ELENA R. SCHROETER, PH.D.

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EDUCATION

Drexel University: <i>Ph.D. Biology</i> Dissertation: The morphology, histology, and molecular preservation of an exceptionally complete titanosaur from southernmost Patagonia.	September 2013 (Philadelphia, PA)
University of Chicago: B.S. Geophysics	June 2006 (Chicago, IL)
GRANTS & FELLOWSHIPS	
NSF Growing Convergence Research: Microbial Response to a Changing Pl of Microbes in Mineral Precipitation Resulting in Exceptional Fossil Preserva Secure that (OLA 1024844) (\$628.751)	lanet: The Role2019-2022tion and CO2
Arnold O. Beckman Postdoctoral Research Fellowship: Flesh from Stone Characterizing hone proteins preserved in fossils of <i>Tyrannosaurus rer</i> (\$145	2017-2019
NSF Graduate Research Fellowship: Exceptional preservation of soft tissue vertebrates. (NSF: 08-593) (\$121,500)	e in terrestrial 2009-2012
Jurassic Foundation Research Grant: The molecular preservation of an exc	ceptionally 2012
Drexel University Provost Fellowship (\$10,000)	2008-2010

RESEARCH EXPERIENCE

Assistant Research Professor

Department of Biological Sciences, North Carolina State University, 2019-present

- Characterization of proteins in fossilized tissues by mass spectrometry and post-acquisition bioinformatics.
- Methods development for proteomic analyses of mineralized and/or insoluble extant tissues and proteins, as well as highly diagenetically altered tissues, proteins, and environmental samples.

Postdoctoral Research

Department of Biological Sciences, North Carolina State University, 2014-2019 (Advisor: Mary Schweitzer)

• Methods development for protein extraction from recent and fossilized bone of various ages and taxa.

Department of Molecular Biosciences, Northwestern University, 2014-2015 (Advisor: Neil Kelleher)

- Compared efficacy of bone protein extraction protocols for immunological response and MS analyses.
- Methods development for extraction protocols and MS data analyses of ancient (>1 Ma) bone proteins.

Doctoral Research

Department of Biology, Drexel University, 2008-2013 (Advisor: Kenneth Lacovara)

- Demonstrated molecular preservation in the holotype of *Dreadnoughtus schrani* using biomolecular techniques.
- Histological and ontogenetic evaluation of sauropod limb bones, including the *Dreadnoughts* holotype.
- Evaluated the comparative osteology of *Dreadnoughtus* cervical vertebrae within Titanosauria.

<u>TEACHING EXPERIENCE</u>

Teaching and Communication Certificate, North Carolina State University	May 2019
Completed 100 hours of coursework, including a course in informal science learning (EMS 594)	
and various teaching pedagogy and professional development workshops	

Department of Biological Sciences, North Carolina State University

The Science of Studying Dinosaurs (BIO 230) (Instructor)

- Restructured 80-student class to support in-person, virtual, or hybrid delivery
- Developed course website (Moodle) and redesigned all curricula for digital administration.
- Co-authored a companion textbook to pair with the course.
- Maintained a library of hands-on specimens for use in course activities.

2017-present

 Introduction to Evolution (BIO 270) (Co-instructor, Co-instructor, Co-in	Co-developer) ng on evolution from a paleontology persp le) and all digital curricula.	2021-2022 pective.
Taphonomic Processes (BIO 495) (Co-Instructor)	, 8	2019
• Evaluated graduate student experimental project	ets modeling tissue degradation.	
<u> Departments of Biology / Biodiversity, Environ.</u>	<u>& Earth Sci, Drexel University</u>	
Advanced Field Methods (GEO 301) (Adjunct Profes	ssor)	2013
• Trained students to identify common rock/soil t	ypes, read and create geologic and	
topographic maps, and practice the fundamenta	als of navigation and surveying.	
Physical Geology (ENVS 272) (Adjunct Professor)		2013
Covered the classification and properties of min	nerals, rock types and their	
formation, plate tectonics, geologic dating meth	ods, and stratigraphy.	
Teaching Assistant:		2008-2009, 2012-2013
• Techniques in Molecular Biology (BIO 219)	◦ Physical Geology (ENVS 272)	
 Physiology and Ecology (BIO 126) 	• History of Life on Earth (ENVS 270)	
 Essential Biology (BIO 141) 	• Physiology and Nutrition (BIO 121)	
<u>Department of Biological Sciences, University of Chicago</u>		
Dinosaur Science (23100) (Teaching & Field Assista	ant)	2005

