

# Pierre Herckes

*Curriculum Vitae*

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Professor  
School of Molecular Sciences  
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## Education

Louis Pasteur University, Strasbourg, France

*Ph.D.* in Physical Chemistry, 1999

Area of Specialization: *Environmental Physical Chemistry*

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

Area of Specialization: *Analytical Chemistry*

European Higher Institute of Chemistry, Strasbourg, France

*Diplôme d'ingénieur*, 1996

Area of Specialization: *Analytical Chemistry*

## Honors and Awards

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

European Union Erasmus Fellowship

## Appointments

**Professor (8/2016 – present)**

**Associate Professor (8/2015-8/2016)**

School of Molecular Sciences, Arizona State University, USA

**Affiliate Faculty (8/2016 – present)**

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

**Associate Professor (8/2010 – 8/2015)**

**Assistant Professor (10/2004 – 8/2010)**

Department of Chemistry and Biochemistry, Arizona State University, USA

**Visiting Professor (Fall 2011)**

Department of Atmospheric Science, University of Sao Paulo, Brazil

**Senior Sustainability Scientist (8/2010-present)**

Global Institute of Sustainability, Arizona State University, USA

**Research Associate, Research Scientist II, III (2/2001 - 9/2004)**

**Postdoctoral Scientist (11/1999 - 2/2001):**

Department of Atmospheric Science, Colorado State University, USA

**Doctoral Research (10/1996 - 10/1999):**

Atmospheric Chemistry Group, Louis Pasteur University, Strasbourg, France

## Publications

### Peer reviewed journal articles (H-index: 33 (Google Scholar); 29 (Web of Science))

*Published* (underlined - Herckes group member at Arizona State University; \*denotes corresponding author)

99. A. L. Clements, M. P. Fraser\*, N. Upadhyay, **P. Herckes**, M. Sundblom, J. Lantz and P. A. Solomon, Source Identification of Coarse Particles in the Desert Southwest, USA using Positive Matrix Factorization, *Atmospheric Pollution Research*, **8**, 873–884, 2017.
98. J. Eagar, B. Ervens and **P. Herckes**\*. Impact of Partitioning and Oxidative Processing of PAH in Fogs and Clouds on Atmospheric Lifetimes of PAH, *Atmospheric Environment*, **160**, 132-171, 2017.
97. Y. Yang, R. Reed, J. Schoepf, K. Hristovski, **P. Herckes** and P. Westerhoff, Prospecting nanomaterials in aqueous environments by cloud-point extraction coupled with transmission electron microscopy, *The Science of the Total Environment*, **584-585**, 515-522, 2017.
96. J.J. Schoepf, Y. Bi, J. Kidd, **P. Herckes**, K. Hristovski and P. Westerhoff\*, Detection and Dissolution of Needle-like Hydroxyapatite Nanomaterials in Infant Formula, *NanoImpact*, **5**, 22-28, 2017.
95. J. Eagar, **P. Herckes** and H. E. Hartnett\*, The Characterization of Haboobs and the Deposition of Dust in Tempe, AZ from 2005 to 2014, *Aeolian Research*, **24**, 81-91, 2017.
94. D. Hanigan\*, I. Ferrer, E. M. Thurman, **P. Herckes** and P. Westerhoff, LC/QTOF-MS fragmentation of N-nitrosodimethylamine precursors in drinking water supplies is predictable and aids their identification, *Journal of Hazardous Materials*, **323**, 18-25, 2017.
93. B. S. Oyama\*, M.D.F. Andrade, **P. Herckes**, U. Dusek, T. Röckmann and R. Holzinger, Chemical characterization of organic particulate matter from on-road traffic in São Paulo, Brazil, *Atmospheric Chemistry & Physics*, **16**, 14397-14408, 2016.
92. D. Hanigan\*, X. Liao, J. Zhang, **P. Herckes** and P. Westerhoff, Sorption and Desorption of Organic Matter on Solid-phase Extraction Media to Isolate and Identify N-nitrosodimethylamine Precursors, *Journal of Separation Science*, **39**, 2796-2805, 2016.
91. Y. Yang, J. Faust, J. Schoepf, K. Hristovski, D. Capco, **P. Herckes** and P. Westerhoff\*, Survey of Food-grade Silica Dioxide Nanomaterial Occurrence, Characterization, Human Gut Impacts and Fate across Its Lifecycle, *The Science of the Total Environment*, **565**, 902-912, 2016.
90. R.B. Reed, T. Zaikova, A. Barber, M. Simonich, R. Lankone, M. Marco, K. Hristovski, **P. Herckes**, L. Passantino, D.H. Fairbrother, R. Tanguay, J.F. Ranville, J.E. Hutchison and P.K. Westerhoff\*, Potential Environmental Impacts and Antimicrobial Efficacy of Silver- and Nanosilver- Containing Textiles, *Environmental Science and Technology*, **50**, 4018–4026, 2016.
89. A.L. Clements, M.P. Fraser\*, **P. Herckes** and P.A. Solomon, Chemical mass balance source apportionment of particulate matter in the desert southwest, USA, *AIMS Environmental Science*, **3**, 115-132, 2016.
88. J. Zhang, D. Hanigan, P. Westerhoff and **P. Herckes**\*, N-Nitrosamine Formation Kinetics in Wastewater Effluents and Surface Waters, *Environmental Science: Water Research & Technology*, **2**, 312–319, 2016.
87. Y. Mancilla, A. Mendoza, M.P. Fraser and **P. Herckes**, Organic composition and source apportionment of fine aerosol at Monterrey, Mexico, based on organic markers, *Atmos. Chem. Phys.*, **16**, 953-970, doi:10.5194/acp-16-953-2016, 2016.
86. Y. Yang\*, Z. Yu, T. Nosaka, K. Doudrick, K. Hristovski, **P. Herckes** and P. Westerhoff, Interaction of Carbonaceous Nanomaterials with Wastewater Biomass, *Frontiers in Environmental Science and Engineering*, **9**, 823-831, 2015.

