cultures during

syngas fermentation. 6th European Congress of Applied Biotechnology (ECAB), 20.-23.09.2021, Lecture. Online conference.

19. Rehnert, M., Takors, R. (2021). Novel eLearning concepts in cross-discipline engineering tandem projects. 6th European Congress of Applied Biotechnology (ECAB), 20.-23.09.2021, Online Poster

20. Mook, A. et al. (2021). Autotrophic lactate production using engineered A. woodii strains and quantification via fluorescence based methods. Workshop Biological Carbon Capture, 27.04.21, online.

21. Mook, A. et al. (2021). Caproate production from CO2/H2 in synthetic co-culture employing the key metabolite lactate. 6th European Congress of Applied Biotechnology (ECCE & ECAB), 20.-23.09.21, Lecture, Online conference.

22. Kratzl, F., Kremling, A., Pflüger-Grau, K. (2021). Synthetic Co-Culture for the Production of Bioplastics from Light and CO2: Deciphering the Interplay of Synechococcus elongatus and Pseudomonas putida. 6th European Congress of Applied Biotechnology (ECCE & ECAB), 20.-23.09.21, Lecture. Online conference.

23. Kratzl, F., Kremling, A., Pflüger-Grau, K. (2021). Light-driven mcl-PHA production with genetically engineered *Pseudomonas putida* in a synthetic co-culture with *Synechococcus elongatus* PCC7942 *cscB* 03.-04.03.2021 Fachtagung Bioplastics "Science Meets Industry", Talk. Online conference.

24. Kratzl, F., Kremling, A., Pflüger-Grau, K. (2021). Synthetic co-culture for the Production of Bioplastics from Light and CO2: Deciphering the Interplay of *S. elongatus* and *P. putida.* 15.-17.11 Cyano2021: Early Career Researcher Symposium on Cyanobacteria - " Photosynthesis – from its origin to applications" Poster, Online conference.

25. Büchs, J. (2021). High-throughput online-monitoring helps to uncover pigment production mechanisms in *Streptomyces coelicolor*", Lecture. Online conference contribution ECAB 2021.

26. Hoang, M. D., Heins, A.L., Weuster-Botz, D. (2021). Analysis of population heterogeneity applying multiple reporter strains in a two-compartment system, 6th European Congress of Applied Biotechnology (ECAB), 20.-23.09.2021, Lecture. Online conference.

27. Hofmann, S., Gaugler, L., Fitschen, J., Kameke, A., Schlüter, M., Takors, R. (2021). Lagrangian Particle Tracking and Bioreactor Compartmentalization as Novel Scale-up Tools for Biopharmaceutical Processes. 13th European Congress of Chemical Engineering, 6th European Congress of Applied Biotechnology (ECCE & ECAB), Lecture, Online conference.

28. Takors R. (2021). Exploiting Scale-down Tests for Engineering a Robust *E. coli* Host as a Platform for Industrial Production Processes, keynote, March 3rd, BioProScale, Berlin (online).

29. Takors R. (2021). Scaling up from lab to industrial scale minimizing performance loss. Invited talk, June 23rd, BioTech, Paris, France (online).

30. Takors R. (2021). Strains and modeling tools for scaling up microbial bioprocesses. October 15th, ProSYS meeting, keynote, Copenhagen, Denmark.

31. Takors, R. (2021). Scale-down in practice. December 5th, Advanced Course 'Multiscale Computational Methods in Bioprocesses', Delft, The Netherlands

32. Manh Dat Hoang, Dieu Thi Doan, Andreas Kremling, Anna-Lena Heins (2021). Analysis of population heterogeneity applying multiple reporter strains in a two-compartment system, , 13th European Congress of Chemical Engineering & 6th European Congress of Applied Biotechnology, 20.-23.09.2021, online Conference.

33. Miriam Bäumler & Martina Schneider (2021): Fluorescence *in situ* hybridization combined with flow cytometry for monitoring of clostridial co-cultures during syngas fermentation. 6th European Congress on Applied Biotechnology, 17-21 September 2021, virtual conference.

2022

34. Kheirkhah, T., Neubauer, P., Junne, S., (2022). Controlling Aspergillus niger morphology in a rocking motion bioreactor. 7th International BioProScale Symposium, 28.03-05.04.2022, Poster, Berlin. Germany.

