

Evan Thomas Saitta, Ph.D.

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Appointments & Affiliations

The Field Museum of Natural History (Chicago, IL)

Research, Advising, Outreach, & Fundraising

One of the world's leading natural history museums (40 million+ specimens)

AAM-accredited

Research Associate, Negaunee Integrative Research Center, Life Sciences Section

2020–present

Bass Postdoctoral Researcher, Negaunee Integrative Research Center, Earth Sciences Section

June 2018–June 2020

Supervisor: Dr. Peter Makovicky

The University of Chicago (Chicago, IL)

Research, Teaching, & Outreach

#2 USA Paleontology program (*U.S. News & World Report* 2022)

#24–26 globally in Biological Sciences (*QS World University Rankings by Subject* 2022–2023)

#9–11 World university (*QS World University Rankings* 2021–2024)

Postdoctoral Scholar, Biological Sciences Division, Dept. of Organismal Biology and Anatomy

Oct. 2021–Dec. 2024

Supervisor: Dr. Paul Sereno

Northwestern University (Evanston, IL)

Teaching

#7 USA university (*U.S. News & World Report* 2026)

#30 World university (*Times Higher Education* 2026)

Environmental Science: #44 USA; Earth Science & Geophysics: #40 USA; Paleontology: #35 USA (*EduRank* 2026)

Lecturer, Dept. of Earth, Environmental, and Planetary Sciences

Starting Fall 2026

Course to be taught: EARTH 101 Earth Science for the 21st Century

Benedictine University (Lisle, IL)

Teaching

Adjunct Lecturer, Biological Sciences

Fall 2025

Courses taught: BIOL 4364 Ecology Laboratory; BIOL 1199 Principles of Biology Lab

The University of Illinois Chicago (Chicago, IL)

Teaching

Adjunct Lecturer, Dept. of Earth and Environmental Sciences

Spring 2022

Course taught: EAES/BIOS 360 Introduction to Paleontology

Lauer Foundation for Paleontology, Science and Education (Wheaton, IL)

Research

501(c)(3) not for profit organization

Research Associate

2026–present

Education

The University of Bristol (Bristol, UK)

School of Earth Sciences

#1 Paleontology research group globally (*Center for World University Rankings* 2017)

#2 UK, #16 globally in Earth Sciences (*Shanghai Global Ranking of Academic Subjects* 2019)

#19 globally in Earth Sciences (*QS World University Rankings by Subject* 2016)

Russell Group

Ph.D. in Geology

2015–April 2018 (*viva*), Jan. 2019 (graduation ceremony)

Advisor: Dr. Jakob Vinther

Thesis: “The taphonomy of soft tissues and the evolution of feathers”

M.Sc. (*Distinction*) in Palaeobiology

2014–2015 (submission), Jan. 2016 (graduation ceremony)

Advisor: Dr. Jakob Vinther

Thesis: “The taphonomy of keratin in archosaurs”

Princeton University (Princeton, NJ)

#1 USA university (*U.S. News & World Report* 2010, 2012–2015, etc.)

Top-13 World university (*QS World University Rankings* 2010–2014, etc.)

Ivy League

B.A. (*Magna Cum Laude*) in Ecology and Evolutionary Biology

2010–2014

Advisor: Dr. James Gould

Thesis: “Paleobiology of North American stegosaurs: Evidence for sexual dimorphism”

