Florin Musat Curriculum Vitae

Last update: March 27, 2025

Aarhus University
Associate Professor
Dept. of Biology
Section for Microbiology
Ny Munkegade 114, 8000 Aarhus C
Denmark

florin.musat@bio.au.dk

Researcher profile

Main research interests.

Marine microorganisms, microbial processes, and geomicrobiology, with a focus on anaerobic processes carried out by sulfate-, nitrate- and metal-reducing bacteria and methanogenic archaea. I am particularly interested in hydrocarbon microbiology, cultivation of hydrocarbon-degrading anaerobic microorganisms, and their physiology and biochemical mechanisms. Microbe-microbe interactions, including syntrophic interactions, direct interspecies electron transfer, and interactions between archaea and bacteria. Corrosion of iron by anaerobic microorganisms. Development and correlative application of molecular biology methods like community profiling, metagenomics, or metaproteomics with high-resolution structural and chemical imaging and high mass resolution analytics.

Major recent achievements

Cultivation & identification of a novel archaea clade able to oxidize ethane anaerobically, identification of the ethane activation mechanism & enzymes and genes of the ethane oxidation pathway. Discovery of thermophilic archaea that oxidize gaseous hydrocarbons via formation of alkyl-coenzyme M. Cultivation and phylogenetic identification of sulfate-reducing bacteria able to grow with gaseous hydrocarbons, resolved their biochemical mechanism of alkane functionalization. Cultivation & identification of nitrate- and sulfate-reducing bacteria able to oxidize cyclohexane and resolved the oxidation pathway. Cultivation & metabolic studies with sulfate-reducing bacteria oxidizing benzene and naphthalene as model aromatic hydrocarbons.

Identifiers & web profiles

ORCID:	Florin Musat (0000-0002-4240-3495) - ORCID
Scopus:	Musat, Florin - Author details - Scopus
LinkedIn:	https://www.linkedin.com/in/florin-musat-170a3219/
Google Scholar:	https://scholar.google.com/citations?user=XtuZ88kAAAAJ&hl=en

Positions

2023 – present	Associate Professor Aarhus University, Denmark
2021 – present	Collaborating scientific researcher Emil G. Racoviță Institute, Babeş-Bolyai University, Cluj-Napoca, Romania
2022 – 2024	Associate Professor Babeş-Bolyai University, Cluj-Napoca, Romania
2015 – 2022	Senior Research Scientist Helmholtz Centre for Environmental Research – UFZ, Germany
2013 – 2015	Research Assistant Helmholtz Centre for Environmental Research – UFZ, Germany
2007 – 2013	Scientist Max Planck Institute for Marine Microbiology, Germany
2005 – 2007	Postdoctoral fellow Max Planck Institute for Marine Microbiology, Germany
2001 – 2005	Doctoral candidate Max Planck Institute for Marine Microbiology, Germany
2000 – 2001	Assistant Lecturer Faculty of Biology, University of Bucharest, Romania
1997 – 2000	Assistant Researcher Faculty of Biology, University of Bucharest, Romania

Education

2001 – 2005	Ph.D. (Dr. rer. Nat.) in Marine Microbiology, *magna cum laude* Max Planck Institute for Marine Microbiology, Germany Dissertation Advisor: Prof. Dr. Friedrich Widdel
1999 – 2001	Ph.D. candidate in Microbial Genetics, interrupted for Ph.D. programme in Marine Microbiology Department of Genetics, Faculty of Biology, University of Bucharest, Romania
1997 – 1999	Master of Science in Genetics and Microbial Genetics Department of Genetics, Faculty of Biology, University of Bucharest, Romania Dissertation in Microbial Genetics Dissertation Advisor: Prof. Dr. Ileana Stoica
1993 – 1997	Bachelor of Science in Biological Sciences Faculty of Biology, University of Bucharest, Romania

Teaching

2024 – present	Lecturer, **Microbial Physiology and Identification**, Aarhus University, Denmark
2022 – 2024	Instructor, **General Microbiology** practical course for undergraduate students of the Faculty of Biology, Babes-Bolyai University, Cluj-Napoca, Romania