35. Kheirkhah, T., Neubauer, P., Junne, S., (2022). Controlling Aspergillus niger morphology in a rocking motion bioreactor: an alternative investigation platform for fungi. 13th European Congress of Chemical Engineering and 6th European Congress of Applied Biotechnology, 12-15.09.2022, Lecture, Aachen. Germany.

36. Kratzl, F., Kremling, A., Pflüger-Grau, K. (2022). Synthetic Co-Culture for the Production of Bioplastics from Light and CO2:Deciphering the Interplay of Synechococcus elongatus and Pseudomonas putida, VAAM Jahrestagung 21-23-Februar, Oral presentation.

37. Kratzl, F., Kremling, A., Pflüger-Grau, K. (2022). Synthetic Co-Culture for the Production of Bioplastics from Light and CO2:Deciphering the Interplay of Synechococcus elongatus and Pseudomonas putida, Biopolymer Fachtagung 23-Februar, Poster.

38. Pflüger-Grau, K. (2022). From sunlight to bioplastics: a synthetic mixed culture between Synechococcus elongates and Pseudomonas putida, EFB Spring congress: From CO2 to materials with the power of microbes, 10-13 Mai 2022. Presentation.

39. Manh Dat Hoang, Dieu Thi Doan, Andreas Kremling, Anna-Lena Heins (2022). Application of a multiple Escherichia coli reporter strain to study population heterogeneity in a novel two-compartment bioreactor, (Bio)Process Engineering – a Key to Sustainable Development,

ProcessNet and DECHEMA BioTechNet Jahrestagung & 13th European Society of Biochemical Engineering Sciences, 12.-15.09.2022, Aachen

40. Zuchowski, R., Schito, S., Neuheuser, F., Bott, M., Noack, S., Baumgart, M. (2022) Communities of Niche-optimized Strains (CoNoS) for production of value-added compounds. VAAM Annual Conference 21.-23.02.2022. Poster, Online-Conference

41. Simone Schito, Rico Zuchowski, Daniel Bergen, Bastian Wollenhaupt, Johannes Seiffarth, Katharina Nöh, Dietrich Kohlheyer, Michael Bott, Wolfgang Wiechert, Meike Baumgart, Stephan Noack. Communities of niche-optimized strains (CoNoS) - A novel concept for improving biotechnological production of small molecules. 13th European Congress of Chemical Engineering and 6th European Congress of Applied Biotechnology, online conference, presentation

42. Simone Schito, Rico Zuchowski, Friederike Neuheuser, Philipp Menke, Daniel Berger, Srushti Gujar, Christina Mack, Astrid Wirtz, Tino Polen, Wolfgang Wiechert, Michael Bott, Stephan Noack, Meike Baumgart. CoNoS – a novel concept for biotechnological production - Evolution-guided metabolic engineering for improving synthetic, genome-reduced co-cultures of C. glutamicum. SECTOR conference Biotech France 2022, Paris, presentation

43. Miriam Bäumler (2022): Autotrophic alcohol production with a synthetic co-culture of *Clostridium carboxidivorans* and *Clostridium kluyveri.* (Bio)Process Engineering - a Key to Sustainable Development, 12-15 September 2022, Aachen, Germany.

44. Martina Schneider et al. (2022): Overcoming restriction barriers in the secondary fermenter *Clostridium kluyveri.* Clostridium XVI Conference, 14-17 September 2022, Toulouse, France.

45. Mook, A. et al. (2022). Synthetic co-culture of A. woodii and C. drakei for the production of caproate from H2 + CO2. Annual Conference VAAM 20-23.02.2022, Online Conference.

46. Mook, A. et al. (2022) Production of caproate from H2 + CO2 via lactate-mediated co-cultivation of Acetobacterium woodii and Clostridium drakei. Emerging Microbial Technologies Conference Delft, 27.05.22, poster presentation

47. Herzog, J. et al. (2022) Process control of autotrophic Acetobacterium woodii culture via lactate dependent in situ water electrolysis. 4th Microbial, Enzymatic & Bio-Photovoltaic Electrochemical Reactors, Fuel Cell & Electrolyser Systems Symposium Luzern, 06. – 07.07.2022, oral presentation

48. Herzog, J. et al. (2022) Caproate production from CO2 and H2 in synthetic co-culture with lactate dependent process control. (Bio)Process Engineering – a Key to sustainable Development DECHEMA conference Aachen, 12. – 15.09.2022, oral presentation

