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 Microbial Community Assembly Group  
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## MAIN APPOINTMENTS

|                             |   |              |
|-----------------------------|---|--------------|
| <b>Group Leader</b>         | Dept. Environmental Microbiology, Eawag, Dübendorf, Switzerland           | 2014-present |
| <b>Deputy Head of Dept.</b> | Dept. Environmental Microbiology, Eawag, Dübendorf, Switzerland           | 2022-present |
| <b>Lecturer</b>             | Institute of Ecology and Evolution, University of Bern, Bern, Switzerland | 2022-present |

## EDITORIAL AND SOCIETY APPOINTMENTS

|                          |   |              |
|--------------------------|---|--------------|
| <b>SSM Delegate</b>      | Swiss Coordination Committee for Biotechnology (SCCB)                       | 2024-present |
| <b>Editorial Board</b>   | <i>Biofilm</i>  | 2024-present |
| <b>Senior Editor</b>     | <i>The ISME Journal</i>   | 2023-present |
| <b>Swiss Ambassador</b>  | International Society for Microbial Ecology (ISME)                          | 2023-present |
| <b>Swiss Ambassador</b>  | International Union of Microbiological Societies (IUMS)                     | 2022-present |
| <b>Commission Member</b> | Lay Communication Section of the Swiss Society for Microbiology             | 2022-present |
| <b>Editorial Board</b>   | <i>Current Opinion in Biotechnology</i>                                     | 2021-present |
| <b>Regional Board</b>    | European Federation of Biotechnology (Environmental Biotechnology Division) | 2020-present |
| <b>Elected Head</b>      | Microbial Ecology Section of the Swiss Society for Microbiology             | 2017-present |

## EDUCATION / TRAINING

|                      |   |           |
|----------------------|---|-----------|
| <b>Oberassistent</b> | Dept. Environmental Systems Science, ETH Zürich, Zürich, Switzerland          | 2009-2014 |
| <b>Postdoc.</b>      | Dept. Fundamental Microbiology, University of Lausanne, Lausanne, Switzerland | 2007-2009 |
| <b>Ph.D.</b>         | Environmental Engineering, University of California, Berkeley, CA, USA        | 2003-2007 |
| <b>M.S.E.</b>        | Environmental Engineering, University of Michigan, Ann Arbor, MI, USA         | 2001-2002 |
| <b>B.S.</b>          | Civil Engineering, Iowa State University, Ames, IA, USA                       | 1996-2000 |

## AWARDS

- Image Volume Cover, *The ISME Journal*, 2025
- ALL Award: Recognition of Excellence in Teaching, University of Bern, 2024
- Outstanding Editorial Board Member Award, *The ISME Journal*, 2023
- Golden Owl Award, VSETH, Swiss Federal Institute of Technology (ETHZ), 2020
- Image Issue Cover, *Communications Biology*, 2020
- Image Issue Cover, *Philosophical Transactions of the Royal Society B*, 2020
- Image Volume Cover, *The ISME Journal*, 2016

## CURRENT TEACHING

|   |              |
|---|--------------|
| <b>Introduction to Microbial Ecology and Evolution</b> (B.Sc./M.Sc.; sole lecturer, 28h)<br>Institute of Ecology and Evolution, University of Bern, Bern, Switzerland | 2022-present |
| <b>Systems Biology</b> (M.Sc.; guest lecturer, 2h)<br>Institute of Cell Biology, University of Bern, Bern, Switzerland  | 2024-present |

## PROJECT MANAGEMENT / RESEARCH GRANTS

|           |   |
|-----------|---|
| 2024-2027 | Korean-Swiss Science and Technology Program; Joint Research Project SNSF-NRF   <i>Incorporating <math>\mu</math>m-scale spatial organization into our systems-level understanding of the functioning and dynamics of microbial communities</i>   Role: co-PI   Award: 423'726 CHF   To MCA group: 227'738 CHF |
| 2022-2026 | Swiss National Science Foundation, Division 3   <i>Spatial self-organization and the fate of plasmids during microbial range expansion</i>   Role: sole PI   Award: 568'368 CHF   To MCA group: 568'368 CHF   |

