Lauren N. Pincus, PhD

The George Washington University, Department of Chemistry
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Lauren.pincus@gwu.edu

ACADEMIC APPOINTMENTS

The George Washington University, Department of Chemistry Washington DC
Assistant Research Professor (Assistant Prof. effective Aug. 2024) (July 2023 – Aug. 2024)

Princeton University, Department of Civil & Environmental Engineering Princeton, NJ
Postdoctoral Research Associate (Sept. 2023 – Aug. 2024)
Advisor: Dr. Catherine Peters

Princeton University, Department of Geosciences Princeton, NJ
National Science Foundation Earth Sciences Postdoctoral Fellow (Sept. 2021 – Sept. 2023)
Advisor: Dr. Satish Myneni

Harry H. Hess Postdoctoral Research Fellow (Sept., 2020 – Sept. 2021)
Advisor: Dr. Satish Myneni

EDUCATION

Yale University, School of the Environment New Haven, CT
Doctor of Philosophy, May 2020
Focus: Green Chemistry and Green Engineering, GPA: 4.00/4.00
Advisor: Dr. Julie Zimmerman
Committee Members: Dr. Paul Anastas, Dr. Menachem Elimelech, Dr. Desirée Plata
Dissertation: Towards Sustainable Water Treatment: Design of Multifunctional and Selective Water Treatment Technologies

Middlebury College Middlebury, VT
Bachelor of Arts, Chemistry and Geology, May 2014
GPA: 3.61/4.00, Magna Cum Laude, Departmental Honors in Geology, College Scholar
Advisors: Dr. Peter Ryan, Dr. Molly Costanza-Robinson
Senior Thesis: Variations in Cation Exchange Capacity of Soils Along a Tropical Landscape

University of Canterbury Christchurch, NZ
Research Program Focused on the Geology of New Zealand, 2013
GPA: 3.78/4.00

AWARDS/FELLOWSHIPS

2021 RSC Outstanding Reviewer- Environmental Science: Processes & Impacts
2021 Best Talk Princeton Postdoctoral Council Seminar Series
2021 NSF Earth Sciences Postdoctoral Fellowship
2020 Schmidt Science Fellowship Nominee
2020 Harry H. Hess Postdoctoral Research Fellowship
2019 ACS ENVR Graduate Student Award
2019 AAAS/Science Program for Excellence in Science
2018 Nathan Hale Associates Fellowship for Academic Achievement and Potential, Yale Graduate School Alumni Fund
2017 Yale Institute for Biospheric Science Fellowship

2017 Certificate of Merit for Outstanding Oral Presentation, ACS Environmental Chemistry Division
2016 NSF Graduate Research Fellowship (GRFP) Honorable Mention
2016 ACS Green Chemistry Institute CIBA Travel Award
2016 Best Poster, ACS Green Chemistry and Green Engineering Conference
2015 Yale Institute for Biospheric Science Fellowship
2015 Yale School of Forestry and Environmental Studies Doctoral Fellowship
2012 Middlebury College Geology Department Baldwin Cooney Scholarship
2012 Middlebury College Gretchen A. Reilly `60 Environmental Studies Endowment

