JASMINA WIEMANN

(*Phonetic spelling guide:* **YahS-Mee-Naa WhEE-Mun**)

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Research focus: Biomolecule fossilization products reveal past, present, and predictable future interactions between Life and its changing environments on Earth and elsewhere in the solar system

CURRENT APPOINTMENTS

2024 – now **Assistant Professor in Earth & Planetary Sciences** – **Johns Hopkins University**
Zanvyl Krieger School of Arts and Sciences, Baltimore, MD, USA.

2024 – now **Affiliated Faculty in Functional Anatomy & Evolution** – **Johns Hopkins Medical Institute**
Baltimore, MD, USA.

Pending **Museum Affiliate** – **Smithsonian Museum of Natural History**
Divisions of Mineralogy and Paleontology; Washington DC, USA.

2025 – now **Research Associate** – **American Museum of Natural History**
Divisions of Paleontology & Ancient Biomolecules; New York, USA.

PREVIOUS APPOINTMENTS

2022 – 2024 **Agouron Institute Fellow** *(Geology)* – **University of Chicago**
Department: Geophysical Sciences; Chicago, IL, USA.

2022 – 2024 **Agouron Institute Fellow** *(Astrobiology)* – **Field Museum of Natural History**
Department: Meteoritics; Chicago, IL, USA.

2021 – 2022 **Trimble and Barr Fellow** *(Geobiology)* – **California Institute of Technology**
Department: Geological and Planetary Sciences; Pasadena, CA, USA.

2021 – 2022 **Research Associate** *(Paleontology)* – **Natural History Museum of LA County**
Department: Dinosaur Research Institute; Los Angeles, CA, USA.

Unable to accept **Human Frontier Science Program Cross-disciplinary Fellow** – **University of Oxford**
Departments: Earth Sciences & Biology; Oxford, UK.

2020 – 2021 **Scientific Affiliate** *(Environmental chemistry)* – **Yale Carbon Containment Laboratory**
Inter-departmental research unit; New Haven, USA.

2012 – 2015 **Research Assistant** *(Crystal chemistry)* – **University of Bonn**
Department: Geochemistry and Mineralogy; Bonn, Germany.

2013 **Visiting Researcher** *(Evolution)* – **Max Planck Institute for Evolutionary Biology**
Department: Zoology; Plön, Germany.

EDUCATION

2021
New Haven CT, USA

PhD Earth and Planetary Sciences – **Yale University**

Thesis: *A fundamental exploration of the interactions between minerals and life's building blocks in deep time*. 5 chapters in ***Nature Communications, Science Advances, Nature***.

Advisor: **Prof. Derek E. G. Briggs**, *Yale Earth and Planetary Sciences; Yale Peabody Museum*.
Committee: Mark Norell, Jacques Gauthier, Jason Crawford *(Yale Chemistry)*, Pincelli Hull.

Minor thesis: *Dinosaur egg color had a single evolutionary origin*. Published: ***Nature.***
Advisor: **Prof. Mark A. Norell**, *American Museum of Natural History*.

2018
New Haven CT, USA

MPhil Geology and Geophysics – **Yale University**
Focus: Geochemistry, Paleontology, Evolution, Astrobiology
Advisor: **Prof. Derek E. G. Briggs**, *Yale Earth and Planetary Sciences; Yale Peabody Museum.*

2016 Bonn Germany — **MSc Organismic and Evolutionary Biology** – **University of Bonn** (public)
Thesis: *A molecular approach to the mechanisms of fossilization in bones, eggshells, and teeth.* Published: ***Science Advances.***

2014 Bonn Germany — **BSc Geosciences** – **University of Bonn** (public)
Thesis: *The paleobiology of tetrapyrrolic color pigments in eggshells and their fossilization potential.* Published: ***PeerJ.***

2007 – 2011 Dortmund Germany — **Chemistry and Chemical Biology** – **Technical University of Dortmund** (public)
Non-degree Program, **Excellence Scholarship (awarded at age 15).**
12 certificates from the BSc and MSc programs.

AWARDS & HONORS

2025 **Packard Fellowship Award** by the **David and Lucile Packard Foundation for Science and Engineering** awarded to the 20 most promising early-career scientists and engineers.

2023 **BMC Evolutionary Biology Photography Award** (Paleoecology, Runner up) **by the Nature BMC Publishing Group** awarded for outstanding imaging of biological samples.

