Roland Hatzenpichler, PhD

Montana State University • 111 Chemistry & Biochemistry Bldg • PO Box 173400 • Bozeman MT-59717
roland.hatzenpichler@montana.edu • www.environmental-microbiology.com • ORCID 0000-0002-5489-3444

Appointments

- **2023 - present, Associate Professor, Department of Chemistry and Biochemistry. Montana State University (MSU), Bozeman**
- **2025 - present, Director, Thermal Biology Institute, MSU**
- 2021 - present, Affiliated faculty, Department of Microbiology and Cell Biology, MSU
- 2020 - present, Affiliated faculty, Montana Nanotechnology Facility, MSU
- 2017 - present, Affiliated faculty, Thermal Biology Institute, MSU
- 2016 - present, Affiliated faculty, Center for Biofilm Engineering, MSU
- 2024 - 2025, Associate Director, Thermal Biology Institute, MSU
- 2016 - 2023, Assistant Professor, Department of Chemistry and Biochemistry, MSU
- 2016, Assistant Research Professor, Department of Microbiology and Immunology, MSU

Professional Preparation

- 2011-2016, Postdoctoral Scholar, California Institute of Technology, Geological and Planetary Sciences, Pasadena, CA
- 2011, Doctor of Natural Sciences (PhD), Microbial Ecology, University of Vienna, Austria
- 2006, Master of Natural Sciences, Molecular Microbiology and Genetics, University of Vienna, Austria

Awards and honors

- 2021, Most Impactful Science Poster Award, DOE Joint Genome Institute, Genomics of Energy and Environment Meeting
- **2017, NASA Early Career Fellowship**
- 2014, NSF Center for Dark Energy Biosphere Investigations Postdoctoral Scholarship
- 2011, O.K. Earl Postdoctoral Scholarship in Geobiology, California Institute of Technology
- 2011, Erwin Schrödinger Postdoctoral Scholarship, Austrian Science Fund
- 2011, Award for outstanding PhD thesis by the City of Vienna and the University of Vienna
- 2007, Pre-doctoral Fellowship by the Austrian Academy of Sciences

Total publications: 51 **>5,800 citations, h-index 28, i10-index 37**
Hatzenpichler corresponding Hatzenpichler lab member [#]equal contribution

42. Jay ZJ, Kellom M, Eloe-Fadrosch E, **Hatzenpichler R**. *Ecology of methyl-coenzyme M reductase encoding Thermoproteota*. Current Opinion in Microbiology, accepted Preprint PDF

41. Kohtz A, Nupp S, **Hatzenpichler R**. *Cultivation of Methanonezhaarchaeia, the third class of methanogens within the phylum Thermoproteota*. Science Advances, in press (2025) Preprint PDF

40. [#]van Beek J, [#]Robles G, Mewalal R, Blaby I, **Hatzenpichler R**. *A collection of archaeal 16S rRNA Clone-FISH cultures for probe validation in fluorescence in situ hybridization experiments*. Microbiology Resource Announcements, in press (2025)

39. Farina M, Christian W, Hasson N, McDermott T, Powell S, **Hatzenpichler R**, Webb H, LaRue G, Okano K, Sproles EA, Watts JD. *Methane emission hotspots in a boreal forest-fen mosaic potentially linked to deep taliks*. Environm Res Lett, https://iopscience.iop.org/article/10.1088/1748-9326/adff9a (2025) PDF

38. [#]Hug L, [#]**Hatzenpichler R**, [#]Moraru C, [#]Soares A, [#]Meyer F, Heyder A, [#]Probst AJ. *A roadmap for equitable reuse of public microbiome data*. Nat Microbiol, https://doi.org/10.1038/s41564-025-02116-2 (2025) PDF

37. Schaible GA, Cliff JB, Crandall JA, Bougoure JJ, Mathuri MM, Sessions AL, Atwood J, **Hatzenpichler, R**. *Comparing Raman and NanoSIMS for heavy water labeling of single cells*. Microbiology Spectrum, doi.org/10.1128/spectrum.01659-24 (2025) PDF

36. #Krukenberg V, #Kohtz AJ, Jay ZJ, **Hatzenpichler R**. *Methyl-reducing methanogenesis by a thermophilic culture of Korarchaeia*. Nature, https://doi.org/10.1038/s41586-024-07829-8 (2024) PDF

35. Murali R, Pace LA, Sanford RA, Ward LM, Lynes M, **Hatzenpichler R**, Lingappa UF, Fischer WW, Gennis RB, Hemp J. *Diversity and evolution of nitric oxide reduction.* PNAS, 121 (26) e2316422121 (2024) PDF

34. Kohtz AJ, #Petrosian N, #Krukenberg V, #Jay ZJ, Pilhofer M, **Hatzenpichler R**. *Cultivation and visualization of a methanogen of the phylum Thermoproteota*. Nature, https://doi.org/10.1038/s41586-024-07631-6 (2024) PDF

33. Schaible GA, Jay JJ, Cliff J, Schulz F, Gauvin C, Goudeau D, Ruff E, Malmstrom RR, Edgcomb V, **Hatzenpichler R**. *Multicellular magnetotactic bacteria are genetically heterogeneous consortia with metabolically differentiated cells*. PLOS Biology, 11;22(7):e3002638 (2024) PDF
► **Editor's Choice Article for 2024** ►Primer highlighting our paper ►NASA press release

32. Lee KS, Landry Z, Athar A, Alcolombri U, Ayutthaya PPN, Berry D, Bettignies P, Bisova K, Cheng J-X, Csucs G, Cui G, Garcia-Timermans C, Goda K, **Hatzenpichler R**, Henshaw R, Huang WE, Ivleva N, Kneipp J, Kubryk P, Lee TK, Locke A, Lee SS, Ma B, Martinez-Perez C, Min W, Müller O, Nielsen PH, Notingher I, Ozeki Y, Palatinszky M, Pereira FC, Pezzotti G, Popp J, Riva A, Sapers HM, Schlücker S, Taylor GT, Wagner M, Yin H, Zenobi R, Sarkans U, and Stocker R. *MicrobioRaman: an open-access web repository for microbiological Raman spectroscopy data*. Nat Microbiol 9, 1152–1156 (2024)

31. Lynes MM, Jay ZJ, Kohtz AJ, **Hatzenpichler R**. *Methylotrophic methanogenesis in the Archaeoglobi revealed by cultivation of Ca. Methanoglobus hypatiae from a Yellowstone hot spring*. The ISME J, 18(1) wrae026 (2024) PDF

30. #Frates E, #Spietz RL, Silverstein M, Girguis P, **Hatzenpichler R**, Marlow JJ. *Natural and anthropogenic carbon input affect microbial activity in salt marsh sediment*. Front Microbiol, 14:1235906 (2023) PDF

29. #Murali R, #Metcalfe KS, Yu H, Speth D, Wu F, Crémière A, Laso-Pèrez R, Malmstrom RM, Goudeau D, Woyke T, **Hatzenpichler R**, Chadwick GL, Orphan VJ. *Physiological potential and evolutionary trajectories of syntrophic sulfate-reducing bacterial partners of anaerobic methanotrophic archaea*. PLOS Biology, doi.org/10.1371/journal.pbio.3002292 (2023) PDF

28. #Lynes MM, #Krukenberg V, Jay ZJ, Kohtz AJ, Gobrogge C, Spietz RL, **Hatzenpichler R**. *Diversity and function of Methyl-coenzyme M reductase-encoding archaea in Yellowstone hot springs revealed by metagenomics and mesocosm experiments*. ISME Comm, 3:22 (2023) PDF

27. Wiegand T, Wilkinson R, Santiago-Frangos A, Lynes M, **Hatzenpichler R**, Wiedenheft B. *Functional and phylogenetic diversity of Cas10 proteins*. The CRISPR J. DOI:10.1089/crispr.2022.0085 (2023) PDF

26. Kohtz AJ, Jay ZJ, Lynes MM, Krukenberg V, **Hatzenpichler R**. *Culexarchaeia, a novel archaeal class of anaerobic generalists inhabiting geothermal environments.* ISME Comm, 2: 86 (2022) PDF

25. Schaible GA, Kohtz AJ, Cliff J, **Hatzenpichler R**. *Correlative SIP-FISH-SEM-Raman-NanoSIMS links identity, morphology, biochemistry, and physiology of environmental microbes*. ISME Comm, 2:52 (2022) PDF

24. Reichart NJ, Bowers RM, Woyke T, **Hatzenpichler R**. *Metagenomes and metagenome-assembled genomes from substrate-amended hot spring sediment incubations.* Microbiology Resource Announcements, doi.org/10.1128/mra.01065-21 (2022) PDF