Stones and Bones Summer Program (Field Assistant)

PUBLICATIONS

Peer Reviewed Articles

Schroeter, E.R., Ullmann, P.V, Macauley, K., Ash, R.D., Zheng, W., Schweitzer, M.H., Lacovara, K.J. (2022) "Soft-Tissue, Rare Earth Element, and Molecular Analyses of Dreadnoughtus schrani, an Exceptionally Complete Titanosaur from Argentina." <u>Biology</u>. 11:1158. DOI: 10.3390/biology11081158.

Schroeter, E.R., Cleland, T.P., Schweitzer, M.H. (2022). "Deep time paleoproteomics: looking forward." <u>Journal of</u> <u>Proteomic Research</u>, 21(1):9-19. DOI: 10.1021/acs.jproteome.1c00755

- Carter, A.M., Johnson, E.H., **Schroeter, E.R**. (2022) "Long-Term Retention of Diverse Paleontologists Requires Increasing Accessibility." <u>Frontiers in Ecology and Evolution</u>. 10:1–7. DOI:10.3389/fevo.2022.876906.
- Voegele, K.K., Boles, Z.M., Ullmann, P.V., **Schroeter, E.R.**, Zheng, W., Lacovara, K.J. (2022) "Soft Tissue and Biomolecular Preservation in Vertebrate Fossils from Glauconitic, Shallow Marine Sediments of the Hornerstown Formation, Edelman Fossil Park, New Jersey." Biology. 11:1161. DOI: 10.3390/biology11081161.
- Cleland, T.P., **Schroeter, E.R.**, Colleary, C. (2021) "Diagenetiforms: a new term to explain protein changes as a result of diagenesis in paleoproteomics." Journal of Proteomics. 230:103992; DOI: 10.1016/j.jprot.2020.103992
- Ullman, P., Voegele, K., Grandstaff, D., Ash, R., Zheng, W., Schroeter, E.R., Schweitzer, M.H., Lacovara, K. (2020) "Testing the viability of rare earth elements as proxies for biomolecular preservation in fossil bones." Scientific Reports. 10(1):1-11. DOI: 10.1038/s41598-020-72648-6.
- Schroeter, E.R., Blackburn, K., Goshe, M.B., Schweitzer, M.H. (2019). "Proteomic method to extract, concentrate, digest and enrich peptides from fossils with coloured (humic) substances for mass spectrometry analyses." <u>Royal</u> <u>Society Open Science</u>, 6: 181433. DOI: 10.1098/rsos.181433.
- Schweitzer, MH, Schroeter ER, Cleland TP. (2019). "Paleoproteomics of mesozoic dinosaurs and other mesozoic fossils." <u>Proteomics</u>, 19(16):201800251. DOI: 10.1002/pmic.201800251.
- Pan, Y., Zheng, W., Sawyer, R.H., Michael W. Penninngton, M.W., Zheng, X., Wang, X., Wang, M., Hu, L., O'Connor, J., Zhao, T., Li, Z., Schroeter, E.R., Wu, F., Xu, X., Zhou, Z., Schweitzer, M.H. (2019). "The molecular evolution of feathers with direct evidence from fossils." <u>PNAS</u> 116(8):3018–3023. DOI: 10.1073/pnas.1815703116
- Cleland, T.P. and **Schroeter, E.R.** (2018). "A comparison of common mass spectrometry approaches for paleoproteomics." Journal of Proteome Research **17**:936–945. DOI: 10.1021/acs.jproteome.7b00703.
- Schroeter, E.R., DeHart, C.J., Cleland, T.P., Zheng, W., Thomas, P.M., and Kelleher, N.L., Bern, M., and Schweitzer, M.H. (2017) "Expansion of the *Brachylophosaurus canadensis* collagen I sequence and additional evidence for the preservation of Cretaceous protein." Journal of Proteome Research, 16(2):920–932.
- **Schroeter, E.R.,** DeHart, C.J., Schweitzer, M.H., Thomas, P.M., and Kelleher, N.L. (2016) "Bone protein "extractomics": Comparing the efficiency of bone protein extractions of *Gallus gallus* in tandem mass spectrometry, with an eye towards paleoproteomics." <u>PeerJ</u>, 4:e2603. DOI: 10.7717/peerj.2603.