2006 – 2013	Lecturer and instructor, **Marine Microbiology** practical courses, Master of International Studies in Aquatic Tropical Ecology (ISATEC), University of Bremen, Germany
2007	Instructor, **General Microbiology** practical course for undergraduate students University of Bremen, Germany
1997 – 2001	Lecturer and instructor of practical courses for undergraduate Biology students, and for Master students of Microbial Genetics & Biotechnology, and Molecular Biology master programmes, Faculty of Biology, University of Bucharest, Romania Courses taught: **General Genetics, Microbial Genetics, Genetic Engineering, and Advanced Topics in Molecular Techniques**

Mentoring & supervision

Guide: Aarhus University, DK (**AU**), Babes-Bolyai University, RO (**UBB**), Helmholtz Centre for Environmental Research, DE (**UFZ**), Max Planck Institute for Marine Microbiology, DE (**MPIMM**), University of Bucharest, RO (**UB**). Known current position of alumni shown in brackets.

Bachelor

Diana-Alexandra Pandichi (UBB and AU, 2023), ***Lorena Stefanuca*** (UBB and AU, 2023)

Master

Anghelus Ostroveanu (UB, 1999-2000); ***Ulrike Jaekel*** (MPIMM, 2007-2008); ***Johannes Zedelius*** (MPIMM, 2006-2007); ***Zane Zaleska*** (MPIMM, 2007-2008); ***Aishwarya Paknikar*** (MPIMM, 2010-2011)

PhD

Xiyan Zhang (AU, 2025-current); ***Purnima Gabhrani*** (AU, 2024-current); ***Jun Yin*** (AU, 2023-2024, co-supervision); ***Sarah Haenelt*** (UFZ, 2020-current, co-supervision); ***Gangan Wang*** (UFZ, co-supervision, 2020-current); ***Marc Tamisier*** (UFZ, 2019-2024); ***Jiaheng Ji*** (UFZ, 2019-2021; pharma staff); ***Federica Calabrese*** (UFZ, 2016-2021; co-supervision, researcher); ***Alexei Remizovschi*** (UBB, 2019-2020, visiting Ph.D. student); ***Song-Can Chen*** (UFZ, 2016-2018; associate professor); ***Gao Chen*** (MPIMM, 2009-2014; researcher); ***Sara Kleindienst*** (MPIMM, 2008-2012; co-supervision, faculty); ***Ulrike Jaekel*** (MPIMM, 2008-2011; government senior advisor).

Postdoctoral scientists

Song-Can Chen (UFZ, 2019-2021; associate professor); ***Zhi-Yong Song*** (UFZ, 2016-2017; faculty)

Research Grants & Awards

Total funding as PI, as of March 2025: 4.15 mil EUR

2023 – 2030 Novo Nordisk Foundation (NNF). **ReFuel**: Harnessing archaeal processes to capture carbon dioxide into alkanes as renewable fuels and energy storage agents. 24,992,840 DKK (3,360,312 EUR); 1,564,435 DKK co-financing from Aarhus University (210,340 EUR). Principal Investigator

2020 – 2021 German Federal Institute for Geosciences and Natural Resources (BGR). **PANORAMA II**. Scientific evaluation of molecular biology analyses of samples from the Panorama exploration area (Part II). 73,280 EUR. Principal Investigator

2019 – 2020 German Federal Institute for Geosciences and Natural Resources (BGR). **PANORAMA I**. Scientific evaluation of molecular biology analyses of samples from the Panorama exploration area (Part I). 155,356 EUR. Principal Investigator

2018 – 2020 Helmholtz Association of German Research Centres Award. **ARCHYPROX**. Archaeal hydrocarbon oxidation and pathway reversibility. 200,000 EUR. Principal Investigator

2008 – 2011 German Research Foundation (DFG). Microorganisms degrading cyclic and short-chain alkanes under anoxic conditions. 105,600 EUR. Principal Investigator

2005 – 2007 Max Planck Society Postdoctoral scholarship. 45,000 EUR. Principal Investigator

Publications

Metrics

	WoS	**Scopus**	**Google Scholar**
Times Cited:	>2350	>2500	>3600
h-index:	25	25	28