23. #Chadwick GL, #Skennerton CT, Laso-Perez R, Leu AO, Speth DR, Yu H, Morgan-Lang C, **Hatzenpichler R,** Goudeau D, Malmstrom RR, Brazelton WJ, Woyke T, Hallam S, Tyson GW, Wegener G, Boetius A, Orphan VJ. *Unique metabolic systems differentiate syntrophic methanotrophic archaea from methanogens*. PLoS Biology 20: e3001508 (2022) PDF

22. Krukenberg V, Reichart N, Spietz RL, **Hatzenpichler R**. *Microbial community response to polysaccharide amendment in anoxic hydrothermal sediments of the Guaymas Basin.* Front Microbiol, 12: 763971 (2021) PDF

21. Marlow JJ, Spietz RL, Kim K, Ellisman M, Girguis P, **Hatzenpichler R**. *Spatially resolved correlative microscopy and microbial identification reveal dynamic depth- and mineral-dependent anabolic activity in salt marsh sediment*. Environ Microbiol, 23(8), 4756-4777 (2021) PDF

20. Wang Q, Alowaifeer A, Kerner P, Balasubramanian N, Patterson A, Christian W, Tarver A, Dore JE, **Hatzenpichler R**, Bothner BB, McDermott TR. *Aerobic bacterial methane synthesis*. Proc Natl Acad Sci USA, 118 (27) e2019229118 (2021) PDF

19. Reichart NJ, Bowers RM, Woyke T, **Hatzenpichler R**. *High potential for biomass-degrading enzymes revealed by hot spring metagenomics*. Front Microbiol, 12: 668238 (2021) PDF

18. Reichart NJ, Jay ZJ, Krukenberg V, Parker AE, Spietz RL, **Hatzenpichler R**. *Activity-based cell sorting reveals responses of uncultured archaea and bacteria to substrate amendment.* The ISME J, 14: 2851–2861 (2020) PDF

17. Murray AE, Freudenstein J, Gribaldo S, **Hatzenpichler R**, Hedlund BP, Hugenholtz P, et al. *Roadmap for naming uncultivated archaea and bacteria.* Nat Microbiol, 5: 987–994 (2020) PDF

16. Steward KF, Eilers B, Trippett B, Fuchs A, Dorle M, Rawle R, Soriano B, Balasubramanian N, Copié V, Bothner B*, **Hatzenpichler R.** *Metabolic Implications of Using BioOrthogonal Non-Canonical Amino Acid Tagging (BONCAT) for Tracking Protein Synthesis*. Front Microbiol, 11:197 (2020) PDF

15. **Hatzenpichler R**, Krukenberg V, Spietz RL, Jay ZJ. *Next-generation physiology approaches to study microbiome function at the single cell level*. Nat Rev Microbiol, 18: 241-256 (2020) PDF
► Cover article ► Review article ►Faculty1000 recommended

14. Lawson CE, Harcombe WR, **Hatzenpichler R,** Lindemann SR, Löffler F, O'Malley MA, García-Martin H, Pfleger BF, Raskin L, Venturelli OS, Weissbrodt DG, Noguera DR, McMahon KD. *Common principles and best practices for engineering microbiomes*. Nat Rev Microbiol, 17: 725–741 (2019) PDF **► Perspective article**

13. McKay LJ, **Hatzenpichler R**, Inskeep WP, Fields MW. *Occurrence and expression of novel methyl-coenzyme M reductase gene (mcrA) variants in hot spring sediments*. Sci Rep 7: 7252 (2017) PDF

12. Miranda PJ, McLain NK, **Hatzenpichler R**, Orphan VJ, and Dillon J. *Characterization of chemosynthetic microbial mats associated with intertidal hydrothermal sulfur vents in White Point, San Pedro, CA, USA*. Front Microbiol, 7:1163 (2016) PDF

Prior to faculty position

11. **Hatzenpichler R***, Connon SA, Goudeau D, Malmstrom R, Woyke T, Orphan VJ*. *Visualizing in situ translational activity for identifying and sorting slow-growing archaeal-bacterial consortia.* Proc Natl Acad Sci USA, 113: E4069-E4078 (2016) PDF
► Highlighted by Nat Microbiol "News & Views"

10. Tavormina PL, **Hatzenpichler R**, McGlynn S, Chadwick G, Dawson K, Connon S, Orphan VJ. *Methyloprofundus sedimenti gen. nov., sp. nov., an obligate methanotroph from ocean sediment belonging to the Deep Sea 1 clade of marine methanotrophs*. Int J Syst Evo Microbiol, 65: 251–259 (2015) PDF

9. **Hatzenpichler R***, Scheller S, Tavormina PL, Babin B, Tirrell D, Orphan VJ*. *In situ visualization of newly synthesized proteins in environmental microbes using amino acid tagging and click chemistry*. Environ Microbiol, 16: 2568-2590 (2014) PDF
► Cover article ► Highlighted by Environ Microbiol "Research Highlight"

8. Ma L, Kim J, **Hatzenpichler R**, Karymov MA, Hubert N, Hanan IM, Chang EB, Ismagilov RF. *Gene-targeted microfluidic cultivation validated by isolation of a gut bacterium listed in Human Microbiome Project's Most Wanted taxa*. Proc Natl Acad Sci USA, 111: 9768–9773 (2014) PDF

7. [#]Lebedeva EV, [#]**Hatzenpichler R**, Pelletier E, Schuster N, Hauzmayer S, Bulaev A, Grigorjeva NV, Galushko A, Schmid M, Palatinsky M, Le Paslier D, Daims H, Wagner M. *Enrichment and genome*

sequence of the group I.1a ammonia-oxidizing archaeon "Ca. Nitrosotenuis uzonensis" representing a clade globally distributed in thermal habitats. PLoS One, 8: e80835 (2013) PDF

6. Spang A, Poehlein A, Offre P, Zumbrägel S, Haider S, Rychlik N, Nowka B, Schmeisser C, Lebedeva E, Rattei T, Böhm C, Schmid M, Galushko A, **Hatzenpichler R**, Weinmaier T, Daniel R, Schleper C, Spieck E, Streit W, Wagner M. *The genome of the ammonia-oxidizing Candidatus Nitrososphaera gargensis: Insights into metabolic versatility and environmental adaptations*. Environ Microbiol, 14: 3122-3145 (2012) PDF
5. **Hatzenpichler R***. *Diversity, physiology, and niche differentiation of ammonia-oxidizing archaea*. Appl Environ Microbiol, 78: 7501-7510 (2012) PDF
   ► **Review article**
4. Mußmann M, Brito I, Pitcher A, Damsté JS, **Hatzenpichler R**, Richter A, Nielsen JL, Nielsen P H, Müller A, Daims H, Wagner M, Head IM. *Thaumarchaeotes abundant in refinery nitrifying sludges express amoA but are not obligate autotrophic ammonia oxidizers*. Proc Natl Acad Sci USA, 108: 16771-16776 (2011) PDF
3. [#]Shapiro OH, [#]**Hatzenpichler R***, Buckley DH, Zinder SH, Orphan VJ. *Multicellular photo-magnetotactic bacteria*. Environ Microbiol Rep, 3: 233-238 (2011) PDF
   ► **Chief Editor's Choice Article 2011**
2. Spang A, **Hatzenpichler R**, Brochier-Armanet C, Rattei T, Tischler P, Spieck E, Streit W, Stahl DA, Wagner M, Schleper C. *Distinct gene set in two different lineages of ammonia-oxidizing archaea supports the phylum Thaumarchaeota*. Trends Microbiol 18:331-40 (2010) PDF
   ► **Cover article**
1. **Hatzenpichler R**, Lebedeva EV, Spieck E, Stoecker K, Richter A, Daims H, Wagner M. *A moderately thermophilic ammonia-oxidizing crenarchaeote from a hot spring*. Proc Natl Acad Sci USA, 105: 2134-2139 (2008) PDF

Book chapters

4. Hu D, Cui Y, Markillie LM, Chrisler WB, Wang Q, **Hatzenpichler R**, Orr G. *Counting mRNA copies in intact bacterial cells by fluctuation localization imaging-based fluorescence in situ hybridization (fliFISH)*. Book chapter for *Fluorescence In Situ Hybridization (FISH) for Microbial Cells: Methods and Concepts, Methods in Molecular Biology*, Azevedo N.F and Almeida C (eds.), Vol. 2246, 237-247, Springer Nature (2021) PDF
3. Marlow JJ, **Hatzenpichler R**. *Assessing metabolic activity at methane seeps: a testing ground for slow-growing environmental systems*. Book chapter in Life at Vents and Seeps. 223-259 (2017) PDF