- 2022-2026 Swiss National Science Foundation, Sinergia | *Why do toxic cyanobacteria bloom? A gene to ecosystem approach* | Role: co-PI | Award: CHF 1'781'682 | To MCA group: 363'125 CHF
- 2022-2024 Eawag Discretionary Funds | *Elucidating the role of metabolite-mediated interactions on the diversity and productivity of phytoplankton communities* | Role: co-PI | Award: 234'034 CHF | To MCA group: 0 CHF
- 2020-2021 Eawag Discretionary Funds | *Microbial invasion demographics: A general chromosomal barcoding method to monitor invasive microbial populations* | Role: lead PI | Award: 121'572 CHF | To MCA group: 121'572 CHF
- 2018-2021 Swiss National Science Foundation, Division 3 | *The evolutionary and ecological consequences of microbial range expansions* | Role: sole PI | Award: 426'776 CHF | To MCA group: 426'776 CHF
- 2015-2018 SystemsX.ch Program of the Swiss National Science Foundation | *Design and systems biology of functional microbial landscapes (MicroScapesX.ch)* | Role: co-PI | Award: 2'530'587 CHF | To MCA group: 381'300 CHF
- 2014-2017 Swiss National Science Foundation, Division 3 | *Metabolic specialization and the causes of diversity in microbial ecosystems* | Role: sole PI | Award: 447'101 CHF | To MCA group: 447'101 CHF
- 2014-2017 Marie Curie Actions - Initial Training Network | *Microbial resource management and engineering in the urban water cycle (MERMAID)* | Role: co-PI | Award: 4'062'590 CHF | To MCA group: 330'332 CHF
- 2015-2016 Eawag Discretionary Funds | *Understanding resistance gene flow during passage of wastewater treatment (RESIST-Flow)* | Role: co-PI | Award: 170'687 CHF | To MCA group: 0 CHF
- 2013-2016 Swiss National Science Foundation, Interdisciplinary | *Can community transcription profiles be used to predict environmental biotransformation of organic contaminants?* | Role: co-PI | Award: 265'116 CHF | To MCA group: 0 CHF
- 2013-2014 Eawag Discretionary Funds | *The evolution and stabilization of mutualistic interactions in microbial ecosystems* | Role: lead PI | Award: 127'578 CHF | To MCA group: 127'578 CHF
- 2011-2014 Swiss National Science Foundation, Division 3 | *Cross-feeding and the maintenance of diversity in microbial ecosystems* | Role: sole PI | Award: 288'000 CHF | To MCA group: 288'000 CHF
- 2012-2013 Korean-Swiss Science and Technology Cooperation | *Predicting the biotransformation capacities of microbial communities from their taxonomic composition* | Role: lead PI | Award: 33'000 CHF | To MCA group: 33'000 CHF
- 2011-2013 SystemsX.ch Program of the Swiss National Science Foundation | *Predicting the metabolic profile of cells from the topology of the universal metabolic network* | Role: lead PI | Award: 116'000 CHF | To MCA group: 116'000 CHF
- 2010-2011 Eawag Discretionary Funds | *Can the biotransformation capacities of microbial communities be predicted?* | Role: co-PI | Award: 122'820 CHF | To MCA group: 0 CHF

## PUBLICATIONS

1. Ma Y, Kan A, **Johnson DR** (2024) Metabolic interactions control the transfer and proliferation of plasmid-encoded antibiotic resistance during surface-associated microbial growth. *Cell Reports* 43: 114653.
2. Gogia G, **Johnson DR** (2024) Bacteria spiral into control. *Nature Physics* 20: 897-898
3. Ruan C, Ramoneda J, Kan A, Rudge TJ, Wang G, **Johnson DR** (2024) Phage predation accelerates the spread of plasmid-encoded antibiotic resistance. *Nature Communications* 15: 5397
4. Takahashi K, Oshiki M, Ruan C, Morinaga K, Toyofuku M, Nomura N, **Johnson DR** (2024) Denitrification in low oxic environments increases the accumulation of nitrogen oxide intermediates and modulates the evolutionary potential of microbial populations. *Environmental Microbiology Reports* 16: e13221
5. Ma Y, Ramoneda J, **Johnson DR** (2023) Timing of antibiotic administration determines the spread of plasmid-encoded antibiotic resistance during microbial range expansion. *Nature Communications* 14: 3530
6. Karakurt-Fischer S, **Johnson DR**, Fenner K, Hafner J (2023) Making Waves: Enhancing pollutant biodegradation via rational engineering of microbial consortia. *Water Research* 247: 120756
7. Ge ZB, Zhai ZQ, Xie WY, Dai J, Huang K, **Johnson DR**, Zhao FJ, Wang P (2023) Two-tiered mutualism improves survival and competitiveness of cross-feeding bacteria in soil. *The ISME Journal* 17: 2090-2102
8. Ruan C, Borer B, Ramoneda J, Wang G, **Johnson DR** (2023) Evaporation-induced hydrodynamics control plasmid transfer during surface-associated microbial growth. *npj Biofilms and Microbiomes* 9: 58
9. Chen G, Hu Z, Ebrahimi A, **Johnson DR**, Wu F, Sun Y, Shen R, Liu L, Wang G (2023) Chemotactic movement and zeta potential dominate *Chlamydomonas microspheara* attachment and biocathode development. *Environmental Technology* 44: 1838-1849
10. Ruan C, Ramoneda J, Gogia G, Wang G, **Johnson DR** (2022) Fungal hyphae regulate bacterial diversity and promote plasmid-mediated functional novelty during range expansion. *Current Biology* 32: 5285-5299e4