PUBLICATIONS IN REFEREED JOURNALS Undergraduate co-authors underlined

11. M.S. Costanza-Robinson, E. M. Payne, E. Dellinger, K. Fink, R.C. Bunt, M. Littlefield, B. Mejaes, R. Morris, **L. N. Pincus**, and E. Wilcox, Influence of Water Saturation on Interlayer Properties of HDTMA-, HDTMP-, and HDPy-Modified Montmorillonite Organoclays. *Applied Clay Science*. (2024). *247*, 107188. DOI: 10.1016/j.clay.2023.107188
10. **L. N. Pincus**, A. Pattammattel, D. Leshchev, E. Stavitski, Y. Chu, S. C. B. Myneni, Rapid Accumulation of Soil-Inorganics on Plastics- Implications for Plastic Degradation and Contaminant Fate. *Environmental Science & Technology Letters*. (2023). *10* (6), 538-542. DOI: 10.1021/acs.estlett.3c00241
9. **L. N. Pincus**, P. V. Petrovic, I. S. Gonzalez, E. Stavitzki, Z. Fishman, H. E. Rudel, P. T. Anastas, J. B. Zimmerman, Development of Selective Adsorption of Arsenic Over Phosphate by Transition Metal Cross-linked Chitosan. *Chemical Engineering Journal.* (2021). *412*. 128582. DOI: 10.1016/j.cej.2021.128582
8. **L. N. Pincus**, I. S. Gonzalez, E. Stavitski, J. B. Zimmerman, Aerobic Oxidation of Arsenite to Arsenate by Cu(II)-chitosan/O_2 in Fenton-like Reaction, a XANES Investigation. *Environmental Science: Water Research & Technology*. (2020). *6* (10), 2713-2722. DOI: 10.1039/D0EW00326C
7. **L. N. Pincus**, H. E. Rudel, P. V. Petrovic, S. Gupta, P. Westerhoff, C .L. Muhich, J. B. Zimmerman, Design of Selective Adsorbents for Oxoanion Removal in Water Treatment- a Review of Oxoanion Competition and the Development and Quantification of Selective Adsorption. *Environmental Science & Technology.* (2020). *54* (16), 9769-9790. DOI: 10.1021/acs.est.0c01666
6. P. C. Ryan, F. J. Huertas, **L. N. Pincus**, W. Painter, Arsenic-bearing Serpentine Group Minerals: Mineral Synthesis with Insights for the Arsenic Cycle. *Clays and Clay Minerals* (2019). *67* (6), 488-506. DOI: 10.1007/s42860-019-00040-1
5. **L. N. Pincus**, A. W. Lounsbury, J. B. Zimmerman, Toward Realizing Multifunctionality: Photoactive and Selective Adsorbents for the Removal of Inorganics in Water Treatment, *Accounts of Chemical Research*. (2019), *52* (5), 1206-1214. DOI: 10.1021/acs.accounts.8b00668
4. **L. N. Pincus**, F. Melnikov, J. S. Yamani, J. B. Zimmerman, Multifunctional Photoactive and Selective Adsorbent for Arsenite and Arsenate: Evaluation of Nano Titanium Dioxide-Enabled Chitosan Cross-Linked with Copper, *Journal of Hazardous Materials*. (2018), *358*, 145-154. DOI: 10.1016/j.jhazmat.2018.06.033.
3. H. C. Erythropel, J. B. Zimmerman, T.M. de Winter, L. Petitjean, F. Melnikov, C. Ho Lam, A. W. Lounsbury, K. E. Mellor, N. Z. Janković, Q. Tu, **L. N. Pincus**, M.

M. Falinski, W. Shi, P. Coish, D. L. Plata, P. T. Anastas, The Green ChemisTREE: 20 years after taking root with the 12 principles, *Green Chemistry*. (2018), *20* (9), 1929-1961. DOI:10.1039/C8GC00482J.

2. **L. N. Pincus**, P. C. Ryan, F. J. Huertas, G. E. Alvarado, The influence of soil age and regional climate on clay mineralogy and cation exchange capacity of moist tropical soils: A case study from Late Quaternary chronosequences in Costa Rica, *Geoderma*. (2017), *308*, 130–148. DOI: 10.1016/j.geoderma.2017.08.033.
1. P. C. Ryan, F. J. Huertas, F. Hobbs, **L. N. Pincus**, Kaolinite and halloysite derived from sequential transformation of pedogenic smectite and kaolinite-smectite in a 120 ka tropical soil chronosequence, *Clays and Clay Minerals*. (2016), *64* (5), 639-667. DOI: 10.1346/CCMN.2016.064030.