Prior to faculty position

2. Tavormina PL, **Hatzenpicher R**, McGlynn SE, Chadwick G, Dawson K, Connon S, Orphan VJ. Methyloprofundus. Bergey's Manual of Systematics of Archaea and Bacteria. John Wiley & Sons, Inc. doi: 10.1002/9781118960608.gbm01414 (2016) PDF
1. **Hatzenpichler R***, Orphan VJ. *Detection of protein-synthesizing microorganisms in the environment via bioorthogonal non-canonical amino acid tagging (BONCAT)*. Book chapter for *Hydrocarbon and Lipid Microbiology Protocols, Vol. 7: Single-cell and single-molecule methods*. Springer Protocols Handbooks, doi: 10.1007/8623_2015_61 (2015) PDF

White papers

2. Meadows V, Graham H, and **workshop participants**. *Community Report from the Biosignatures Standards of Evidence Workshop*. arXiv:2210.14293 (2022). PDF
1. Schmidt B, Johnson SS, Hoehler T, Graham H, Bowman J, Som S, Barge L, Cabrol N, Pavlov A, Pontefract A, Stockton A, Orcutt B, Nunn B, Foreman C, Stillman D, Shock E, Kenig F, Love G, Bergmann K, Sobron P, Mathies R, **Hatzenpichler R**, Yu S, Swingley W, Jones D, Lawrence J, Bryson F, Spiers E, Chivers C, Plattner T, Mullen A, Hanna A, Buffo J. *Enabling Progress Towards Life*

Detection on NASA Missions. Planetary Science and Astrobiology Decadal Survey 2023-2032 white paper e-id. 260; Bulletin of the American Astronomical Society, 53 (4), e-id 260 (2021) PDF

Data consortium papers. Lab members are listed as "consortium authors"; our lab contributed DNA sequencing data, typically via JGI projects, but were not involved in analyses

3. Pavlopoulos GA, Baltoumas FA, Liu S, Selvitopi O, Nayfach S, Azad A, Call L, Camargo AP, Ivanova NN, Chen IM, Paez-Espino D, Karatzas E, **Novel Metagenome Protein Families Consortium**, Iliopoulos I, Konstantinidis K, Tiedje JM, Baker D, Ouzounis CA, Ovchinnikov S, Buluç A, Kyrpides NC. *Unraveling the functional dark matter through global metagenomics*. Nature, 662: 594-602 (2023) PDF

2. Fremin BJ, **Global Phage Small Open Reading Frame (GP-SmORF) Consortium**, Bhatt AS, Kyrpides NC. *Thousands of small, novel genes predicted in global phage genomes*. Cell Reports, 39:12: 110984 (2022) PDF

1. Nayfach S, Roux S, Seshadri R, Udwary D, Varghese N, Schulz F, Wu D, Paez-Espino D, Chen IM, Huntemann M, Palaniappan K, Ladau J, Mukherjee S, Reddy TBK, Nielsen T, Kirton E, Faria JP, Edirisinghe JN, Henry CS, Jungbluth SP, Chivian D, Dehal P, Wood-Charlson EM, Arkin AP, Tringe SG, Visel A, **IMG/M Data Consortium**, Woyke T, Mouncey NJ, Ivanova NN, Kyrpides NC, Eloe-Fadrosh EA. *A genomic catalog of Earth's microbiomes*. Nat Biotech, DOI:10.1038/s41587-020-0718-6 (2020) PDF

Manuscripts in review or in revision

Hatzenpichler corresponding Hatzenpichler lab member #equal contribution

n/a

Manuscripts in preparation

- Christian W, Jay ZJ, Tolic N, Livingstone R, Trimmer S, McDermott T, **Hatzenpichler R**. *Proteomic Stress Responses by a Novel Methanogen Enriched from the Great Salt Lake*. In preparation for mBio
- #Montgomery A, #Nupp S, Jay ZJ, Gray G, Edcomb V, **Hatzenpichler R**. *Tracking active heterotrophic microbial communities in the Guaymas Basin deep biosphere with BONCAT-FACS*. In preparation for mBio

Invited conference talks (◊, 30) and departmental seminars (•, 23); contributed talks are not shown

2026

- Jan 22, Center for Biofilm Engineering, Montana State University, Bozeman, MT
- Feb 12, School of Biological Sciences, Georgia Institute of Technology, Atlanta, GA

2025

- Feb 7, Department of Civil and Environmental Engineering, Massachusetts Institute of Technology, MA
- Apr 11, Donald C. Cox Lecture in Microbiology, University of Oklahoma, Norman, OK
- Apr 18, Annual Interdepartmental Microbiology Spring Retreat, Iowa State University, Ames, IA

◊ Jul 10, 35th Annual Biofilm meeting, Bozeman, MT

◊ Jul 21, Gordon Research Conference on Archaea: Ecology, Metabolism and Molecular Biology, Switzerland; invited talk, given by graduate student Stavros Trimmer

- Aug 26, Department of Biology, Institute of Molecular Biology & Biophysics, ETH Zurich, Switzerland; Cancelled invitation

◊ Aug 28, Keynote speaker, Swiss Society for Microbiology annual meeting, Interlaken, Switzerland; Cancelled invitation

- Nov 7, Department of Life Sciences, University of Nevada Las Vegas, NV

◊ Nov 8, Pre-Cruise Workshop on Symbiosis and the Origin of Eukaryotes, Montevideo, Uruguay (virtual talk)

2024

- Apr 25, Food Allergy Science Initiative, The Broad Institute, Harvard-MIT, MA
- May 16, Department of Microbial Ecology, University of Vienna, Vienna, Austria
- Aug 9, Marine Biological Laboratory Microbial Diversity Course, Woods Hole, MA

◊ Nov 9, International Conference on Geo-omics of Archaea in Shenzhen, China; invited talk, given by postdoc Anthony Kohtz

2023

- Jan 31, Department of Microbiology, North Dakota State University, Fargo, ND.
- Feb 9, Synthetic Biology Young Speaker Series. Washington University in St. Louis, MO

◊ Mar 21, Cumming Foundation Mountain West Microbiome meeting, Snowbird, UT

- May 2, German Research Center for Geosciences GFZ, Potsdam, Germany

◊ Jun 10, Xcelerate Meeting, Metrodora Foundation, Salt Lake City, UT

◊ Jul 16-21, Chair of session Probing microbial phenotypes in situ at Gordon Research Conference Applied and Environmental Microbiology. South Hadley, MA

◊ Aug 24-25, Co-organizer and invited speaker at From New Lineages of Life To New Functions symposium. DOE Joint Genome Institute, Berkeley, CA. Talk given by graduate student Anthony Kohtz due to family emergency

◊ Oct 11, Archaea Power Hour (virtual). Recording available at https://youtu.be/3MgdtaqVcrw?si=0ayHRylNHIMjrRLF&t=100

2022 (presentations until April 2022 held online because of Corona pandemic)

- Mar 17, Leibniz Institute DSMZ - German Collection of Microorganisms and Cell Cultures, Braunschweig, Germany
- Mar 29, Faculty of Chemistry, Biofilm Centre, University of Duisburg-Essen, Germany
- Apr 21, San Francisco State University, San Francisco, CA

◊ Jun 2, Penn State Microbiome Symposium, Penn State Microbiome Center, State College, PA, USA

◊ Jul 12, Montana Biofilm Meeting, Bozeman, MT

◊ Aug 30, DOE Joint Genome Institute (JGI)'s 25th Anniversary Genomics of Energy & Environment meeting

◊ Oct 24, Department of Chemistry and Biochemistry, Montana State University, Bozeman, MT

◊ Nov 9, University of Texas at San Antonio

◊ Nov 17, Microbial Sciences Initiative, Harvard University, Cambridge, MA

◊ Dec 15, American Geophysical Union Fall meeting

2021 (all presentations held online because of Corona pandemic)

◊ May 7, Center for Dark Energy Biosphere Investigations Virtual Meeting

◊ Aug 4, Symbiosis Model Systems Virtual Gathering, Gordon and Betty Moore Foundation

◊ Aug 23, Joint Academic Microbiology Seminars. Singapore

◊ Oct 27, University of Innsbruck, Austria

◊ Nov 29, Helmholtz Centre for Ocean Research Kiel, Germany

2020 (all presentations held online because of Corona pandemic)

