

Pierre Herckes

*Curriculum Vitae**November 9 2025*

Professor
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<https://sites.google.com/view/pherckes-mfraser-research/>

Education

Strasbourg University, Strasbourg, France

Ph.D. Physical Chemistry, 1999

Diplôme d'études approfondies (DEA) in Physical Chemistry, 1996

European Higher Institute of Chemistry (now ECPM), Strasbourg, France

Diplôme d'ingénieur, 1996

Honors and Awards

US National Science Foundation young investigator award (NSF-CAREER)

European Union Erasmus Fellowship

Appointments

Associate Director (2019-2021)

Professor (2016-), Associate Professor (2010 – 2016), Assistant Professor (2004 – 2010)

School of Molecular Sciences (formerly Dept of Chemistry and Biochemistry)

Arizona State University, USA

Senior Global Futures Scientist (2021-), Senior Sustainability Scientist (2010-2021)

Arizona State University, USA

Affiliate Professor (2016 – 2023)

School of Earth and Space Exploration, Arizona State University, USA

Visiting Professor (Fall 2011)

Department of Atmospheric Science, University of Sao Paulo, Brazil

Research Associate, Research Scientist II, III (2001 - 2004)

Postdoctoral Scientist (1999 - 2001)

Department of Atmospheric Science, Colorado State University, USA

Doctoral Research (1996 - 1999)

Atmos. Chemistry Group, CNRS Centre de Géochimie de la Surface, Strasbourg, France

Masters Research (1996) (Research for *ingénieur* and *DEA* degree):

University of Dortmund, Germany & Strasbourg University, France

Publications

Peer reviewed journal articles (H-index: 54 (Google Scholar)) [Google scholar profile](#)

Last 3 years (out of 146) (underlined - Herckes group member at Arizona State University; *denotes corresponding author)

146. T. Li., A. Henke, B. Wu, Z. Zhao, A. Farsad, M. Serpa, **P. Herckes** and P. Westerhoff*, Phosphorus Speciation Using Ion Chromatography Coupled with ICP-MS Elucidates Transformations of Phosphorus Compounds on Reactive Surfaces, *Water Research*, **288**, 124554, 2026.
145. A. Stout, D. R. Kollath, M.L. Ramsey, B.M. Barker, P. Herckes and M.P. Fraser* Temporal surveillance of Coccidioides in Aerosols in Mesa, Arizona, *Environmental Science and Technology Letters*, <https://doi.org/10.1021/acs.estlett.5c00869>
144. C. Giorio*, A. Monod, V. Di Marco, **P. Herckes**, D. Napolitano, A. Sullivan, G. Landrot, D. Warnes, M. Nasti, S D'Aronco, A. Gérardin, N. Brun, K. Desboeufs, S Triquet, S. Chevaillier, C. Di Biagio, F. Battaglia, F. Burnet, S.J. Piketh, A. Namwoonde, J.-F. Doussin and P. Formenti, Contrasting solubility and speciation of metal ions in total suspended particulate matter and fog from the coast of Namibia, *EGUsphere* [preprint], <https://doi.org/10.5194/egusphere-2024-4140>, 2025.
143. X. Long, J. Wielinski, Z. Zhao*, **P. Herckes**, M.A Roldan, G.V. Lowry and P. Westerhoff, Elemental and Morphological Diversity of Individual Magnetic Particles from Urban Surfaces: Implications for Adverse Health Outcomes, *Environmental Science : Nano*, **12**, 4339-4349, 2025.
142. D.C. Napolitano, D. Khoury, O. Delhomme, M. Millet and **P. Herckes**, Aerosol interactions with fog in urban and sub-urban sites in northeastern France, *Atmospheric Environment*, **361**, 121480, 2025.
141. T.T.T. Cao, L. Nuñez López, B. Ervens*, F. Garcia-Pichel and **P. Herckes***, Impact of bacterial biodegradation in fog on formaldehyde and hydroxymethanesulfonate (HMS) concentrations, *Atmospheric Environment*, **360**, 121402, 2025.
140. Z. Lin, K. Doudrick, **P. Herckes**, M. Chester, P. Westerhoff and T.H. Boyer, Life Cycle Assessment of the Thermal Oxidation and Pyrolysis of Granular Activated Carbon loaded with Perfluorooctane Sulfonic Acid (PFOS). *Journal of Cleaner Production*, **501**, 145325, 2025
139. J. Molar, **P. Herckes** and M.P. Fraser, Photocatalytic Abatement of ambient NO_x by TiO₂ coated Solar Panels , *RSC Sustainability RSC Sustainability*, **2**, 963 – 972, 2025.
138. K. Chandrakanthan, M.P. Fraser and **P. Herckes***, Recreational activities as a major source of microplastics in aquatic environments, *Water Emerging Contaminants & Nanoplastics*, **3**, 20, 2024.
137. J.A. Miech, S. Aker, Z. Zhang, H. Ozer, M.P. Fraser and **P. Herckes***, Tire Wear Emissions by Highways: Impact of Season and Surface Type, *Atmosphere*, **15**, 1122, 2024.
136. C. Abou-Khalil, L. Chernysheva, A. Miller, A. Abarca-Perez, G. Peaslee, **P. Herckes**, P. Westerhoff and K. Doudrick*, Enhancing the Thermal Mineralization of Perfluorooctanesulfonate on Granular Activated Carbon Using Alkali and Alkaline-Earth Metal Additives, *Environmental Science & Technology*, **58**, 11162-11174, 2024. <https://doi.org/10.1021/acs.est.3c09795>
135. J.A. Miech, **P. Herckes**, M.P. Fraser*, A.F. Arellano, M. A. Mirrezaei and Y. Guo, Evaluating Phoenix Metropolitan Area Ozone Behavior Using Ground-Based Sampling, Modeling, and Satellite Retrievals, *Atmosphere*, **15**, 555, 2024.
134. Z. Zhang, P. Westerhoff and **P. Herckes***, Evaluation of Potential Occupational Exposure and Release of Nanoparticles in Semiconductor-Manufacturing Environments. *Atmosphere*, **15**, 301, 2024.