49. Mook, A., Herzog, J. et al. (2022) Synthetic co-cultivation of A. woodii and C. drakei for production of medium-chain organic acids from H2 and CO2. Clostridium XVI Toulouse. 14.-17.09.22, oral presentation

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51. Müller, T. et al. (2022). Introduction of mutual interdependencies as a relational framework of synthetic co-cultures. DECHEMA Himmelfahrtstagung on Bioprocess Engineering Mainz, 23. – 25.05.2022, oral presentation

52. Barthel, L., Schmideder, S., Müller, H., Briesen, H., Meyer, V. (2022). Quantifying fungal pellets during submerged cultivation: from 3D X-ray microtomography imaging to diffusive mass transport. Symposium Molecular Biology of Fungi, Kaiserslautern. Oral presentation

53. Barthel, L., Schmideder, S., Müller, H., Briesen, H., Meyer, V. (2022). Quantifying fungal pellets during submerged cultivation: from 3D X-ray microtomography imaging to diffusive mass transport. Asperfest at Fungal Genetics Conference, Asilomar. Oral presentation

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54. Engelbert, K., Kheirkhah, T., Müller, H., Deffur, C., Junne,S., Briesen, H., Neubauer, P., Meyer, V. (2023). Controlling macromorphologies of Aspergillus niger during high and low shear stress bioreactor cultivation. 16th European Conference on Fungal Genetics, Innsbruck. Oral presentation
55. Engelbert, K., Kheirkhah, T., Müller, H., Deffur, C., Junne,S., Briesen, H., Neubauer, P., Meyer, V. (2023). Controlling macromorphologies of Aspergillus niger during high and low shear stress bioreactor cultivation. 16th European Conference on Fungal Genetics, Innsbruck. Poster presentation
56. Engelbert, K., Müller, H., Briesen, H., Meyer, V. (2023). The development of pellet populations during submerged cultivations of Aspergillus niger. 16th European Conference on Fungal Genetics, Innsbruck. Poster presentation.
57. Kheirkhah, T., Neubauer, P. and Junne, S., (2023). Restraining Aspergillus niger pellet size in a controlled bioreactor system. 16th European Conference on Fungal Genetics,05. – 08.03.2023, Innsbruck, Austria, Poster.
58. Engelbert, K., Kheirkhah, T., Müller, H., Deffur, C., Junne, S., Briesen, H., Neubauer, P., Meyer, V. (2023). Controlling macromorphologies of Aspergillus niger during high and low shear stress bioreactor cultivation. Annual Conference of the Association for General and Applied Microbiology, Göttingen. Oral presentation.

59. Deffur, C., Schmideder, S., Müller, H., Kauer, G., Dinius, A., Krull, R., Briesen, H., (2023). Multiscale modeling of the interplay of fungal morphology development and oxygen supply. 7th European Congress of Applied Biotechnology, 17.-21.09.2023, Berlin, Germany, oral presentation

60. Deffur, C., Zhang, F., Briesen, H., (2023). Two-dimensional population balance model for substrate-dependent fungal pellet growth and abrasion. 1st Population Balance Modeling Webinar, 10.11.2023, oral presentation, online-conference

61. Engelbert, K., Kheirkhah, T., Müller, H., Deffur, C., Hammel, J., Junne, S., Briesen, H., Neubauer, P., Meyer, V., (2023). Controlling macromorphology of *Aspergillus niger* during high and low

shear stress bioreactor cultivation. 16th European Conference on Fungal Genetics,05. – 08.03.2023, Innsbruck, Austria, poster

62. Abstreiter A, Schneider M, Liebl W, Ehrenreich A (2023). Construction of CodAB-based vectors for a markerless genetic deletion system in Clostridium kluyveri. Conference of the Association for General and Applied Microbiology (VAAM), 10.-13. September 2023, Göttingen, Germany, poster presentation.

63. Deffur, C., Schmideder, S., Müller, H., Kauer, G., Dinius, A., Krull, R., Briesen, H., (2023). Understanding the interplay of fungal morphology development and oxygen supply: A multiscale model approach. 16th European Conference on Fungal Genetics, 05. – 08.03.2023, Innsbruck, Austria, poster

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64. Prasika Arulrajah, Dirk Weuster-Botz, Anna-Lena Heins: Unraveling the single-cell behavior of *Escherichia coli* producing L-phenylalanine in a scale-down bioreactor by automated real-time flow cytometry analysis of multiple fluorescences. 14th European Symposium on Biochemical Engineering Science (ESBES 2024), 21.-23. October 2024, Copenhagen, Denmark.