- Mar 27, MicroSeminar sponsored by the International Society for Microbial Ecology. Online live-streamed seminar that was then made available on Youtube. 122 live attendants; ~1,350 views since then https://www.youtube.com/watch?v=eNUn-1uCkQw

◊ Jun 11, Workshop on Next-generation physiology approaches in microbial ecology for graduate students and postdocs. Annual meeting of NSF EPSCOR BuG ReMeDEE, University of Oklahoma, Norman, OK

◊ Sep 4, Joint International Symposium on Microbial and Biomolecular Interactions, Friedrich Schiller University Jena

- Oct 5, Dep. of Land Resources and Environmental Sciences, Montana State University, Bozeman, MT

◊ Nov 18, Archaea Cafe, Medical University of Graz, Austria

2019

- Mar 19, John Lawrence Seminar, Environmental Genomics and Systems Biology Division, Lawrence Berkeley National Laboratory, Berkeley, CA

◊ Jul 9, Workshop on next-generation sequencing technologies for graduate students and postdocs, Annual meeting of NSF EPSCOR BuG ReMeDEE. South Dakota School of Mines, Rapid City, SD

◊ Jul 14-18, Session chair, Gordon Research Conference Applied and Environmental Microbiology. South Hadley, MA

2018

- Apr 5, Chemical Biology Initiative, Biotechnology Institute, University of Minnesota. St. Paul, MN

◊ Apr 15-18, NSF-HHMI conference on New Opportunities to Study Origins of the Eukaryotic Cell. Howard Hughes Medical Institute, Janelia Research Campus. Ashburn, VA

◊ Apr 27, Engineering the Microbiome workshop, University of Wisconsin. Madison, WI

- Aug 21, Department of Microbiology, University of Hamburg, Hamburg, Germany

2017

- Jun 22, Department of Geoscience, University of Calgary. Calgary, Canada

◊ Jul 24, Gordon Research Conference Archaea: Ecology, Metabolism, and Molecular Biology. Waterville, NH

- Nov 14, NSF Center for Dark Energy Biosphere Investigations Annual Meeting. Marina, CA
- Dec 1, The University of Texas at Austin, Marine Science Institute. Austin, TX
- 23 invited seminars and 5 invited conference talks prior to starting tenure track faculty position

Contributed presentations by members of the Hatzenpichler lab (● talks, n=25; ◊ posters, n=40). Only the presenter's name is given; *et al.* is implied. Presentations co-authored but not given by members of the Hatzenpichler lab are not listed

2025

◊ Mar 31, Hatzenpichler, R, PI, DOE Annual PI meeting, Arlington, VA. *Ecophysiology of methanogens within the Thermoproteota and their impact on carbon cycling*

◊ July 16, McLean, A, Graduate Student, GRC Applied and Environmental Microbiology, South Hadley, MA. *Translational response of the human fecal microbiome to xenobiotic addition*

◊ July 16, Schimetz J, Graduate Student, GRC Applied and Environmental Microbiology, South Hadley, MA. *Linking taxonomy and physiology in the human fecal microbiome through correlative SIP-FISH-SRS*

◊ July 16, Jay Z, Researcher, GRC AEM, South Hadley, MA. *Environmental distribution of methyl-coenzyme M reductase genes affiliated with the Thermoproteota superphylum*

◊ Jun 21, McLean, A, Graduate Student, ASM Microbe 2025, Los Angeles, CA. *Translational response of the human fecal microbiome to xenobiotic addition*

◊ Jun 21, Schimetz J, Graduate Student, ASM Microbe 2025, Los Angeles, CA. *Linking taxonomy and physiology in the human fecal microbiome through correlative SIP-FISH-SRS*

- Jun 21, Schimetz J, Graduate Student, ASM Microbe 2025, Los Angeles, CA. *Linking taxonomy and physiology in the human fecal microbiome through correlative SIP-FISH-SRS*

2024

- Jan 31, Kohtz A, Graduate student, UC Berkeley, Department of Plant and Microbial Biology, Berkeley, CA. *New methanogens outside the tradtional Euryarchaeota*

◊ Jun 11, Gray C, Undergraduate student, Astrobiology Graduate Conference, Cornell, Ithaca, NY. Effects of nutrient amendment on a Guaymas Basin hydrothermal sediment heterotrophic population

◊ Jul 7, Schimetz J, Graduate Student, Montana Biofilm Science and Technology Meeting, Bozeman, MT. *Using stimulated Raman spectroscopy (SRS) to study the human fecal microbiome*

- Apr 11, Christian W, Graduate Student, Montana Aquatic Research Colloquium, Flathead Biological Research Station, MT. *Deciphering the Active River Microbiome*
- Jun 6, Christian W, Graduate Student, Association for the Sciences of Limnology and Oceanography Conference, Madison, WI. *Identifying the active microbial community in Yellowstone River water amended with methylated substrates*
- Jun 15, Hatzenpichler R, ASM Microbe, Atlanta, GA. *The first methanogens outside the Euryarchaeota*
- Jun 11, Nupp S, Graduate Student, Astrobiology Graduate Conference, Cornell, Ithaca, NY., *Identifying translationally active microbes in the Guaymas Basin deep biosphere*
- Sep 25, Jay Z, Researcher, 14th International Congress on Extremophiles, Loutraki, Greece. *New players in an old pathway: Biology of novel methanogens*

2023

- Aug 25, Kohtz A, Graduate student, Symposium on New Lineages of Life, Joint Genome Institute, Berkeley. CA. *Not your grandma's methanogens: First-time cultivation of methanogens of the phylum Thermoproteota* (invited talk to Roland Hatzenpichler; given by Anthony Kohtz)
- ◊ Aug 8, Gray C, Undergraduate student, INBRE Summer Poster Session, Bozeman, MT. *Developing and validating a FISH probe for the genus Methanobrevibacter, an archaeon inhabiting the human gut*
- ◊ Jul 26, Kohtz A, Graduate student, GRC Archaea, Mt. Snow, VT. *Cultivation and visualization of a methyl-reducing methanogen of the phylum Thermoproteota*
- ◊ Jul 24, Jay Z, Staff scientist, GRC Archaea, Mt. Snow, VT. *Methyl-reducing methanogenesis by a thermophilic culture of Korarchaeia*
- ◊ Jul 16, Schaible G, Graduate student, Gordon Research Conference Applied and Environmental Microbiology, South Hadley, MA. *Multicellular magnetotactic bacteria are metabolically differentiated and not clonal*
- ◊ May 22, Schaible G, Graduate student, Astrobiology Graduate Conference, LA Jolla, CA. *Cellular differentiation within obligate multicellular bacteria*
- Jan 30, 2023, Schlegel P, Undergraduate student and TBI Fellow, Thermal Biology Institute Seminar, Montana State University, Bozeman, MT. *Isolation and metabolism of Pyrosphaera yellowstonii, a representative of a new genus of thermophilic archaea from Yellowstone hot springs*

2022

- ◊ Nov 11, 2022, Giner M, REU student, Annual Biomedical Research Conference for Minoritized Scientists, Anaheim, CA. *Attempts to culture thermophilic archaea and bacteria from Yellowstone National Park hot springs*
- Sep 10 2022, Jay Z, staff scientist, Extremophiles 2022, Loutraki, Greece. *Geochemical forcing causes extensive functional diversity in an abundant (hyper)thermophilic archaeon in Yellowstone National Park*
- ◊ Aug 16 2022, Schaible G, graduate student, International Symposium on Microbial Ecology, Lausanne, Switzerland. *Diversity, morphology, physiology, and division of labor of obligate multicellular bacteria*
- ◊ Aug 15 2022, Kohtz A, graduate student, International Symposium on Microbial Ecology, Lausanne, Switzerland. *Cultivation of thermophilic Verstraetearchaeota (Methanomethylicia) under methanogenic conditions* **GRC Poster Award**
- ◊ Aug 10 2022, Lynes M, graduate student, Gordon Research Conference C1 Metabolism, Southbridge, MA. *Phylogenetic and functional diversity of mcrA-encoding archaea in Yellowstone hot springs revealed by metagenomics and mesocosm experiments*
- ◊ Aug 9 2022, Kohtz A, graduate student, Gordon Research Conference C1 Metabolism, Southbridge, MA. *Cultivation of thermophilic Verstraetearchaeota (Methanomethylicia) under methanogenic conditions*
- Aug 7 2022, Kohtz A, graduate student, Gordon Research Seminar C1 Metabolism, Southbridge, MA. *Cultivation of thermophilic Verstraetearchaeota (Methanomethylicia) under methanogenic conditions*