Publication list

1. Chen, S.-C., S. Chen, N. Musat, S. Kümmel, J. Ji, M.B. Lund, A. Gilbert, O.J. Lechtenfeld, H.-H. Richnow, and **F. Musat**, Back flux during anaerobic oxidation of butane support archaea-mediated alkanogenesis. Nature Communications, 2024. **15**(1): p. 9628.
2. Vogel, A.L., K.J. Thompson, D. Straub, **F. Musat**, T. Gutierrez, and S. Kleindienst, Genetic redundancy in the naphthalene-degradation pathway of *Cycloclasticus pugetii* strain PS-1 enables response to varying substrate concentrations. FEMS Microbiology Ecology, 2024. **100**(6).
3. **Musat, F**., K.U. Kjeldsen, A.E. Rotaru, S.C. Chen, and N. Musat, Archaea oxidizing alkanes through alkyl-coenzyme M reductases. Curr Opin Microbiol, 2024. **79**: p. 102486.
4. Holmes, D.E., T.L. Woodard, J.A. Smith, **F. Musat**, and D.R. Lovley, Electrobiocorrosion by microbes without outer-surface cytochromes. Mlife, 2024. **3**(1): p. 110-118.

5. Vogt, C., Z. Song, H.-H. Richnow, and **F. Musat**, Carbon and hydrogen stable isotope fractionation due to monooxygenation of short-chain alkanes by butane monooxygenase of *Thauera butanivorans* Bu-B1211. Frontiers in Microbiology, 2023. 14.
6. Tamisier, M., **F. Musat**, H.-H. Richnow, C. Vogt, and M. Schmidt, On the corrosion of ductile cast iron by sulphate reducing bacteria—implications for long-term nuclear waste repositories. Frontiers in Geochemistry, 2023. 1.
7. Chen, S.-C., **F. Musat**, H.-H. Richnow, and M. Krüger (2024) Microbial diversity and oil biodegradation potential of northern Barents Sea sediments. Journal of Environmental Sciences, **146**: 283-297.
8. Cui, L., Xin, Y., Yang, K., Li, H., Tan, F., Zhang, Y., Li, X., Zhu, Z., Yang, J., Kao, S.J., Ren, B., Zhu, Y.-G., **Musat, F.**, Musat, N. (2023) *Live tracking metabolic networks and physiological responses within microbial assemblages at single-cell level.* PNAS Nexus **2**: 1-12, https://doi.org/10.1093/pnasnexus/pgad006
9. Haenelt, S., Wang, G., Kasmanas, J. C., **Musat, F.**, Richnow, H.-H., da Rocha, U. N., Müller, J. A., Musat, N. (2023) *The fate of sulfonamide resistance genes and anthropogenic pollution marker intI1 after discharge of wastewater into a pristine river stream.* Front Microbiol 14:1058350. doi: 10.3389/fmicb.2023.1058350
10. Chen, S.-C., Ji, J., Popp, D., Jaekel, U., Richnow, H.-H., Sievert, S.M., and **Musat, F.** (2022) *Genome and proteome analyses show the gaseous alkane degrader Desulfosarcina sp. strain BuS5 as an extreme metabolic specialist*. Environ Microbiol **24**: 1964-1976.
11. Tamisier, M., Schmidt, M., Vogt, C., Kümmel, S., Stryhanyuk, H., Musat, N., Richnow, H.-H., and **Musat, F.** (2022) *Iron corrosion by methanogenic archaea characterized by stable isotope effects and crust mineralogy*. Environ Microbiol **24**: 583-595.
12. Chen, S.-C., Budhraja, R., Adrian, L., Calabrese, F., Stryhanyuk, H., Musat, N., Richnow, H.-H., Duan, G.-L., Zhu, Y.-G., and **Musat, F.** (2021) *Novel clades of soil biphenyl degraders revealed by integrating isotope probing, multi-omics, and single-cell analyses*. The ISME Journal **15**: 3508-3521.
13. Calabrese, F., Stryhanyuk, H., Moraru, C., Schlömann, M., Wick, L.Y., Richnow, H.H., **Musat, F.**, Musat, N. (2021) *Metabolic history and metabolic fitness as drivers of anabolic heterogeneity in isogenic microbial populations*. Environ Microbiol 23: 6764-6776.
14. Rotaru, A.-E., M.O. Yee, and **F. Musat**, *Microbes trading electricity in consortia of environmental and biotechnological significance.* Current Opinion in Biotechnology, 2021. **67**: p. 119-129.
15. Chen, S.-C., G.-X. Sun, Y. Yan, K.T. Konstantinidis, S.-Y. Zhang, Y. Deng, X.-M. Li, H.-L. Cui, **F. Musat**, D. Popp, B.P. Rosen, and Y.-G. Zhu, *The Great Oxidation Event expanded the genetic repertoire of arsenic metabolism and cycling.* Proc Natl Acad Sci U S A, 2020. **117**(19): p. 10414-10421.
16. Chen, G., F. Widdel, and **F. Musat**, *Effect of energy deprivation on metabolite release by anaerobic marine naphthalene-degrading sulfate-reducing bacteria.* Environ Microbiol, 2020. **22**(9): p. 4057-4066.
17. Gilbert, A., B. Sherwood Lollar, **F. Musat**, T. Giunta, S. Chen, Y. Kajimoto, K. Yamada, C.J. Boreham, N. Yoshida, and Y. Ueno, *Intramolecular isotopic evidence for bacterial oxidation of propane in subsurface natural gas reservoirs.* Proc Natl Acad Sci U S A, 2019. **116**(14): p. 6653-6658.
18. Chen, S.C., N. Musat, O.J. Lechtenfeld, H. Paschke, M. Schmidt, N. Said, D. Popp, F. Calabrese, H. Stryhanyuk, U. Jaekel, Y.G. Zhu, S.B. Joye, H.H. Richnow, F. Widdel, and **F. Musat**, *Anaerobic oxidation of ethane by archaea from a marine hydrocarbon seep.* Nature, 2019. **568**(7750): p. 108-111.