2022 **Agouron Geobiology Fellowship** (Geobiology) awarded by the **Agouron Institute.**

2021 **Trimble Fellowship and Barr Fellowship on the Geobiology of Multicellular Life** awarded by the Department of Geological and Planetary Sciences at the **California Institute of Technology**.

2021 **Human Frontier Science Program Cross-disciplinary Fellowship** (STEM) awarded by the **Human Frontier Science Program** based on a global competition, to be hosted at the Department of Earth Sciences at the University of Oxford; (16 Cross-disciplinary HFSPO Fellowships were awarded from 665 applications) – *unable to accept.*

2021 **Winifred Goldring Award** (Geosciences) **by the Association of Women in Geoscience** and **the Paleontological Society** awarded for outstanding research in paleontology.

2021 **Phillip M. Orville Prize** (Geology) in recognition of outstanding research and scholarship in the Earth Sciences, awarded **by the Department of Earth and Planetary Sciences at Yale University**.

2020 **Alfred Sherwood Romer Prize Finalist** (Paleontology) at the Annual Meeting of **the Society of Vertebrate Paleontology** in 2020.

2020 **L. L. Hutchinson Memorial Fellowship** (Earth & Planetary Sciences) awarded by **Yale University**.

2019 **Geobiology and Geomicrobiology Student Award Honorable Mention** (Geobiology) for the best presentation at the Annual Meeting of the **Geological Society of America**, Phoenix, AZ, US.

2019 **Estwing Hammer Prize** (Geology) awarded by the **Department of Geology and Geophysics at Yale University** for academic performance.

2019 **George Gaylord Simpson Award** (Evolutionary Biology) of the **Yale Peabody Museum** for research on evolution and the fossil record.

2019 **Geological Society of America Graduate Student Research Fund** (Geology) awarded by the **Geological Society of America** to support research on biomolecule fossilization.

2019 **Doctoral Dissertation Improvement Funds** (Biology) awarded by the Yale Institute for Biospheric Studies to explore palaeobiological information retained in Metazoan fossil biomolecules.

2018 **Jackson School Travel Award** awarded by the **Society of Vertebrate Paleontology**.

2018 **Jurassic Foundation Student Research Grant** (Paleobiology) awarded by the **Jurassic Foundation** to explore the evolution of reproductive strategies in the dinosaurian lineage.

2015 **Steven Cohen Award for Excellent Student Research** (Molecular Paleobiology) awarded by the **Society of Vertebrate Paleontology** for the discovery of non-avian dinosaur egg color. Inaugural award for innovative research in vertebrate paleontology.

2012 **Honors Program Scholarship** (Geosciences) awarded by **Honors Program at the University of Bonn** for outstanding academic performance.

2011 **GDCh Student Award** (Chemistry) by the **Society of German Chemists**.

2007 **Junior Excellence Scholarship** (Chemistry) awarded by the **Technical University of Dortmund** at age 15.

TEACHING EXPERIENCE

[1]Undergraduate and [2]Graduate Teaching

Instructor, *'Deciphering the History of Life'*, 2024 – 2025[1,2], Dept. of Earth and Planetary Science at Johns Hopkins University, 3 hours/week + office hours; **Instructor**, *'The Dynamic Earth Laboratory'*, 2024[1,2], Dept. of Earth and Planetary Science at Johns Hopkins University, 2 hours/week, 15 students in 2024; **Instructor**, *'Independent Research'*, 2024[1], Dept. of Earth and Planetary Science at Johns Hopkins University, research under direction of a faculty advisor, 3 hours/week. 1 student; **Invited Lecturer**, in EVST 040 *'Collections of the Peabody Museum'*, 2020[1]-2024[1], on average 14 students (+ wait list).