133. A. Sorooshian*, A.F. Arellano, M. P. Fraser, **P. Herckes**, G. Betito, R. A. Braun, Y. Guo, A. Mirrezaei and C. Roychoudhury, Ozone in the Desert Southwest of the United States: A Synthesis of Past Work and Steps Ahead, *ACS EST Air*, **1**, 62–79, 2024.
132. Z. Zhang, M.S. Ersan, P. Westerhoff and **P. Herckes***, Do Surface Charges on Polymeric Filters and Airborne Particles Control the Removal of Nanoscale Aerosols by Polymeric Facial Masks? *Toxics*, **12**, 3, 2024. <https://doi.org/10.3390/toxics12010003>
131. K. Chandrakanthan, M.P. Fraser and **P. Herckes***, Microplastics are ubiquitous and increasing in soil of a sprawling urban area, Phoenix (Arizona), *The Science of the Total Environment*, **906**, 167617, 2024.
130. L.A. Tegler*, A.M. Sherry, **P. Herckes**, S.J. Romaniello and A.D. Anbar, Up in smoke: Most aerosolized Fe from biomass burning does not derive from foliage. *Global Biogeochemical Cycles*, **37**, e2023GB007796, 2023.
129. J. A. Miech, L. Stanton, M. Gao, P. Micalizzi, J. Uebelherr, **P. Herckes** and M.P. Fraser*, In situ drift correction for a low-cost NO₂ sensor network, *Environmental Science : Atmospheres*, **3**, 894-904, 2023.
128. K. Chandrakanthan, M. P. Fraser and **P. Herckes***, Airborne microplastics in a suburban location in the Desert Southwest: Occurrence and Identification Challenges, *Atmospheric Environment*, **298**, 119617, 2023.

Other:

M. Fraser, A.F. Arellano, **P. Herckes**, E. Robinson and A. Sorooshian (2025). Feeling the Heat: Ground Level Ozone Research (GLOR) Ramps up in Maricopa County. *EM Magazine, Air & Waste Management Association*, September Issue, 21-25.