- 85 P.Westerhoff\*, S. Lee, Y. Yang, G.W. Gordon, K. Hristovski, R. U. Halden, and **P. Herckes**, Characterization, Recovery Opportunities, and Valuation of Metals in Municipal Sludges from U.S. Wastewater Treatment Plants Nationwide. *Environmental Science & Technology* **49**, 9479-9488, 2015.
- 84 D. Speed, P. Westerhoff\*, R. Sierra-Alvarez, R. Draper, P. Pantano, S. Aravamudhan, K.L. Chen, K. Hristovski, **P. Herckes**, X. Bi, Y. Yang, C. Zeng, L. Otero-Gonzalez, C. Mikoryak, B.A. Wilson, K. Kosaraju, M. Tarannum, S. Crawford, P. Yi, X Liu, S.V. Babu, M. Moinpour, J. Ranville, M. Montano, C. Corredor, J. Posner, and F. Shadman, Physical, Chemical, and In Vitro Toxicological Characterization of Nanoparticles in Chemical Mechanical Planarization Suspensions Used in the Semiconductor Industry: Towards Environmental Health and Safety Assessments, *Environmental Science: nano*, **2**, 227-244, 2015.
- 83 D. Hanigan, E. M. Thurman, I. Ferrer, Y. Zhao, S. Andrews, J. Zhang, **P. Herckes** and P. Westerhoff, Methadone Contributes to N-Nitrosodimethylamine Formation in Surface Waters and Wastewaters during Chloramination, *Environmental Science & Technology Letters*, **2**, 151-157, 2015.
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- 81 K. Doudrick\*, T. Nosaka, **P. Herckes** and P. Westerhoff, Quantification of Graphene and Graphene Oxide in Complex Matrices with Application to Wastewater Biomass, *Environmental Science: nano*, **2**, 60-67, 2015. **(featured as hot article and on the cover)**
- 80 D. Hanigan\*, J. Zhang, **P. Herckes**, E. Zhu, S. Krasner and P. Westerhoff. Contribution and Removal of Watershed and Cationic Polymer N-nitrosodimethylamine Precursors. *Journal of the American Water Works Association*, 107, E152-E163, 2015.
- 79 N. Upadhyay, A. L. Clements, M.P. Fraser, M. Sundblom, P. Solomon and **P. Herckes\***, Size-Differentiated Chemical Composition of Re-Suspended Soil Dust from the Desert Southwest United States, *AAQR*, **2**, 387-398, 2015.
- 78 Y. Mancilla, **P. Herckes**, M. Fraser and A. Mendoza\*, Secondary Organic Aerosol Contributions to PM<sub>2.5</sub> in Monterrey, Mexico: Temporal and Seasonal Variation. *Atmospheric Research*, **153**, 348-359, 2015.
- 77 **P. Herckes\***, W. Eugster, I. Gultepe, G. Katata and O. Klemm, Preface to the special issue on the 6<sup>th</sup> conference of fog, fog collection and dew, *Atmospheric Research*, **151**, 1, 2015.
- 76 **P. Herckes\***, A. Marcotte, Y. Wang and J.L. Collett, Jr. Fog Composition in the Central Valley of California Over Three Decades, *Atmospheric Research*, **151**, 20-30, 2015.
- 75 Y. Wang, J. Zhang, A.R. Marcotte, M. Karl, C. Dye and **P. Herckes\***, Fog chemistry at three sites in Norway, *Atmospheric Research*, **151**, 72-81, 2015.
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- 69 A. L. Clements, M.P. Fraser\*, N. Upadhyay, **P. Herckes**, M. Sundblom, J. Lantz and P. Solomon, Chemical Characterization of Coarse Particulate Matter in the Desert Southwest – Pinal County Arizona, USA, *Atmospheric Pollution Research*, **5**, 52-61, 2014.
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- 67 J. Brito\*, L. V. Rizzo, **P. Herckes**, P. C. Vasconcellos, S. E. S. Caumo, A. Fornaro, R. Y. Ynoue, P. Artaxo, and M. F. Andrade, Physical–chemical characterisation of the particulate matter inside two road tunnels in the São Paulo Metropolitan Area, *Atmospheric Chemistry and Physics*, **13**, 12199-12213, 2013.
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- 65 C. Mead\*, **P. Herckes**, B.J. Majestic and A. D. Anbar, Source apportionment of aerosol iron in the marine environment using iron isotope analysis, *Geophysical Research Letters*, **40**, 5722-5727, 2013.
- 64 **P. Herckes\***, K.T. Valsaraj and J.L. Collett, Jr., A review of observations on organic matter in fogs and clouds: origin, processing and fate, *Atmospheric Research*, **132–133**, 434–449, 2013.
- 63 A. L. Clements, M.P. Fraser\*, N. Upadhyay, **P. Herckes**, M. Sundblom, J. Lantz and P. Solomon, Summertime Characterization of Fine and Coarse Particulate Matter in the Desert Southwest, *Journal of the Air and Waste Management Association*, **63**, 764 – 772, 2013.
- 62 B. Ervens\*, Y. Wang, J. Eagar, W.R. Leitch, A.M. Macdonald, K.T. Valsaraj and **P. Herckes\***, Dissolved organic carbon (DOC) and select aldehydes in cloud and fog water: The role of the aqueous phase in impacting trace gas budgets, *Atmospheric Chemistry and Physics*, **13**, 5117-5135, 2013.
- 61 J. Shipp\*, I. Gould, **P. Herckes**, E. Shock, L. Williams and H. Hartnett, Organic Functional Group Transformations in Water at Elevated Temperature and Pressure: Reversibility, Reactivity, and Mechanisms, *Geochimica Cosmochimica Acta*, **104**, 194-209, 2013.
- 60 Y. Marusenko\*, J. Shipp, G. A. Hamilton, J.L.L. Morgan, M. Keebaugh, H. Hill, A. Dutta, X. Zhuo, N. Upadhyay, J. Hutchings, **P. Herckes**, A. Anbar, E. Shock and H.E. Hartnett, Bioavailability of Nanoparticulate Hematite to Arabidopsis thaliana, *Environmental Pollution*, **174**, 150-156, 2013.
- 59 Y. Wang, C. Chiu, P. Westerhoff, K.T. Valsaraj and **P. Herckes\***, Characterization of atmospheric organic matter using size-exclusion chromatography with inline organic carbon detection, *Atmospheric Environment*, **68**, 326-332, 2013.
- 58 S.J.R. Staton, J.A. Castillo, T.J. Taylor, **P. Herckes** and M.A. Hayes\*, Identifying Indoor Environmental Patterns from Bioaerosol Material Using HPLC, *Analytical and Bioanalytical Chemistry*, **405**, 351–357, 2013.
- 57 F. Sharif\*, P. Westerhoff and **P. Herckes**, Sorption of trace organics and engineered nanomaterials onto wetland plant material, *Environmental Science : Processes and Impacts*, **15**, 267-274, 2013.

- 56 N. Upadhyay, Q. Sun, J.O. Allen, P. Westerhoff and **P. Herckes\***, Characterization of aerosol emissions from wastewater aeration basins, *Journal of the Air and Waste Management Association*, **63**, 20-26, 2013.
- 55 D. Hanigan\*, J. Zhang, **P. Herckes**, S. Krasner, C. Chen and P. Westerhoff, Adsorption of N-Nitrosodimethylamine Precursors by Powder and Granular Activated Carbon, *Environmental Science and Technology*, **46**, 12630-12639, 2012.
- 54 K. Doudrick\*, **P. Herckes** and P. Westerhoff, Carbon Nanotube Quantification in Environmental and Biological Matrices, *Environmental Science and Technology*, **46**, 12246-12253, 2012.
- 53 B.F.G. Pycke, T.C. Chao, R.U. Halden\*, **P. Herckes** and P. Westerhoff, Beyond nC60: Strategies to identify oxidized fullerene transformation products in aquatic and biological samples, *Analytical and Bioanalytical Chemistry*, **404**, 2583-2595, 2012.
- 52 F.S. Ehrenhauser, K. Khadapkar, Y. Wang, J.F. Hutchings, O. Delhomme, R.R. Kommalapati, **P. Herckes**, M.J. Wornat and K.T. Valsaraj\*, Processing of Atmospheric Polycyclic Aromatic Hydrocarbons by Fog in an Urban Environment, *Journal of Environmental Monitoring*, **14**, 2566-2579, 2012. **Featured on the cover of the issue**
- 51 A.K.Y. Lee\*, K. L. Hayden, **P. Herckes**, W. R. Leitch, J. Liggio, A.M. Macdonald and J.P.D. Abbatt, Characterization of aerosol and cloud water at a mountain site during WACS 2010: Secondary organic aerosol formation through oxidative cloud processing, *Atmospheric Chemistry and Physics*, **12**, 7103-7116, 2012.
- 50 J.A. Castillo, S.J.R. Staton, T.J. Taylor, **P. Herckes** and M.A. Hayes\*, Exploring the Feasibility of Bioaerosol Analysis as a Novel Fingerprinting Technology, *Analytical and Bioanalytical Chemistry*, **403**, 15-26, 2012.
- 49 D.J. Straub\*, J.W. Hutchings and **P. Herckes**, Measurements of fog composition at a rural site, *Atmospheric Environment*, **47**, 195-205, 2012.
- 48 A.K.Y. Lee, **P. Herckes**, W. R. Leitch, A. M. Macdonald, J. P. D. Abbatt\*, Aqueous OH oxidation of ambient organic aerosol and cloud water organics: Formation of highly oxidized products, *Geophysical Research Letters*, **38**, L11805, 2011.
- 47 Y. Marusenko, **P. Herckes** and S.J. Hall\*, Distribution of Polycyclic Aromatic Hydrocarbons in Soils of Urban Transportation Corridors in an Arid Ecosystem, *Water, Air and Soil Pollution*, **219**, 473-487, 2011.
- 46 T. M. Benn\*, P. Westerhoff and **P. Herckes**, Quantification of Fullerenes (C60 and C70) in Commercial Cosmetics, *Environmental Pollution*, **159**, 1334-1342, 2011.
- 45 D.R. Bittrich, D.E. Armstrong, S.P. Chadwick, C.L. Babiarz, H. Manolopoulos, A.P. Rutter, J.J. Schauer\*, J. Collett and **P. Herckes**, Speciation of Mercury (II) and Methylmercury in Cloud and Fog Water, *Aerosol and Air Quality Research*, **11**, 161-169, 2011.
- 44 N. Upadhyay, A. Clements, M. Fraser and **P. Herckes\***, Chemical Speciation of PM2.5 and PM10 in South Phoenix, Arizona, *Journal of the Air and Waste Management Association*, **61**, 302-310, 2011.
- 43 M. Robinson\*, M. Zhao, L. Zack, C. Brindley, L. Portz, M. Quarterman; X. Long and **P. Herckes**, Characterization of PM2.5 collected during broadcast and slash-pile prescribed burns of predominately ponderosa pine forests in northern Arizona, *Atmospheric Environment*, **45**, 2087-2094, 2011.
- 42 N. Upadhyay, B.J. Majestic and **P. Herckes\***, Solubility and Speciation of Atmospheric Iron in Buffer Systems Simulating Cloud Conditions, *Atmospheric Environment*, **45**, 1858-1866, 2011.
- 41 T.M. Benn\*, B.F.G. Pycke, **P. Herckes**, P. Westerhoff and R.U. Halden, Evaluation of extraction methods for the quantification of aqueous fullerenes in urine, *Analytical and Bioanalytical Chemistry*, **399**, 1631-1639, 2011.