11. Dolinšek J, Ramoneda J, **Johnson DR** (2022) Initial community composition determines the long-term dynamics of a microbial cross-feeding interaction by modulating niche availability. *ISME Communications* 2: 77
12. Ciccarese D, Micali G, Borer B, Ruan C, Or D, **Johnson DR** (2022) Rare and localized events stabilize microbial community composition and patterns of spatial self-organization in a fluctuating environment. *The ISME Journal* 16: 1453-1463
13. Wang M, Chen X, Ma Y, Tang YQ, **Johnson DR**, Nie Y, Wu XL (2022) Type IV pilus shapes a 'bubble-burst' pattern opposing spatial intermixing of two interacting bacterial populations. *Microbiology Spectrum* 10: e01944-21
14. Chen G, Hu Z, Ebrahimi A, **Johnson DR**, Wu F, Sun Y, Shen R, Liu L, Wang G (2022) Electrotaxis-mediated cell motility and nutrient availability determine *Chlamydomonas microspiraera*-surface interactions in bioelectrochemical systems. *Bioelectrochemistry* 143: 107989
15. Ruan C, Ramoneda J, Chen G, **Johnson DR**, Wang G (2021) Evaporation-induced hydrodynamics promote conjugation-mediated plasmid transfer in microbial populations. *ISME Communications* 1: 54
16. Goldschmidt F, Caduff L, **Johnson DR** (2021) Causes and consequences of pattern diversification in a spatially self-organizing microbial community. *The ISME Journal* 15: 2415-2426
17. Dubey M, Hadadi N, Pelet S, Carraro N, **Johnson DR**, van der Meer JR (2021) Environmental connectivity controls diversity in soil microbial communities. *Communications Biology* 4: 492
18. Borer B, Ciccarese D, **Johnson D**, Or D (2020) Spatial organization in microbial range expansion emerges from trophic dependencies and successful lineages. *Communications Biology* 3: 685
19. **Johnson DR**, Pomati F (2020) A brief guide for the measurement and interpretation of microbial functional diversity. *Environmental Microbiology* 22: 3039-3048
20. Ciccarese D, Zuidema A, Merlo V, **Johnson DR** (2020) Interaction-dependent effects of surface structure on microbial spatial self-organization. *Philosophical Transactions of the Royal Society B* 375: 20190246
21. **Johnson DR**, Noack S (2020) Editorial overview: Causes and biotechnological application of microbial metabolic specialization. *Current Opinion in Biotechnology* 62: iii-vi
22. Achermann S, Mansfeldt CB, Müller M, **Johnson DR**, Fenner K (2020) Relating metatranscriptomic profiles to the micropollutant biotransformation potential of complex microbial communities. *Environmental Science & Technology* 54: 235-244
23. Wu L, Ning D, Zhang B, Li Y, Zhang P, Shan X, Zhang Q, Brown MR, Li Z, Van Nostrand JD, Ling F, Xiao N, Zhang Y, Vierheilig J, Wells GF, Yang Y, Deng Y, Tu Q, Wang A, **Global Water Microbiome Consortium**, Zhang T, He Z, Keller J, Nielsen PH, Alvarez PJJ, Criddle CS, Wagner M, Tiedje JM, He Q, Curtis TP, Stahl DA, Alvarez-Cohen L, Rittmann BE, Wen X, Zhou J (2019) Global diversity and biogeography of bacterial communities in wastewater treatment plants. *Nature Microbiology* 4: 1183-1195
24. Mansfeldt C, Achermann S, Men Y, Walser JC, Villez K, Joss A, **Johnson DR**, Fenner K (2019) Microbial residence time is a controlling parameter of the taxonomic composition and functional profile of microbial communities. *The ISME Journal* 13: 1589-1601
25. Ju F, Beck K, Yin X, Maccagnan A, McArdell CS, Singer H, **Johnson DR**, Zhang T, Bürgmann H (2019) Wastewater treatment plant resistomes are shaped by bacterial composition, genetic exchange, and upregulated expression in the effluent microbiomes. *The ISME Journal* 13: 346-360
26. Lilja EE, **Johnson DR** (2019) Substrate cross-feeding affects the speed and trajectory of molecular evolution within a synthetic microbial assemblage. *BMC Evolutionary Biology* 19: 129
27. Tecon R, Mitri S, Ciccarese D, Or D, van der Meer JR, **Johnson DR** (2019) Bridging the holistic-reductionist divide in microbial ecology. *mSystems* 4: e00265-18
28. Ciccarese D, **Johnson DR** (2019) Functional microbial landscapes. In *Comprehensive Biotechnology* 3<sup>rd</sup> ed. Ed. Moo-Young M. Elsevier: Pergamon
29. Patsch D, van Vliet S, Marcantini LG, **Johnson DR** (2018) Generality of associations between biological richness and the rates of metabolic processes across microbial communities. *Environmental Microbiology* 20: 4356-4368
30. Goldschmidt F, Regoes R, **Johnson DR** (2018) Metabolite toxicity slows local diversity loss during expansion of a microbial cross-feeding community. *The ISME Journal* 12: 136-144
31. Wells GF, Shi YJ, Laurenzi M, Weissbrodt DG, Joss A, Bürgmann H, **Johnson DR**, Morgenroth E (2017) Comparing the resistance, resilience, and stability of replicate moving bed biofilm and suspended growth combined nitrification-anammox reactors. *Environmental Science & Technology* 51: 5108-5117
32. Goldschmidt F, Regoes R, **Johnson DR** (2017) Successive range expansion promotes diversity and accelerates evolution in spatially structured microbial populations. *The ISME Journal* 11: 2112-2123
33. Marchal M, Selina Derksen, Sven Panke, Ackermann M, **Johnson DR** (2017) A passive mutualistic interaction promotes the evolution of spatial structure within microbial populations. *BMC Evolutionary Biology* 17: 106