Started at Hopkins

Teaching Fellow for lectures and class projects in EPS 355/655 ***'Extraordinary Glimpses of Past Life'*** (D.E.G. Briggs), 2019 - 2020[1,2], Yale University, 7 participating students; Teaching Fellow for lectures and laboratories in G&G 125 ***'History of Life'*** (D.E.G. Briggs, P. Hull, & B.A.S. Bhullar), 2019[1], Yale University, 40/6 (lecture/laboratories) students; Teaching Fellow in G&G 274 ***'Fossil Fuels and World Energy'*** (M. Oristaglio), 2018[1], Yale University, 105 students; Teaching Fellow for lectures and laboratories in G&G 125 ***'History of Life'*** (D.E.G. Briggs, P. Hull, & B.A.S. Bhullar), 2018[1], Yale University, 65/12 (lecture/laboratories) students; Invited Lecturer, ***'Organic preservation: structural tissues and protein preservation'*** G&G 355a/555a (D.E.G. Briggs), 2018, 2020[1,2], 12 students; Invited Lecturer, ***'Fossil pigments'*** G&G 355a/555a (D.E.G. Briggs), 2018, 2020[1,2], 12 students; Teaching Fellow for lectures and laboratories in G&G 125 ***'History of Life'*** (D.E.G. Briggs, P. Hull, & B.A.S. Bhullar), 2016[1], at Yale University, 70/12 (lecture/laboratories) students; Teaching Assistant, ***'Paleontology'*** (P.M. Sander), 2015[1], University of Bonn (Germany), 120 students; Teaching Assistant for lectures and laboratories in ***'Applied Mineralogy'*** (A. Bechtel, R. Hoffbauer), 2015[1,2], University of Bonn, 40 students; Teaching Assistant for lectures and laboratories in ***'Crystallography and Crystal Chemistry'*** (H. Euler), 20131 - 20151, University of Bonn (Germany), 125 students; Lecturer, ***'Chemistry for Geoscientists'*** (J. Wiemann), 2014[1], University of Bonn (Germany), 85 students.

FIELD EXPERIENCES, EXCAVATIONS, & EXPEDITIONS

Distinct field sites explored for sample acquisition: **15**; Age range: **Cambrian to Eocene**

American Red Cross Certified Trainee: **Adult & Pediatrics First Aid/CPR/AED** – valid until 2025

Deutsches Rotes Kreuz Certified Trainee: Adult & Pediatrics First Aid/Traffic Accidents/CPR

2026

2024 Initial exploration of the **Cretaceous/Paleogene boundary** in **Gubbio**, Italy – 2 days

Started at Hopkins

2022 **Cretaceous Hell Creek Formation**, Montana, USA; microsites, screen washing – 14 days

2022 **Eocene Green River Formation**, Wyoming, USA; prospecting and excavation – 10 days

2019 **Cretaceous Quinglongshan National Park Shiyan**, Hubei Province in China. – Field trip

2019 **Cretaceous Las Hoyas** locality in Cuenca, Spain; quarrying – 14 days

2018 **Triassic Petrified Forest**, Arizona, USA; prospecting and excavation – 22 days

2017 **Triassic Petrified Forest**, Arizona, USA; prospecting and excavation – 14 days

2017 **Jurassic** sediments at **Lourinha** in Portugal. – Field trip

2015 **Jurassic Coastlines of Great Britain**, UK; prospecting and collecting – 15 days

2015 **Triassic Augusta Mountains**, Nevada, USA; prospecting and quarrying – 13 days

2015 **Cretaceous Two-Medicine Formation**, MT, USA; prospecting and quarrying – 10 days

2015 **Cretaceous** fluviatile sediments of the **Dinosaur Provincial Park** in Canada. – Field trip

2015 **Triassic, Jurassic**, and **Cretaceous** fossiliferous sediments of **Southern Germany**. – Field trip

2014 **Phanerozoic** Lagerstätten of **Central and Southern Germany**. – Field trip

2013 **Triassic, Jurassic**, and **Cretaceous** rocks of **Southern Germany**. – Field trip

2012 **Paleozoic to Cenozoic Catalan Pyrenees**, El Pont de Suerte, Spain; geological mapping – 20 days

DEFINED & NAMED CLADES OF LIFE

Biota = Life as we know it: J. Wagner 2004 [**J. Wiemann**, K. de Queiroz, T. B. Rowe, N. J. Planavsky, R. P. Anderson, J. P. Gogarten, P. E. Turner, and J. A. Gauthier], converted clade name. **Definition:** The largest crown clade containing *Homo sapiens* Linnaeus 1758. This is a special case of the maximum-crown-clade definition in that it does not use an external specifier; it refers to the crown clade including humans and all other bioentities sharing common ancestry with them.

Panbiota = all Life: J. Wagner 2004 (as *Panbiota*) [**J. Wiemann**, K. de Queiroz, T. B. Rowe, N. J. Planavsky, R. P. Anderson, J. P. Gogarten, P. E. Turner, and J. A. Gauthier], converted clade name.
Definition: The total clade of the crown clade *Biota*. This a crown-based total-clade definition.

Vividovenator pandonyx: A new genus and new species of giant troodontid dinosaurs

GRANTS

Pending

PI and Co-I funding received (awards listed separately)

David & Lucile Packard Foundation (2025): **PI status** – *Pioneering time-integrated biosignatures to reveal the foundational mechanisms of evolution on our changing planet and beyond* [$ 875,000 awarded].