- 40 T.C. Chao, G. Song, P. Westerhoff, **P. Herckes** and R. Halden\*, Characterization and LC-MS/MS based quantification of hydroxylated fullerenes (fullerols), *Analytical Chemistry*, **83**, 1777–1783, 2011.
- 39 N. Upadhyay, Q. Sun, J.O. Allen, P. Westerhoff and **P. Herckes**\*, Synthetic Musk Emissions from Wastewater Aeration Basins, *Water Research*, **45**, 1071-1078, 2011.
- 38 B.F.G. Pycke, T.M. Benn, **P. Herckes**, P. Westerhoff and R.U. Halden\*, Strategies for quantifying C60 fullerenes in environmental and biological samples and implications for studies in environmental health and ecotoxicology, *Trends in Analytical Chemistry*, **30**, 44-57, 2011.
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- 36 B. Chen\*, W. Lee, P.K. Westerhoff, S.W. Krasner and **P. Herckes**, Solar photolysis kinetics of disinfection byproducts, *Water Research*, **44**, 3401 -3409, 2010.
- 35 B.J. Majestic\*, A.D. Anbar and **P. Herckes**, Stable Isotopes as a Tool to Apportion Atmospheric Iron, *Environmental Science and Technology*, **43**, 4327–4333, 2009.
- 34 B.J. Majestic\*, A.D. Anbar and **P. Herckes**, Elemental and Iron Isotopic Composition of Aerosols Collected in a Parking Structure, *Science of the Total Environment*, **401**, 5104-5109, 2009.
- 33 J.W. Hutchings, M. Robinson, H. McIlwraith, J. Triplett and **P. Herckes**\*, The chemistry of intercepted clouds in northern Arizona during the North American monsoon season, *Water, Air and Soil Pollution*, 199, 191–202, 2009.
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- 31 N. Upadhyay, B.J. Majestic, P. Prapaipong and **P. Herckes**\*, Evaluation of polyurethane foam, polypropylene, quartz fiber and cellulose substrates for multi-element analysis of atmospheric particulate matter by ICP-MS, *Analytical and Bioanalytical Chemistry*, **394**, 255-266, 2009. (*invited: Special Issue Young Investigators in Analytical and Bioanalytical Science*)
- 30 N. Sauret, H. Wortham\*, R. Strekowski, **P. Herckes** and L. I. Nieto, Comparison of annual dry and wet deposition fluxes of selected pesticides in Strasbourg, France, *Environmental Pollution*, **157**, 303-312, 2009.
- 29 M. Robinson\*, T.R. Anthony, S.R. Littau, **P. Herckes**, X. Nelson, G.S. Poplin and J.L. Burgess, Occupational PAH Exposures During Prescribed Pile Burns, *Annals of Occupational Hygiene*, **52**, 497-508, 2008.
- 28 Z. Chen, G. Park, **P. Herckes** and P. Westerhoff\*, Physicochemical Treatment of Three Chemotherapy Drugs: Irinotecan, Tamoxifen, and Cyclophosphamide, *Journal of Advanced Oxidation Technologies*, **11**, 254-260, 2008.
- 27 Z. Chen, P. Westerhoff\* and **P. Herckes**, Detection of C60 Fullerene in Water Using Liquid Chromatography Coupled with Atmospheric Pressure Chemical Ionization Mass Spectrometric Detection, *Environmental Toxicology and Chemistry*, **8**, 1852-1859, 2008.
- 26 L. Nizzetto, R. Lohmann\*, R. Gioia, A. Jahnke, C. Temme, J. Dachs, **P. Herckes**, A. Di Guardo and K. C. Jones. PAHs in air and seawater along a North-South Atlantic transect: trends, processes and possible sources, *Environmental Science and Technology*, **42**, 1580-1585, 2008.
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- 24 J.H. Carrillo, S.E. Emert, D. E. Sherman, **P. Herckes**, and J.L. Collett, Jr. \*, An Economical Optical Cloud/Fog Detector, *Atmospheric Research*, **87**, 259-267, 2008.

- 23 **O. Delhomme**, M. Millet\* and **P. Herckes**, Determination of oxygenated polycyclic aromatic hydrocarbons by liquid chromatography tandem mass spectrometry in aerosol samples, *Talanta*, **74**, 703-710, 2008.
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- 20 C.A. Gorin, J. L. Collett, Jr. \* and **P. Herckes**, Wood Smoke Contribution to Winter Aerosol in Fresno, California, *Journal of the Air and Waste Management Association*, **56**, 1584-1590, 2006.
- 19 **P. Herckes**, H. Chang, T. Lee, and J.L. Collett, Jr. \*, Air Pollution Processing by Radiation Fogs, *Water, Air and Soil Pollution*, **181**, 65-75, 2007.
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- 13 F.Chabaux\*, J. Riotte, A. Schmitt, J. Carignan, **P. Herckes**, M. Pierret and H. Wortham, Variations of U and Sr isotope ratios in Alsace and Luxembourg rain waters: origin and hydrogeochemical implications, *Comptes Rendus Geoscience*, **337**, 1447-145, 2005.
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- 3 **P. Herckes**, R. Wendling, N. Sauret, Ph. Mirabel and H. Wortham\*, Cloudwater studies at a high elevation site in the Vosges Mountains (France), *Environmental Pollution*, **117**, 169-177, 2002.
- 2 N. Sauret, M. Millet, **P. Herckes**, Ph. Mirabel and H. Wortham\*, Analytical method using gas chromatography and ion trap tandem mass spectrometry for the determination of S-triazines and their metabolites in the atmosphere, *Environmental Pollution*, **110**, 243-252, 2000.
- 1 S. Chérif, M. Millet, A. Sanusi, **P. Herckes** and H. Wortham\*, Protocol for analysis of trace metals and other ions in filtered and unfiltered fogwater, *Environmental Pollution*, **103**, 301-308, 1998.

*In press*

- 100 A. J. Boris, D.C. Napolitano, **P. Herckes**, A.L. Clements and J.L. Collett Jr\*, Fogs and Air Quality on the Southern California Coast, *Aerosol and Air Quality Research in press*

*Published discussion papers*

- 101 **P. Herckes\***, J.A. Leenheer and J.L. Collett, Jr, A new comprehensive approach to characterizing carbonaceous aerosol with an application to wintertime Fresno California, PM<sub>2.5</sub>, *Atmospheric Chemistry and Physics Discussions*, **7**, 8423-8453, 2007.

**Book Chapters (peer-reviewed)**

- B6- **P. Herckes**<sup>\*</sup>, M. Fraser and P.A. Solomon, Ground-Based Aerosol Measurements. *Encyclopedia of Analytical Chemistry*. John Wiley & Sons Inc, Malden, MA, 1-20, 2017.
- B5- J. Zhang, D. Hanigan, R. Shen, S. Andrews, **P. Herckes** and P. Westerhoff<sup>\*</sup>, Modeling NDMA Formation Kinetics During Chloramination of Model Compounds and Surface Waters Impacted by Wastewater Discharges, In: *Recent Advances in Disinfection By-Products*. p. 79-95, ACS, 2015.
- B4- **P. Herckes**<sup>\*</sup> and J.L. Collett Jr. Cloud Chemistry. In: Gerald R. North (editor-in-chief), John Pyle and Fuqing Zhang (editors). *Encyclopedia of Atmospheric Sciences*, 2nd edition, Vol 6, pp. 218–225, 2015. ISBN: 9780123822253
- B3- T. Benn, **P. Herckes** and P. Westerhoff<sup>\*</sup>, Fullerenes in Environmental Samples: C60 in atmospheric particulate matter, in *Analysis and Risk of Nanomaterials in Environmental and Food Samples*, Edited by Damia Barcelo and Marinella Farré, Elsevier Science, Comprehensive Analytical Chemistry Series, #59 2012
- B2- P.A. Solomon<sup>\*</sup>, M.P. Fraser and **P. Herckes**, Chemical analysis methods for atmospheric aerosol components, in *Aerosol Measurement - Principles, Techniques, and Applications*, 3rd ed. P. Baron, P. Kulkarni, and K. Willeke, Eds., John Wiley & Sons, 153-177, 2011.
- B1- J.L. Collett<sup>\*</sup> and **P. Herckes**, Cloud chemistry, in Holton, J.P., J.A. Curry, and J. Doyle, eds., *Encyclopedia of Atmospheric Sciences*. Academic Press, London, 451-459, 2003.