19. Calabrese, F., I. Voloshynovska, **F. Musat**, M. Thullner, M. Schlömann, H.H. Richnow, J. Lambrecht, S. Müller, L.Y. Wick, N. Musat, and H. Stryhanyuk, *Quantitation and Comparison of Phenotypic Heterogeneity Among Single Cells of Monoclonal Microbial Populations.* Frontiers in Microbiology, 2019. **10**(2814). doi:10.3389/fmicb.2019.02814.
20. Vogt, C., **F. Musat**, and H.-H. Richnow, *Compound-Specific Isotope Analysis for Studying the Biological Degradation of Hydrocarbons*, in *Anaerobic Utilization of Hydrocarbons, Oils, and Lipids*, M. Boll, Editor. 2018, Springer International Publishing. p. 1-38.
21. Stryhanyuk, H., F. Calabrese, S. Kümmel, **F. Musat**, H.H. Richnow, and N. Musat, *Calculation of Single Cell Assimilation Rates From SIP-NanoSIMS-Derived Isotope Ratios: A Comprehensive Approach.* Frontiers in Microbiology, 2018. **9**(2342).
22. Rotaru, A.E., F. Calabrese, H. Stryhanyuk, **F. Musat**, P.M. Shrestha, H.S. Weber, O.L.O. Snoeyenbos-West, P.O.J. Hall, H.H. Richnow, N. Musat, and B. Thamdrup, *Conductive particles enable syntrophic acetate oxidation between Geobacter and Methanosarcina from coastal sediments.* mBio, 2018. **9**(3).
23. Laso-Pérez, R., V. Krukenberg, **F. Musat**, and G. Wegener, *Establishing anaerobic hydrocarbon-degrading enrichment cultures of microorganisms under strictly anoxic conditions.* Nature Protocols, 2018. **13**(6): p. 1310-1330.
24. **Musat, F.** and N. Musat, *Measuring the Impact of Hydrocarbons on Rates of Nitrogen Fixation*, in *Hydrocarbon and Lipid Microbiology Protocols; Activities and Phenotypes*, T.J. McGenity, K.N. Timmis, and B.N. Fernandez, Editors. 2017, Springer-Verlag Berlin Heidelberg. p. 81-97.
25. **Musat, F.**, *Introduction to Activities and Phenotypes*, in *Hydrocarbon and Lipid Microbiology Protocols; Activities and Phenotypes*, T.J. McGenity, K.N. Timmis, and B.N. Fernandez, Editors. 2017, Springer-Verlag Berlin Heidelberg. p. 1-6.
26. Vogt, C., C. Dorer, **F. Musat**, and H.H. Richnow, *Multi-element isotope fractionation concepts to characterize the biodegradation of hydrocarbons - from enzymes to the environment.* Current Opinion in Biotechnology, 2016. **41**: p. 90-98.
27. Rabus, R., M. Boll, J. Heider, R.U. Meckenstock, W. Buckel, O. Einsle, U. Ermler, B.T. Golding, R.P. Gunsalus, P.M.H. Kroneck, M. Krüger, T. Lueders, B.M. Martins, **F. Musat**, H.H. Richnow, B. Schink, J. Seifert, M. Szaleniec, T. Treude, G.M. Ullmann, C. Vogt, M. Von Bergen, and H. Wilkes, *Anaerobic microbial degradation of hydrocarbons: From enzymatic reactions to the environment.* Journal of Molecular Microbiology and Biotechnology, 2016. **26**(1-3): p. 5-28.
28. Musat, N., **F. Musat**, P.K. Weber, and J. Pett-Ridge, *Tracking microbial interactions with NanoSIMS.* Current Opinion in Biotechnology, 2016. **41**: p. 114-121.
29. **Musat, F.**, C. Vogt, and H.H. Richnow, *Carbon and hydrogen stable isotope fractionation associated with the aerobic and anaerobic degradation of saturated and alkylated aromatic hydrocarbons.* Journal of Molecular Microbiology and Biotechnology, 2016. **26**(1-3): p. 211-226.
30. Laso-Pérez, R., G. Wegener, K. Knittel, F. Widdel, K.J. Harding, V. Krukenberg, D.V. Meier, M. Richter, H.E. Tegetmeyer, D. Riedel, H.-H. Richnow, L. Adrian, T. Reemtsma, O.J. Lechtenfeld, and **F. Musat**, *Thermophilic archaea activate butane via alkyl-coenzyme M formation.* Nature, 2016. **539**(7629): p. 396-401.
31. Kümmel, S., R. Starke, G. Chen, **F. Musat**, H.H. Richnow, and C. Vogt, *Hydrogen Isotope Fractionation As a Tool to Identify Aerobic and Anaerobic PAH Biodegradation.* Environmental Science and Technology, 2016. **50**(6): p. 3091-3100.
32. **Musat, F.**, *The anaerobic degradation of gaseous, nonmethane alkanes - From in situ processes to microorganisms.* Computational and Structural Biotechnology Journal, 2015. **13**: p. 222-228.

