Roland Hatzenpichler, PhD

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Professional Preparation

- University of Vienna Vienna, Austria Microbiology & Genetics Master of Natural Sciences, 2006
- University of Vienna Vienna, Austria Microbial Ecology Doctor of Natural Sciences (PhD), 2011
- California Institute of Technology Pasadena, CA Geobiology 2011-2016

Appointments

- **Nov 2016 - present, Assistant Professor of Biochemistry, Department of Chemistry and Biochemistry. Montana State University (MSU), Bozeman**
- Aug 2017 - present, Affiliated faculty at Thermal Biology Institute, MSU
- Aug 2016 - present, Affiliated faculty at Center for Biofilm Engineering, MSU
- Aug-Oct 2016, Assistant Research Professor, Department of Microbiology and Immunology, MSU

Awards and honors

- **2017, NASA Early Career Fellowship, NASA Exobiology program**
- 2014-2017, Member of the Junior Advisory Group of the American Society for Microbiology
- 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, Doc 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

Peer reviewed publications (*corresponding author) ~2,070 citations, h-index 12, i-10 index 12

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)

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)

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)

► **Discussed in Nature Microbiol "News & Views"**

10. Tavormina PL, **Hatzenpichler R**, McGlynn S, Chadwick G, Dawson K, Connon S, and 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)

9. **Hatzenpichler R***, Scheller S, Tavormina PL, Babin B, Tirrell D, and 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)

► **Cover article** ► **Discussed in Environ Microbiol "Research Highlight"**

8. Ma L, Kim J, **Hatzenpichler R**, Karymov MA, Hubert N, Hanan IM, Chang EB, and 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)

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, and 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) (equal contribution)

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, and Wagner M. *The genome of the ammonia-oxidizing Candidatus Nitrososphaera gargensis: Insights into metabolic versatility and environmental adaptations*. Environ Microbiol, 14: 3122-3145 (2012)
5. **Hatzenpichler R***. *Diversity, physiology, and niche differentiation of ammonia-oxidizing archaea*. Appl Environ Microbiol, 78: 7501-7510 (2012)

   ► 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, and 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)
3. Shapiro OH, **Hatzenpichler R***, Buckley DH, Zinder SH, and Orphan VJ. *Multicellular photo-magnetotactic bacteria*. Environ Microbiol Rep, 3: 233-238 (2011) (equal contribution)

   ► Chief Editor's Choice Article of 2011
2. Spang A, **Hatzenpichler R**, Brochier-Armanet C, Rattei T, Tischler P, Spieck E, Streit W, Stahl DA, Wagner M, and Schleper C. *Distinct gene set in two different lineages of ammonia-oxidizing archaea supports the phylum Thaumarchaeota*. Trends Microbiol 18:331-40 (2010)

   ► Cover article ► Most cited Trends Microbiol article in interval 2010-2015
1. **Hatzenpichler R**, Lebedeva EV, Spieck E, Stoecker K, Richter A, Daims H, and Wagner M. *A moderately thermophilic ammonia-oxidizing crenarchaeote from a hot spring*. Proc Natl Acad Sci USA, 105: 2134-2139 (2008)

Book chapters

3. Marlow JJ and **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)
2. Tavormina PL, **Hatzenpicher R**, McGlynn SE, Chadwick G, Dawson K, Connon S, and Orphan VJ. *Methyloprofundus*. Bergey's Manual of Systematics of Archaea and Bacteria. John Wiley & Sons, Inc. doi: 10.1002/9781118960608.gbm01414 (2016)
1. **Hatzenpichler R*** and 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)

External grant funding
Direct funding as PI: $1.92M; additional funding as Co-PI or as PI on institutional proposals: $2.35M

- NASA Exobiology, $540k, PI, 2019-2022
- NSF RII Track-2 FEC, $1.82M, Co-PI, 2017-2022
- NSF Systems and Synthetic Biology, $420k, PI, 2018-2021
- NASA Early Career Fellowship Start-up Program for Named Fellows, $100k, PI, 2018-2020
- Gordon and Betty Moore Foundation, Marine Microbiology Initiative, $430k, PI, 2018-2020
- MJ Murdock Charitable Trust, $174k, institutional proposal, PI, 2018-2020
- NSF Major Research Instrumentation, $354k, institutional proposal, PI, 2017-2019
- NASA Exobiology, $431k, PI, 2016-2019

Awarded instrumentation grants **As PI: $287k; as Co-PI: $50k (value)**

- DOE Joint Genome Institute DNA Synthesis Community Science Program, $50k, Co-PI, 2019
- DOE Environmental Molecular Sciences Laboratory General Cycle, $50k, PI, 2019
- DOE Joint Genome Institute and Environmental Molecular Sciences Laboratory Facilities Integrating Collaborations for User Science (FICUS) program, $227k, PI, 2018-2020
- DOE Joint Genome Institute Small Scale Community Science Program, $10k, 2017-2019