2003

- Pan, Y., Zheng, W., Moyer, A., O'Connor, J.K., Wang, M., Zheng, X., Wang, X., Schroeter, E., Zhou, Z., and Schweitzer, M. (2016). "Molecular evidence of keratin and melanosomes in feathers of the Early Cretaceous bird Eoconfuciusornis." <u>PNAS</u>, 113(49):E7900-E7907. DOI: 10.1073/pnas.1617168113.
- Cleland, T.P., **Schroeter, E.R.**, Feranec, R.S., and Vashishth, D. (2016). Peptide sequences from *Castoroides ohioensis* and the utility of old museum collections for paleoproteomics. <u>Proceedings of the Royal Society B</u>, **283**: 20160593
- Schroeter, E.R. and Cleland, T.P. (2016). "Glutamine deamidation: an indicator of antiquity, or preservational quality?" <u>Rapid Communications in Mass Spectrometry</u>, **30**(2): 251–255.
- Cleland, T.P., **Schroeter, E.R.**, Zamdborg, L., Zheng, W., Lee, J.E., Tran, J., Bern, M., Duncan, M.B., Lebleu, V.D., Ahlf, D., Thomas, P.M., Kalluri, R., Kelleher, N.L., and Schweitzer, M.H. (2015). "Mass spectrometry and antibody-based characterization of blood vessels from Brachylophosaurus canadensis." <u>Journal of Proteome</u> <u>Research</u>, **14**(12): 5252–5262.
- Cleland, T.P., Schroeter, E.R. and Schweitzer, M.H. (2015). Biologically and diagenetically derived peptide modifications in Moa collagens. <u>Proceedings of the Royal Society of B</u>, 282: 20150015.
- Schroeter, E.R., Egerton, V.M., Ibruciu, L.M. and Lacovara, K.J. (2014). "Lamniform shark teeth from the Late Cretaceous of southernmost South America (Santa Cruz Province, Argentina)." <u>PLoS ONE</u>, **9**(8): e104800.
- Schweitzer, M.H., Schroeter, E.R., and Goshe, M.B. (2014). "Protein molecular data from ancient (>1 million years old) fossil material: pitfalls, possibilities and grand challenges." <u>Analytical Chemistry</u>, **86**(14): 6731–6740.
- Lacovara, K.J., Lamanna, M.C., Ibiricu, L.M., Poole, J.C., Schroeter, E.R., Ullman, P.V., Voegele, K.K., Boles, Z.M., Carter, A.M., Fowler, E.K., Egerton, V.M., Moyer, A.E., Coughenour, C.L., Schein, J.P., Harris, J.D., Martínez, R.D., and Novas, F.E. (2014). A gigantic, exceptionally complete titanosaurian sauropod dinosaur from southern Patagonia, Argentina. <u>Scientific Reports</u>, 4(6196): 1–9.