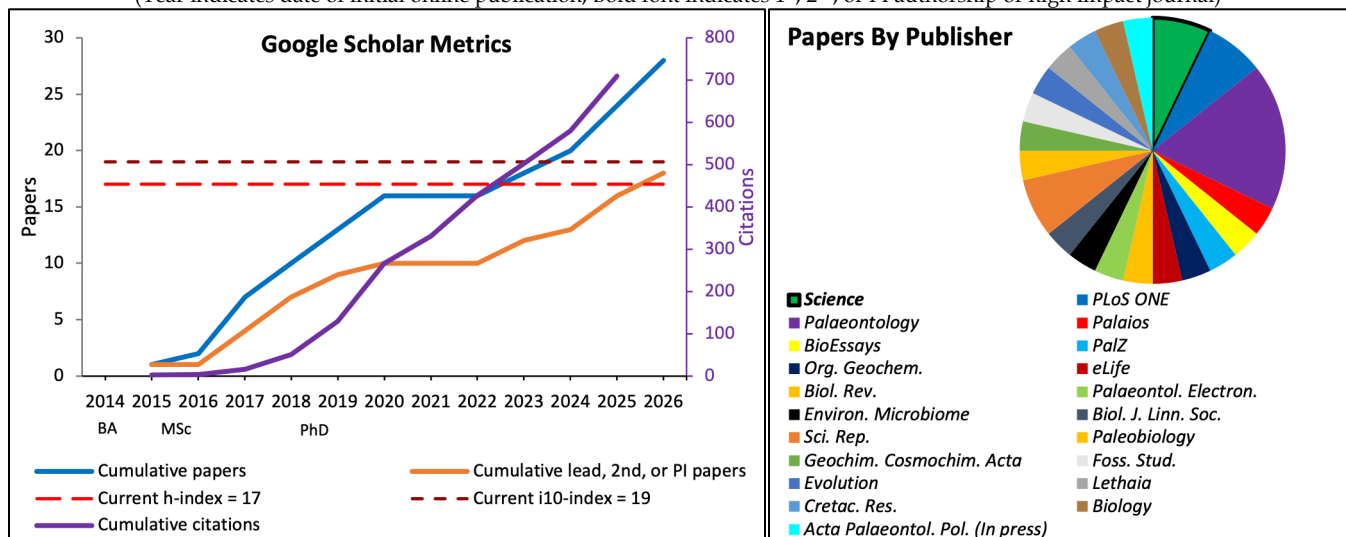
Independent Research Program Statement

My independent research program centers on sediment-encased maturation. I developed this high-temperature, high-pressure experimental taphonomic method during my Ph.D. to simulate long-term, deep-burial diagenesis and produce ‘synthetic fossils’. With this laboratory method, my team and I have published multiple peer-reviewed articles investigating the preservation, alteration, and detectability of biomolecules in the fossil record. I have applied this approach to proteins, pigments, steroids, plant resins, and other tissues, and the work has been covered in the *BBC*, *The New York Times*, *Science*, and elsewhere. My method has formed the basis of awarded research grants (Geological Society of London, Palaeontological Association, Paleontological Society) and pending funding proposals (NSF, Leverhulme Trust, Field Museum). I have mentored graduate students using my method in their own projects at the University of Hong Kong, University of California Davis, University of Chicago, and University of Bristol. Ultimately, I plan to expand this experimental framework in three directions: (1) understand how organic fossils would preserve under early Earth conditions, (2) predict how organics and pollutants from modern environments will appear in the future rock record, and (3) aid in the search for extraterrestrial fossils by simulating burial conditions on moons and other planets.

Publications

h-index = 17; *i*10-index = 19

(Year indicates date of initial online publication; Bold font indicates 1st, 2nd, or PI authorship or high impact journal)



28) **Saitta, ET**, Sereno, PC, Vidal, D, Ciudad Real, M, Keillor, TM, Bop, L, Baumgart, SL, Burdick, A, Radermacher, V, Kaye, TG, Dussubieux, L, Maxey, E, Filatov, A, and Chen, X (Accepted, In Press) Dinosaur ‘mummification’: clay templating in a fluvial setting preserves three-dimensional integument renderings after carcass desiccation. *Acta Palaeontologica Polonica*.

27) Longrich, NR, Makovicky, PJ, Tokaryk, T, Cooper, DML, **Saitta, ET**, Erickson, GM, Szekely, T and Snively, E (2026) Hatchlings of *Tyrannosaurus rex* and the evolution of dinosaur reproductive strategies. *Biology* 15(13), 1090. DOI: 10.3390/biology15131090

Altmetric score: 330

26) **Saitta, ET** (2026) Are we underfitting dinosaur growth models? Accounting for intra- & inter-specific variation. *Cretaceous Research* 186, 106426. DOI: 10.1016/j.cretres.2026.106426

25) Sereno, PC, Vidal, D, Myhrvold, NP, Johnson-Ransom, E, Ciudad Real, M, Baumgart, SL, Sánchez Fontela, N, Green, TL, **Saitta, ET**, Adamou, B, Bop, LL, Keillor, TM, Fitzgerald, EC, Dutheil, DB, Laroche, RAS, Demers-Potvin, AV, Simarro, Á, Gascó-Lluna, F, Lázaro, A, Gamonal, A, Beightol, CV, Reneleau, V, Vautrin, R, Bertozzo, F, Granados, A, Kinney-Broderick, G, Mallon, JC, Lindoso, RM, and Ramezani, J (2026) **Cover Story:** Scimitar-crested *Spinosaurus* species from the Sahara caps stepwise spinosaurid radiation. *Science* 391(6787), eadx5486. DOI: 10.1126/science.adx5486

Altmetric score: 2,963

24) Sereno, PC, **Saitta, ET**, Vidal, D, Myhrvold, N, Ciudad Real, M, Baumgart, SL, Bop, LL, Keillor, TM, Erickson, M, and Derstler, K (2025) Duck-billed dinosaur fleshy midline and hooves reveal terrestrial clay-template “mummification”. *Science* 391(6780), 1–15. DOI: 10.1126/science.adw3536