NASA Interdisciplinary Consortia for Astrobiology Research (2025): **Co-I status** – AFM-Raman & machine learning [13 PIs & Co-Is – Individual budget: $ 485,871 requested – 20% budget cut: $ 353,866 to fund graduate student at 30% → $ 118,588 to JHU.

Mini-WISE Award from Carnegie EPL & the Templeton Foundation (2025): **Co-I status** – Genotype-to-Phenotype workshop [$ 5,000 requested to organize a workshop and prepare a grant on mechanisms of macroevolution].

EPS Teaching Support Fund by the Johns Hopkins University (2025): **PI status** – *Building an osteological and paleontological teaching collection at JHU through 3-D printing* [$ 3,500 requested for 3-D printers].

Started at Hopkins

Instrument and set-up funds offered by Johns Hopkins University (2023): **PI status** – *Building a state-of-the-Art Atomic Force Microscopy-UV, Vis, NIR-Raman prototype tailored to 4-D biosignature detection with modular upgrade capabilities for High Performance Liquid Chromatography- and Pyrolysis Gas Chromatography-coupled Raman spectroscopy (intended to be patented) + Ancient Biomolecules BSL-2 wet lab.* System is fully operational in temporary space; permanent lab space renovations pending/in progress.

Instrument time at the ToF Secondary Ion Mass Spectrometer (Iontof M6) (2023): **PI status**; data collection in collaboration with the WA Organic and Isotope Geochemistry Centre at Curtin University, Western Australia.

Instrument time (10 days) at the Secondary Ion Mass Spectrometer (SIMS) (2022): **PI status**; awarded by the Center for Comparative Planetary Evolution (3 CPE) at the California Institute of Technology.

Caltech Discovery Funds (2021): **Co-I status** (PI: Yuk Yung, Collaborators: Bethany Ehlmann, Danica Adams; $ 100,000, funded at 100 %).

Predoctoral funding received (awards listed separately)

Paleontological Association Grant-in-Aid (2019) to support the travel of Early Career Scientists to the Annual Meeting of the Society of Vertebrate Paleontology in Brisbane, Australia.

Graduate School Stipend (2016) in the Department of Geology & Geophysics at Yale University.

German National Financial Aid for promising students from disadvantaged backgrounds (BSc: 2011 – 2014, MSc: 2014 – 2016) in pursuit of an academic degree (maximum amount funded).

SCIENTIFIC LEADERSHIP ROLES

Peer review (2015 – now)

Science (IF 63.714), ***Nature*** (multiple, IF 41.577), ***Science Advances*** (IF 14.597), ***Nature Communications*** (multiple, IF 12.124), ***Earth Science Reviews*** (IF 9.724), **eLIFE** (IF 8.713), ***Scientific Reports*** (multiple, IF 4.525), ***Proceedings of the Royal Society B*** (multiple, IF 4.304), ***Geobiology*** (multiple, IF 4.16), ***Nature Communications Biology*** (multiple, IF 4.049), ***Frontiers in Genetics*** (IF 3.789), ***Scientific Reports*** (multiple, IF 4.2), ***Paleontology*** (multiple, IF 3.730), ***BMC Evolutionary Biology*** (multiple, IF 3.027), ***Cretaceous Research*** (IF 2.120), ***Paleogeography, -climatol., & -ecol.*** (multiple, IF 2.375), ***ACS Earth and Space Chemistry*** (IF 2.190), ***Historical Biology*** (IF 1.489), ***Lethaia*** (IF 1.454), ***Palaeontologia Electronica*** (IF 1.410), ***Alcheringa*** (IF 1.398), ***Journal of Experimental Zoology*** (IF 1.246).

Invited book reviews (2020 – now): **1** (*'The complete dinosaur'*)

Invited grant reviews (2019 – now): **Leverhulme Trust Research Grants** (2020 cycle, UK, national competition across all disciplines), **The Leakey Foundation** (2023 cycle, global competition in anthropology/archeology), **Human Frontier Science Program** (2023/2024 cycle, global competition in cross-disciplinary biology), **JHU PURA** (2025 cycle, university-wide competition for undergraduate funding), **NASA Exobiology** Grant panel (2025 cycle, US-wide competition for funding of projects focused on organic biosignatures; Chair).