Books/Educational Publications

- Nabavizadeh, A., Brink, K., Lautenschlager, S., Schroeter, E.R.. "Studying Anatomy" in *The Complete Dinosaur*. eds. Holtz, T., Zanno, L., Arbour, V. (Under review, 2022). (Book Chapter)
- Schweitzer, M.H., Schroeter, E.R., Czajka, D. (2020). *How do we know what we know about Dinosaurs?* (CRC Press; Boca Raton, FL) pp. 562. [ISBN 978036756381] (*Textbook*)
- Schroeter, E.R. (2007). *Discover Your Summer 2007*. (Project Exploration and Chicago Math and Science Initiative; Chicago, IL) pp 74.

Abstracts

- Johnson, E., Carter, A.M., Schroeter, E.R. (2022) Increasing diversity in paleontology requires increasing accessibility. Society for Integrative and Comparative Biology Program Abstracts, pg. 67.
- Schroeter, E.R. (2021) Elastin solubilization from bone tissue using direct digestion of isolated blood vessels. American Society of Mass Spectrometry Annual Meeting Conference Program, ThP 300.
- Johnson, E., Carter, A.M., Schroeter, E.R. (2021) Increasing diversity in paleontology requires increasing accessibility. Geological Society of America Abstracts with Programs, v. 35, no. 6, DOI: 10.1130/abs/2021AM-370949.
- Schroeter, E.R. (2020) Expansion of the moa bone proteome and post-translational modifications. American Society of Mass Spectrometry Annual Meeting Conference Program, WP 018.
- Schroeter, E.R., Blackburn, K., Goshe, M.B., and Schweitzer, M.H. (2019) A proteomic workflow to extract, concentrate, digest, and enrich peptides from fossils with high humic content for mass spectrometry analyses. American Society of Mass Spectrometry Annual Meeting Conference Program, p. 35.
- Schroeter, E.R., DeHart, C.J., Cleland, T.P., Zheng, W., Thomas, P.M., and Kelleher, N.L., Bern, M., and Schweitzer, M.H. (2017) Expansion of the *Brachylophosaurus canadensis* collagen I sequence and additional evidence for the preservation of Cretaceous protein. American Society of Mass Spectrometry Annual Meeting Conference Program, WP 567.
- Schroeter, E.R., Cleland, T.P., Schweitzer, M.H. (2016). "Paleoproteomics: the benefits and challenges of using tandem mass spectrometry to investigate extinct proteomes derived from soft-tissues preserved in fossil remains. Journal of Vertebrate Paleontology, SVP Programs and Abstracts Book, p. 219.
- Cleland, T.P., Schroeter, E.R., Feranec, R.S., Vashishth, D., Schweitzer, M.H. (2016) Beyond the sequence: utility of protein modifications in fossils. Journal of Vertebrate Paleontology, SVP Programs and Abstracts Book, p. 118.
- Cleland, T.P, Schroeter, E.R., Feranec, R.S., Vashishth, D. (2016) Protein post-translational modification preservation in *Castoroides ohioensis* from New York. Geological Society of America Abstracts with Programs, v. 48, no. 7, DOI: 10.1130/abs/2016AM-285233.