34. Lilja EE, **Johnson DR** (2017) Metabolite toxicity determines the pace of molecular evolution within microbial populations. *BMC Evolutionary Biology* 17: 52
35. Men Y, Achermann S, Helbling DE, **Johnson DR**, Fenner K (2017) Relative contribution of ammonia oxidizing bacteria and other members of nitrifying activated sludge communities to micropollutant biotransformation. *Water Research* 109: 217-226
36. Men Y, Han P, Helbling DE, Jehmlich N, Herbold C, Guide R, Onnis-Hayden A, Gu AZ, **Johnson DR**, Wagner M, Fenner K. (2016) Biotransformation of two pharmaceuticals by the ammonia-oxidizing archaeon *Nitrososphaera gargensis*. *Environmental Science & Technology* 50: 4682-4692
37. Filippidou S, Bueche M, Wunderlin T, Junier T, Roussel-Delif L, Jeanneret N, Dorador C, Molina V, Ioannidou A, Vargemezis G, **Johnson DR**, Junier P (2016) A combination of extreme environmental conditions favor the prevalence of endospore-forming firmicutes. *Frontiers in Microbiology* 7: 1707
38. Dolinšek J, Goldschmidt F, **Johnson DR** (2016) Synthetic microbial ecology and the dynamic interplay between microbial genotypes. *FEMS Microbiology Reviews* 40: 961-979
39. Kinnunen M, Dechesne A, Proctor C, Hammes F, **Johnson DR**, Quintela-Baluja M, Graham D, Daffonchio D, Fodelianakis S, Hahn N, Boon N, Smets BF (2016) A conceptual framework for invasion in microbial communities. *The ISME Journal* 10: 2773-2775
40. Widder S, Allen R, Pfeiffer T, Curtis TP, Wiuf C, Sloan WT, Cordero OX, Brown SP, Momeni B, Shou W, Kettle H, Flint HJ, Haas AF, Laroche B, Kreft JU, Rainey PB, Freilich S, Schuster S, Milferstedt K, van der Meer JR, Grosskopf T, Huisman J, Free A, Picioreanu C, Quince C, Klapper I, Labarthe S, Smets BF, Wang H, **Isaac Newton Institute Fellows**, Soyer OS (2016) Challenges in microbial ecology: building predictive understanding of community function and dynamics. *The ISME Journal* 10: 2557-2568
41. Lindemann SR, Bernstein HC, Song HS, Fredrickson JK, Fields MW, Shou W, **Johnson DR**, Beliaev AS (2016) Engineering microbial consortia for controllable outputs. *The ISME Journal* 10: 2077-2084
42. Lilja EE, **Johnson DR** (2016) Segregating metabolic processes into different microbial cells accelerates the consumption of inhibitory substrates. *The ISME Journal* 10: 1568-1578
43. **Johnson DR**, Lee TK, Park J, Fenner K, Helbling DE (2015) The functional and taxonomic richness of wastewater treatment plant microbial communities are associated with each other and with ambient nitrogen and carbon availability. *Environmental Microbiology* 17: 4851-4860
44. **Johnson DR**, Helbling DE, Men Y, Fenner K (2015) Can meta-omics help to establish causality between contaminant biotransformations and genes or gene products? *Environmental Science: Water Research & Technology* 1: 272-278
45. **Johnson DR**, Helbling DE, Lee TK, Park J, Fenner K, Kohler HPE, Ackermann M (2015) Association of biodiversity with the rates of micropollutant biotransformations among full-scale wastewater treatment plant communities. *Applied and Environmental Microbiology* 81: 666-675
46. Helbling DE, **Johnson DR**, Lee TK, Scheidegger A, Fenner K (2015) A framework for establishing predictive relationships between specific bacterial 16S rRNA sequence abundances and biotransformation rates. *Water Research* 70: 471-484
47. West KA, Lee PKH, **Johnson DR**, Zinder SH, Alvarez-Cohen L (2013) Global gene expression of *Dehalococcoides* within a robust dynamic TCE-dechlorinating community under conditions of periodic substrate supply. *Biotechnology and Bioengineering* 110: 1333-1341
48. Coronado E, Roggo C, **Johnson DR**, van der Meer JR (2012) Genome-wide analysis of salicylate and dibenzofuran metabolism in *Sphingomonas wittichii* RW1. *Frontiers in Microbiology* 3: 300
49. Fida TT, Breugelmans P, Lavigne R, Coronado E, **Johnson DR**, van der Meer JR, Mayer AP, Heipieper HJ, Hofkens J, Springael D (2012) Exposure to solute stress affects genome-wide expression but not the polycyclic aromatic hydrocarbon-degrading activity of *Sphingomonas* sp. LH128 in biofilms. *Applied and Environmental Microbiology* 78: 8311-8320
50. Helbling DE, Ackermann M, Fenner K, Kohler HPE, **Johnson DR** (2012) The activity level of a microbial community function can be predicted from its metatranscriptome. *The ISME Journal* 6: 902-904
51. Helbling DE, **Johnson DR**, Honti M, Fenner K (2012) Micropollutant biotransformation kinetics associate with WWTP process parameters and microbial community characteristics. *Environmental Science & Technology* 46: 10579-10588
52. **Johnson DR**, Goldschmidt F, Lilja EE, Ackermann M (2012) Metabolic specialization and the assembly of microbial communities. *The ISME Journal* 6: 1985-1991
53. Men Y, Feil H, VerBerkmoes NC, Shah MB, **Johnson DR**, Lee PK, West KA, Zinder SH, Andersen GL, Alvarez-Cohen L (2012) Sustainable syntrophic growth of *Dehalococcoides ethenogenes* strain 195 with *Desulfovibrio vulgaris* Hildenborough and *Methanobacterium congolense*: global transcriptomic and proteomic analysis. *The ISME Journal* 6: 410-421