◊ Jul 12 2022, Lynes M, graduate student, Montana Biofilm Science and Technology Meeting. *Wide phylogenetic and functional diversity of mcrA-encoding archaea in Yellowstone hot springs revealed by metagenomics and mesocosm experiments*

◊ Jun 10 2022, Lynes M, graduate student, ASM Microbe, Washington, DC. *Wide phylogenetic and functional diversity of mcrA-encoding archaea in Yellowstone hot springs revealed by metagenomics and mesocosm experiments*

- Apr 19 2022, Lynes M, graduate student, Archaea Power Hour, Online. *Phylogenetic and functional diversity of mcrA-encoding archaea in Yellowstone hot springs*

2021 (all virtual because of Covid-19 pandemic)

◊ Oct 28 2021, Schaible G, graduate student, Montana Nanotechnology Facility user meeting, Bozeman, MT. *Correlative Raman-FM-SEM-nanoSIMS links identity, biochemistry, and morphology of environmental microbes*

- Oct 21, Schaible G, graduate student, Symposium on New Lineages of Life, *Correlative Raman-FM-SEM-EDS-nanoSIMS microscopy links identity, biochemistry, and morphology* of environmental microbes
- Sep 23, Kohtz A, graduate student, Symposium on New Lineages of Life, *Culexarchaeota: a novel thermophilic archaeal lineage with diverse metabolisms*
- Sep 16, Schaible G, graduate student, Woods Hole Oceanographic Institution. *Exploring the evolution of bacterial complexity using Multicellular Magnetotactic Bacteria*. Woods Hole, MA
- Aug 30, Hatzenpichler R, Genomics of Energy & Environment (Annual user) meeting of the Joint Genome Institute, *Methanogenic archaea and aerobic methane-synthesizing bacteria from diverse Yellowstone habitats.* **Most Impactful Science Poster Award**

◊ Sep 14, Schaible G, graduate student, Astrobiology Graduate Conference, *Cellular differentiation within multicellular magnetotactic bacteria: implications to the evolution of complex life on Earth*

◊ Jul 28, Lynes M, graduate student, Archaea Online, *Methanogenic archaea outside the Euryarchaeota are widespread and active in Yellowstone hot springs*

- Jul 27, Kohtz A, graduate student, Archaea Online, *Culexarchaeota: a novel archaeal lineage with diverse metabolisms that is globally distributed in geothermal habitats*

◊ Jun 21, Christian W, graduate student, ASM Microbe, *Methane production via a single enzyme gene widely distributed in environmental bacteria*

◊ Jun 21, Schaible G, graduate student, ASM Microbe, *Multicellular Magnetotactic Bacteria: Organized Complexity in the Domain Bacteria*

2020 (all presentations past February held online because of Covid-19 pandemic)

◊ Dec 3, Gurney J, undergraduate, MSU Undergraduate research symposium, *Developing Screening Procedures for Microbial Conversion of Methylamine to Methane*, Bozeman, MT

◊ Dec 3, Hatzenpichler R, NSF Center for Dark Energy Biosphere Investigations. *Next-generation physiology: studying the activity and physiology of uncultured microbes*

◊ Oct 19, Schaible G, graduate student, MONT Annual Users Meeting, *Correlative Analysis for Improved Single Cell Characterization*, Bozeman, MT

- Jun 25, Reichart N, graduate student, Joint Genome Institute Science Forum, *Investigating Yellowstone National Park hot springs for cellulolytic microbes through molecular approaches*, Berkeley, CA

◊ Mar 23, Reichart N, graduate student Joint Genome Institute User Meeting: Genomics of Energy and Environment, *Activity-based cell sorting reveals response of uncultured archaea and bacteria to substrate amendment*, Oakland, CA

◊ Feb 2, Schaible G, graduate student, American Academy for the Advancement of Science, *Multicellular Magnetotactic Bacteria: Organized Complexity in the Domain Bacteria*, Seattle, WA

2019

- Jul 22, Krukenberg V, postdoctoral scholar. Gordon Research Conference on Archaea: Ecology, Metabolism, and Molecular Biology, Les Diablerets, Switzerland. *Potential methanogenic Korarchaeota: From genome-based metabolic predictions towards enrichment cultivation*
◊ Jul 19, Lynes M, graduate student. BuG ReMeDEE annual meeting, Rapid City, SD. *Identifying and describing methane cycling organisms in a Yellowstone National Park hot spring*
- Jun 23, Hatzenpichler R. American Society of Microbiology General Meeting Microbe 2019, San Francisco, CA. *In situ activity and metabolisms of uncultured thermophiles revealed by a "Next Generation Physiology" approach*
◊ Jun 10, Reichart N, graduate student. 2nd International Geobiology Conference, Banff, Canada. *Bioorthogonal labeling as a high-throughput approach for screening microbial cultivation conditions*
◊ Jun 10, Spietz R, postdoctoral scholar. 2nd International Geobiology Conference, Banff, Canada. *Tiny spaces, busy places: Illuminating spatial organization of microbial activity in sediments from nanometer to centimeter scale*
◊ Jun 10, Krukenberg V, postdoctoral scholar. 2nd International Geobiology Conference, Banff, Canada. *Enrichment of potential methanogenic Korarchaeota from terrestrial hot springs*
◊ Jun 10, Lynes M, graduate student. 2nd International Geobiology Conference, Banff, Canada. *Exploring microbial diversity and chemistry of geothermal features in Yellowstone National Park: Searching for methane cycling organisms*
◊ Jun 10, Jay Z, staff scientist. 2nd International Geobiology Conference, Banff, Canada. *Geomicrobiology of five hot springs in the Culex Basin Thermal Complex, Yellowstone*
◊ May 13, Schaible G, graduate student, MONT user meeting, Montana State University. *Exploring marine environments using scanning electron microscopy*
- Apr 8, Reichart N, graduate student. Thermal Biology Institute seminar, Montana State University, Bozeman, MT. *Identification of cellulolytic hot spring organisms through bioorthogonal labeling*
- Apr 6, Reichart N, graduate student. Montana Academy of Sciences Annual Meeting, Butte, MT. *Identification of cellulolytic hot spring organisms through bioorthogonal labeling*
◊ Apr 2, Hatzenpichler R. From New Lineages of Life to New Functions Symposium, DOE Joint Genome Institute, San Francisco, CA. *Linking identity and in situ metabolism of uncultured microbes by "Next Generation Physiology"*

2018

- Aug 16, Hatzenpichler R. International Symposium on Microbial Ecology, Leipzig, Germany. *In situ activity and metabolism of uncultured thermophiles experimentally determined at single cell resolution through Next Generation Physiology*
◊ Aug 13, Reichart N, graduate student. International Symposium on Microbial Ecology, Leipzig, Germany. *High-throughput screening of cellulolytic community shifts in Yellowstone hot springs*
◊ Aug 14, Krukenberg V, postdoc. International Symposium on Microbial Ecology, Leipzig, Germany. *Activity-based metabolic screening to enhance cultivation of environmentally relevant microbes*

2017

◊ Aug 28, Beauchene J, undergraduate. International meeting on thermophiles, Kruger National Park, South Africa. *Discovering the metabolic adaptations of alkaliphilic hyperthermophilic archaea to their extreme environment in Yellowstone National Park*

Professional memberships

- American Association for the Advancement of Science (AAAS)
- Austrian Scientists and Scholars in North America (ASCINA)
- American Society for Microbiology (ASM)
- International Society for Microbial Ecology (ISME)

External grants and funding

Total extramural funding to Hatzenpichler lab: $6,337,023
Total additional value of institutional proposals to MSU: $5,336,316
Total awarded 'in kind' instrumentation value to Hatzenpichler lab: $1,229,174
Total extramural funding raised or helped to raise in any role since at MSU: $18,541,023

Proposals with direct funding to Hatzenpichler lab. Total: $11.8M. Total to Hatzenpichler: $6.3M
(*** indicates that the award has ended)

14. Title: Ecophysiology of non-Euryarchaeotal methanogens and their impact on carbon cycling
Sponsor: DOE EPSCoR, DOE BER
Award number: DE-SC0025661
Award: $999,998
Start/End date: 09/1/2024-08/31/2028

***

13. Title: The need for speed: Stimulated Raman Spectroscopy for human gut microbiome research
Role: **Sole PI**
Sponsor: National Institutes of Health
Award number: 3R35GM147166-01S1
Award: $150,000
Start/End date: 09/30/2022-09/29/2023