Altmetric score: 2,097

- 23) Prado, GMEM, Salvato, RCJPS, Becker-Kerber, B, Silva, EP, Pinheiro, FL, Osés, GL, Galante, D, Rodrigues, F, Dias, JJ, de Souza Carvalho, I, [Saitta, ET](#), Lino, LM, and Anelli, LE (2025) Fossil fish provide evidence of geomelanin preservation with implications on the visual accuracy of an extinct fish species. *Lethaia* 58(3), 1–17. DOI: 10.18261/let.58.3.7
- 22) [Saitta, ET](#), and Kaye, TG (2025) Experimental maturation of pine resin in sediment to investigate the formation of synthetic copal and amber. *Scientific Reports* 15, 7627. DOI: 10.1038/s41598-025-89448-5
Altmetric score: 44
- 21) [Saitta, ET](#), Balaji, L, Mitchell, JS, and Makovicky, PJ (2025) Feather evolution following flight loss in crown group birds: relaxed selection and developmental constraints. *Evolution* 79(5), 737–751. DOI: 10.1093/evolut/qpaf020
Altmetric score: 116
- 20) Myhrvold, NP, Baumgart, SL, Vidal, D, Fish, FE, Henderson, DM, [Saitta, ET](#), and Sereno, PC (2024) Diving dinosaurs? Caveats on the use of bone compactness and pFDA for inferring lifestyle. *PLoS ONE* 19(3), e0298957. DOI: 10.1371/journal.pone.0298957
Altmetric score: 707
- 19) Longrich, NR, and [Saitta, ET](#) (2024) Taxonomic status of *Nanotyrannus lancensis* (Dinosauria: Tyrannosauroidae) – a distinct taxon of small-bodied tyrannosaur. *Fossil Studies* 2(1), 1–65. DOI: 10.3390/fossils2010001
Altmetric score: 818
- 18) [Saitta, ET](#), Vinther, J, Crisp, MK, Abbott, GD, Wheeler, L, Presslee, S, Kaye, TG, Bull, I, Fletcher, I, Chen, X, Vidal, D, Sanguino, F, Buscalioni, AD, Calvo, J, Sereno, PC, Baumgart, SL, Pittman, M, Collins, MJ, Sakalauskaite, J, Mackie, M, Dal Bello, F, Dickinson, MR, Stevenson, MA, Donohoe, P, Heck, PR, Demarchi, B, and Penkman, KEH (2023) Non-avian dinosaur eggshell calcite can contain ancient, endogenous amino acids. *Geochimica et Cosmochimica Acta* 365, 1–20. DOI: 10.1016/j.gca.2023.11.016
Altmetric score: 141
- 17) Roy, A, Pittman, M, Kaye, TG, and [Saitta, ET](#) (2023) Sediment-encased pressure-temperature maturation experiments elucidate the impact of diagenesis on melanin-based fossil color and its paleobiological implications. *Paleobiology* 49(4), 712–732. DOI: 10.1017/pab.2023.11
- 16) Mayr, G, Kaye, TG, Pittman, M, [Saitta, ET](#), and Pott, C (2020) Reanalysis of putative ovarian follicles suggests that Early Cretaceous birds were feeding not breeding. *Scientific Reports* 10, 19035. DOI: 10.1038/s41598-020-76078-2
Altmetric score: 44
- 15) [Saitta, ET](#), Stockdale, MT, Longrich, NR, Bonhomme, V, Benton, MJ, Cuthill, IC, and Makovicky, PJ (2020) **Invited Review:** An effect size statistical framework for investigating sexual dimorphism in non-avian dinosaurs and other extinct taxa. *Biological Journal of the Linnean Society* 131(2), 231–273. DOI: 10.1093/biolinnean/blaa105
Altmetric score: 296
- 14) Liang, R, Lau, MCY, [Saitta, ET](#), Garvin, ZK, and Onstott, TC (2020) Genome-centric resolution of novel microbial lineages in an excavated *Centrosaurus* dinosaur fossil bone from the Late Cretaceous of North America. *Environmental Microbiome* 15, 8. DOI: 10.1186/s40793-020-00355-w
Altmetric score: 200
- 13) [Saitta, ET](#), and Vinther, J (2019) A perspective on the evidence for keratin protein preservation in fossils: an issue of replication versus validation. *Palaeontologia Electronica* 22.3.2E, 1–30. DOI: 10.26879/1017
- 12) Roy, A, Pittman, M, [Saitta, ET](#), Kaye, TG, and Xu, X (2019) Recent advances in amniote palaeocolour reconstruction and a framework for future research. *Biological Reviews* 95(1), 22–50. DOI: 10.1111/brv.12552
Altmetric score: 70
- 11) [Saitta, ET](#), Liang, R, Lau, MCY, Brown, CM, Longrich, NR, Kaye, TG, Novak, BJ, Salzberg, SL, Norell, MA, Abbott, GD, Dickinson, MR, Vinther, J, Bull, ID, Brooker, RA, Martin, P, Donohoe, P, Knowles, TDJ, Penkman, KEH, and Onstott, T (2019) Cretaceous dinosaur bone contains recent organic material and provides an environment conducive to microbial communities. *eLife* 8, e46205. DOI: 10.7554/eLife.46205.001
Altmetric score: 405
- 10) [Saitta, ET](#), Fletcher, I, Martin, P, Pittman, M, Kaye, TG, True, LD, Norell, MA, Abbott, GD, Summons, RE, Penkman, K, and Vinther, J (2018) Preservation of feather fibers from the Late Cretaceous dinosaur *Shuvuuia deserti* raises concern about immunohistochemical analyses on fossils. *Organic Geochemistry* 125, 142–151. DOI: 10.1016/j.orggeochem.2018.09.008