**Conference presentations** (underlined - Herckes group member at Arizona State University; \*denotes presenter)**2016**

- 1 Y. Bi\*, T. Zaikova, **P. Herckes**, J. E. Hutchison and P. Westerhoff, The Efficacy of A Nano-TiO<sub>2</sub> Enabled Floor Coating and Its Environmental Implications, *11th International Conference on the Environmental Effects of Nanoparticles and Nanomaterials (ICEENN 2016)*, Golden, CO August 14 - 18, 2016 (contributed poster presentation)
- 2 J.M. Fulton\*, **P. Herckes** and M.P. Fraser, Microbial pigments and membrane lipids as indicators of soil crust inputs to atmospheric dust. *Geological Society of America, Annual meeting*, Denver CO. September 25-28, 2016 (contributed oral presentation)
- 3 B. Oyama, M. F. Andrade, R. Holzinger, T. Röckmann, **P. Herckes**, H. A. J. Meijer and U. Dusek\*, Contribution of biofuel and fossil fuel carbonaceous aerosol in Sao Paulo city. *22<sup>nd</sup> European Aerosol Conference*, Tours, France. September 3-9, 2016. (contributed oral presentation)
- 4 J.L. Collett\*, A. Boris, M. Schurman, T. Lee, K. Benedict, Y. Desyaterik and **P. Herckes**, Cloud and fog processing of atmospheric organic matter. *7th International Conference on Fog, Fog Collection and Dew*, Wrocław, Poland July 24-29, 2016. (contributed oral presentation)
- 5 T. Nosaka\*, P. Westerhoff and **P. Herckes**, Quantification of carbonaceous nanomaterials in complex matrices, *American Chemical Society 251th Spring meeting*. San Diego, CA. March 13-17, 2016. (contributed oral presentation)
- 6 A. Sherry\*, **P. Herckes**, S. Romaniello and A. Anbar, Can Biomass Burning Explain Isotopically Light Fe in Marine Aerosols? *AGU Ocean Sciences Meeting*. New Orleans, LA February 21-26, 2016.
- 7 J.D. Eagar\*, **P. Herckes** and H. E. Hartnett. Particle Deposition and Frequency of Haboobs in the CAP LTER. *18th Annual All Scientists Meeting of the Central Arizona-Phoenix Long-Term Ecological Research Project (CAP LTER)* Scottsdale, AZ, January 15, 2016. (contributed poster presentation)

**2015**

- 8 J.M. Kidd\*, D. Hanigan, K. Hristovski, R. Reed, **P. Herckes**, and P. Westerhoff, Comparison of the material properties of eight unique nanoparticles using nano-metrological functional assays. Fourth Annual Conference, Sustainable Nanotechnology Organization, Portland, OR, November 8-10, 2015. (contributed poster presentation)
- 9 A. Mulchandani, K. Hristovski, **P. Herckes** and P., Westerhoff, Characterization, Valuation and Recovery Opportunities of Metals in Municipal Sludges from U.S. Wastewater Treatment Plants. *Sustainable Nanotechnology Organization Conference*, Portland, OR, November 7-10, 2015. (contributed poster presentation)
- 10 D. Napolitano and **P. Herckes**, Seasonal Variations in the Carbonaceous Composition of Size-Resolved Particles Collected in Tempe, Arizona. *American Association for Aerosol Research 34th Annual Conference*, Minneapolis, MN, October 12-16, 2015. (contributed poster presentation)
- 11 D. Napolitano\* and **P. Herckes**, Seasonal Variations in the Carbonaceous Composition of Size-Resolved Particles Collected in Tempe, Arizona. 11th International Conference on Carbonaceous Particles in the Atmosphere, Berkeley, CA, August 10-13, 2015. (contributed poster presentation)
- 12 H. Kim\*, X. Ge, S. Collier, J. Xu, Y. Sun, Y. Wang, **P. Herckes** and Q. Zhang, Influence of aqueous chemistry on the chemical composition of fog water and interstitial aerosol in Fresno. *European Geosciences Union, General Assembly 2015*, Vienna, Austria, April 12-17, 2015. (contributed oral presentation)
- 13 Y. Yang\*, J. Faust, J. Schoepf, K. Hristovski, R.L. Tanguay, D. G. Capco, **P. Herckes**, P.K. Westerhoff, Prospecting Silicon Dioxide in Foods: Occurrence, Characterization, and Toxicity.

- 249th ACS National Meeting & Exposition, Denver, CO, March 22-26, 2015. (contributed oral presentation)
- 14 B.T. Cartledge\*, A.R. Marcotte, A. Anbar, **P. Herckes** and Brian J. Majestic. The effects of particle size, relative humidity, and sulfur dioxide on iron solubility in atmospheric particulate matter. *249th ACS National Meeting & Exposition*, Denver, CO, March 22-26, 2015. (contributed poster presentation)
  - 15 B.S. Oyama\*, H. Holzinger, **P. Herckes**, U. Dulse, T. Röckmann and M.F. Andrade, Fatores de emissão para a cidade de São Paulo: um estudo do material particulado orgânico, *INterdisciplinary CLimate INvestigation cEnter (Incline)*, São Paulo, Brazil, March 9-10, 2015. (contributed poster presentation)
  - 16 J. Eagar\*, D. Napolitano, A. Marcotte and **P. Herckes**. A study of the organic composition of haboob particulate matter. *17th Annual All Scientists Meeting of the Central Arizona-Phoenix Long-Term Ecological Research Project (CAP LTER)* Scottsdale, AZ, January 16, 2015. (contributed poster presentation)
  - 17 A.R. Marcotte\*, J. Eagar, D. Napolitano and **P. Herckes**. Chemical characterization of time resolved haboob samples from Tempe, AZ. *17th Annual All Scientists Meeting of the Central Arizona-Phoenix Long-Term Ecological Research Project (CAP LTER)* Scottsdale, AZ, January 16, 2015. (contributed poster presentation)
  - 18 C.J. Rose\*, P. Westerhoff and **P Herckes**. Chloroform formation from swimming pool disinfection: A significant source of atmospheric chloroform in Phoenix? *17th Annual All Scientists Meeting of the Central Arizona-Phoenix Long-Term Ecological Research Project (CAP LTER)* Scottsdale, AZ, January 16, 2015. (contributed poster presentation)
  - 19 A.R. Marcotte\*, N. Upadhyay, Y. Wang, and **P. Herckes**. Trace Metal Concentrations in Fog and Aerosol Samples Collected from Davis, Fresno and Bakersfield, CA: 2010–2013. *95th Annual Meeting, American Meteorological Society*, Phoenix, AZ, January 4-8, 2015. (sollicited oral presentation) **First place student presentation award.**
  - 20 J.D. Eagar\*, **P. Herckes** and B. Ervens. A Model of the Oxidation of Polycyclic Aromatic Compounds in Cloud and Fog Droplets. *95th Annual Meeting, American Meteorological Society*, Phoenix, AZ, January 4-8, 2015. (contributed poster presentation)
  - 21 D. Napolitano\* and **P. Herckes**. A Study of the Aqueous Phase Processing of Organic Aerosols through Carbon Stable Isotope Analysis. *95th Annual Meeting, American Meteorological Society*, Phoenix, AZ, January 4-8, 2015. (contributed poster presentation)

**2014**

- 22 D. Hanigan\*, **P. Herckes**, S. Andrews, I. Ferrer, M. Thurman and P. Westerhoff. Identification of Nitrosamine Precursors in Waste and Surface Waters. *AWWA Water Quality and Technology Conference*, New Orleans, LA., November 17-20, 2014. (contributed oral presentation)
- 23 R. Reed\*, M. Simonich, R. Tanguay, T. Zaikova, J. Hutchison, **P. Herckes**, K. Hristovski and P. Westerhoff, Evaluation of silver nanoparticle – impregnated fabrics across their life cycle. *Third Sustainable Nanotechnology Organization SNO Conference*, Boston, MA, November 2-4, 2014. (contributed oral presentation)
- 24 A.R. Marcotte\*, J. Eagar, D. Napolitano and **P. Herckes**, Chemical Characterization of Time Resolved Haboob Samples from Phoenix, AZ. *AAAR annual meeting 2014*, Orlando, FL, October 20-24, 2014. (contributed oral presentation)
- 25 D. Napolitano\* and **P. Herckes**, A Study of the Aqueous Phase Processing of Organic Aerosols through Compound Specific Stable Isotope Analysis. *AAAR annual meeting 2014*, Orlando, FL, October 20-24, 2014. (contributed poster presentation)
- 26 J. Zhang\*, D. Hannigan, P. Westerhoff and **P. Herckes** Optical properties of water soluble organic carbon (WSOC) in atmospheric aerosols and fog waters. *AAAR annual meeting 2014*, Orlando,