33. Jaekel, U., J. Zedelius, H. Wilkes, and **F. Musat**, *Anaerobic degradation of cyclohexane by sulfate-reducing bacteria from hydrocarbon-contaminated marine sediments.* Frontiers in Microbiology, 2015. **6**:116: p. 1-11.
34. Kleindienst, S., F.-A. Herbst, M. Stagars, F. von Netzer, M. von Bergen, J. Seifert, J. Peplies, R. Amann, **F. Musat**, T. Lueders, and K. Knittel, *Diverse sulfate-reducing bacteria of the Desulfosarcina/Desulfococcus clade are the key alkane degraders at marine seeps.* ISME J, 2014. **8**(10): p. 2029-2044.
35. Jaekel, U., C. Vogt, A. Fischer, H.-H. Richnow, and **F. Musat**, *Carbon and hydrogen stable isotope fractionation associated with the anaerobic degradation of propane and butane by marine sulfate-reducing bacteria.* Environmental Microbiology, 2014. **16**(1): p. 130-140.
36. Jaekel, U., N. Musat, B. Adam, M. Kuypers, O. Grundmann, and **F. Musat**, *Anaerobic degradation of propane and butane by sulfate-reducing bacteria enriched from marine hydrocarbon cold seeps.* ISME J, 2013. **7**(5): p. 885-95.
37. Abed, R.M.M., N. Musat, **F. Musat**, and M. Mußmann, *Structure of microbial communities and hydrocarbon-dependent sulfate reduction in the anoxic layer of a polluted microbial mat.* Marine Pollution Bulletin, 2011. **62**(3): p. 539-546.
38. Widdel, F. and **F. Musat**, *Diversity and common principles in enzymatic activation of hydrocarbons*, in *Handbook of Hydrocarbon and Lipid Microbiology*, K.N. Timmis, Editor. 2010, Springer Berlin Heidelberg. p. 983-1009. *Re-published 2019*.
39. Widdel, F. and **F. Musat**, *Energetic and other quantitative aspects of microbial hydrocarbon utilization*, in *Handbook of Hydrocarbon and Lipid Microbiology*, K.N. Timmis, Editor. 2010, Springer Berlin Heidelberg: Berlin, Heidelberg. p. 729-763. *Re-published 2019.*
40. **Musat, F.**, H. Wilkes, A. Behrends, D. Woebken, and F. Widdel, *Microbial nitrate-dependent cyclohexane degradation coupled with anaerobic ammonium oxidation.* ISME J, 2010. **4**(10): p. 1290-301.
41. **Musat, F.**, A. Galushko, J. Jacob, F. Widdel, M. Kube, R. Reinhardt, H. Wilkes, B. Schink, and R. Rabus, *Anaerobic degradation of naphthalene and 2-methylnaphthalene by strains of marine sulfate-reducing bacteria.* Environ Microbiol, 2009. **11**(1): p. 209-19.
42. Halm, H., N. Musat, P. Lam, R. Langlois, **F. Musat**, S. Peduzzi, G. Lavik, C.J. Schubert, B. Singha, J. Laroche, and M.M.M. Kuypers, *Co-occurrence of denitrification and nitrogen fixation in a meromictic lake, Lake Cadagno (Switzerland).* Environmental Microbiology, 2009. **11**(8): p. 1945-1958.
43. **Musat, F.** and F. Widdel, *Anaerobic degradation of benzene by a marine sulfate-reducing enrichment culture, and cell hybridization of the dominant phylotype.* Environmental Microbiology, 2008. **10**(1): p. 10-19.
44. Widdel, F., **F. Musat**, K. Knittel, and A. Galushko, *Anaerobic degradation of hydrocarbons with sulphate as electron acceptor*, in *Sulphate-reducing Bacteria: Environmental and Engineered Systems*. 2007, Cambridge University Press: Cambridge, UK. p. 265-303.
45. Kniemeyer, O., **F. Musat**, S.M. Sievert, K. Knittel, H. Wilkes, M. Blumenberg, W. Michaelis, A. Classen, C. Bolm, S.B. Joye, and F. Widdel, *Anaerobic oxidation of short-chain hydrocarbons by marine sulphate-reducing bacteria.* Nature, 2007. **449**(7164): p. 898-901.
46. **Musat, F.**, J. Harder, and F. Widdel, *Study of nitrogen fixation in microbial communities of oil-contaminated marine sediment microcosms.* Environmental Microbiology, 2006. **8**(10): p. 1834-1843.
47. Alain, K., T. Holler, **F. Musat**, M. Elvert, T. Treude, and M. Krüger, *Microbiological investigation of*