- Ullman, P., Voegele, K., Grandstaff, D., Ash, R., **Schroeter, E.**, Lacovara, K.J., Schweitzer, M.H. (2016). Evaluating the utility of rare earth element profiles as a proxy for soft tissue and biomolecular preservation potential in fossil bone. Journal of Vertebrate Paleontology, SVP Programs and Abstracts Book, p. 241.
- Pan, Y., Zheng, W., Moyer, A., O'Connor, J., Wang, M., Zheng, X., Schroeter, E., Schweitzer, M.H., Zhou, Z. (2016). Molecular analyses of *Eoconfuciusornis* (bird) feathers support the presence of original keratin proteins and melanosomes for at least 130 Ma. Journal of Vertebrate Paleontology, SVP Programs and Abstracts Book, p. 201.
- Schroeter, E.R., Cleland, T.P., Schweitzer, M.H. and Lacovara, K.J. (2015). Investigating molecular preservation in *Dreadnoughtus schrani*, an exceptionally complete titanosaur from Argentina. Society of Vertebrate Paleontology Annual Meeting. Journal of Vertebrate Paleontology, SVP Programs and Abstracts Book, p. 209-210.
- Schroeter, E.R., DeHart, C.J., Schweitzer, M.H., Thomas, P.M., Kelleher, N.L. (2015). Bone Protein "Extract"omics: Comparing extractions and sub-extractions for mass spectrometry efficiency. American Society of Mass Spectrometry Annual Meeting Conference Program, WP25 508.
- Schroeter, E. and Lacovara, K. (2012). Histology of normal and deformed Argentinean titanosaur femora. Journal of Vertebrate Paleontology, SVP Programs and Abstracts Book, p. 168.
- Callahan, W., Schein, J., **Schroeter, E.**, Parris, D., and Lacovara, K. (2012). First record of the synechodontiform shark *Sphenodus* (Neoselachii, Orthacodontidae) from the Danian of North America. Journal of Vertebrate Paleontology SVP Programs and Abstracts Book, p. 73.
- Carter, A., Boles, Z.M., Schroeter, E.R., and Lacovara, K.J. (2012). A juvenile *Hyposaurus rogersii* skull from the Hornerstown Formation, New Jersey. Journal of Vert. Paleontology, SVP Programs and Abstracts Book, p. 75.
- Schroeter, E., Boles, Z., and Lacovara, K. (2011). The Histology of a Massive Titanosaur From Argentina and Implications for Maximum Size: Journal of Vertebrate Paleontology, SVP Programs and Abstracts Book, p. 189.
- Schroeter, E.R., and Lacovara, K.J. (2010). Possible evidence of euryhalinity in *Cretalamna appendiculata* (Lamniformes, Cretoxyrhinidae): Geological Society of America Abstracts with Programs, v.42, no.5, p. 98.
- Schroeter, E., and Lacovara, K. (2009). *Cretalamna appendiculata* (Lamniformes: Cretoxyrhinidae) teeth from the Pari Aike Formation (Maastrichtian) of Santa Cruz Province, Argentina: Journal of Vertebrate Paleontology, v. 29, no. 3, p. 177A.

INVITED LECTURES

- Schroeter, E.R. "Paleoproteomics: the benefits and challenges of using tandem mass spectrometry to investigate extinct proteomes." Geology/Paleontology Colloquium Series, Rowan University, Department of Geology. Glassboro, NJ, March 25, 2021. (*Invited*)
- Schroeter, E.R. "Expansion of the moa bone proteome and post-translational modifications." American Society of Mass Spectrometry Workshop in Art, Archaeology, and Paleontology. (Online Conference) June 3, 2020. (*Invited*)
- Schroeter, E.R. "Ancient Proteomes: Challenges and Potential for Investigation." AAAS Annual Meeting, Washington D.C., February 15, 2019. (Invited)
- Schroeter, E.R. and Cleland, T.P. (Joint Keynote) "Keynote: Complexities and innovations in mass spectrometry strategies for paleoproteomics." Ancient Proteins @ 20, University of Copenhagen, Copenhagen, Denmark, August 22, 2018. (Invited)
- Schroeter, E.R. and Schweitzer, M. "Keynote: Paleoproteomics: the benefits and challenges of using tandem mass spectrometry to investigate extinct proteomes." 1st National Meeting of the Swedish Chemical Society, Lund, Sweden, June 18, 2018. (*Invited*)
- Schroeter, E.R. and Schweitzer, M. "Paleoproteomics: the benefits and challenges of using tandem mass spectrometry to investigate extinct proteomes." Department of Geology, Lund University, Lund, Sweden, June 15, 2018. (Invited)
- Schroeter, E.R. "Paleoproteomics: the benefits and challenges of using tandem mass spectrometry to investigate extinct proteomes." Molecular Biology Symposium Series, University of Colorado School of Medicine, Denver, CO, April 24, 2017. (Invited)
- Schroeter, E.R., Schweitzer, M.H. "Exploring soft tissue preservation: what is preserved and how can we test? The Rise of Modern Biodiversity—A Workshop addressing Critical Transitions in the History of Life, The Field Museum, Chicago, IL, April 5, 2015. (*Invited*)
- Schroeter, E.R. Keynote Address. Women in Science 15th Anniversary Luncheon, Project Exploration, Garfield Park Conservatory, Chicago, IL, March 20, 2015. (*Invited*)