12. Title: Developing Next-Generation Physiology approaches for human gut microbiome research
Role: **Sole PI**
Award number: 1R35GM147166-01
Sponsor: National Institutes of Health, Maximizing Investigators' Research Award (MIRA)
Award: $1,754,560
Start/End Date: 01/01/2023-12/31/2027

***

11. Title: Collaborative research: Regulation and dynamics of microbial communities and biogeochemical cycling in hydrothermally-influenced habitats in the Gulf of California
Role: **Co-PI** (PI: Samantha Joye; Co-PI: Karthik Anantharaman)
Award number: OCE-2049445
Sponsors: NSF Biological Oceanography and Chemical Oceanography
Award: $1,424,559 ($240,650 to Hatzenpichler)
Start/End Date: 01/01/2021-12/31/2024

***

10. Title: Collaborative research: IODP-enabled insights into Fungi and their metabolic interactions with other microorganisms in deep subsurface hydrothermal sediments
Role: **Co-PI** (PI: Virginia Edgcomb; Co-PIs: Andreas Teske)
Award number: OCE-2046056
Sponsor: NSF Biological Oceanography
Award: $600,140 ($58,842 to Hatzenpichler)
Start/End Date: 01/01/2021-12/31/2023

***

9. Title: Cell differentiation of multicellular magnetotactic bacteria: implications for microbial life on other worlds?
Role: **PI.** ***This is a fellowship to graduate student George Schaible that is administered by Hatzenpichler.***
Award number: 80NSSC20K1365
Sponsor: Future Investigators in NASA Earth and Space Science and Technology (FINESST)
Award: $133,237
Start/End Date: 09/01/2020-08/31/2023

***

8. Title: IIBR Instrumentation: Development of a Stimulated Raman Scattering Activated Cell Sorter to Enable Phenotype-Based Separation of Microbial Cells From Environmental Samples
Role: **PI** (Co-PIs: Erik Grumstrup, Stephan Warnat)
Award number: DBI-2016360
Sponsor: NSF Infrastructure Innovation for Biological Research
Award: $860,073 ($288,032 to Hatzenpichler)
Start/End Date: 08/01/2020-07/31/2024

7. Title: Diversity, genomics, physiology, and ultrastructure of Asgard archaea and implications for eukaryogenesis
Role: **Co-PI** (PI: Brett Baker; other Co-PIs: Thijs Ettema, Mark Ellisman)
Sponsor: Moore–Simons Project on the Origin of the Eukaryotic Cell
Award number: 737750
Award: $2,016,438 ($576,437 to Hatzenpichler)
Start/End Date: 09/01/2020-12/31/2025

***

6. Title: Ecophysiology of uncultured archaea in geothermal features of Yellowstone National Park
Role: **Sole PI**
Sponsor: NASA Exobiology
Award number: 80NSSC19K1633
Award: $537,942
Start/End Date: 09/01/2019-8/31/2022

***

5. Title: Collaborative research: Next generation physiology: a systems-level understanding of microbes driving carbon cycling in marine sediments
Role: **PI** (Co-PIs: Brett Baker, Andreas Teske)
Sponsor: NSF Systems and Synthetic Biology
Award number: MCB-1817428
Award: $1,078,875 ($436,385 to Hatzenpichler)
Start/End Date: 10/01/2018-07/31/2022

***

4. Title: Tiny spaces, busy places: illuminating spatial organizations of microbial activity in sediments from nanometer to centimeter scales
Role: **PI** (Co-Is: Peter Girguis, Mark Ellisman)
Sponsor: Gordon and Betty Moore Foundation Marine Microbiology Initiative
Award number: 5999
Award: $981,779 ($519,375 to Hatzenpichler)
Start/End Date: 11/01/2017-09/30/2021

***
3. Title: RII Track-2 FEC: Building Genome-to-Phenome Infrastructure for Regulating Methane in Deep and Extreme Environments (BuG ReMeDEE)
Role: **Co-PI** (PI: Rajesh Sani; MSU-PI: Robin Gerlach)
Sponsor: NSF EPSCoR
Award number: DBI-1736255
Award: $1,819,132 ($110,000 to Hatzenpichler)
Start/End Date: 10/01/2017-09/30/2022

***
2. Title: Ecophysiology, cell differentiation, and genomics of multicellular magnetotactic bacteria
Role: **Sole P**I
Sponsor: NASA Exobiology
Award number: NNX17AK85G
Award: $431,418
Start/End Date: 07/01/2017-12/31/2022

***
#1. Title: Development and application of novel bioorthogonal labeling approaches for studying microbial metabolic activity at environmental extremes
Role: **Sole P**I
Sponsor: NASA Early Career Fellowship Start-up Program for Named Fellows (Exobiology program)
Award number: 80NSSC19K0449
Award: $100,158
Start/End Date: 03/11/2019-08/10/2021

Awarded institutional funding without direct support to Hatzenpichler (MRI, Murdock Foundation, NRT, and REU programs; *** indicates that the award has ended) **Total: $5.33M**

***
6. Supplement to W911NF1910288: Unlocking Microbial Phenotypes with Stimulated Raman Spectroscopy
Role: **PI** (Co-PIs: Heidi Smith, Matthew Fields)
Sponsor: U.S. Army Research Office
Award number: W911NF1910288
Awarded: $1,000,000 (no direct funding to Hatzenpichler)
Start/End Date: 10/01/2022-09/30/2024

5. Title: NRT-URoL: Decoding the Mechanisms Underpinning Biofilm Function and Architecture in Extreme Environment
Role: **Senior Personnel** (PIs: Brent Peyton, Dana Skuropa, Matthew Fields)
Sponsor: NSF Research Traineeship (NRT) Program
Award number: 2125748
Awarded: $2,984,140 (no direct funding to Hatzenpichler)
Start/End Date: 09/01/2021-08/31/2026

***
4. Title: REU Site: Exploring the Limits of Life. Understanding Biofilms in Extreme Environments
Role: **Senior Personnel** (PI: Brent Peyton; Co-PI Dana Skorupa)
Sponsor: NSF REU Sites

Award number: 2050856
Awarded: $397,090 (no direct funding to Hatzenpichler)
Start/End Date: 04/01/2021-03/31/2025

***

3. Title: REU Site: Microbiology of Low Oxygen Ecosystems (MLOxE) at Montana State
Role: **Senior Personnel** (PI: Frank Stewart; Co-PI: Eric Boyd)
Award number: 2051065
Sponsor: NSF REU Sites
Awarded: $426,825 (no direct funding to Hatzenpichler)
Start/End Date: 02/15/2021-01/31/2025

***

2. Title: Transforming single cell microbiology at Montana State University
Role: **PI** (Co-PI: Matthew Fields)
Sponsor: MJ Murdock Charitable Trust
Award number: SR-2017331
Award: $173,503 (no direct funding to Hatzenpichler)
Start/End Date: 07/01/2018-12/31/2020

***

1. Title: MRI: Acquisition of a Confocal Raman microscope with cell-sorting capability at Montana State University
Role: **PI** (Co-PIs: Matthew Fields, Robin Gerlach, Seth Walk)
Sponsor: NSF Major Research Instrumentation
Award number: DBI-1726561
Award: $354,758 (no direct funding to Hatzenpichler)
Start/End Date: 08/01/2017-07/31/2021

Awarded instrumentation support (in kind $ value listed; no direct funding to Hatzenpichler; # indicates that the project has concluded) **Total: $897k**

8. Title: (Eco)Physiology of methanogens of the phylum Thermoproteota
Role: **Sole PI**
Sponsor: DOE Joint Genome Institute and Environmental Molecular Sciences Laboratory Facilities Integrating Collaborations for User Science (FICUS) program
Requested: instrument time only; no direct funding to Hatzenpichler
Start/End Date: 10/01/2023-12/31/2025

***

7. Title: Exploring the microbial methane cycle in terrestrial geothermal environments
Role: **Co-PI** (PI: Viola Krukenberg; Co-PIs: Anthony Kohtz, Zackary Jay)
Sponsor: DOE Joint Genome Institute Community Science Program (CSP)
Award number: 508087; Award DOI: 10.46936/10.25585/60008108
Award: $333,000 (instrument time only; no direct funding support to Hatzenpichler)
Start/End Date: 09/01/2021-08/30/2023

***

6. Title: Taxonomic, genomic, metabolic, and functional heterogeneity in Yellowstone geothermal features
Role: **PI** (Co-PIs: James Hemp, Peter Dunfield; Zackary Jay)
Sponsor: DOE Joint Genome Institute Community Science Program (CSP)