- FL, October 20-24, 2014. (contributed poster presentation)
- 27 P. Westerhoff\*, Y. Yang, T. Nosaka, K. Doudrick, Z. Yu, P. Herckes and K. Hristovski, Interaction of carbon nanotubes and graphene nanoplatelets with wastewater biomass. *248th ACS National Meeting & Exposition*, San Francisco, CA, August 10-14, 2014. (contributed oral presentation)
  - 28 P. Westerhoff\*, D. Hanigan, J. Zhang, R. Shen, S. Andrews and P. Herckes, Modeling NDMA formation kinetics in wastewater or polymer impacted drinking waters. *248th ACS National Meeting & Exposition*, San Francisco, CA, August 10-14, 2014. (contributed oral presentation)
  - 29 P. Westerhoff\*, Y. Yang, R. Reed, K. Doudrick, P. Herckes and K. Hristovski. Experimental methods and analytical techniques to assess nanomaterial release from consumer products into sewer systems. *TechConnect World Innovation Conference and Expo*, TU2.033, Washington, DC, June 15-18, 2014. (contributed oral presentation)
  - 30 D. Hanigan\*, P. Herckes, S.W. Krasner and P. Westerhoff. Contribution and Sources of NDMA in Drinking Water. *AZ Water Annual Conference*, Glendale, AZ, May 7-9, 2014. (contributed poster presentation) **Best Poster Award**
  - 31 A. Marcotte\*, J. Eagar, and P. Herckes. Trace Metals and Inorganic Species in Time Resolved Haboob Samples from ASU Tempe Campus. *16th Annual All Scientists Meeting of the Central Arizona-Phoenix Long-Term Ecological Research Project (CAP LTER)* Scottsdale, AZ, January 17, 2014. (contributed poster presentation)
  - 32 J. Eagar\*, D. Napolitano, A. Marcotte, A. Anderson, J. Sipe, B. Rodriguez and P. Herckes. A Study of Organic Compounds in Haboob Particulate Matter. *16th Annual All Scientists Meeting of the Central Arizona-Phoenix Long-Term Ecological Research Project (CAP LTER)* Scottsdale, AZ, January 17, 2014. (contributed poster presentation)
  - 33 C.J. Rose\*, P. Westerhoff and P. Herckes, Chloroform from swimming pools, a significant source of atmospheric chloroform in Phoenix? *All Scientists Meeting of the Central Arizona-Phoenix Long-Term Ecological Research Project (CAP LTER)* Scottsdale, AZ, January 17, 2014. (contributed poster presentation)
  - 34 A. Marcotte\*, J. Eagar, and P. Herckes. Metal and trace element composition of time resolved haboob samples collected from ASU Tempe Campus. *46th Annual Society of Western Analytical Professors Meeting*, Tempe, AZ, January 11, 2014. (contributed oral presentation)

## 2013

- 35 A.R. Marcotte\*, N. Upadhyay, Y. Wang and P. Herckes, Fog and Cloud Processing of Metals and Trace Elements, *AGU fall meeting 2013*, San Francisco, CA, December 9-13, 2013. (contributed poster presentation)
- 36 D. Hanigan\*, S. Krasner, P. Herckes, and P. Westerhoff, Removal of polymer-derived N-nitrosamine precursors by activated carbon, *AWWA Water Quality and Technology Conference*, Long Beach, CA, November 3-7, 2013. (contributed poster presentation)
- 37 H. Kim\*, X. Ge, J. Xu, Y. Sun, Y. Wang, P. Herckes and Q. Zhang, Characterization of chemical composition of fog water and interstitial aerosol in the Central Valley of California: Influence of aqueous chemistry, *AAAR annual meeting 2013*, Portland, OR, September 30 – October 4, 2013. (contributed poster presentation)
- 38 A.R. Marcotte\*, B.J. Majestic, A.D. Anbar and P. Herckes. The Effect of Particle Size on Iron Solubility in Atmospheric Aerosols, *AAAR annual meeting 2013*, Portland, OR, September 30 – October 4, 2013. (contributed poster presentation)
- 39 J. Eagar\*, P. Herckes and B. Ervens, Photooxidation of Polycyclic Aromatic Hydrocarbons in Clouds and Fog – Laboratory and Model Studies, *AAAR annual meeting 2013*, Portland, OR, September 30 – October 4, 2013. (contributed poster presentation)
- 40 B. Cartledge\*, B. Majestic, A. Marcotte, P. Herckes and A. Anbar, The Effects of Particle Size,

- Relative Humidity, and Sulfur Dioxide on Iron Solubility in Atmospheric Particulate Matter, *AAAR annual meeting 2013*, Portland, OR, September 30 – October 4, 2013. (contributed poster presentation)
- 41 S. Frey<sup>\*</sup>, **P. Herckes** and M. Fraser, The Impact of Energy Efficiency Retrofits on Indoor PM Levels. *AAAR annual meeting 2013*, Portland, OR, September 30 – October 4, 2013. (contributed oral presentation)
- 42 J. Eagar<sup>\*</sup> and **P. Herckes**, The photooxidation of PAHs in clouds and fog, a laboratory study, International Symposium on Polycyclic Aromatic Compounds, Corvallis, OR, USA, September 8-12, 2013. (contributed poster presentation)
- 43 Y. Wang, J. Zhang, **P. Herckes**<sup>\*</sup>, M. Karl and C. Dye, Fog composition at three sites in Norway, *6<sup>th</sup> International Conference on fog, fog collection and dew*, Yokohama, Japan, May 19-24, 2013. (solicited poster presentation)
- 44 M. Wimmer, D.-W. Kang, R. Krajmalnik-Brown and **P. Herckes**<sup>\*</sup>, Microorganisms in fog and their impact on fog chemistry, *6<sup>th</sup> International Conference on fog, fog collection and dew*, Yokohama, Japan, May 19-24, 2013. (solicited poster presentation)
- 45 **P. Herckes**<sup>\*</sup>, J.W. Hutchings, A. Marcotte, Y. Wang, K.F. Moore, K. Hoag, and J.L. Collett, Jr., Fog composition in the Central Valley of California, changes over the last 20-30 years? *6<sup>th</sup> International Conference on fog, fog collection and dew*, Yokohama, Japan, May 19-24, 2013. (solicited oral presentation)
- 46 F.L.T. Concalves<sup>\*</sup>, **P. Herckes**, P.C. Vasconcellos, H. Bauer, V.K. Censon, S.G. Avila and J.L. Collett, Jr., Advection and radiation fog comparison at Sao Paulo highway sites, *6<sup>th</sup> International Conference on fog, fog collection and dew*, Yokohama, Japan, May 19-24, 2013. (solicited oral presentation)
- 47 S.E. Frey<sup>\*</sup>, H. Destailats, **P. Herckes** and M.P. Fraser, Indoor aldehyde analysis within apartments retrofitted for energy efficiency. *245th ACS National Meeting and Exposition*, New Orleans, LA, USA, April 7-11, 2013. (contributed poster presentation)
- 48 F.S. Ehrenhauser<sup>\*</sup>, A.A. Heath, T.P. Liyana-Arachchi, M.J. Wornat, F.R. Hung, **P. Herckes** and K.T. Valsaraj, Chemistry at the interface: Chemical transformations at the air-water interface. *245th ACS National Meeting and Exposition*, New Orleans, LA, USA, April 7-11, 2013. (contributed poster presentation)

**2012**

- 49 C. Mead<sup>\*</sup>, **P. Herckes**, B.J. Majestic and A. D. Anbar, Quantifying Anthropogenic Fe in Marine Aerosols Using Fe Stable Isotope Analysis, *AGU fall meeting 2012*, San Francisco, CA, December 3-7, 2012. (contributed poster presentation)
- 50 K. Pohl<sup>\*</sup>, R. Lohmann, M. Cantwell and **P. Herckes**, Black carbon concentrations across the tropical Atlantic boundary layer using three methods, *AGU fall meeting 2012*, San Francisco, CA, December 3-7, 2012. (contributed poster presentation)
- 51 A. R. Marcotte<sup>\*</sup>, B. J. Majestic, A. D. Anbar and **P. Herckes**, The Effect of Particle Size on Iron Solubility in Atmospheric Aerosols, *AGU fall meeting 2012*, San Francisco, CA, December 3-7, 2012. (contributed poster presentation)
- 52 D. Straub<sup>\*</sup>, R. Sokoloff, D. Ressler and **P. Herckes**, Measurements of dew and fog chemical composition at a rural site, *AGU fall meeting 2012*, San Francisco, CA, December 3-7, 2012. (contributed poster presentation)
- 53 A. R. Marcotte<sup>\*</sup>, B. J. Majestic, A. D. Anbar and **P. Herckes**, The Effect of Particle Size on Iron Solubility in Atmospheric Aerosols, *AAAR annual meeting 2012*, Minneapolis, MN, October 8-12, 2012. (contributed poster presentation)
- 54 A.L. Clements<sup>\*</sup>, M.P. Fraser, **P. Herckes**, K. Walch and P.A. Solomon, Coarse Particles in the Desert Southwest: Final Results and Policy Implications, *AAAR annual meeting 2012*,