OUTREACH, STEM SERVICES, & BROADER IMPACTS

Youth Education in Science	
Youth Development Coordinator, Project Exploration, IL (Salaried Position)	2005-2008
docent programs, and after-school programs serving Chicago youth historically underrepresented	
Program Intern, Project Exploration, IL (Paid Internship)	2002-2005
<u>Class and Field Programs</u>	
STEMFellow, STEM Discoveries Program (Project Exploration) Classroom facilitator and instructor of a 6-week, 15-student STEM summer program incorporating	2013
PaleoFellow, Junior Paleontologist Program (Project Exploration)	2010-2012
Classroom and field co-instructor of a 14-student paleontology summer program	2010
PaleoFellow, Sereno Dinosaur Expedition (Project Exploration)	2010
PaleoFollow Advanced Field Science Program (Project Exploration)	2009
Instructor for a 3-student, immersive paleontology field program for advanced high school students	2000
Museum Education	
Interpreter (North Carolina State Museum)	2017
Developed, implemented, and evaluated the success of a hands-on educational cart focused on the	
biology of "puffer fish" according to current pedagogic best-practices. (Performed in conjunction	
Museum Educator (Academy of Natural Sciences of Drevel University)	2013
Managed museum spaces and exhibitions, including the "Big Dig" and "Dinosaurs Unearthed"	2010
Interpreter (The Field Museum of Natural History)	1997-2003
Implemented hands-on educational carts developed to complement various exhibitions (e.g., "Sue,"	
Life Over Time, Egypt) and explain scientific concepts (e.g., "Horns v. Antlers, Skulls)	
PreK-12 Outreach Events	- (1 1)
Schroeter, E.R., "What can bones tell us?" 4-H Crosby Discovery Camp, Raleigh, NC, July 25, 2022. (4-3	5 th grd)
Magnet Elementary School Fuquay-Varina NC May 19 2022 (4th grd)	nections
Schroeter, E.R., "Digging Dinosaurs." Lincoln Heights Environmental Connections Magnet Elementary	v School,
Fuquay-Varina, NC, January 20, 2022. (1st grd)	
Schroeter, E.R., "What can bones tell us?" 4-H Crosby Discovery Camp, Raleigh, NC, August 5, 2021. (4	$1-5^{\mathrm{th}}\mathrm{grd})$
Schroeter, E.R., "How do fossils form, and where do we find them?" Roland-Grise Middle School, Wilmi	ngton, NC,
Schroeter, E.R., "How do fossils form and where do we find them?" Randleman Elementary School Ray	ndleman
NC, November 13, 2020. (4 th -5 th grd)	inarennan,
Schroeter, E.R., "How do fossils form, and where do we find them?" Butner-Stem Elementary School, B	utner, NC,
October 30, 2020 (4 th grd)	(1 st and)
Schroeter, E.R., "How do fossils form, and where do we find them?" Adams Elementary School, Cary, N 2020 (4-5 th ord)	. (1 st grd) C, May 22,
Schroeter, E.R., "Digging Dinosaurs." Fred Olds Elementary School, Raleigh, NC, January 23, 2019. (2)	nd grd)
Schroeter, E.R., "Digging Deeper." Hillsbourough Elementary School, Hillsbourough, NC, April 27, 201 Schroeter, E.R., "Dinosaurs!" The Farm & Nature Discovery Preschool, Palos Park, IL, April 28, 2017.	7. (4-5 th grd) (PreK)
STEM Outreach Events for the Public	
Guest Speaker, "2018 Academic Olympiad Event" (Host: North Carolina Museum of Natural Sciences). N	lorth

Guest Speaker, "2018 Academic Olympiad Event" (Host: North Carolina Museum of Natural Sciences). North Carolina Museum of Natural Sciences, Raleigh, NC, January 20, 2018.