- 9) **Saitta, ET**, Kaye, TG, and Vinther, J (2018) Sediment-encased maturation: a novel method for simulating diagenesis in organic fossil preservation. *Palaeontology* 62(1), 135–150. DOI: 10.1111/pala.12386
Altmetric score: 210
- 8) **Saitta, ET**, Clapham, C, and Vinther, J (2018) Experimental subaqueous burial of a bird carcass and compaction of plumage. *Paläontologische Zeitschrift* 92(4), 727–732. DOI: 10.1007/s12542-018-0411-y
Altmetric score: 29
- 7) Parry, LA, Smithwick, F, Norden, K, **Saitta, ET**, Lozano-Fernandez, J, Tanner, A, Bernard Caron, J, Edgecombe, GD, Briggs, DEG, and Vinther, J (2017) Soft-bodied fossils are not simply rotten carcasses – towards a holistic understanding of exceptional fossil preservation. *BioEssays* 40(1), 1700167. DOI: 10.1002/bies.201700167
Altmetric score: 252
- 6) **Saitta, ET**, Gelernter, R, and Vinther, J (2017) Additional information on the primitive contour and wing feathering of paravian dinosaurs. *Palaeontology* 61(2), 273–288. DOI: 10.1111/pala.12342
Altmetric score: 128
- 5) **Saitta, ET**, Rogers, CS, Brooker, RA, and Vinther, J (2017) Experimental taphonomy of keratin: a structural analysis of early taphonomic changes. *Palaio* 32(10), 647–657. DOI: 10.2110/palo.2017.051
Altmetric score: 36
- 4) **Saitta, ET**, Rogers, C, Brooker, RA, Abbott, GD, Kumar, S, O'Reilly, SS, Donohoe, P, Dutta, S, Summons, RE, and Vinther, J (2017) Low fossilization potential of keratin protein revealed by experimental taphonomy. *Palaeontology* 60(4), 547–556. DOI: 10.1111/pala.12299
Altmetric score: 68
- 3) Smithwick, F, Mayr, G, **Saitta, ET**, Benton, M, and Vinther, J (2017) On the purported presence of fossilised collagen fibres in an ichthyosaur and a theropod dinosaur. *Palaeontology* 60(3), 409–422. DOI: 10.1111/pala.12292
- 2) Mayr, G, Pittman, M, **Saitta, E**, Kaye, T, and Vinther, J (2016) Structure and homology of *Psittacosaurus* tail bristles. *Palaeontology* 59(6), 793–802. DOI: 10.1111/pala.12257
Altmetric score: 282
- 1) **Saitta, ET** (2015) Evidence for sexual dimorphism in the plated dinosaur *Stegosaurus mjosi* (Ornithischia, Stegosauria) from the Morrison Formation (Upper Jurassic) of western USA. *PLoS ONE* 10(4), e0123503. DOI: 10.1371/journal.pone.0123503
Altmetric score: 665
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Currently Unpublished Preprints

- Saitta, ET**, Maxey, ER, Antipova, OA, Li, L, Stockdale, MT, Kaye, TG, and Makovicky, PJ (Under Review) **Taphonomic patterns of elemental enrichment: synchrotron x-ray fluorescence of diverse fossils from multiple konservat-lagerstätten, extant organisms, and artificial maturation experiments.** *Research Square*. DOI: 10.21203/rs.3.rs-10693948/v1
- Roy, A, **Saitta, ET**, Musa, M, Al-Kindi, S, Kaye, TG, and Pittman, M (2026) **A multi-spectroscopic investigation into the diagenesis of avian polyene pigments: simulated maturation, chemical pathways and palaeontological implications.** *Research Square*. DOI: 10.21203/rs.3.rs-7900994/v1
- Saitta, ET** (2025) **Museums should curate beyond the natural: domestic breeds offer unique insight into evolutionary processes & human culture.** *EcoEvoRxiv*. DOI: 10.32942/X2VK88
- Saitta, ET**, Bonhomme, V, Lukens, M, Vidal, D, Longrich, NR, Richmond, DR, and Stockdale, MT (2025) **The function and evolution of stegosaur osteoderms and hypothesized sexual dimorphism in *Hesperosaurus*.** *bioRxiv*. DOI: 10.1101/2025.04.10.648273
- Saitta, ET** (2020) **The Society of Vertebrate Paleontology's publication policy is inconsistent with scientific epistemology.** *PaleorXiv*. DOI: 10.31233/osf.io/xmkhb
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Manuscripts Under Review