methane- and hydrocarbon-discharging mud volcanoes in the Carpathian Mountains, Romania. Environmental Microbiology, 2006. **8**(4): p. 574-590.

48. **Musat, F.**, F. Widdel, A. Wieland, and F. Widdel, *Marine sediment with surface contamination by oil in microcosms for microbiological studies.* Ophelia, 2004. **58**(3): p. 217-222.
49. Vassu, T., D. Smarandache, I. Stoica, E. Sasarman, D. Fologea, **F. Musat**, O. Csutak, A.-M. Nohit, O. Iftime, and R. Gherasim, *Biochemical and genetic characterization of Lactobacillus plantarum cmgb-1 strain used as probiotic.* Romanian Biotechnological Letters, 2002. **7**: p. 585-598.
50. Vassu, T., I. Stoica, O. Csutak, and **F. Musat**, *Genetics of Microorganisms and Microbial Genetic Engineering. Course notes and laboratory techniques (in Romanian)*. Vol. 1. 2001, Bucharest: Petrion.
51. Stoica, I., **F. Musat**, T. Vassu, I. Lazar, E. Sasarman, and O. Csutak, *Preliminary Studies on a Quinoline-Degrading Bacterial Consortium using a new Screening Technique.* Romanian Biotechnological Letters, 1999. **4**: p. 235-246.