Presenter, "STEM Education Day Festival" (Host: North Carolina State University College of Education). North Carolina State University, Raleigh, NC, September 23, 2017.

Panelist, "Science in the Movies" (Host: Science Communicators of North Carolina) North Carolina Museum of Natural History, Raleigh, NC, September 7, 2017.

Guest Speaker, "Science on the Screen" (Host: Town of Cary) The Cary Theater, Cary, NC, April 6, 2017. *Presenter*, "PaleoPalooza 2015," "Gigantic and still growing! The histology of Dreadnoughtus schrani." North Carolina Museum of Natural Sciences, Raleigh, NC, January 20, 2015.

Outreach via Public Radio

- "The State of Things: Spewing Venom and Mingling with Humans, What Movies Get Wrong about Dinosaurs" (Host: Frank Stasio) North Carolina Public Radio, WUNC 91.5, August 30, 2017.
- "Because Science: Dino DNA, Studying the Sky, and Discover's Quiz" (Host: Veronica Rueckert) Wisconsin Public Radio (NPR), May 15, 2017.

"Preserved Paleo Protein Provides Perspectives on Dino Family Tree, and Maybe life in Space. Wait. What?" (Host: Shawn Fitzmaurice) SciWorks Radio, 88.5 WFDD, November 25, 2016.

Formal Mentorship

- Jared Ray (Undergraduate Research Credit) North Carolina State University, Raleigh, NC, Summer & Fall 2022.
- Hari P. Kota (Master's Program Research Credit) Meredith College, Raleigh, NC, Fall 2017-Fall 2018.
- Seth Perkinson (High School Senior Project) Greensboro High School, Greensboro, NC, Fall 2017–Spring 2018.
- Jessica Markowitcz (Undergraduate Research) North Carolina State University, Raleigh, NC, Spring 2017.

FIELD EXPERIENCE

International (Drexel University)	
Cerro Forteleza Formation, Santa Cruz Province, Argentina (Cretaceous Vertebrates)	2009
New Jersey (Drexel University, the New Jersey State Museum, and Mantua Township)	
Hornerstown Formation (Inversand), Sewell County, New Jersey (Cretaceous Marine)	2008-2014
South Dakota (Project Exploration, University of Chicago, and The Mammoth Site)	
The Mammoth Site, Hot Springs, South Dakota (Pleistocene Mammals)	2006-2011
Hell Creek Formation, Faith, South Dakota (Cretaceous Vertebrates)	2003, 2005
Montana (North Carolina State University, Montana State University, Project Exploration,	
University of Chicago)	
Judith River Formation, Montana (Cretaceous Vertebrates)	2018
Claggette & Bear Paw Shale Formations, Montana (Cretaceous Vertebrates)	2018
Lost in Time Ranch, Wibaux, Montana (Cretaceous Vertebrates)	2009
Black Leaf Formation, Lima, Montana (Cretaceous Vertebrates)	2005
Two Medicine Formation, Chouteau, Montana (Cretaceous Vertebrates)	2004
Wyoming (Project Exploration and University of Chicago)	
Morrison Formation, Shell, Wyoming (Cretaceous Vertebrates)	2012
Kadesh Ranch, Shell, Wyoming (Cretaceous Vertebrates)	2005, 2010
PaleoPark (Zerbst Ranch), Newcastle, Wyoming (Cretaceous Vertebrates)	2000, 2003

PROFESSIONAL AND DEPARTMENTAL SERVICE ACTIVITIES

Laboratory

Laboratory Manager and Fossil Preparator, Drexel University Fossil Laboratory	2010-2013
Fossil Preparator, Academy of Natural Sciences (Volunteer)	2008-2012
Fossil Preparator, University of Chicago Fossil Laboratory (Volunteer)	2005-2006
Panels	
(Academy of Natural Sciences of Drexel University)	
Panelist, Careers in STEM Day	2013
(University of Chicago Career Advising and Planning Services)	
Panelist, Taking the Next Step: Career in Non-profits Panel	2008
Interviewer, Jeff-Metcalf Fellows Program; Geophysics & Zoology Internships	2006-2008

Departmental Seminars

Schroeter, E.R. "Molecular Paleontology." 2017 Beckman Symposium (Beckman Briefings), Arnold and Mabel Beckman Foundation, Irvine, CA, August 4, 2017.