Invited seminars (•, 5) and invited conference/workshop talks (◊, 4) since starting faculty position

- 2019, John Lawrence Seminar, Lawrence Berkeley National Laboratory, Berkeley, CA
- 2018, Department of Microbiology, University of Hamburg, Hamburg, Germany
- ◊ 2018, Engineering the Microbiome workshop, University of Wisconsin. Madison, WI
- ◊ 2018, NSF-HHMI conference on New Opportunities to Study Origins of the Eukaryotic Cell. Howard Hughes Medical Institute, Janelia Research Campus, Ashburn, VA
- 2018, BioTechnology Institute, University of Minnesota, St. Paul, MN
- 2017, Marine Science Institute, The University of Texas at Austin, Austin TX
- ◊ 2017, Annual workshop of the NSF Center for Dark Energy Biosphere Investigations, Marina, CA
- ◊ 2017, Gordon Research Conference on Archaea, Waterville, NH
- 2017, Department of Geosciences, University of Calgary, Calgary, Canada
- **23 invited seminars and 5 invited conference talks prior to starting tenure track faculty position**

Professional service

- **2018-present, Editorial Board Member, The ISME Journal.** Impact factor: 9.520 (2018)
- **2015-present, Associate Editor, *Frontiers in Microbiology*, *Microbial Physiology and Metabolism*. Impact factor: 4.019 (2018)**
- **2014-2017, member of Junior Advisory Group of the American Society for Microbiology**
- 2016, member of General Meeting Planning Committee for *ASM Microbe 2016*, Boston, MA
- 2015-2017, convener of plenary session at the ASM General Meetings in 2015, 2016 and 2017
- **regular *ad hoc* reviewer for:** The ISME Journal, Nature Communications, Nature Microbiology, FEMS Microbiology Reviews, Environmental Microbiology, Environmental Microbiology Reports, Applied and Environmental Microbiology, Frontiers in Microbiology, FEMS Microbiology Ecology, PLoS One, Microbiology, Scientific Reports, Antonie van Leeuwenhoek Journal of Microbiology, Environmental Science and Technology, mSphere
- **reviewer for grant and fellowship applications** (years as panellist not shown): NASA Exobiology, NSF MRI BIO, NASA Astrobiology Institute, NASA Earth and Space Sciences Graduate Fellowship program, Montana NASA EPSCoR, NSF Biological Oceanography, DOE Joint Genome Institute, DOE Environmental Molecular Sciences Laboratory, French National Research Agency
- 2009, Organizer of the 7th International workshop on New Techniques In Microbial Ecology (INTIME-7). 50 participants from six institutions in five countries gave 29 oral presentations

Mentoring

- Viola Krukenberg, postdoc, 2017-present; anaerobic carbon-cycling potential of microbes in Guaymas basin sediments through activity-based cell sorting and single cell genomics
- Rachel Lange Spietz, postdoc, 2018-present; 3D organization of metabolically active cells in marine sediments through the lens of bioorthogonal labeling and stable isotope probing
- Mackenzie Lynes, graduate student, 2017-present; diversity and biogeography of uncultured microbes in hot springs of Yellowstone National Park; *in situ* structure-function analyses of hot spring microbes
- Nick Reichart, graduate student, 2017-present; ecophysiology of microbial dark matter in hot springs; developing novel bioorthogonal labeling approaches to identify novel cellulolytic thermophiles

- Anthony Kohtz, graduate student, 2018-present; characterizing the physiology of a novel archaeal lineage in hot springs; development of new click chemistry labeling techniques to identify cells
- George Schaible, graduate student, 2018-present; characterizing the biology of uncultured multicellular magnetotactic bacteria through genomics, *in situ* observation, targeted cultivation, and activity tracing
- undergraduate researchers working for (x, year) semesters in my lab: Juliana Beauchene (1, 2017). Margaret Branine (1, 2016). Clark Copeland (1, 2018). Michael Dorle (3, 2016-2017). Rylee Green (2, 2017-2018). Grace Trytten (1, 2017), Berliza Soriano (REU, 1, 2018), Kelli Ober (1, 2019).

Teaching

- BCH 544, Molecular Biology. Class designed for 1st-2nd year graduate students. Taught every fall semester. Typically, 8-12 students from microbiology, biochemistry, molecular biology, virology, chemical and biological engineering, and agricultural sciences
- BCH 380, Biochemistry. Undergraduate level introduction to biochemistry for non-majors, taught every spring semester. Typically, 120-150 students.

Professional memberships

- American Society for Microbiology (ASM)
- International Society for Microbial Ecology (ISME)
- American Geophysical Union (AGU)
- Austrian Scientists and Scholars in North America (ASCINA)