54. **Johnson DR**, Coronado E, Moreno-Forero SK, Heipieper HJ, van der Meer JR (2011) Transcriptome and membrane fatty acid analyses reveal different strategies for responding to permeating and non-permeating solutes in the bacterium *Sphingomonas wittichii*. *BMC Microbiology* 11: 250
55. Müller S, **Johnson DR** (2011) Application of cytomics to separate natural microbial communities by their physiological properties. In *Handbook of Molecular Microbial Ecology Vol I: Metagenomics and Complementary Approaches*. Ed. de Bruijn FJ. Wiley-Blackwell
56. Gaillard M, Pradervand N, Minoia M, Sentchilo V, **Johnson DR**, van der Meer JR (2010) Transcriptome analysis of the mobile genome ICE<sub>clc</sub> in *Pseudomonas knackmussii* B13. *BMC Microbiology* 10: 153
57. **Johnson DR**, Czechowska K, Chèvre N, van der Meer JR (2009) Toxicity of triclosan, penconazole, and metalaxyl on *Caulobacter crescentus* and a freshwater microbial community as assessed by flow cytometry. *Environmental Microbiology* 11: 1682-1691
58. **Johnson DR**, Nemir A, Andersen GL, Zinder SH, Alvarez-Cohen L (2009) Transcriptomic microarray analysis of corrinoid responsive genes in *Dehalococcoides ethenogenes* strain 195. *FEMS Microbiology Letters* 294: 198-206
59. **Johnson DR** (2009) Transcriptome analysis using high-density oligonucleotide microarrays. In *Handbook of Hydrocarbon and Lipid Microbiology Vol 5: Experimental Protocols and Appendices*. Eds. Timmis KN, McGenity T, van der Meer JR, de Lorenzo V. Springer
60. Czechowska K, **Johnson DR**, van der Meer JR (2008) Use of flow cytometric methods for single-cell analysis in environmental microbiology. *Current Opinion in Microbiology* 11: 205-212
61. **Johnson DR**, Brodie EL, Hubbard AE, Andersen GL, Zinder SH, Alvarez-Cohen L (2008) Temporal transcriptomic microarray analysis of “*Dehalococcoides ethenogenes*” strain 195 during the transition into stationary phase. *Applied and Environmental Microbiology* 74: 2864-2872
62. West KA, **Johnson DR**, Hu P, DeSantis TZ, Brodie EL, Lee PKH, Feil H, Andersen GL, Zinder SH, Alvarez-Cohen L (2008) Comparative genomics of “*Dehalococcoides ethenogenes*” 195 and an enrichment culture containing unsequenced “*Dehalococcoides*” strains. *Applied and Environmental Microbiology* 74: 3490-3496
63. **Johnson DR**, Park J, Kukor JJ, Abriola LM (2006) Effect of carbon starvation on toluene degradation activity by toluene monooxygenase-expressing bacteria. *Biodegradation* 17: 437-445
64. Lee PKH, **Johnson DR**, Holmes VF, He J, Alvarez-Cohen L (2006) Reductive dehalogenase gene expression as a biomarker for physiological activity of *Dehalococcoides* spp. *Applied and Environmental Microbiology* 72: 6161-6168
65. Pecson BM, Barrios JA, **Johnson DR**, Nelson KL (2006) A real-time PCR method for quantifying viable *Ascaris* eggs using the first internally-transcribed spacer region of rRNA. *Applied and Environmental Microbiology* 72: 7864-7872
66. **Johnson DR**, Lee PKH, Holmes VF, Alvarez-Cohen L (2005) An internal reference technique for accurately quantifying specific mRNAs by real-time PCR with application to the *tceA* reductive dehalogenase gene. *Applied and Environmental Microbiology* 71: 3866-3871
67. **Johnson DR**, Lee PKH, Holmes VF, Fortin AC, Alvarez-Cohen L (2005) Transcriptional expression of the *tceA* gene in a *Dehalococcoides*-containing microbial enrichment. *Applied and Environmental Microbiology* 71: 7145-7151

#### SELECTED INVITED ORAL PRESENTATIONS AND SEMINARS (out of >60)

1. **Johnson DR** (2024) Phage predation, pattern formation, and the spread of antibiotic resistance. *Division of Environmental Engineering, Hokkaido University, Sapporo, Japan*
2. **Johnson DR** (2024) Phage predation, pattern formation, and the spread of antibiotic resistance. *Unit of Molecular Genetics, Genomics and Microbiology, University of Strasbourg, Strasbourg, France*
3. **Johnson DR** (2024) Phage predation, pattern formation, and the spread of antibiotic resistance. *Section for Microbial and Chemical Ecology, Danish Technological University, Lyngby, Denmark*
4. **Johnson DR** (2024) Pattern formation, phage predation, and the spread of antibiotic resistance. *Biocomplexity Seminar Series, Niels Bohr Institute, University of Copenhagen, Copenhagen, Denmark*
5. **Johnson DR** (2024) Pattern formation, phage predation, and the spread of antibiotic resistance. *Department of Microbiology and Molecular Medicine, University of Geneva, Geneva, Switzerland*
6. **Johnson DR** (2023) Pattern formation, phage predation, and the spread of antibiotic resistance. *Institute of Cell Biology, University of Bern, Bern, Switzerland*
7. **Johnson DR** (2023) The importance of space for the acquisition and spread of new microbial functions. *College of Resources and Environmental Sciences, Nanjing Agricultural University, Nanjing, China*
8. **Johnson DR** (2023) The importance of space for the acquisition and spread of new microbial functions. *Department of Soil and Water Sciences, China Agricultural University, Beijing, China*