Invited seminars and conference talks

2023 ***Romanian Society of Bioinformatics*** Conference 2023, Bucharest, Romania

2022 ***Microbiology Society*** Focused Meeting: Microbial cycling of volatile organic compounds: biogeochemistry to biotechnology, Norwich, UK

Emil G. Racovita Institute for the Research of Life under Extreme Conditions Seminar Series, Babes-Bolyai University, Cluj-Napoca, Romania

Wageningen University, Laboratory of Microbiology, Microbiology Seminar Series, the Netherlands

2019 ***Gordon Research Conference – Archaea***: Ecology, Metabolism, and Molecular Biology. Les Diablerets, Switzerland

2017 ***Gordon Research Conference – Archaea***: Ecology, Metabolism, and Molecular Biology. Waterville Valley, USA

2016 ***University of Oldenburg and the Institute for Chemistry and Biology of the Marine Environment***, Microbiological colloquium, Oldenburg, Germany

China-Germany Symposium – Microbial chemotaxis and bioremediation of environmental pollutants. Beijing, China

2015 ***EuCheMS International Conference on Chemistry and the Environment – ICCE***. Leipzig, Germany

International Symposium on Applied Microbiology and Molecular Biology in Oil Systems – ISMOS. Stavanger, Norway

2012 ***University of Oldenburg and the Institute for Chemistry and Biology of the Marine Environment***, Microbiological colloquium, Oldenburg, Germany

2011 ***Romanian Academy of Sciences***, The 51st Annual Scientific Session of the Institute of Biology, Bucharest, Romania

International Society for Subsurface Microbiology (ISSM) Symposium. Garmisch-Partenkirchen, Germany

Reservoir Microbiology Forum. London, UK

2006 ***Association for General and Applied Microbiology (VAAM)***. Jena, Germany

Professional Service

Editorial

2019 – present ***Associate Editor***, Microbiological Chemistry and Geomicrobiology, Frontiers in Microbiology

2016 – 2019 ***Review Editor*** for Extreme Microbiology, Frontiers in Microbiology

2014 – 2015 ***Guest Associate Editor*** for Microbial Physiology and Metabolism, Frontiers in Microbiology

Research Topic Editor, *Living on gas*

Peer Reviewer

Nature Microbiology, Nature Communications, The ISME Journal, Environmental Microbiology, Frontiers in Microbiology, FEMS Microbiology Ecology, Biogeosciences, Environmental Research Letters, Environmental Science & Technology, Environmental Science and Pollution Research, Archives of Microbiology.

University Service

2023 – current Member of the Section for Microbiology, Aarhus University, leadership board

2020 Visiting Associate Professor, Evaluator for undergraduates in the final year of Biochemistry studies, Babes-Bolyai University of Cluj-Napoca, Romania

2019 Member of PhD committee panel, University of Southern Denmark, Odense, Denmark

2011 – 2015 Member of PhD committee panel, Max Planck Institute for Marine Microbiology and University of Bremen, Bremen, Germany

Scientific meetings

2015 Session organizer and convener: Isotopes in Geochemistry, Ecology and Microbiology. Goldschmidt, Prague, Czech Republic

Field experience and Research Expeditions

2018 Research Expedition in the Arctic, Greenland Sea and Wandel Sea with the RV Polarstern (Expedition PS115.1, duration 6 weeks). On-board scientist, sediment microbiology team. Sediment sampling using multi-corer, gravity corer and box corer. On-board work including processing of sediment cores, cultivation work, dissolved gas measurements.

2004 Organizer and team member, sampling campaign Paclele Mici terrestrial mud volcanoes, Romania. On site measurements of physical-chemical parameters, sediment and gas sampling

2002 Organizer and team member, sampling of marine intertidal sediments of the Mediterranean Sea and North Sea

Public outreach

Press releases

2019 Knowledge gap closed in our understanding of degradation of ethane
Press release in response to publication Chen *et al*., Nature 2019:
https://www.ufz.de/index.php?en=36336&webc_pm=15/2019
Mention in news and blogs:
https://www.nature.com/articles/s41586-019-1063-0/metrics

2016 Mystery of archaeal butane degradation solved
Press release in response to publication Laso-Perez *et al*., Nature 2016:
https://www.ufz.de/index.php?en=36336&webc_pm=39/2016
Mention in news and blogs:
https://www.nature.com/articles/nature20152/metrics