- Minneapolis, MN, October 8-12, 2012. (contributed oral presentation)
- 55 S. Frey\*, M. Fraser and P. Herckes, The Impact of Energy Efficiency Retrofits on Indoor PM Levels. *AAAR annual meeting 2012*, Minneapolis, MN, October 8-12, 2012. (contributed oral presentation)
- 56 A.L. Clements\*, M.P. Fraser, N. Upadhyay, **P. Herckes** and P.A. Solomon Characterization of Re-suspended Soil Dust Samples from Sources Common in the Desert Southwest United States, *AAAR annual meeting 2012*, Minneapolis, MN, October 8-12, 2012. (contributed poster presentation)
- 57 J. Eagar, F.S. Ehrenhauser, Y. Wang, J. W. Hutchings, A. Marcotte, O. Delhomme, R. R Kommalapati, M. J. Wornat, K. T Valsaraj and **P. Herckes**\*, Fog Processing of Particulate Molecular Marker Species, *AAAR annual meeting 2012*, Minneapolis, MN, October 8-12, 2012. (contributed oral presentation)
- 58 M. F. Andrade, A. Fornaro, B. Oyama, R. Ynoue, and **P. Herckes**\*, Characterization of Carbonaceous Particle Emissions by Mobile Sources in Sao Paulo (Brazil), *AAAR annual meeting 2012*, Minneapolis, MN, October 8-12, 2012. (contributed poster presentation)
- 59 P. Westerhoff\*, K. Doudrick and **P. Herckes**, Detection of carbon nanotubes in environmental and biological matrices using programmed thermal analysis, *ACS Annual Conference 2012*, Philadelphia, PA, August 19-23, 2012. (contributed oral presentation)
- 60 P. Westerhoff\*, J. Ranville, **P. Herckes**, R. Halden, K. Doudrick and S. Lee, Analytical techniques for measurement of carbonaceous nanomaterials in diverse media, *ACS Annual Conference 2012*, Philadelphia, PA, August 19-23, 2012. (contributed oral presentation)
- 61 F.S. Ehrenhauser\*, K. Khadapkar, Y. Wang, J.W. Hutchings, A. Marcotte, O. Delhomme, R.R. Kommalapati, **P. Herckes**, M.J. Wornat and K.T. Valsaraj, PAH and OPAC processing during a fog event, *243rd ACS National Meeting & Exposition*, San Diego, CA, March 25- 29, 2012. (contributed poster presentation)

**2011**

- 62 A.K.Y. Lee\*, **P. Herckes**, J. Liggio, R. Leitch, AM Macdonald and J. Abbatt, Aqueous oxidation of aerosol and cloud water samples at Whistler, BC: Secondary organic aerosol formation via oxidative cloud processing, *AGU fall meeting 2011*, San Francisco, CA, December 5-9, 2011. (contributed poster presentation)
- 63 **P. Herckes**\*, B. Ervens, Y. Wang, J. Eagar, R. Leitch, A.M. Macdonald, S. Sjostedt and J. Abbat, Cloud water measurements of glyoxal and methylglyoxal during the Whistler Aerosol and Cloud Study (WACS), *AGU fall meeting 2011*, San Francisco, CA, December 5-9, 2011. (contributed poster presentation)
- 64 P. Westerhoff\*, A. Weir, **P. Herckes**, L. Fabricius and N. von Götzt, Titanium dioxide nanoparticles in food and personal care products, *Engineered Nanomaterials Grand Opportunity Consortium Meeting*, Durham, NC, December 8-9, 2011. (contributed oral presentation)
- 65 Y. Wang\*, J. Wang, P. Westerhoff and **P. Herckes**, Investigation of Cloud Processing of Atmospheric Organic Matter using Size Exclusion Chromatography *AAAR annual meeting 2011*, Orlando, FL, October 3-7, 2011. (contributed poster presentation) **Student poster prize**
- 66 A.L. Clements, M.P. Fraser, **P. Herckes**, M. Sundblom, J. Lantz and P.A. Solomon Source Attribution of Fine and Coarse Particulate Matter in Pinal County, Arizona, *AAAR annual meeting 2011*, Orlando, FL, October 3-7, 2011. (contributed poster presentation)
- 67 A.K.Y. Lee\*, **P. Herckes**, J. Liggio, W. R. Leitch, A. M. Macdonald and J. P. D. Abbatt, Characterization of Aerosol and Cloud Water Samples Using Aerosol Mass Spectrometry at Whistler, BC in the WACS 2010 Campaign *AAAR annual meeting 2011*, Orlando, FL, October 3-7, 2011. (contributed poster presentation)
- 68 D. Straub\*, **P. Herckes**, Y. Wang and J. Hutchings, The composition of radiation fog in the Eastern United States. *AAAR annual meeting 2011*, Orlando, FL, October 3-7, 2011. (contributed

poster presentation)

- 69 K. Khadapkar, F.S. Ehrenhauser, Y. Wang, J.W. Hutchings, A. Marcotte, O. Delhomme, M.J. Wornat, **P. Herckes** and K.T. Valsaraj\*, PAH and oxy-PAH processing during a fog event, 23<sup>rd</sup> *International Symposium on Polycyclic Aromatic Compounds*, Münster, Germany, September 4-8, 2011. (contributed poster presentation)
- 70 K. Doudrick\*, **P. Herckes** and P. Westerhoff, P. Quantification of Carbon Nanotubes using Programmed Thermal Analysis (PTA). *Gordon Research Conference: Environmental Nanotechnology*, Waterville Valley, NH, May 29-June 3, 2011. (contributed poster presentation)

## 2010

- 71 J. W. Hutchings, B. Ervens and **P. Herckes**\*, Secondary organic aerosol formation through cloud processing of aromatic VOCs, *AGU annual meeting 2010*, San Francisco, December 13-17, 2010. (contributed poster presentation)
- 72 P. Westerhoff\*, T. Benn, B. Pycke, T. Chao, K. Doudrick, R. Halden and **P. Herckes**, Characterization of fullerenes and fullerols in complex matrices, SETAC North America 31<sup>st</sup> Annual Meeting, Portland, Oregon, November. 7-10, 2010. (contributed oral presentation)
- 73 A.L. Clements\*, M.P. Fraser, N. Upadhyay, **P. Herckes**, M. Sundblom, J. Lantz and P.A. Solomon Temporal Trends, Spatial Trends, and Source Attribution of Fine and Coarse Particulate Matter in Pinal County, Arizona, *AAAR annual meeting 2010*, Portland, Oregon, October 25-29, 2010. (contributed poster presentation)
- 74 **P. Herckes**\*, J.W. Hutchings, Y. Wang, H. Hill, J. Wang and P.W. Westerhoff, Processing of carbonaceous material by fogs, *AAAR annual meeting 2010*, Portland, OR, October 25-29, 2010. (contributed oral presentation)
- 75 Y. Wang\*, K. Khadapkar, F.S. Ehrenhauser, J.W. Hutchings, M.J. Wornat, K.T. Valsaraj and **P. Herckes**, Fog processing of polycyclic aromatic hydrocarbons (PAH), *AAAR annual meeting 2010*, Portland, OR, October 25-29, 2010. (contributed poster presentation)
- 76 **P. Herckes**\*, J.W. Hutchings, Y. Wang, H. Hill, J. Wang, and P.W. Westerhoff, Processing of carbonaceous material by fogs, *5th International Conference on Fog, Fog Collection and Dew*, Münster, Germany, 25 – 30 July 2010. (contributed poster presentation)
- 77 **P. Herckes**\* and J.W. Hutchings, Secondary organic aerosol formation through fog processing of VOCs, *5th International Conference on Fog, Fog Collection and Dew*, Münster, Germany, 25 – 30 July 2010. (contributed poster presentation)
- 78 Y. Wang, K. Khadapkar, F.S. Ehrenhauser, J.W. Hutchings, M.J. Wornat, K.T. Valsaraj, and **P. Herckes**\*, Fog processing of polycyclic aromatic hydrocarbons (PAH), *5th International Conference on Fog, Fog Collection and Dew*, Münster, Germany, 25 – 30 July 2010. (solicited oral presentation)
- 79 D. Straub, J. Hutchings, and **P. Herckes**\*, Observations of radiation fog chemistry in the Eastern United States, *5th International Conference on Fog, Fog Collection and Dew*, Münster, Germany, 25 – 30 July 2010. (contributed poster presentation)
- 80 J. W. Hutchings, B. Ervens and **P. Herckes**\*, N-nitrosodimethylamine (NDMA): a potent carcinogen in clouds and fogs. *AAAR Specialty Conference Air Pollution and Health*, San Diego, CA, March 22-26, 2010. (contributed poster presentation)
- 81 A.L. Clements\*, Y. Jia, M.P. Fraser, **P. Herckes**, M. Sundblom, J. Lantz, C. Brown and P.A. Solomon, Ambient PM Levels and Characterization of Pollutant Sources Impacting the Desert Southwest. *AAAR Specialty Conference Air Pollution and Health*, San Diego, CA, March 22-26, 2010. (contributed poster presentation)