FUNDED GRANTS

2021-2023 National Science Foundation: Earth Sciences Postdoctoral Fellowship (EAR-PF)
Microplastics and Nanoplastics as Vectors for Inorganic Pollution: Examining the Effect of Environmental Systems Conditions on Degradation Pathway and Sorption Potential
PI; Total budget: $174,000

ABSTRACTS AND CONFERENCE PRESENTATIONS

1. C. A. Peters, L. E. Beckingham, **L. N. Pincus**, Z. Shi, H. Hajibeygi, N. Dopffel, Underground Hydrogen Storage and Geochemical Considerations Regarding H_2S Prevalence and Accessibility of Sulfate Minerals. AGU23.
2. **L. N. Pincus**, A. Pattammattel, D. Leshchev, E. Stavitski, K. Zhao, S. C. B. Myneni, Examining the Effect of Environmental Systems Conditions on Plastic Degradation Pathaway and Inorganic Contaminant Sorption Potential. AEESP. 2023. Poster.
3. **L. N. Pincus**, A. Pattammattel, D. Leshchev, E. Stavitski, S. C. B. Myneni, Rapid Accumulation of Soil-Inorganics on Plastics- Implications for Contaminant Fate, Gordon Research Seminar (GRS) Environmental Sciences: Water. 2022. **Invited Talk.**
4. **L. N. Pincus**, A. Pattammattel, D. Leshchev, E. Stavitski, S. C. B. Myneni, Rapid Accumulation of Soil-Inorganics on Plastics- Implications for Contaminant Fate, Gordon Research Conference (GRC) Environmental Sciences: Water. 2022. Poster.
5. **L. N. Pincus**, Examining Interactions of Inorganic Contaminants with Polymers Using Synchrotron-Based Spectroscopy, Princeton Postdoctoral Council Seminar Series, Princeton, NJ, 2021. **Awarded Best Talk.**
6. **L. N. Pincus**, Examining Interactions of Inorganic Contaminants with Polymers Using Synchrotron-Based Spectroscopy. Middlebury College Chemistry and Geology Departments, Middlebury, VT, 2021. **Invited talk.**
7. **L. N. Pincus**, Synchrotron Applications Studying Interactions of Inorganic Contaminants with Polymers, Cornell High Energy Synchrotron Source (CHESS) 2030 Workshop, Cornell University, Ithaca, NY, 2021. **Invited talk.**
8. **L. N. Pincus**, A. W. Lounsbury, J. B. Zimmerman, Toward realizing multifunctionality: Photoactive and selective adsorbents for the removal of inorganics in water treatment, 258th ACS National Meeting, San Diego, CA. 2019. **Invited talk.**
9. **L. N. Pincus**, J. B. Zimmerman, Towards sustainable water treatment: Selective

adsorption of arsenic over competing phosphate by transition metal cross-linked chitosan, 258th ACS National Meeting, San Diego, CA. 2019. Oral presentation.

10. **L. N. Pincus**, F. Melnikov, A. W. Lounsbury, J. B. Zimmerman, Towards a Mechanistic Understanding of the Selective Adsorption of Arsenic Over Competing Phosphate by Nano-enabled, Transition Metal Cross-linked Chitosan, 256th ACS National Meeting, Boston, MA. 2018. Oral Presentation.
11. **L. N. Pincus**, F. Melnikov, A. W. Lounsbury, J. B. Zimmerman, Towards a Mechanistic Understanding of the Selective Adsorption of Arsenic Over Competing Phosphate by Nanoenabled Biomaterials, Gordon Research Conference (GRC) and Seminar (GRS) Environmental Sciences: Water. 2018. Poster.
12. **L. N. Pincus**, J. S. Yamani, J. B. Zimmerman, Towards Multifunctionality in water treatment: Developing Photoactive Selective Adsorbents for Inorganic Contaminants Using Nano-enabled Biomaterials, 253rd ACS National Meeting, San Francisco, CA. 2017. Oral Presentation. **(Awarded ACS ENVR Certificate of Merit for Outstanding Oral Presentation)**
13. **L. N. Pincus**, J. S. Yamani, J. B. Zimmerman, Towards Sustainable Water Treatment: Developing Selective Adsorbents for Inorganic Contaminants Using Nano-enabled Biomaterials, ACS Green Chemistry and Green Engineering Conference, Portland, OR. 2016. Poster. **(Awarded Best Poster Presentation)**
14. P. C. Ryan, **L. N. Pincus**, F. J. Huertas, Cation Exchange Capacity of Tropical Soil Clays as a Function of Time and Precipitation, Geologic Society of America Abstracts with Programs. Vol. 46, No. 6, p. 150. 2014. Poster.
15. P. C. Ryan, **L. N. Pincus**, K. Falcones, Mineralogical and Geochemical Evolution of Tropical Soils in a Coastal Terrace Sequence, Geologic Society of America Abstracts with Programs. Vol. 45, No. 7, p.586. 2013. Poster.