2026	**Invited Symposium Organizer** at the **International Paleontological Congress** in Cape Town, SA.
2025	**Invited Panel Chair for the NASA Exobiology Review Panel**, sub panel: Biosignatures Organic.
2025	**Invited Member of the Scientific Committee** at the **Bone Diagenesis Meeting** in Athens, Greece.
2025	**Invited Member of the PhD Examination Board** in Geology at the **University of Ghent**, Belgium.
2024	**NAPC Student Prize Judge** at the **North American Paleontological Convention** in Ann Arbor, MI.
2024	**STRATA Mentor** at the **North American Paleontological Convention** in Ann Arbor, MI.
2024	**Colbert Prize Judge** at the **Society of Vertebrate Paleontology** in Minneapolis, MN.
2024	**Invited Symposium Chair** at the **International Geological Congress** in Busan, South Korea.
	Started at Hopkins
2023	**Invited Symposium Chair** at the **International Congress on Vertebrate Morphology** in Cairns, Australia; technical session: 'Climate Change and Mass Extinctions'.
2021 – 2023	**Invited Member of the Symposium & Program Committee** of the **Society of Vertebrate Paleontology**.
2023	**Invited Session Chair, Organizer, & Presenter** at the **Australian Earth Sciences Convention** in Perth, Australia.
2021	**Invited Session Chair** at the Annual Meeting of the **Society of Vertebrate Paleontology**.
2019	**Organizer & Session Chair** at the Annual Meeting of the **Society of Vertebrate Paleontology**, Brisbane (Australia), Podium Symposium 'From molecules to macroevolution: palaeobiological applications of vertebrate soft tissue preservation'.
2019	**Invited Member of the Scientific Committee & Session Chair** at the Biannual Meeting on **Dinosaur Eggs and Babies**, Quinglongshan National Park (China), hosted by the Institute of Vertebrate Paleontology and Paleoanthropology, Chinese Academy of Sciences.
2018	**Invited Co-Editor** for the Special Issue '***Technological advances in paleontology mark a new age of opportunity for Early Career Researchers***' *in Frontiers in Earth Sciences*.
2017	**Invited Session Chair** at the Annual Meeting of the **Society of Vertebrate Paleontology**, Salt Lake City (USA).
2016	**Invited Session Chair** at the Meeting of the **Society of Experimental Biology**, Brighton (UK).
2015	**Organizing Committee** at the **International Symposium on Paleohistology**, Bonn (Germany), hosted at the University of Bonn; 200 participants.

STUDENT & POSTDOCTORAL ADVISORSHIP

Primary host and collaborator for visiting PIs:

2025 – 2026 **Dr. Tom A. Nordheim (APL):** *Experimental simulation of the organic carbon cycle on Europa;*

Primary advisor role for postdoctoral scholars:

2025 – 2027 **Dr. Mariana Valeria Haase (nee: de Araujo Sena):**

2025 – 2026 **Dr. Pjotr Meyvisch:**

Co-advisor role for postdoctoral scholars:

2022 – 2024

Primary advisor role for PhD students:

2024 – now **Megan L. Miller:** *Integrating genomics and geochemistry to reveal amniote metabolic evolution.*
2025 EPS travel grant, 2025 Steven Cohen Award [SVP].

2024 – now **Liam J. Olden:** *Exploring the principles of biomineralization in prokaryotes and eukaryotes.*
2025 IGC participant [geobiology] and 2025 EPS travel grant.

Co-advisor role for PhD students:

2025 **Pjotr Meyvisch** (Universiteit Gent – External PhD Committee Member).
2024 – now **BP Blakeley** (Hopkins – PhD Committee Member): *Ice chemistry in different planetary settings.*
2019 – now **Tom van der Linden** (Utrecht University): *Evolution of reproductive strategies in reptiles.*
2021 – 2022 **Hemani Kalucha** (Caltech): *Molecular biosignature survival potential on Europa.*
2019 – 2024 **Dalton Meyer** (Yale): *Metabolic biosignatures reveal thermal niches of extinct marine reptiles.*

Primary advisor role for undergraduate and master students:

2024 – now **Ana S. Cancio Trelfa** (EPS | FAE): *Biases in soft tissue preservation across the vertebrate clade.*
2024 – now **Fanny Borukhova** (MCDB | Public Health): *Machine-learning for biosignature development.*
2024 – 2025 **Emily R. Pituch** (MCDB | EPS): *Molecular biosignature survival potential in our solar system.*
2018 – 2019 **Mallory A. Theurer** (EEB at Florida Atlantic University): *A biosignature for photosynthesis.*
2018 – 2019 **Ayodele Lewis** (Pre-Med at Amherst College, REU project): *Porphyrins through time.*
2018 – 2019 **Krish Maypole** (EEB at Yale): *Chemical characterization of turacoverdin pigments.*
2018 – 2019 **Gemma Sheperd** (EEB at Yale): *Capturing the diversity of avian pterin pigments.*

SELECT OUTREACH & ADVOCACY

Special Volume centered around research from the PaLEO lab: *National Geographic* (2020)
October 2020 issue on '*Reimagining dinosaurs*'.