## 2009

- 82 J.W. Hutchings and **P. Herckes**\*, Formation of Secondary Organic Aerosol through Cloud Processing of Anthropogenic VOCs, *AGU annual meeting 2009*, San Francisco, CA, December

- 14-18, 2009. (contributed poster presentation)
- 83 D. Straub\*, J.W. Hutchings, A.L. Clements and **P. Herckes**, Fog chemistry in central Pennsylvania, *AAAR annual meeting 2009*, Minneapolis, MN, October 26-30, 2009. (contributed poster presentation)
- 84 J.W. Hutchings\* and **P. Herckes**, N-Nitrosodimethylamine (NDMA): a potent carcinogen in clouds and fogs, *AAAR annual meeting 2009*, Minneapolis, MN, October 26-30, 2009. (contributed poster presentation)
- 85 J.W. Hutchings\* and **P. Herckes**, Formation of Secondary Organic Aerosol through Cloud Processing of Anthropogenic VOCs, *AAAR annual meeting 2009*, Minneapolis, MN, October 26-30, 2009. (contributed poster presentation)
- 86 H. Hill\*, R. Lohmann and **P. Herckes**, Characterization of Carbonaceous Aerosol over the Atlantic Ocean, *AAAR annual meeting 2009*, Minneapolis, MN, October 26-30, 2009. (contributed poster presentation)
- 87 Q. Sun\*, N. Upadhyay, J.O. Allen, P. Westerhoff and **P. Herckes**, Aerosol Particle Emissions from Wastewater Treatment Aeration Basins, *AAAR annual meeting 2009*, Minneapolis, MN, October 26-30, 2009. (contributed poster presentation)
- 88 A. L. Clements\*, Y. Jia, M. P. Fraser, **P. Herckes**, M. Sundblom, J. Lantz, C. Brown and P. A. Solomon, Chemical Analysis for Source Attribution of Fine and Coarse Particulate Matter in Pinal County, AZ, *AAAR annual meeting 2009*, Minneapolis, MN, October 26-30, 2009. (contributed oral presentation)
- 89 N. Upadhyay\* and **P. Herckes**, Effects of Buffer Concentrations on the Solubility and Redox-Speciation of Iron in Particulate Matter, *AAAR annual meeting 2009*, MN, Minnesota, October 26-30, 2009. (contributed poster presentation)
- 90 M.S. Robinson\*, **P. Herckes** and L. Portz, PAH concentrations in PM-2.5 generated during prescribed burns of the Coconino and Apache-Sitgreaves National Forests, *237th ACS National Meeting*, Salt Lake City, UT, March 22-26, 2009. (contributed poster presentation)
- 91 J.A. Castillo\*, S.J. Staton, **P. Herckes**, T. Taylor, and M.A. Hayes, Bioaerosol Characterization in Various Indoor Environments via High Performance Liquid Chromatography (HPLC), *60th Pittsburgh Conference on Analytical Chemistry and Applied Spectroscopy*, Chicago, IL, March 8-13, 2009. (contributed poster presentation)
- 92 Y. Marusenko\*, **P. Herckes** and S. J. Hall, The Fate of Combustion-Derived Carbon Deposition in Urban Soil, *Central Arizona – Phoenix Long-Term Ecological Research (CAP LTER) Eleventh Annual Poster Symposium*, Tempe, AZ, January 15, 2009. (contributed poster presentation)
- 93 J.W. Hutchings\* and **P. Herckes**, Formation of Secondary Organic Aerosol through Cloud Processing of Anthropogenic VOCs, *11th Conference on Atmospheric Chemistry, AMS 89th Annual Meeting*, Phoenix, AZ, January 11-15, 2009. (contributed poster presentation) (**4<sup>th</sup> prize poster competition**)

**2008**

- 94 N. Upadhyay\*, Q. Sun, J.O. Allen, **P. Herckes**, A. Mendoza and A.Y. Vanoye, Investigation of High Particulate Matter Episodes in the Nogales Border Region, *SCERP Technical Conference 2008*, Tempe, AZ, December 5-6, 2008. (invited oral presentation)
- 95 J.W. Hutchings\* and **P. Herckes**, Formation of secondary organic aerosol through cloud processing of anthropogenic VOCs, *AAAR annual meeting 2008*, Orlando, FL, October 20 - 24, 2008. (contributed poster presentation)
- 96 B.J. Majestic\*, A.D. Anbar and **P. Herckes**, Using Natural Isotope Variations of Iron and Copper to Determine the Source of Automobile Emissions, *AAAR annual meeting 2008*, Orlando, FL, October 20 - 24, 2008. (contributed poster presentation)
- 97 B.J. Majestic\*, A.D. Anbar and **P. Herckes**, Source Apportionment of Particulate Matter Using

- the Natural Variation of Trace Metal Isotopes, *AAAR annual meeting 2008*, Orlando, FL, October 20 - 24, 2008. (contributed poster presentation)
- 98 N. Upadhyay<sup>\*</sup>, **P. Herckes**, Iron Speciation in Particulate Matter, *AAAR annual meeting 2008*, Orlando, FL, October 20 - 24, 2008. (contributed poster presentation)
- 99 **P. Herckes**<sup>\*</sup>, Z. Chen, T. Benn and P. Westerhoff, Detection and quantification of fullerenes in environmental samples, *42nd ACS – Western Regional Meeting*, Las Vegas, NV, September 23-27, 2008. (invited oral presentation)
- 100 J.L. Collett<sup>\*</sup>, Jr, L. Mazzoleni, X. Shen, **P. Herckes**, T. Lee, S. Raja and K.T. Valsaraj, Carbonaceous aerosol processing by clouds and fogs, *International Conference on Clouds and Precipitation*, Cancun, Mexico, July 7-11, 2008. (contributed oral presentation)
- 101 Z. Chen, M. Masles, J. Hutchings, P. Westerhoff and **P. Herckes**<sup>\*</sup>, Characterization of pharmaceuticals in hospital waste effluents, *NSF-Arizona Water Quality Center meeting*, Tucson, AZ, May 12-13, 2008. (invited oral presentation)
- 102 J.L. Collett<sup>\*</sup>, L. Mazzoleni, **P. Herckes**, F. Schwandner, K. Beem, S. Raja, Y. Liu, Y. Sun and Q. Zhang, Organic nitrogen in clouds and precipitation, *EGU General Assembly 2008*, Vienna, Austria, April 13-18, 2008. (contributed oral presentation)

**2007**

- 103 J. Hutchings<sup>\*</sup>, **P. Herckes**, G. McMeeking, S. Kreidenweis, J.L. Collett, Jr., W.M. Hao, C. Wold, and W.C. Malm, Investigation of biomass combustion aerosol by H-NMR spectroscopy, *AAAR annual meeting*, Reno, NV. September 24-28, 2007. (contributed poster presentation)
- 104 **P. Herckes**<sup>\*</sup>, Z. Chen, P. Westerhoff, Characterization of carbonaceous particle emissions by waste water treatment plants *AAAR annual meeting*, Reno, NV. September 24-28, 2007. (contributed poster presentation)
- 105 **P. Herckes**<sup>\*</sup>, J. Cox, K. Knight, N. Upadhyay, P. Prapaipong, R. Lohmann, L. Nizzetto, Characterization Of Particulate Matter Along A North/ South Transect of the Atlantic Ocean, *AAAR annual meeting*, Reno, NV. September 24-28, 2007. (contributed poster presentation)
- 106 J. Hutchings<sup>\*</sup>, J. Triplett, H. McIlwraith, **P. Herckes**, M. Robinson, The chemical composition of intercepted clouds in northern Arizona during North American monsoon season, *AAAR annual meeting*, Reno, NV. September 24-28, 2007. (contributed oral presentation)
- 107 J.L. Collett, Jr. <sup>\*</sup>, L. Rinehart-Mazzoleni, **P. Herckes**, X. Shen, T. Lee, A.P. Sullivan, S. Raja, R. R. Kommalapati and K.T. Valsaraj, Carbonaceous aerosol processing by clouds and fogs, *American Chemical Society, 234<sup>th</sup> National Meeting & Exposition*, Boston, MA, August 19-23, 2007. (contributed oral presentation)
- 108 J.L. Collett, Jr. <sup>\*</sup>, **P. Herckes**, L. Rinehart, A. Sullivan and X. Shen, New insights into the organic composition of clouds and fogs, *4<sup>th</sup> International Conference on Fog, Fog Collection and Dew*, City of La Serena, Chile, July 22-27, 2007. (contributed oral presentation)
- 109 J.L. Collett, Jr. <sup>\*</sup>, A.P. Sullivan, G. Engling, C. Gorin, **P. Herckes**, L. Rinehart-Mazzoleni, A. Holden, S.M. Kreidenweis, W. Malm, W.M. Hao, The contribution of biomass combustion to ambient particulate organic carbon, *Regional Haze Science Meeting*, Timonium, MD, July 10-11, 2007. (contributed oral presentation)
- 110 M. Robinson<sup>\*</sup>, X. Nelson and **P. Herckes**, Polycyclic aromatic hydrocarbon concentrations in wood smoke from prescribed fires of the Southwest, *American Chemical Society, 233rd National Meeting & Exposition*, Chicago, IL March 25-29, 2007. (contributed poster presentation)