65. Veronika Burgmaier, Andreas Abstreiter, Armin Ehrenreich, Wolfgang Liebl, Dirk Weuster-Botz: Automated adaptive laboratory evolution of *Clostridium kluyveri* enables growth at high CO partial pressures. 14th European Symposium on Biochemical Engineering Science (ESBES 2024), 21.-23. October 2024, Copenhagen, Denmark.

66. Anna Stock, Inka Sotzeck, Kira S. Baur, Frank R. Bengelsdorf, Dirk Weuster-Botz: Enhancing autotrophic D-lactate formation with engineered *Acetobacterium woodii* by CO addition. CLOSTRIDIUM XVII, 19.-22. September 2024, Qingdao, China.

67. Anna Stock, Inka Sotzeck, Kira S. Baur, Frank R. Bengelsdorf, Dirk Weuster-Botz: Autotrophic growth and D-lactate formation of CO-sensitive, recombinant *Acetobacterium woodii*. Biotechniques 2024, 10.-12. July 2024, La Coruña, Spain

68. Zhang, F., Deffur, C., Briesen, H., (2024). Investigating microorganism co-cultures using coupled population balance modeling. 2nd Population Balance Modeling Webinar, 25.11.2024, oral presentation, online-conference

69. Engelbert, K., Kheirkhah, T., Winter, H., Deffur, C., Zhang, F., Junne, S., Briesen, H., Neubauer, P., Meyer, V. (2024). Controlling macromorphologies of *Aspergillus niger* during high and low shear stress bioreactor cultivation. Symposium Molecular Biology of Fungi, Kiel. Oral presentation.

70. Rehnert, M., Takors, R. Science communication in interdisciplinary biotechnology tandem projects to promote STEM-related education and learning. STEM-ED 2024: International STEM Education Conference 2024 SINGAPORE, June 28, 2024

71. Abstreiter A, Burgmaier V, Schneider M, Almeida L, Weuster Botz D, Liebl W, Ehrenreich A (2024). Markerless deletion of a type II restriction/modification system in Clostridium kluyveri using the codAB counterselection system. 17th International Conference on the Genetics, Physiology, and Synthetic Biology of Solvent- and Acid-Forming Clostridia (CLOSTRIDIUM XVII), 19.-22. September.2024, Qingdao, China, oral presentation.

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74. Barczyk et al. (2024) Mimicking large scale mixing times in a laboratory scale single multi compartment bioreactor system. BioProScale, Berlin 9.4-11.4.2024, poster presentation.

75. Kheirkhah, T., Engelbert, K., Müller, H., Deffur, C., Zhang, F., Briesen, H., Meyer, V. Neubauer, P., Junne, S (2024). Effects of culture history and the shear stress regime on the macromorphology of Aspergillus niger in stirred and rocking-motion bioreactors. 14th European Congress of Chemical Engineering and 7th European Congress of Applied Biotechnology, Berlin, Germany, Oral presentation.
76. Kheirkhah, T., Engelbert, K., Müller, H., Deffur, C., Zhang, F., Briesen, H., Meyer, V. Neubauer, P., Junne, S (2024). Morphology control for supporting scalability of Aspergillus niger cultures. 8th BioProScale Symposium, Berlin, Germany, Oral presentation.

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77. Abstreiter A, Glanz L, Raab C, Burgmaier V, Weuster-Botz D, Liebl W, Ehrenreich A (2025) Metabolic engineering of Clostridium kluyveri DSM555T for increased CO tolerance. Conference of the Association for General and Applied Microbiology (VAAM), 23.-26. March 2025, Bochum, Germany, poster presentation.

78. Engelbert, K., Cairns, C., Kheirkhah, T., Deffur, C., Zhang, F., Winter, H., Junne, S., Briesen, H., Neubauer, P., Meyer, V. (2025). Precise control of Aspergillus niger pellet size, heterogeneity and core architecture during shake flask cultivation. 17th European Conference on Fungal Genetics, Dublin. Oral presentation.