Cover Stories centered around research from the PaLEO lab: *Science (2019), Bioscience (2019), Earth Magazine (2019)*

Book features (> 1 page in print): Michael Benton – *Vertebrate Paleontology* (**2024**), Birk Grueling – *A T. rex named Sue* (**2022**), Nick Crumpton - *Everything you know about dinosaurs is wrong* (**2022**), Roy Plotnick – *Explorers of Deep Time* (**2022**), Akinobu Watanabe – *Tyrannopedia/ティラノペディア* (**2020**).

2025 **Invited Panelist** for the **AMNH ICG Symposium 'Frontiers in Ancient Biomolecule Research'**.

2024 **Invited Career Forum Panelist** in the Biological Sciences Division of the University of Chicago.

2024 **Science feature** in the **Guardian 'The Age of extinction: Can bones of the deep past help predict extinctions of the future?'** on the importance of conservation paleobiology.

2023 **Scientific consultant** for the **BBC series 'Prehistoric Planet'**.

2022 **Featured Scientist representing the discipline of Paleobiology: 'Girls' STEMpede'**.

2021 **Panelist and Interviewer:** Yale Peabody **'50 Women at Yale 150' Event**.

2020 **Panelist and Featured Scientist: National Geographic 'Women of Impact'.**

Advocacy for the importance of paleobiology and museum collections in the 21st century

2019 ***Science*** article 'Warm-blooded velociraptors: fossilized proteins unravel dinosaur mysteries' by Gretchen Vogel, representing the growing discipline of Molecular Paleobiology and advocating for the importance of historical collections.

2019 ***BioScience*** article 'The Evolution of Natural History Collections: New research tools move specimen data to center stage' showcasing how recent technological advances allow paleontologists to generate new data from historical collections.

Selected scientific consultancy & exhibition design

Regular Scientific Consultant for: **National Geographic, New York Times, Science Magazine, NPR.**

2022 **Scientific Advisor** for the new exhibition at the **Yale Peabody Museum of Natural History**.

2022 **Scientific Advisor** contributing to **nation-wide K-12 Educational Materials** as part of the outreach program of the **American Museum of Natural History** for the classes on.

2021 **Scientific Advisor** for the US-based **traveling exhibition** '*Tiny Titans*'.

2018, 2019 **Consultant** for the Dinosaur Days Events at the **Yale Peabody Museum**.

2019 **Scientific Advisor** for '*T. rex: the ultimate predator*' at the **American Museum of Natural History** in New York.

2016 **Scientific Advisor** for the Exhibition '*The Molecular Science behind Jurassic World*' at the **Goldfuß Museum of Paleontology**, Bonn, Germany.

PUBLICATIONS

Lead/corresponding author**: Total number (15); *Nature* (7), *Nature Communications* (1), *Science Advances* (1)**.

Ready for imminent submission (*corresponding author; mentee)

Submitted, In Review or in Revision (*corresponding author; mentee)

Published or in Press (*corresponding author)

21. Tripp, M.*, **Wiemann, J.**, Brosnan, L., I., Rickard, W. D. A., Vajda, V., Bottcher, M. E., Greenwood, P. F., & Grice, K. *Mineralization controls informative biomarker preservation associated with soft part fossilization in deep time*. In press: ***Geobiology.***
20. **Wiemann, J.*** *Fossil dinosaur cells – 20 years after a discovery*. ***Nature***, *639, 875-876* (2025).