FUNDED GRANTS

2021-2024 National Science Foundation: Earth Sciences Postdoctoral Fellowship (EAR-PF)
Microplastics and Nanoplastics as Vectors for Inorganic Pollution: Examining the Effect of Environmental Systems Conditions on Degradation Pathway and Sorption Potential
PI; Total budget: $174,000

PROFESSIONAL AFFILIATIONS AND SERVICE

Guest Editor

Environmental Engineering Science Special Issue on Microplastics: Sources, Fate, and Remediations, 2023-present

Applied Geochemistry Special Issue on Biogeochemical Processes of Micro(nano)plastics in the Environment, 2023-present

Peer Review

Environmental Science & Technology, Journal of Hazardous Materials, Chemical Engineering Journal, Journal of Environmental Chemical Engineering, The Journal of Physical Chemistry, Separation and Purification Technology, Environmental Engineering and Science, and Environmental Science: Processes & Impacts

National Review Panels

Panel reviewer for Department of Energy ESS (Environmental Systems Science), 2021
Reviewer for NSF CHE (Chemistry) and EAR (Earth Sciences) Divisions, 2022, 2023

Conference Committees

Co-chair of Organizing Committee, Yale School of the Environment Research Conference, 2017

Professional Societies

AEESP, 2019-present
Geochemical Society, 2019-present
American Chemical Society, ENVR and GEOC Divisions, 2015-present

TEACHING, MENTORING, and OUTREACH

Teaching

Yale Certificate in College Teaching Preparation (CCTP), 2020
Teaching Assistant, Green Engineering and Sustainable Design, Spring 2017, 2019
Teaching Assistant, Coastal Environments in a Changing World, Fall 2018
Teaching Assistant, The Science of Water, Spring 2018

Mentoring

Undergraduate Lab Mentor, Princeton Chemistry Department, 2021-2023
Princeton Women in Geoscience Mentor, 2020-2023
Women in Science at Yale Mentor, 2017-2020
Undergraduate Lab Mentor, Yale College, 2017-2020
Undergraduate Lab Mentor, Dartmouth College Earth Science Department, 2014
Undergraduate Lab Mentor, Middlebury College Geology Department, 2013

Outreach

Outreach Coordinator, Student Leadership Council, NSF Nanosystems Engineering Research Center for Nanotechnology-Enabled Water Treatment, 2017- 2019
Admissions Interviewer Middlebury College, 2015 – present

MEDIA COVERAGE

NSF Discovery Files Podcast Episode (2023): https://podcasts.apple.com/us/podcast/microplastics-in-the-environment/id1129406149?i=1000637385008&sf184568549=1

YouTube Video by Princeton Office of Sustainability (2023): https://www.youtube.com/watch?v=3Ktzi8NaV7A&t=2s&ab_channel=OfficeofSustainabilityatPrincetonUniversity

Yale Scientific Magazine (2021): https://www.yalescientific.org/2021/04/extracting-arsenic-purging-of-stubborn-contaminants-using-earth-abundant-materials/

ATHLETICS

Middlebury College Track and Field, Javelin Middlebury, VT

Two-Time NCAA DIII finalist (9th in the nation)
Two-Time NCAA All Academic Track and Field Team
All ECAC, All New England, All DIII New England, All NESCAC, NESCAC Champion

RELEVANT WORK EXPERIENCE

Dartmouth College Toxic Metals Superfund Research Program Hanover, NH
Research Assistant (2014-2015)

Münzing Chemie
Research and Development Intern (2009-2011) Bloomfield, NJ