- Schroeter, E.R., Life after Death: characterizing proteins from ancient fossils using mass spectrometry. Biological Sciences Department 2016 Seminar Series, North Carolina State University, Raleigh, NC, October 6, 2016. (*Invited*)
- Schroeter, E.R., and Lacovara, K. The Molecular Preservation of an Exceptionally Complete Titanosaur from Argentina. Geobiology Symposium 2013, Smithsonian National Museum of Natural History, Washington D.C., February 22, 2013.
- Schroeter, E.R., The morphology and molecular presentation of an exceptionally complete titanosaur from southernmost Patagonia. Biology Department Graduate Seminar, Drexel University, Philadelphia, PA, October 24, 2011.
- Schroeter, E.R., The morphology and molecular presentation of a large titanosaur from Argentina. Biology Department Graduate Seminar, Drexel University, Philadelphia, PA, April 25, 2011.
- Schroeter, E.R., The morphology and molecular preservation of a new titanosaur from Argentina. College of Arts and Sciences 20th Anniversary Student Research Symposium, Drexel University, Philadelphia, PA, November 12, 2010 2010. (*Invited*)
- Schroeter, E.R., The morphology and molecular preservation of a new titanosaur from Argentina. Biology Department Graduate Seminar, Drexel University, Philadelphia, PA, June 7, 2010.

Poster Presentations

- Schroeter, E.R. Flesh from Stone: Concentrating and cleaning peptides from fossils for mass spectrometry analyses. 2019 Beckman Symposium, Arnold and Mabel Beckman Foundation, Irvine, CA, August 2, 2019.
- Schroeter, E.R. Flesh from Stone: Concentrating and cleaning peptides from fossils for mass spectrometry analyses. 2018 Beckman Symposium, Arnold and Mabel Beckman Foundation, Irvine, CA, August 14, 2018.
- Schroeter, E. R. A method to concentrate and clean peptides from fossils with high humic content for mass spectrometry analyses. Postdoctoral Research Symposium, 2017, North Carolina State University, Raleigh, NC, May 25, 2018.
- Schroeter, E.R. Flesh from Stone: Characterizing bone proteins preserved in the fossils of *Tyrannosaurus rex*. 2017 Beckman Symposium, Arnold and Mabel Beckman Foundation, Irvine, CA, August 5, 2017.
- Schroeter, E.R., DeHart, C.J., Cleland, T.P., Zheng, W., Thomas, P.M., and Kelleher, N.L., Bern, M., and Schweitzer, M.H. Re-evaluation and expansion of the *Brachylophosaurus canadensis* collagen I sequence and support for the preservation of Cretaceous protein. Postdoctoral Research Symposium, 2017, North Carolina State University, Raleigh, NC, May 24, 2017.
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Professional Societies Membership

American Society of Mass Spectrometry Society of Vertebrate Paleontology

Peer Reviewer (Ad hoc)

Honors

Reviewer of the Month, Communications Biology https://www.nature.com/commsbio/referees/reviewer-of-the-month#may-2022

Journals

- American Chemical Society (Books)
- American Journal of Physical Anthropology
- Analytical Chemistry
- Communications Biology
- Cretaceous Research
- eLife
- Journal of Archaeological Science
- Journal of Proteome Research

Grants

- National Science Foundation
- European Research Council

- Nature Communications
- Nature Scientific Reports
- Proceedings of the National Academy of Sciences (PNAS)
- Proceedings for the Royal Society B
- Palaeontology
- Proteomics
- Zoological Journal of the Linnean Society

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