Saitta, ET, Maxey, ER, Antipova, OA, Li, L, Stockdale, MT, Kaye, TG, and Makovicky, PJ (Under Review) **Taphonomic patterns of elemental enrichment: synchrotron x-ray fluorescence of diverse fossils from multiple konservat-lagerstätten, extant organisms, and artificial maturation experiments.**

Saitta, ET, Latta, H, Kaye, TG, Gnoske, T, Sereno, PC, Vinther, J, Brooker, RA, and Bull, ID (Under Review) **High thermal stability of estrogen through experimental maturation shows promise for fossil sexing.**

Saitta, ET, Ashby, J, Bakker FT, Gnoske, TP, Heller, NE, Malinich, S, Oliveira, G, Pell, R, Stockdale, MT, and van Grouw, H (Under Review) **Museums should curate beyond the natural: anthropogenically altered organisms offer unique insight into evolutionary processes & human culture.**

Saitta, ET, Greidanus, C, Wadleigh, J, Shinya, A, Waldbauer, J, and Kaye, TG (Under Review) **A method for entrapping specimen inclusions within 'synthetic amber' using sediment-encased artificial maturation.**

Roy, A, Saitta, ET, Musa, M, Al-Kindi, S, Kaye, TG, and Pittman, M (Under Review) **A multi-spectroscopic investigation into the diagenesis of avian polyene pigments: simulated maturation, chemical pathways and palaeontological implications.**

Saitta, ET (Under review) **Distributions of sexual size dimorphism: significance thresholds, systematic errors, & scaling.**

Achievements†, Funding*, & Accepted Proposals

CNPEM Proposal - Brazilian Center for Research in Energy and Materials (Campinas, Brazil) PI: Kerber, BB. Co-Proposers: <u>Saitta, ET</u> , Prado, GMEM, Silva, EP "Can Raman spectroscopy really reveal biosignatures in fossil dinosaurs?"	2024
Paleontological Society Norman Newell Early Career Grant* "Characterizing the diagenesis of sex hormones"	2023
The Palaeontological Association Research Grant* "Characterizing the diagenesis of sex hormones"	2022
Honoring Our Professors' Excellence (HOPE) Award† University of Illinois Chicago Office of Campus Housing award as nominated by students	2022
University of Chicago Fossil Lab Postdoctoral Funding* Postdoctoral salary & research funds through the Sereno Fossil Lab, University of Chicago	2021-2024
Bass Postdoctoral Fellowship* Postdoctoral salary & research funds through the Negaunee Integrative Research Center, Field Museum of Natural History	2018-2020
Paleontological Society Stephen Jay Gould Award* Paleontological Society Student Research Grant: "Material properties of keratinous structures"	2017
The Daniel Pidgeon Fund* The Geological Society of London research grant: "Creating fossils in the lab: sediment-based maturation experiments"	2017
Bob Savage Memorial Fund* University of Bristol palaeobiology graduate student award	Received four times - 2016-2017
Jackson Student Travel Grant* Society of Vertebrate Paleontology award to support student travel to their annual meeting	2016
M.Sc. Award: Distinction (University of Bristol)†	2015
University of Bristol Alumni Foundation Travel Grant* University of Bristol student award to support conference attendance costs	Received twice - 2015

Magna Cum Laude (Princeton University)†	2014
Elected to the Society of Sigma Xi†	2014
Senior Thesis Poster Award in Behavior† Granted by Princeton University's Department of Ecology and Evolutionary Biology	2014
Office of the Dean of the College Senior Thesis Research Funding* Princeton University academic research grant	2013
Fred Fox Fund* Academic research award and grant through the Office of Religious Life at Princeton University	2012

Pending Funds & Proposals

National Science Foundation – Life and Environments Through Time Institution: Field Museum of Natural History PI: Herrera, FA Co-PI: <u>Saitta, ET</u> (<i>wrote initial draft of proposal</i>) “Experimental & Molecular Study of Plant Fossilization from Fossil Lake Lagerstätte” Requested Amount: \$794,906
Field Museum – 2027 Science Innovation Award PIs: Mann, A; Herrera, FA Co-PIs: <u>Saitta, ET</u> (<i>wrote initial draft of proposal</i>); So, C; D’Antonio, M “Experimental Simulation of Mazon Creek Fossilization” Requested Amount: \$54,998
Leverhulme Trust – Research Project Grant Institution: University of Bristol Principal Applicant: Vinther, J Co-Applicants: Bull, I; Brooker, R Research Assistant: <u>Saitta, ET</u> “Decoding Molecular Signals from Deep Time: Experimental and Predictive Framework” Requested Amount: £481,078