Award number: 507064; Award DOI: 10.46936/10.25585/60000487
Award: $326,333 (instrument time only; no direct funding support to Hatzenpichler)
Start/End Date: 10/01/2020-09/30/2022

***

5. Title: Ecophysiology, inter-domain interactions, and biogeochemical impact of an aerobic methane-producing freshwater bacterium
Role: **PI** (Co-PI: Timothy McDermott)
Sponsor: DOE Joint Genome Institute and Environmental Molecular Sciences Laboratory Facilities Integrating Collaborations for User Science (FICUS) program
Award number: 506720; Award DOI: 10.46936/fics.proj.2020.51544/60000211
Award: $175,003 (instrument time only; no direct funding support to Hatzenpichler)
Start/End Date: 10/01/2020-03/31/2023

***

4. Title: Optimization of methylamine conversion to methane via synthetic biology
Role: **Co-PI** (PI: Timothy McDermott)
Sponsor: DOE Joint Genome Institute DNA Synthesis Community Science Program
Award number: 504607; Award DOI: 10.46936/10.25585/60001212
Award: $156,000 (instrument time only; no direct funding support to Hatzenpichler)
Start/End Date: 08/01/2019-06/30/2024

***

3. Title: Tracking substrate uptake and mRNA expression of aerobic methane-producing bacteria in pelagic waters of Yellowstone Lake
Role: **Co-PI** (PI: Timothy McDermott)
Sponsor: DOE Environmental Molecular Sciences Laboratory
Award number: 505222
Award: $49,764 (instrument time only; no direct funding to Hatzenpichler)
Start/End Date: 10/21/2018-09/30/2019

***

2. Title: From phenotype to genotype and back again: large scale functional characterization of microbial dark matter by combining activity-based cell sorting, isotope labeling, and genomic sequencing
Role: **Sole PI**
Sponsor: DOE Joint Genome Institute and Environmental Molecular Sciences Laboratory Facilities Integrating Collaborations for User Science (FICUS) program
Award number: 503546; Award DOI: 10.46936/fics.proj.2017.49972/6000002
Award: $180,474 (instrument time only; no direct funding to Hatzenpichler)
Start/End Date: 10/01/2017-12/31/2022

***

1. Title: Genomic characterization of cosmopolitan sediment-dwelling archaea hypothesized to be involved in anaerobic carbon cycling
Role: **Sole PI**
Sponsor: DOE Joint Genome Institute Small Scale Community Science Program
Award number: 503183; Award DOI: 10.46936/10.25585/60001107
Award: ~$9,000 (instrument time only; no direct funding to Hatzenpichler)
Start/End Date: 01/01/2017-11/16/2021

Pending support

none

Awards without direct support to Hatzenpichler; these awards funded a Gordon Research Conference that Hatzenpichler co-chaired in 2025

***

Title: Conference: 2025 Applied and Environmental Microbiology GRC
Role: PI
Submitting organization: Gordon Research Conferences
Sponsor: NSF Division Of Environmental Biology (DEB), Ecosystem Science
Requested: $36,500 (no direct funding to Hatzenpichler)
Anticipated Start/End Date: 04/12/2025-08/11/2025

***

Title: 2025 Applied and Environmental Microbiology Gordon Research Conference and Seminar
Role: Co-I (PI Nancy Ryan Gray, GRC)
Submitting organization: Gordon Research Conferences
Sponsor: NASA Topical Workshops, Symposiums, and Conferences (TWSC-24) in Space and Earth Sciences and Technology
Requested: $28,150 (no direct funding to Hatzenpichler)
Anticipated Start/End Date: 04/12/2025-08/18/2025

***

Title: Conference: 2025 Applied and Environmental Microbiology Gordon Research Conference and Gordon Research Seminar
Role: PI
Submitting organization: Gordon Research Conferences
Sponsor: DOE Office of Science Financial Assistance Program, Ecosystem Science
Requested: $15,425 (no direct funding to Hatzenpichler)
Anticipated Start/End Date: 04/12/2025-08/11/2025

Service

Service to the College or University

- **2025-present, Director, Thermal Biology Institute, Montana State University**
- 2024-2025, Associate Director, Thermal Biology Institute, Montana State University
- 2022-present, Member of Research Subcommittee of NRT *Decoding the Mechanisms Underpinning Biofilm Function and Architecture in Extreme Environment* housed in the TBI and CBE
- 2022-present, Member of Curriculum Subcommittee of NRT *Decoding the Mechanisms Underpinning Biofilm Function and Architecture in Extreme Environment* housed in the TBI and CBE
- **2020-present, Member of Early Career Faculty Advisory Panel of the CBE**
- 2020-present, Faculty advisor to Montana State University's student-led Astrobiology Journal Club
- 2019-present, PI of Chemical Imaging Laboratory, a core facility of MSU
- 2017-2023, Member of Molecular BioSciences Program Faculty Committee. Reviewed graduate student applications, interviewed final candidates, helped organize recruiting weekends.
- 28, 2020, Guest presenter in Center for Faculty Excellence. *Grant-Writing Bootcamp: Understanding the Review Process*
- 2019-2020, Committee chair overseeing distribution of seed funds provided by the M.J. Murdock Charitable Trust for use of new Raman microscope; reviewed all proposals and administered finances of the seed fund program

Service to the Chemistry and Biochemistry Department

- 2025-present, Departmental Safety Committee representative
- 2017-present, wrote and evaluated 13 microbiology proficiency exams for new graduate students
- 2017-2023, Member and Departmental representative of the Molecular Biosciences Program Faculty Committee. Reviewed graduate student applications, interviewed final candidates, helped organize recruiting weekends.
- 2017-2019, 2024, organized and led trip to Yellowstone National Park as part of the departmental graduate student recruiting weekend. This event did not take place since 2020 because of the Covid-19 pandemic.
- 2016-May 2017, Member of Graduate Recruiting and Admissions Committee. Reviewed graduate student applications, helped organize recruiting weekends

Professional Service

- 2027, Elected co-chair for the Gordon Research Conference on Applied and Environmental Microbiology, South Hadley, MA.
- 2025, Elected co-vice-chair for the Gordon Research Conference on Applied and Environmental Microbiology, South Hadley, MA.
- 2025-present, Advisory Board, DOE EPSCoR, University of Idaho
- **2021-2024, Member, User Executive Committee of the Joint Genome Institute (JGI)**. The JGI is a US Department of Energy Office of Science user facility of Lawrence Berkely National Laboratory.
- **2018-present, Editorial Board Member of The ISME Journal.** Impact factor: 12.5
- **2020-present, Editorial Board Member of the journals Environmental Microbiology and Environmental Microbiology Reports.** Impact factors: 4.0 and 3.06, respectively
- 2020, Co-author of Decadal White Paper on Life Detection on NASA missions. Co-authored as Steering committee member of the Network for Life Detection
- **2019-present, Steering committee member, Network for Life Detection (Nfold).** Nfold is a NASA research coordination network which goal is to inform strategies and enhance capabilities for detecting life beyond Earth.

- 2015-2022, Associate Editor of Frontiers in Microbiology, Microbial Physiology and Metabolism. Impact factor: 6.06
- 2014-2017, member of Junior Advisory Group of the American Society for Microbiology. Until this day, I remain the only non-US citizen to have served in that capacity
- 2017, convener of plenary session at the ASM General Meeting
  - **reviewed 134 manuscripts**; this list is ranked by the approximate number of manuscripts per journal ranked in decreasing order since starting my TT:
    The ISME Journal [editorial board member]; Environmental Microbiology [editorial board member]; ISME Communications; Frontiers in Microbiology [Associate editor 2015-2022]; Nature; Science; Science Advances; Nature Microbiology; mSphere; mBio; Micro Spectrum; Nature Communications; PNAS; Nature Reviews; Applied and Environmental Microbiology; Scientific Reports; FEMS Microbiology Reviews; Environmental Microbiology Reports; FEMS Microbiology Ecology; PLoS One; Microbiology; mSystems; eLife; Nature Biofilms and Microbiomes; Water Research; ACS Environmental Science and Technology; Philosophical Transactions of the Royal Society B
- **reviewer of 174 grant proposals**; this list is ranked by the approximate number of proposals per program reviewed since starting my faculty position.
  *year as panellist; #year as panel chair (YEARS REDACTED FOR ONLINE VERSION)
  - NASA Exobiology [redacted]
  - NSF Major Research Instrumentation program BIO [redacted]
  - DOE Environmental Molecular Sciences Laboratory user program [redacted]
  - DOE Joint Genome Institute Community Science Program [redacted]
  - NSF Infrastructure Innovation for Biological Research [redacted]
  - DOE BER Biological Systems Science [redacted]
  - DOE BER Early Career Research Program [redacted]
  - NSF Symbiosis, Defense, & Self-Recognition [redacted]
  - NSF Biological Oceanography [redacted]
  - Future Investigators in NASA Earth and Space Science and Technology [redacted]
  - Natural Sciences and Engineering Research Council of Canada [redacted]
  - NASA Astrobiology Institute [redacted]
  - NASA Earth and Space Sciences Graduate Fellowship program [redacted]
  - Montana NASA EPSCoR [redacted]
  - French National Research Agency [redacted]
  - Austrian Science Fund [redacted]
  - US Army Research Office [redacted]
  - MJ Murdock Charitable Trust [redacted]
  - NASA Interdisciplinary Consortia for Astrobiology Research [redacted]
  - NSF Poorly Sampled and Unknown Taxa [redacted]
  - NSF Ecosystem Science [redacted]

Advising and mentoring

The table below provides information on the academic career of former team members that I supervised. Most of my former postdocs (n=4) and all my former PhD students (n=4) are now employed in science (academia or industry).