9. **Johnson DR** (2023) The importance of space for the horizontal spread of new microbial functions. *Workshop on Biological Interactions and Spatial Dynamics: Linking Experiments and Theory, University of Neuchâtel, Neuchâtel, Switzerland*
10. **Johnson DR** (2022) Causes and consequences of microbial range expansion. *International Forum on Soil, Fertilizer, Crop and Environment (SFCE 2022), Northwest A&F University, Xianyang, China*
11. **Johnson DR** (2022) Microbial spatial self-organization and the fate of plasmid-encoded antibiotic resistance. *Microbial Communities: Current Approaches and Open Challenges. Isaac Newton Institute for Mathematical Sciences, Cambridge, UK*
12. **Johnson DR** (2022) How is microbial diversity maintained during range expansion and why should we care? *Earth-Surface Ecosystems Sciences Lecture, China Agricultural University, Beijing, and Zhejiang University, Hangzhou, China*
13. **Johnson DR** (2022) Consequences of shoving, sliding, and swimming on microbial range expansion. *2022 Annual Assembly of the Swiss Society for Microbiology, Lausanne, Switzerland*
14. **Johnson DR** (2022) Consequences of small-scale hydrodynamics on microbial spatial self-organization and the spread of plasmid-encoded antibiotic resistance. *18<sup>th</sup> International Symposium on Microbial Ecology (ISME18), Lausanne, Switzerland*
15. **Johnson DR** (2022) Causes and consequences of microbial spatial self-organization (and why we should care). *Center for Applied Geoscience, University of Tübingen, Tübingen, Germany*
16. **Johnson DR** (2022) How is microbial diversity maintained during range expansion (and why should we care)? *Institute of Ecology and Evolution, University of Bern, Bern, Switzerland*
17. **Johnson DR** (2021) Microbial range expansion and the spread of antibiotic resistance. *Department of Civil and Environmental Engineering, Cornell University, Ithaca, NY, USA*
18. **Johnson DR** (2021) Microbial spatial self-organization in a dynamic environment. *International Workshop on Understanding Soil Microbiome for Agricultural Sustainability, Peking University, Beijing, China*
19. **Johnson DR** (2020) Bifurcations and the creation of pattern diversity during microbial spatial self-organization. *Discussion Meeting on Conflict and Cooperation in Cellular Populations, National Centre for Biological Sciences, Bangalore, India*
20. **Johnson DR** (2019) Spatial chaos and the self-organization of microbial communities. *Department of Biosciences, University of Exeter, Penryn, UK*
21. **Johnson DR** (2018) Metabolic specialization and the causes of diversity in microbial ecosystems. *European Water Tech Week Leeuwarden 2018, Leeuwarden, Netherlands*
22. **Johnson DR** (2018) The ecological and evolutionary consequences of microbial range expansions. *Department of Microbiology and Molecular Medicine, University of Geneva, Geneva, Switzerland*
23. **Johnson DR** (2018) The ecological and evolutionary consequences of microbial range expansions. *Microbiology Society Annual Conference 2018, Birmingham, England, UK*
24. **Johnson DR** (2018) The ecological and evolutionary consequences of microbial range expansions. *Department of Biology, University of Fribourg, Fribourg, Switzerland*
25. **Johnson DR** (2017) Is biodiversity important for the functional performance of engineered systems? *2017 ESA Annual Meeting, Portland, OR, USA*
26. **Johnson DR** (2017) Why does cross-feeding occur within microbial communities? *Scientific Spring Meeting KNVM & NVMM 2017, Arnhem, Netherlands*
27. **Johnson DR** (2016) The causes and consequences of metabolic specialization. *Department of Ecology and Evolutionary Biology, University of Michigan, Ann Arbor, MI, USA*
28. **Johnson DR** (2016) The causes and consequences of metabolic specialization. *Department of Civil and Environmental Engineering, University of Illinois, Urbana, IL, USA*
29. **Johnson DR** (2016) The causes and consequences of metabolic specialization. *Department of Civil and Environmental Engineering, Massachusetts Institute of Technology, Cambridge, MA, USA*
30. **Johnson DR** (2016) The causes and consequences of metabolic specialization. *FAS Center for Systems Biology, Harvard University, Cambridge, MA, USA*
31. **Johnson DR** (2016) The causes and consequences of metabolic specialization. *Department of Aquatic Chemistry, Federal Institute of Hydrology, Koblenz, Germany*
32. **Johnson DR** (2016) The causes and consequences of metabolic specialization. *Department of Civil and Environmental Engineering, Technical University of Denmark, Lyngby, Denmark*
33. **Johnson DR** (2014) The causes and consequences of metabolic specialization. *Infrastructure and Environment Division, University of Glasgow, Glasgow, Scotland*