Started at Hopkins

19. **Wiemann, J.***, and Heck, P. R. *Quantifying the impact of sample, instrument, and data processing on biological signatures detected with Raman spectroscopy*. ***Journal of Raman Spectroscopy*** (2024).
18. **Wiemann, J.***, Menendez, I.*, Crawford, J.M., Fabbri, M., Gauthier, J.A., Hull, P.M., Norell, M.A., and Briggs, D.E.G. *RE: Comment on amniote metabolism and the evolution of endothermy*. ***Nature*** 621, E4–E6 (2023).
17. Tripp, M.*, **Wiemann, J.**, Brocks, J., Mayer, P., Lidgard, S., Schwark, L., and Grice, K. *Molecular evidence from coprolites reveals dietary strategies of the Carboniferous Mazon Creek fauna*. ***Biology*. – *Invited contribution***
16. Norell, M. A., **Wiemann, J.***, Menendez, I.*, Fabbri, M.*, Yu, C., Marsicano, C., Pol, D., Moore-Nall, A., Varricchio, D. J., and Zelenitsky, D. *Cross-methodological evidence confirms soft eggs in sauropodomorph dinosaurs*. ***Nature***.
15. **Wiemann, J.***, Menendez, I., Crawford, J.M., Fabbri, M., Gauthier, J.A., Hull, P.M., Norell, M.A., and Briggs, D.E.G. *Fossil biomolecules reveal an avian metabolism in the ancestral dinosaur*. ***Nature***, 10.1038/s41586-022-04770-6. Altmetric score: 2033. *Most widely shared paleontology paper in 2022.*
    - Special features in: ***New York Times, Science Magazine, National Geographic, CNN***.
14. **Wiemann, J.*** and Briggs, D.E.G. *Raman spectroscopy is a powerful tool in a range of paleobiological applications.* Invited contribution, ***Bioessays***, 10.1002/bies.202100070.
    Preprint: **Wiemann, J.*** and Briggs, D.E.G. *Validation of biosignatures confirms the informative nature of fossil organic Raman spectra*. ***BioRxiv***, 10.1101/2021.02.07.430162.
13. **Wiemann, J.***, Crawford, J.M., and Briggs, D.E.G., 2020. *Phylogenetic and physiological signals in metazoan fossil biomolecules*. ***Science Advances***, 10.1126/sciadv.aba6883.
    - Special features in: ***Science Magazine, Astrobiology News, Yale News.***
12. Norell, M. A.*, **Wiemann, J.***, Fabbri, M.*, Yu, C., Marsicano, C., Pol, D., Moore-Nall, A., Varricchio, D. J., and Zelenitsky, D., 2020. *The first dinosaur egg was soft*. ***Nature***. Altmetric score: 1439.
    - Special features in: ***NPR, Science News, National Geographic, New York Times.***
11. McCoy, V. E.*, **Wiemann, J.***, Lamsdell, J.C., Whalen, C.D., Lidgard, S., Mayer, P., Petermann, H., and Briggs, D.E.G., 2020. *Chemical signatures of soft tissues distinguish between vertebrates and invertebrates from the Carboniferous Mazon Creek Lagerstätte of Illinois.* ***Geobiology***, 10.1111/gbi.12397.
    - Special features in: **New Scientist, Yale News.**
10. Ibrahim, N., Maganuco, S., Dal Sasso, C., Fabbri, M., Auditore, M., Bindellini, G., Martill, D.M., **Wiemann, J.**, Zouhri, S., Matarelli, D., Unwin, D.M., Joger, U., Amane, A., Jakubczak, J., Bonadonna, D., Lauder, G., and Pierce S., 2020. *Tail-propelled aquatic locomotion in a theropod dinosaur*. ***Nature***, 10.1038/s41586-020-2190-3. Altmetric score: 3780.
9. **Wiemann, J.***, de Queiroz, K., Rowe, T. B., Planavsky, N. J., Anderson, R. P., Gogarten, J. P., Turner, P. E., and Gauthier, J. A., 2020. *Biota*. In: de Queiroz, K., Cantino, P. D., and Gauthier, J. A., Editors. ***Phylonyms: a companion to the PhyloCode***. Berkeley, University of California Press - *Invited contribution*.
8. **Wiemann, J.***, de Queiroz, K., Rowe, T. B., Planavsky, N. J., Anderson, R. P., Gogarten, J. P., Turner, P. E., and Gauthier, J. A., 2020. *Pan-Biota*. In: de Queiroz, K., Cantino, P. D., and Gauthier, J. A., Editors. ***Phylonyms: a companion to the PhyloCode***. Berkeley, University of California Press - *Invited contribution*.
7. Fabbri, M., **Wiemann, J.**, Manucci, F., Briggs, D.E.G., 2020. *3-D soft tissue preservation revealed in the skin of a non-avian dinosaur*. ***Palaeontology***, 10.1111/pala.12470.
6. Yang, T.-R., **Wiemann, J.**, Xu, L., Cheng, Y.-N., Wu, X.-C., and Sander, P. M., 2019. *Reconstruction of oviraptorid clutches illuminates their unique nesting biology.* ***Acta Palaeontologica Polonica*** .
5. **Wiemann, J.***, Yang, T.R., and Norell, M.A., 2019. *Reply to: Egg pigmentation probably has an archosaurian*

origin. ***Nature***, 10.1038/s41586-019-1283-3.