Name	Former role	Current position
Nicholas Reichart	PhD student	Postdoc, Pacific Northwest National Laboratory, USA
Mackenzie Lynes	PhD student	R&D specialist, ARUP Laboratories, Salt Lake City, USA
Anthony Kohtz	PhD student	Postdoc, Greening lab, Monash University, Melbourne, Australia
George Schaible	PhD student	Postdoc, Volland lab, University of California Santa Barbara, USA
Andrew Montgomery	Postdoc	Field Application Specialist, Biocare Medical, Pacheco, USA
Ashley Cohen	Postdoc	Scientist, US Naval Research Laboratory, USA
Rachel Spietz	Postdoc	Senior microbiologist, Enviromin Inc., Bozeman, USA and Assistant Research Professor, Montana State University, USA
Viola Krukenberg	Postdoc	Unknown (taking a break to provide care for a sick relative)

I currently advise 8 PhD students and 3 undergraduate researchers. I serve(d) as committee member on 15 PhD and 4 master student committees at Montana State University, and 3 external PhD committees (University of Georgia; ETH Zurich; University of Wageningen).

Graduate students (● current; ○ graduated)

- ○ Nicholas Reichart, Molecular Biosciences Program Fellow, Biochemistry, January 2017-July 2021. PhD awarded in July 2021, now postdoctoral scholar at Pacific Northwest National Laboratory
- ○ Mackenzie Lynes, Biochemistry, August 2017-present,
- ○ Anthony Kohtz, Biochemistry, August 2018-present
- ○ George Schaible, Molecular Biosciences Program Fellow; Biochemistry, August 2018-present
- ● William Christian, Molecular Biosciences Program Fellow; Biochemistry, August 2019-present
- ● Sylvia Nupp, Biochemistry, August 2021-present
- ● Stavros Trimmer, Molecular Biosciences Program Fellow; Biochemistry, August 2022-present
- ● Anthony McLean, Molecular Biosciences Program Fellow; Microbiology, August 2023-present
- ● Jacob Schimetz, Microbiology, August 2023-present
- ● Nicole Matos-Vega, NRT Extreme Biofilms, Biochemistry, August 2024-present
- ● Joelie van Beek, NRT Extreme Biofilms, Microbiology, August 2024-present
- ● Megan Gonos, Molecular Biosciences Program Fellow; August 2025-present

Mentoring of postdoctoral scholars, active

n/a

Postdoctoral scholars (● current; ○ previous)

- ○ Montgomery, PhD in Oceanography, University of Georgia, July 2021-July 2024, NSF Postdoctoral Fellow in Biology in Hatzenpichler lab; now at Biocare, Pacheco, CA
- ○ Ashley Cohen, PhD in Marine and Atmospheric Science, Stony Brook University, Jul 2021-August 2022; now at US Naval Research Laboratory
- ○ Rachel Spietz, PhD in Oceanography, University of Washington (Seattle), Jan 2018-Dec 2019; now senior microbiologist at Enviromin Inc., Bozeman, MT
- ○ Viola Krukenberg, PhD in Marine Microbiology, Max Planck Institute for Marine Microbiology, May 2017-Dec 2021; then postdoc/young group leader, University of Jena, Germany; current status unknown
- ○ George Schaible, PhD in Biochemistry, Montana State University, Jan 2024-May 2024; now postdoc at UC Santa Barbara

- Anthony Kothz, PhD in Biochemistry, Montana State University, Jul 2024-Feb 2025; now postdoc at Monash University (Australia) and UC Berkeley (joint appointment)

Sponsored fellowships and awards to graduate students and postdocs, totaling $709,069

- Nicholas Reichart, Montana Academy of Science, June 2018-May 2019, *Identifying novel cellulose degrading microbes in Yellowstone National Park hot springs through high-throughput activity screening.* Award: $1,500
- George Schaible and Anthony Kohtz, Montana Academy of Science, June 2019-May 2020, *Bioorthogonal Click Chemistry Attachment of Gold Nanoparticles to Active Microorganisms for Cell Sorting Using Surface Enhanced Raman Spectroscopy to Evaluate Multiple Measures of Activity*. Award: $1,470
- George Schaible and Anthony Kohtz, Seed funding to explore the use of MSU's Raman microscope, July 2019-June 2020, *Improved Surface Enhanced Raman Spectroscopy of Active Microorganisms Through Bioorthogonal Click Chemistry Attachment of Gold Nanoparticles*. Award: $444
- Anthony Kohtz and Viola Krukenberg, Seed funding to explore the use of MSU's Raman microscope, July 2019-June 2020, *Connecting microbial function to taxonomy in deep-sea sediments from Guaymas Basin via Raman-activated cell sorting*. Award: $1,418
- **Nicholas Reichart, U.S. Department of Energy, Graduate Student Research Program Award (SCGSR)** for research conducted at the Lawrence Berkeley National Laboratory (LBNL) in January-December 2020. *Revealing the cellulolytic potential of uncultured hot spring microbes via a multi-omics approach.* One-year pre-Doctoral award. **Award: $34,000**
- **George Schaible, Future Investigators in NASA Earth and Space Science and Technology (FINESST)**, for research on the cell biology of multicellular magnetotactic bacteria. Three-year Pre-Doctoral Fellowship. August 2020-August 2023. **Award: $133,237**
- **Andrew Montgomery, National Science Foundation, Three-year Postdoctoral Fellowship in Biology**, for research to be conducted in the Hatzenpichler lab. August 2021-July 2024. **Award: $207,000**
- Mackenzie Lynes, Graduate Research Association, Montana State University, Travel grant to attend the ASM Microbe meeting in 2022. Award: $1,000
- Anthony Kohtz, Montana Space Grant Fellowship, Graduate Student Fellowship. Award: $11,000 (plus tuition and fees for one semester)
- **Nicole Matos Vega, PhD student, NSF Graduate Student Research Fellowship (GRFP). Award: $159,000**
- **Joelie Van Beek, PhD student, NSF EPSCoR Graduate Fellowship Program (ERFP) award. Total: $159,000**

Sponsored undergraduate fellowships (INBRE or USP)

- Fall 2017, Michael Dorle, USP, *Studying uncultured, protein synthesizing microbes in Yellowstone hot springs and salt marshes at single cell resolution* (awarded but not used)
- Summer 2023, Chase Gray, INBRE, *First-time visualization of human gut methanogens*, $3,000

Remote lectures given during Covid-19 pandemic in undergrad or grad classes at other universities

- Apr 23 2021, Lead discussion on next-generation analytical techniques in microbial ecology. The Pennsylvania State University (instructor: Estelle Couradeau). 8 graduate students.
- Jul 8 2020, Talk in the Microbial 'Omics Seminar Series: A brief introduction to microbial life. Title: *DNA-sequencing: A blessing and a curse*. Teaching and outreach event with >1,000 live participants. Since then, the talk was watched ~9,800 times. https://www.youtube.com/watch?v=R9KLkCZ95cU

- Apr 17 2020, Lead discussion of microbial ecology class. Colorado State University (instructor: Ed Hall). 24 graduate and undergraduate students. *Next-generation physiology approaches in microbial ecology*
- May 29 2020, Workshop on how to apply Next-generation physiology tools in graduate research. ~30 graduate students, undergraduate students, and postdocs at Montana State University, Oklahoma State University and South Dakota School of Mines. *Next-generation physiology approaches to identify new methanotrophs*