34. **Johnson DR** (2014) The causes and consequences of metabolic specialization. *Understanding Microbial Communities; Function, Structure and Dynamics. Isaac Newton Institute for Mathematical Sciences, Cambridge, England*
35. **Johnson DR** (2014) When does metabolic specialization lead to more rapid substrate consumption? Roundtable discussion on Microbial Consortia for Controllable Outputs. *15<sup>th</sup> International Symposium on Microbial Ecology (ISME15), Seoul, Republic of Korea*
36. **Johnson DR** (2013) Metabolic specialization and the causes of diversity in microbial ecosystems. *Department of Civil, Environmental, and Architectural Engineering, University of Colorado, Boulder, CO, USA*
37. **Johnson DR** (2013) Metabolic specialization and the causes of diversity in microbial ecosystems. *Department of Environmental Science and Engineering, Colorado School of Mines, Golden, CO, USA*
38. **Johnson DR** (2013) Metabolic specialization and the causes of diversity in microbial ecosystems. *School of Civil and Environmental Engineering, Yonsei University, Seoul, Republic of Korea*

## REVIEWING (*ad hoc*)

### Scientific Journals

Too many to list, but includes: *Science, Nature, Nature Microbiology, Nature Ecology & Evolution, Nature Physics, Nature Communications, Proceedings of the National Academy of Sciences USA, Current Biology, The ISME Journal*

### Grant Proposals

Swiss National Science Foundation (SNSF), British Research Council (EPSRC), French National Agency for Research (ANR), German Research Foundation (Deutsche Forschungsgemeinschaft), Dutch Research Council (NWO), Israeli Science Foundation (ISF), ETH Zürich Research Commission, The Wellcome Trust, Human Frontier Science Program (HFSP)

## SELECTED CONFERENCE ORGANIZING

1. Organizing committee member for the 9<sup>th</sup> Swiss Microbial Ecology Meeting, Zürich, Switzerland (2025)
2. Panel member of the roundtable discussion entitled “Synthetic Microbial Ecology for Theory Testing and Applications” at the 19<sup>th</sup> International Symposium on Microbial Ecology (ISME15), Cape Town, South Africa (2024)
3. Organizing committee member for the Annual Assembly of the Swiss Society for Microbiology, Bern, Switzerland (2024)
4. Session organizer of the session entitled “What Mechanisms Drive Toxic Algal Blooms?” at the ASLO Aquatic Sciences Meeting 2023, Palma de Mallorca, Spain (2023)
5. Organizing committee member for the Annual Assembly of the Swiss Society for Microbiology, Lausanne, Switzerland (2023)
6. Organizing committee member for the 18<sup>th</sup> International Symposium on Microbial Ecology (ISME18), Lausanne, Switzerland (2022)
7. President of the Annual Assembly of the Swiss Society for Microbiology, Virtual (2021)
8. Scientific committee member for the 11<sup>th</sup> International Conference on Environmental Engineering and Management, Muttenz, Switzerland (2021)
9. Organizing committee member for the Annual Assembly of the Swiss Society for Microbiology, Zürich, Switzerland (2019)
10. Organizing committee member for the Annual Assembly of the Swiss Society for Microbiology, Lausanne, Switzerland (2018)
11. Panel member of the roundtable discussion entitled “Microbial Consortia for Controllable Outputs” at the 15<sup>th</sup> International Symposium on Microbial Ecology (ISME15), Seoul, Republic of Korea (2016)
12. Organizing committee member for the 6<sup>th</sup> Swiss Microbial Ecology Meeting, Ascona, Switzerland (2015)
13. Organizing committee member for the 5<sup>th</sup> Swiss Microbial Ecology Meeting, Neuchâtel, Switzerland (2013)

## SUPERVISION

### Postdoctoral researchers

|  |              |
|--|--------------|
| Dr. Ana-Hermina Ghenu   Role: co-supervisor  | 2024-present |
| Dr. Chujin Ruan   Role: lead supervisor  | 2022-present |
| Dr. Sema Karakurt-Fischer   Role: lead supervisor   Subsequent position: Postdoc at Eawag, Switzerland | 2022-2024    |
| Dr. Josep Ramoneda   Role: lead supervisor   Subsequent position: Postdoc at Univ. Colorado, USA       | 2020-2022    |
| Dr. Jan Dolinšek   Role: lead supervisor   Subsequent position: Kompetenzzentrum Holz, Austria         | 2015-2018    |
| Dr. Feng Ju   Role: co-supervisor   Subsequent position: Assist. Prof. at Westlake Univ., China        | 2015-2018    |

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|---|-----------|
| Dr. Yujie Men   Role: co-supervisor   Subsequent position: Assist. Prof. at Univ. Illinois, USA           | 2014-2015 |
| Dr. Marie Marchal   Role: lead supervisor   | 2012-2014 |
| Dr. George F. Wells   Role: co-supervisor   Subsequent position: Assist. Prof. at Northwestern Univ., USA | 2011-2013 |
| Dr. Damian E. Helbing   Role: co-supervisor   Subsequent position: Assist. Prof. at Cornell Univ., USA    | 2010-2011 |

**Doctoral students**

|   |              |
|---|--------------|
| Trang Nguyen   University of Bern, Switzerland   Role: lead supervisor  | 2025-present |
| Deepthi Vinod   ETHZ, Switzerland   Role: lead supervisor   | 2022-present |
| Agustina Ziliani   ETHZ, Switzerland   Role: lead supervisor  | 2022-present |
| Dr. Yinyin Ma   ETHZ, Switzerland   Role: lead supervisor   Subsequent position: Digit Soil, Switzerland              | 2018-2022    |
| Dr. Davide Ciccarese   ETHZ, Switzerland   Role: lead supervisor   Subsequent position: Postdoc. at MIT, USA          | 2016-2020    |
| Dr. Deborah Patsch   ETHZ, Switzerland   Role: co-supervisor   Subsequent position: Microsynth AG, Switzerland        | 2014-2017    |
| Dr. Felix Goldschmidt   ETHZ, Switzerland   Role: lead supervisor   Subsequent position: Janssen Schweiz, Switzerland | 2011-2015    |
| Dr. Elin E. Lilja   ETHZ, Switzerland   Role: lead supervisor   Subsequent position: Postdoc. at Univ. Edinburgh, UK  | 2011-2015    |