Teaching

(*includes training of a graduate student teaching assistant)

Lecturer, Northwestern University Lead, sole course instructor: Earth Science for the 21st Century EARTH 101*	Starting Fall 2026
Adjunct Lecturer, Benedictine University (Lisle, IL) Lead, sole course instructor: Ecology Laboratory BIOL 4364 (2 sections) Section instructor: Principles of Biology Lab BIOL 1199 (1 section)	Fall 2025 Fall 2025
Adjunct Lecturer, University of Illinois Chicago Lead, sole course instructor: Introduction to Paleontology EAES/BIOS 360*	Spring 2022
Guest Lecturer, University of Chicago Dinosaur Science BIOS 23100: “Taphonomy & Footprints” lecture	Spring 2023
Postdoctoral Field Teaching Assistant, University of Chicago Dinosaur Science BIOS 23100: Week-long dinosaur excavation in Wyoming	Summer 2023

Graduate Teaching Assistant / Demonstrator, University of Bristol
 Evolution of the Biosphere EASC30008 (*Master's level course*)
 Geobiology EASC20024
 Geology 1: Evolution of Earth and Life EASC10001
 Environmental Geoscience: Climate and Ecology EASC10002

Fall 2015
 Spring 2017
 Spring 2017
 Fall 2015

Advising, Training, & Mentoring

Mentoring 2018-present

My sediment-encased maturation method has been used* in collaboration with graduate students from:

University of Hong Kong – Ph.D. student; Two chapters of 2021 thesis

University of California Davis – Ph.D. student

University of Chicago – Ph.D. student

University of Bristol – M.Sci. student; Entire 2023 thesis based on modern, fossil, capsule maturation, & sediment-encased maturation samples I processed & lipid extracted

**Other students from the Netherlands, UK, & China have also inquired about using my method in their Ph.D. projects*

Advising

Undergraduate students: summer intern* & volunteer supervising, **Field Museum**

2018-2020

**Supported by University of Chicago's Jeff Metcalf Internship Program; became study coauthor & later pursued science in graduate school*

Training

Graduate student teaching assistant training, **Northwestern University**

Starting Fall 2026

Graduate student teaching assistant training, **University of Illinois Chicago**

Spring 2022

Academic Presentations

(Lead presenter only)

Northwestern University

Department of Earth, Environmental, and Planetary Sciences Seminar Series: Talk

5/2026

Can you predict the past? Molecular & experimental paleontology

Society of Vertebrate Paleontology annual meeting

Minneapolis, Minnesota, USA: Talk & Poster

10/2024

Talk – Exceptional preservation of integumental structures in hadrosaur ‘mummies’ via clay templating

Poster – ‘Synthetic fossils’: experiments make taphonomy a better science

Cincinnati, Ohio, USA: Poster

10/2023

Sexing dinosaurs: Possible detection of trace sex hormones in fossils as old as the Jurassic and the thermal stability of estrogen

*Virtual Conference: Poster – **abstract accepted but later withdrawn due to registration cost*

11/2021

Relaxing selective pressures on complex structures: feather evolution after flight loss in recent birds

Virtual Conference: Poster

10/2020

Non-avian dinosaur eggshell calcite contains ancient, endogenous amino acids

Brisbane, Australia: Talk

10/2019

Sexual dimorphism in non-avian dinosaurs and other extinct taxa: the importance of effect size statistics in paleontology

Albuquerque, New Mexico, USA: Talk (*Romer Prize Session*)

10/2018

Molecular stability and mobility: Protein diagenesis in open and closed taphonomic systems

Calgary, Alberta, Canada: Talk (*Romer Prize Session*)

8/2017

Creating fossils in the lab: replicating fossilization using sediment-based maturation

Salt Lake City, Utah, USA: Talk

10/2016

The taphonomy of keratin in archosaurs

Palaeoproteomics and Archaeology, Society for Techniques and Advances (affiliate of The International Society for Biomolecular Archaeology)