Blogs

2019 **Musat F.** Candidatus Argoarchaeum ethanivorans – a decade-old quest for an anaerobic ethane degrader. Behind the paper blog @ Nature Microbiology Community
https://microbiologycommunity.nature.com/posts/49957-candidatus-argoarchaeum-ethanivorans-a-decade-old-quest-for-an-anaerobic-ethane-degrader

Communication of scientific news and publications from our group through my LinkedIn channel (>1200 followers): (12) Florin Musat | LinkedIn

Scientific collaborations network

During my career I have built a network of collaborators with research interests similar or complementary to my own. Below a list of those currently most active:

Dr. Amelia Rotaru, Dept. of Biology, Univ. of Southern Denmark, Odense, Denmark
Topic: Direct interspecies electron transfer in anaerobic processes (hydrocarbon oxidation, methanogenesis, iron corrosion).

Joint publications

Rotaru, A.E. et al., (2018). Conductive particles enable syntrophic acetate oxidation between *Geobacter* and *Methanosarcina* from coastal sediments. mBio 9.

Rotaru et al., (2021) Microbes trading electricity in consortia of environmental and biotechnological significance. Current Opinion in Biotechnology 67, 119-129.

Dr. Stefan Sievert, Biology Dept., Woods Hole Oceanographic Institution, Woods Hole, MA, USA
Topic: Genomics of anaerobic, marine microorganisms able to oxidize hydrocarbons

Joint project

Joint Genome Institute: Sequencing the Genome of Strain BuS5, a Highly Specialized and Novel Bacterium Being Able to Degrade Propane and Butane under Anaerobic Conditions. PIs: Sievert S and Musat F.

Dr. Alexis Gilbert, Tokyo Institute of Technology, Tokyo, Japan
Topic: Position-specific stable isotope fractionation during anaerobic oxidation of hydrocarbons

Joint publication

Gilbert, A. et al. (2019). Intramolecular isotopic evidence for bacterial oxidation of propane in subsurface natural gas reservoirs. Proc Natl Acad Sci U S A 116, 6653-6658.

Dr. Martin Krüger, Dept. Geomicrobiology, Federal Institute for Geosciences and Natural Resources – BGR, Hannover, Germany
Topic: Ecology of aerobic and anaerobic hydrocarbon degraders in Arctic sediments

Prof. Samantha Joye, Dept. of Marine Sciences, University of Georgia, Athens, GA, USA
Topic: Biogeochemistry of deep sea sediments

Joint publications

Chen, S.C. et al (2019). Anaerobic oxidation of ethane by archaea from a marine hydrocarbon seep. Nature 568, 108-111.

Kniemeyer, O. et al (2007). Anaerobic oxidation of short-chain hydrocarbons by marine sulphate-reducing bacteria. Nature 449, 898-901.

Prof. Britta Planer-Friedrich, Faculty for Biology, Chemistry, and Earth Sciences, Univ. Bayreuth, Bayreuth, Germany
Topic: Sulfur species in archaeal-bacterial consortia (collaboration initiated 2019)

Prof. Horita Juske, Dept. of Geosciences, Texas Tech University, Lubbock, TX, USA
Topic: Position-specific isotope fractionation of light hydrocarbons during anaerobic biodegradation (collaboration initiated 2019)

Prof. Yong-Guan Zhu, Chinese Academy of Sciences, Beijing, China
Topics: Geomicrobiology of hydrocarbon oxidation in anoxic sediments; Origin and evolution of As-resistance mechanisms

Joint PhD coordination

Dr. S. Chen, PhD degree with honors from the Chinese Academy of Science

Joint publications

Chen, S.C. et al (2019). Anaerobic oxidation of ethane by archaea from a marine hydrocarbon seep. Nature 568, 108-111.

Chen et al., 2020, The Great Oxidation Event expanded the genetic repertoire of arsenic metabolism and cycling. PNAS 117, 10414-10421

Prof. Horia Banciu, Babes-Bolyai University of Cluj-Napoca, Cluj, Romania
Topic: Geomicrobiology of mud volcanoes

I was part of a priority programme of the German Research Foundation, SPP 1319: Biological Transformations without Oxygen: From the Molecular to the Global Scale (https://gepris.dfg.de/gepris/projekt/36065184?language=en). I am currently maintaining active collaborations with most of the scientists of that network.