4. **Wiemann, J.***, Fabbri, M., Yang, T.R., Stein, K., Sander, P.M., Norell, M.A., and Briggs, D.E.G., 2018. *Fossilization transforms vertebrate hard tissue proteins into N-heterocyclic polymers.* ***Nature Communications***, 10.1038/s41467-018-07013-3**.**
    - Special features in: ***Earth Magazine (2 pages), Science Daily, Yale News*.**
3. **Wiemann, J.***, Yang, T.R., and Norell, M.A., 2018. *Dinosaur egg color had a single evolutionary origin.* ***Nature***, 10.1038/s41586- 018-0646-5. Altmetric score: *1624.*
    - Special features in: ***Science News, New York Times, Washington Post, Yale News, Daily Mail, NPR*.**
2. Yang, T.R., Chen, Y.-H., **Wiemann, J.**, Spiering, B., and Sander, P.M., 2018. *Fossil eggshell cuticle elucidates dinosaur nesting ecology*. ***PeerJ***, 6, p.e5144.
1. **Wiemann, J.***, Yang, T.R., Sander, P.N., Schneider, M., Engeser, M., Kath-Schorr, S., Müller, C.E. and Sander, P.M., 2017. *Dinosaur origin of egg color: oviraptors laid blue-green eggs.* ***PeerJ***, *5*, p.e3706.
    - Special features in: ***New York Times, National Geographic, New Scientist, Daily Mail, The Guardian*.**

SELECT CONFERENCE PRESENTATIONS

Total number of scientific presentations: **101**
Regular conference talks and posters: **41**
Invited and keynote talks: **60**

Select presentations

Wiemann, J. 2026 (upcoming). *Molecular biosignatures reveal the selective drivers of reproductive innovations through time and phylogeny*. 7th **International Paleontological Congress**, **Cape Town, South Africa**. – Invited talk.

Wiemann, J. 2025. *Time-integrated biosignatures reveal the origin(s) and early evolution of life on Earth and beyond.* **Origin of Life Symposium organized by the Origins Federation** (Harvard, ETH, UChicago, Cambridge), hosted in **Chicago, IL, USA**. – Invited talk.

Wiemann, J. 2025. *Ancient biomolecules reveal the fingerprint, origin, evolution, and evolvability of Life on Earth and beyond.* **Ancient Biomolecules Symposium by the Institute for Comparative Genomics at the American Museum of Natural History**, **New York, NY, USA**. – Invited talk.

Wiemann, J. 2024. *How fossil biomolecules reveal the onset of endothermy as a prerequisite for the evolution of mammalian pregnancy*. Podium Symposium on Mammal Evolution at the Annual Meeting of the **Society of Vertebrate Paleontology**, **Minneapolis, MN, USA**. – *Invited talk.*

Wiemann, J. 2024. *Mass extinctions make way for metabolic makeovers.* 'Deep Time Digital Earth' Symposium at the **International Geological Congress** in **Busan, South Korea**. – *Keynote talk.*

Wiemann, J. 2024. *Multivariate statistics and machine learning reveal the molecular fingerprint of Life.* Symposium on 'Computational Paleobiology', **North American Paleontological Convention**, hosted in **Ann Arbor, MI, USA**. **–** *Keynote talk.*

Wiemann, J. 2024. *Tracing organic matter through time and space reveals the molecular fingerprint of Life.* Symposium on 'Insights from Terrestrial Life', **Astrobiology Science Conference** (AbSciCon), **Providence, RI, USA**. – *Keynote talk.*

Wiemann, J. 2023. *Tracing the fidelity of molecular biosignatures through geological time to reveal major steps in the History of Life on Earth and beyond.* Podium Symposium on 'Molecular Paleontology in the 21st Century', **Australian Earth Science Congress**, hosted in **Perth, WA, Australia**. – *Keynote talk.*

Wiemann, J. 2023. *Molecular metabolic markers reveal the physiology and paleobiology of extinct amniotes*. Annual Meeting of the **American Association for Anatomy**, in **Washington, DC, USA**. – *Keynote talk.*

Wiemann, J. 2018. *How fossil biomolecules unveil the hidden stories of extinct life*. Annual Meeting of the **Paleontological Association**, held in **Bristol, UK**. – *Keynote talk*.