PAASTA Talk Series: Virtual Talk

7/2024

Eggshell Time Capsules: Ancient Amino Acids

Weizmann Institute of Science	
Kimmel Center for Archaeological Science Seminar: Virtual Talk	4/2024
Eggshell Time Capsules: Ancient Amino Acids	
The University of Chicago	
Darwinian Sciences Cluster Retreat: Poster	9/2023
Sexing dinosaurs: Possible detection of trace sex hormones in fossils as old as the Jurassic and the thermal stability of estrogen	
Evolutionary Morphology Seminar Series: Talk	10/2021
Molecular fossil hunting: analytical and experimental taphonomy	
The University of Copenhagen (Denmark)	
Globe Institute: Talk	7/2022
Molecular fossil hunting: analytical and experimental taphonomy	
The University of Illinois Chicago	
EAES Departmental Seminar: Talk	3/2022
Molecular fossil hunting: analytical and experimental taphonomy	
Field Museum of Natural History	
A. Watson Armour Seminar Series: Talk	9/2019
Mesozoic molecules: revealing information from fossils through taphonomy	
Argonne National Laboratory	
Advanced Photon Source: Coffee Talk	8/2019
Exceptional fossils: feathers, soft tissues, and ancient molecules	
Palaeontological Association annual meeting	
London, UK	12/2017
Talk – Approaching sexual dimorphism in non-avian dinosaurs and other extinct taxa	
Poster – Life inside a dinosaur bone: a thriving microbiome	
Lyon, France	12/2016
Poster – Primitive contour feathers in paravian dinosaurs and the evolution of avian plumage	
Informal talk ('Friends of the Rotten' discussion meeting) – Taphonomy 2.0: Experimental P/T maturation using sediment as a taphonomic filter to investigate soft tissue preservation	
Cardiff, UK	12/2015
Poster – The taphonomy of keratin in archosaurs	
Talk – Evidence for sexual dimorphism in the plated dinosaur <i>Stegosaurus mjosi</i> (Ornithischia, Stegosauria) from the Morrison Formation (Upper Jurassic) of western USA	
International Workshop on Konservat-Lagerstätten	
Cork, Ireland: Talk	7/2017
Dinosaur eggshell calcite as a closed system: 'molecular Konservat-Lagerstätten'	

Popular Science Articles

<i>The Conversation</i>	
"Fossilized dinosaur eggshells can preserve amino acids, the building blocks of proteins, over millions of years"	4/2024
"Did male and female dinosaurs differ? A new statistical technique is helping answer the question"	1/2022
"How some dinosaur discoveries might be wishful scientific thinking"	11/2017
Contributor to Longrich, NR "Dinosaur bones: hidden life revealed inside them"	7/2019
<i>TheScienceBreaker</i> (partner with Université de Genève)	11/2019
"Long-dead dinosaurs support new life"	

Radio & Podcast Appearances

<i>The Primal Biology Show</i> Interview discussing my career and insights	7/2025
<i>The Best of our Knowledge</i> Interview with WMAC Northeast Public Radio discussing Saitta & Kaye (2025, <i>Scientific Reports</i>)	6/2025
<i>The Skeptics Guide to the Universe</i> Twenty-minute interview on the podcast discussing Saitta <i>et al.</i> (2019, <i>eLife</i>)	6/2019
<i>Palaeocast</i> Hour-long interview on the podcast discussing Saitta <i>et al.</i> (2019, <i>eLife</i>)	6/2019
<i>These Vibes Are Too Cosmic</i> Hour-long interview with Princeton, New Jersey, radio show on my research in general	5/2018
BBC: National & Bristol radio Interviews discussing Saitta (2015, <i>PLoS ONE</i>)	4/2015

Institutional Advancement & Fundraising

Field Museum Giving Day Ambassador Helped with grassroots fundraising for “Nurturing Future Scientists”	10/2019
Field Museum Private Collections Tour Showcased oversized fossil collections to Chairman’s Circle member	8/2019
Field Museum Donor Private Meeting Talk given to museum donors at a small breakfast meeting	6/2019
Field Museum Pop-up Informal meet and greet with Field Museum board members at downtown ‘dig site’ pop-up	6/2019
Field Museum Members’ Night Discussed my work with Field Museum members	5/2019
Sue Celebration Presented my work to Field Museum members and donors	1/2019
Field Encounters Talk given to Field Museum donors entitled “Creating synthetic fossils in the lab”	11/2018

Peer Reviewer

<i>Nature Ecology & Evolution</i>	<i>Royal Society Open Science</i>
<i>BMC Evolutionary Biology</i>	<i>Paleobiology</i>
<i>Journal of Proteomics</i>	<i>Neues Jahrbuch für Geologie und Paläontologie</i>
<i>Biology Letters</i>	<i>PeerJ; PeerJ Life & Environment</i>
<i>Cretaceous Research</i>	<i>Princeton University Press: Remnants of Ancient Life</i>

Editorial Roles

Associate Editor, <i>Frontiers in Ecology & Evolution</i>, Paleoecology section	2025-present
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Public Outreach

Fossil Crates Live! Expert guest on members-only Zoom call series hosted by Dr. Brian Curtice	3/2025
Sereno Fossil Lab Open Houses Engaged southside community in monthly open houses for the newly opened Fossil Lab at the University of Chicago	2024
Southside Science Festival Presenter at a booth for a University of Chicago science communication event for local community	9/2023
Dinosaurs of the Sahara Assisted Sereno Lab in preparing displays and specimens for public exhibit at the Cleveland Great Lakes Science Center	5/2023
Gloucester Museum "Dinosaurs" Talks and Workshops Feathers and colour in dinosaurs	9/2017
Bristol Dinosaur Project Educational outreach program directed at children	2015
Jurassic Quest Educational day directed at young children involving fossil displays	7/2014
The Billings Clinic Presented to TV/print media and the public about use of CT scanner for undergraduate thesis	7/2013
Princeton Undergraduate Research and Public Service Symposium Alumni Day showcase of independent research	2013