**M.Sc. and B.Sc. students**

|   |              |
|---|--------------|
| Helena Moser (B.Sc.)   University of Bern, Switzerland   Role: lead supervisor                          | 2024-present |
| Janis Steiner (B.Sc.)   University of Bern, Switzerland   Role: lead supervisor                         | 2024         |
| Sahil Oza (B.Sc.)   ETHZ, Switzerland   Role: lead supervisor   | 2024         |
| Jelena Bitterli (B.Sc.)   University of Bern, Switzerland   Role: lead supervisor                       | 2024         |
| Anna Sassara (B.Sc.)   University of Bern, Switzerland   Role: lead supervisor                          | 2023         |
| Gaétane Sallard (B.Sc.)   ETHZ, Switzerland   Role: lead supervisor                                     | 2022-2023    |
| Philipp Tandler (B.Sc.)   ETHZ, Switzerland   Role: lead supervisor                                     | 2021-2023    |
| Deepthi Vinod (M.Sc.)   ETHZ, Switzerland   Role: lead supervisor                                       | 2020-2022    |
| Ella Flükiger (B.Sc.)   University of Applied Sciences and Arts NW, Switzerland   Role: lead supervisor | 2021         |
| Julian Schmidt (B.Sc.)   University of Applied Forest Sciences, Germany   Role: lead supervisor         | 2021         |
| Zi Shan Kow (B.Sc.)   Nanyang Technological University, Singapore   Role: lead supervisor               | 2019-2020    |
| Leon Nissen (B.Sc.)   ETHZ, Switzerland   Role: lead supervisor   | 2019         |
| Valeria Merlo (B.Sc.)   ETHZ, Switzerland   Role: lead supervisor                                       | 2018-2019    |
| Florian Rothenbühler (B.Sc.)   ETHZ, Switzerland   Role: lead supervisor                                | 2018         |
| Anita Zuidema (B.Sc.)   ETHZ, Switzerland   Role: lead supervisor                                       | 2017-2018    |
| Claudia Keller (B.Sc.)   ETHZ, Switzerland   Role: lead supervisor                                      | 2013         |
| Samuel Bickel (B.Sc.)   ETHZ, Switzerland   Role: lead supervisor                                       | 2013         |
| Johanna Otto (M.Sc.)   ETHZ, Switzerland   Role: lead supervisor  | 2012-2013    |
| Sofia van Moorsel (M.Sc.)   University of Zürich, Switzerland   Role: lead supervisor                   | 2012-2013    |
| Benedict Borer (B.Sc.)   ETHZ, Switzerland   Role: lead supervisor                                      | 2011-2012    |
| Anja Bernet (B.Sc.)   ETHZ, Switzerland   Role: lead supervisor   | 2010-2011    |
| Selina Müller (B.Sc.)   ETHZ, Switzerland   Role: lead supervisor                                       | 2010         |

**Scientific research staff**

|   |              |
|---|--------------|
| Lea Caduff   Role: co-supervisor                | 2015-present |
| Severin Stierli   Role: lead supervisor         | 2021-2022    |
| Teresa Colangelo Failla   Role: lead supervisor | 2012-2022    |
| Oliver Roos   Role: lead supervisor             | 2013-2014    |
| Lara Pfister   Role: lead supervisor            | 2010-2011    |

**Visiting Doctoral students**

|   |              |
|---|--------------|
| Miao Han   China Agricultural University, China   Role: main host         | 2024-present |
| Dr. Mireia Coronado   University of Copenhagen, Denmark   Role: main host | 2024         |
| Dr. Soo Bin Kim   Yonsei University, Republic of Korea   Role: main host  | 2023         |
| Dr. Eun Sun Lyou   Yonsei University, Republic of Korea   Role: main host | 2023         |



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|---|-----------|
| Dr. Kohei Takahashi   Tsukuba University, Japan   Role: main host   Subsequent Position: Postdoc at Hokkaido Univ, Japan          | 2022-2023 |
| Dr. Chujin Ruan   China Agricultural University, China   Role: main host   Subsequent Position: Postdoc at Eawag, Switzerland     | 2021-2022 |
| Dr. Tae Kwon Lee   Yonsei University, Republic of Korea   Role: main host   Subsequent Position: Postdoc at Univ. Vienna, Austria | 2012      |

**Visiting faculty**

|   |           |
|---|-----------|
| Prof. Dr. Ramesh Goel   University of Utah, USA   Role: main host                                   | 2023      |
| Prof. Dr. Say Kee Ong   Iowa State University, USA   Role: main host                                | 2020      |
| Dr. Eva Figuerola   National Scientific and Technical Research Council, Argentina   Role: main host | 2018-2019 |
| Dr. Brian Rahm   Cornell University, USA   Role: main host  | 2017      |
| Prof. Dr. Ramesh Goel   University of Utah, USA   Role: co-host                                     | 2014      |
| Prof. Dr. Ruth E. Richardson   Cornell University, USA   Role: main host                            | 2010      |