Teaching and Mentoring (at ASU)

Undergraduate courses

CHM 302 – Environmental Chemistry	14x
CHM 303 – Environmental Chemistry Lab	3x
CHM 325 – Analytical Chemistry	3x
CHM 326 – Analytical Chemistry Lab	3x
CHM 327 – Instrumental Analysis	11x
CHM 328 – Instrumental Analysis Lab	3x

Graduate courses

CHM 598 – Environmental Analytical Chemistry -renamed- Environmental Monitoring and Assessment	4x
CHM 598 – Chemistry of Atmospheres (3cr.)	6x
CHM 501 – Current topics in Environmental Chemistry	9x (often team taught)
CHM 501 – Current topics in Analytical Chemistry	3x

Mentoring:

51 Undergraduate students mentored in research activities

31 Graduate students mentored (16 Ph.D and 9 M.S. graduated, 5 Ph.D., 1 M.S. current)

14 postdocs and visiting associates mentored

Grants/Contracts

PI (34) or Co-PI(28) or SP (2) on 64 grants totaling >25M with 7M recognized to P. Herckes

Current

64 - “Air Particulate Sampling and Monitoring at Honeywell Engine Test Sites” Honeywell International Inc.

63 - “Photocatalytic abatement of NO_x and N₂O in semiconductor exhaust streams: upscaling of fiber reactors and improving catalysts” SRC-Semiconductor Research Corporation

62-“Real-time analysis of gas-phase products of incomplete destruction” DOD-SERDP through subcontract from Notre Dame University

61 – “Pulmonary Response to Ozone-exposed Ragweed Pollen Grains” NIH through subcontract from Mayo Clinic Arizona

60 – “Reprocessing Copper Mine Tailings: Critical Minerals Recovery from Past Current and Future Copper Mine Tailings” Arizona Board of Regents

59 – “Evaluating Woodchips for Dust Control in Solar PV Fields” SRP-Salt River Project

58 – “Deploying sustainable technologies for suppression of fugitive dust and maintenance of fertility in fallow agricultural fields” Arizona Board of Regents

57 – “Getting to the Source of Arizona’s Valley Fever Problem: A Tri-University Collaboration to Map and Characterize the Pathogen Where it Grows” Arizona Board of Regents

56- “Emission Verification and Emission Reduction Strategies for Mitigating Ozone” Arizona Board of Regents

Professional Service and Responsibilities

Editorial service, current (~450 manuscripts handled as editor in 2024)

Environmental Monitoring and Assessment, Associate Editor (2022- present)

Journal of the Air and Waste Management Association, Associate Editor (2023- present)

International Journal of Environmental Analytical Chemistry, Editorial Board Member (2017-present)

Toxics Editorial Advisory Board Member (2022 – present)

Journal Reviews (71 reviews in 2024) (Publons top reviewer across fields Sept 2019)

Proposal Review

Reviewer and/or panel member for proposals submitted to DOE, EPA, NSF, NASA, European Commission, Research agencies in Canada, Cyprus, Switzerland, France, Germany, Luxembourg, Hong Kong, Israel, Austria, Czech Republic, Romania, Kuwait, Slovakia, Poland

Recent University Service

Arizona State University

2019-2021	SMS - Associate Director
2021-2022	SMS - Graduate Admission Committee
2022-2023	SMS - Budget and Personnel Committee (elected)
2023-2024	SMS - Committee on Graduate Programs
2023-2024	Provost office - General Studies Council
2024-	SMS Senator for ASU and College senate (elected)

Recent Interviews as expert, press and news coverage of research

- 2024 **Tackling Phoenix's ozone problem with natural emission research**
ASU [press release](#) on ongoing field work for grant ABOR grant (#56)
12news [news segment](#)
AZfamily [news segment](#)
- 2024 **Ozone High Pollution Advisory issued for Phoenix**
Interviewed for 12News [article/video](#)
- 2024 **New ASU research shows swimwear is a surprising source of microplastics**
ASU [press release](#) on paper # 138
NPR-KJZZ [segment/interview](#)
- 2024 **Microplastics in the Desert: A Growing Concern in Phoenix Soils**
[Article](#) in Spectroscopy on our work on microplastics in local soils (paper #131)
- 2025 **Amount of ingested microplastics is on the rise**
[Interview](#) for PBS Horizon Arizona TV show
- 2025 **Research trio tests environmental risks of tire emissions**
[ASU Press](#) release and ASU news (paper #137)