Societies & Groups

The Society for the Study of Evolution	2025-present
The Palaeontological Association	2015-present
The Society of Vertebrate Paleontology	2013-Feb 2026
The Paleontological Society	2010-present
DinoSoc University of Bristol student paleontology society	2014-2017
Bristol University Geology and Geoscience Society	2014-2017
myFOSSIL.org Beta tester	2015
Princeton Undergraduate Geosciences Society	2012-2014
University of Bristol Snowsports Club Snowboard race team	2015-2018
University of Bristol Athletics and Cross Country Club Cross country	2014-2018
Princeton University Cannon Dial Elm Club	2012-2014

Experience & Networks

International collaborative research network:

- USA
- Germany
- China
- United Kingdom
- Ireland
- India
- Canada
- Spain
- Argentina
- Denmark
- Italy
- Brazil
- Niger
- France
- Belgium
- Oman

Paleontological (prospecting, quarrying, preparation), geological, environmental, & biological field experience:

- University of Chicago: Wyoming
- Field Museum: Montana, Utah, Missouri, & Argentina
- Royal Tyrell Museum: Dinosaur Provincial Park, Alberta (Canada)
- Royal Tyrell Museum Field Station (preparatory lab): Dinosaur Provincial Park, Alberta (Canada)
- Dinosoc: UK
- Princeton University: geology (Spain, France, Utah, New Mexico, the Catskills, Kentucky, Delaware Water Gap, & Yellowstone National Park) & biology/environmental science (Bermuda & Yellowstone National Park)
 - Bermuda field experience in partnership with the Bermuda Institute of Ocean Sciences
- Independent paleontological field & preparatory lab experience over seven summers: Montana

Laboratory experience:

- Princeton University
- University of Bristol (UK)
- University of York (UK)
- University of Newcastle (UK)
- University of Copenhagen (Denmark)
- Foundation for Scientific Advancement
- Field Museum
- Northwestern University
- Argonne National Laboratory
- University of Chicago

Analytical experience:

- Specimen-based research (fossil & modern reptiles, birds, fish, invertebrates, plants)
- R-based morphometrics, statistics, & data analysis
- Fossil bone histology & thin sectioning
- Hospital & micro-CT scanning
- Decay & maturation experiments
- Light microscopy
- Electron microscopy
- Energy-dispersive X-ray spectroscopy
- Pyrolysis-gas chromatography-mass spectrometry
- Laser stimulated fluorescence imaging & fluorescence microscopy
- High-performance liquid chromatography
- DNA, protein, & lipid extraction (incl. clean lab)
- Qubit fluorometry
- Time-of-flight secondary ion mass spectrometry
- Accelerator mass spectrometry
- Attenuated total reflectance Fourier-transform infrared spectroscopy
- Synchrotron X-ray fluorescence
- Raman spectroscopy
- Portable X-ray fluorescence
- X-ray diffraction
- White light scanning & photogrammetry
- Laser ablation-inductively coupled plasma-mass spectrometry
- Magnetic resonance imaging
- Laser diffraction particle size analysis

Museum collections experience & research visits:

- Field Museum of Natural History
- American Museum of Natural History
- Senckenberg Naturmuseum Frankfurt (Germany)
- Paläontologische Museum München (Germany)
- Smithsonian National Museum of Natural History
- Yale Peabody Museum
- Carnegie Museum of Natural History
- Dinosaur National Monument
- Denver Museum of Nature and Science
- Sauriermuseum Aathal (Switzerland)
- Natural History Museum of Utah
- Wyoming Dinosaur Center

- Brigham Young University Museum of Paleontology
- Museum of Western Colorado
- Virginia Museum of Natural History
- Black Hills Institute of Geologic Research

- Utah Field House of Natural History State Park Museum
- Houston Museum of Natural Science
- Natural History Museum, London (UK)
- Chicago Botanic Garden

Newly Described Taxa

Spinosaurus mirabilis (Sereno *et al.* 2026, *Science*)
Cretaceous, Niger – Dinosaur

Novel microbial community within buried dinosaur bone (Liang *et al.* 2020, *Environmental Microbiome*)
Modern, Canada – 46 genomes from six bacterial phyla (Actinobacteria, Proteobacteria, Nitrospira, Acidobacteria, Gemmatimonadetes, Chloroflexi) & one archaeal phylum (Thaumarchaeota), the majority of which represented novel microbial lineages from class to species levels