**2006**

- 111 **P. Herckes**<sup>\*</sup>, J. Cox, R. Lohmann and L. Nizzetto Characterization Of Carbonaceous Particles Along A North –South Transect Of The Atlantic Ocean, *AGU Fall Meeting*, San Francisco, CA, December 11-15, 2006. (contributed poster presentation)

- 112 M. Robinson, M. Quarterman, L. Zack, C. Brindley and **P. Herckes\***, Characterization of Particulate Matter (PM<sub>2.5</sub>) Emissions During Prescribed Fires of the Coconino National Forest, *AGU Fall Meeting*, San Francisco, CA, December 11-15, 2006. (contributed poster presentation)
- 113 J.L. Collett\*, A. Bator, H. Chang, B. Demoz, **P. Herckes**, K. Hoag, T. Lee, K. F. Moore, S. Raja, X. Rao, J. Reilly, L. Rinehart, D. Sherman, D. Straub, G. Xu, S. Youngster, X. Yu, K. Valsaraj and R. Ravikrishna The chemical composition of fogs and clouds in the United States, *AGU Fall Meeting*, San Francisco, CA, December 11-15, 2006. (contributed oral presentation)
- 114 X. Nelson\*, M. Robinson, K. Raso, M. Aday, T. Carel and **P. Herckes**, Characterization of Fine Particulate Matter Emitted During Prescribed Fires of the Coconino National Forest, *Annual Biomedical Research Conference for Minority Students (ABRCMS)*, Anaheim, CA, November 8-11, 2006. (contributed poster presentation)
- 115 N. Upadhyay\*, P. Praipong and **P. Herckes**, Optimization of microwave assisted digestion protocols for the determination of trace metals in ambient particulate matter by ICP/MS *The 19th Rocky Mountain Regional Meeting of the ACS*, Tucson, AZ, October 14-18, 2006. (contributed poster presentation)
- 116 J. Hutchings\*, M. Robinson, H. McIlwraith and **P. Herckes**, Cloud water chemistry in northern Arizona, *The 19th Rocky Mountain Regional Meeting of the ACS*, Tucson, AZ, October 14-18, 2006. (contributed poster presentation)
- 117 H. McIlwraith\* and **P. Herckes**, Stability of particulate wood smoke marker species towards cloud processing, *7th International Aerosol Conference and AAAR annual meeting*, St. Paul, MN, September 10-15, 2006. (contributed poster presentation)
- 118 O. Delhomme\*, **P. Herckes** and M. Millet, Determination of oxygenated polycyclic aromatic hydrocarbons by liquid chromatography - tandem mass spectrometry in aerosol samples, *34th International Symposium on Environmental Analytical Chemistry, ISEAC 34*, Hamburg, Germany, June 4-8, 2006. (contributed poster presentation)
- 119 O. Delhomme\*, **P. Herckes**, M. Millet and P. Mirabel, Post-column derivatization of nitro-polycyclic aromatic hydrocarbons to amino-polycyclic aromatic hydrocarbons for their analysis by HPLC fluorescence, Application to atmospheric aerosols, *34th International Symposium on Environmental Analytical Chemistry, ISEAC 34*, Hamburg, Germany, June 4-8, 2006. (contributed poster presentation)

**2005**

- 120 C. A. Gorin\*, J.L. Collett Jr, **P. Herckes**, Wood Smoke Contribution to Ambient Aerosol in Fresno During Winter 2003-2004, *AGU Fall Meeting*, San Francisco, CA, December 5-9, 2005. (contributed poster presentation)
- 121 J.L. Collett Jr\*, S. Youngster, T. Lee, H. Chang, **P. Herckes**, Processing of Atmospheric Organic Matter by California Radiation Fogs *AGU Fall Meeting*, San Francisco, CA, December 5-9, 2005. (contributed oral presentation)
- 122 H. McIlwraith, J. S. Cox, **P. Herckes**, Stability of particulate wood smoke markers species towards cloud processing, *AAAR Annual Conference*, Austin, TX, October 17-21, 2005. (contributed poster presentation)
- 123 J.L. Collett\*, S. Youngster, T.L. Lee, **P. Herckes**, Processing of organic pollutants by fogs and *AAAR Annual Conference*, Austin, TX, October 17-21, 2005. (contributed oral presentation)
- 124 J.L. Collett, Jr., C. Gorin\*, **P. Herckes**, Impact of wood smoke on winter aerosol concentrations in Fresno CA: spatial and temporal distribution *AAAR 2005 PM Supersites and related studies special conference*, Atlanta, GA, February 7-11, 2005. (contributed poster presentation)
- 125 G. Engling\*, C.M. Carrico, **P. Herckes**, S.M. Kreidenweis, J.L. Collett, D.E. Day, W.C. Malm, R. Babbitt, E. Lincoln, Y. Inuma, H. Herrmann Determination of Levoglucosan in biomass combustion aerosol by HPLC-PAD, *AAAR 2005 PM Supersites and related studies special*

*conference*, Atlanta, GA, February 7-11, 2005. (contributed poster presentation)

126 J.L. Collett\*, T. Lee, H. Chang and **P. Herckes**, Pollution Processing by radiation fogs during the California Regional PM10/PM2.5 Air Quality study (CRPAQS), *AAAR 2005 PM Supersites and related studies special conference*, Atlanta, GA, February 7-11, 2005. (contributed oral presentation)

127 **P. Herckes\***, S. Youngster, T. Lee and J.L. Collett Fog processing of atmospheric particulate matter. *AAAR 2005 PM Supersites and related studies special conference*, Atlanta, GA, February 7-11, 2005. (contributed oral presentation)

## 2004

128 J.L. Collett, Jr\*, **P. Herckes**, T., Lee, H. Chang, S., Youngster and J. Reilly. Pollution Processing by California Radiation Fogs, *AGU Fall Meeting*, San Francisco, CA, December 13-17, 2004. (contributed oral presentation)

129 J.L. Collett, Jr. \*, **P. Herckes**, T. Lee, H. Chang and S. Youngster. The Organic Composition of California Fogs and Clouds. *Third International Conference on Fog, Fog Collection and Dew*, Cape Town, South Africa, October 11-15, 2004. (contributed oral presentation)

130 T. Lee, **P. Herckes**, S. Youngster and J.L. Collett\*. Scavenging and deposition of aerosol particles by California radiation fogs. *Third International Conference on Fog, Fog Collection and Dew*, Cape Town, South Africa, October 11-15, 2004. (contributed oral presentation)

131 J.L. Collett, Jr. \*, G. Engling, **P. Herckes**, C. Garcia and C. Henry, New technique for the measurement of wood smoke marker compounds, *Symposium on Air Quality Measurement Methods and Technology—2004*, Research Triangle Park, NC, April 19-22, 2004. (contributed oral presentation)

132 G. Engling\*, **P. Herckes**, S. Kreidenweis, J.L. Collett, Organic Aerosol Composition in Yosemite National Park—Results from The 2002 Yosemite Special Study, *An international state of the science workshop on organic speciation*, Las Vegas, NV, April 5-7, 2004. (contributed poster presentation)

133 H. Chang\*, **P. Herckes**, J.L. Collett, Jr. A Critical Evaluation of Anion Exchange Chromatography for the Separation of Water Soluble Organic Carbon, *An international state of the science workshop on organic speciation*, Las Vegas, NV, April 5-7, 2004. (contributed poster presentation)

134 **P. Herckes\***, T. Lee, H. Chang, J. Carrillo, S. Youngster and J.L. Collett, Jr., Speciation of Organic Matter in Fog Droplets: How Far are We from Mass Closure? *An international state of the science workshop on organic speciation*, Las Vegas, NV, April 5-7, 2004. (contributed poster presentation)

## 2003

135 C.M. Carrico\*, S. Kreidenweis, J.L. Collett, G. McMeeking, T. Lee, J. Carrillo, **P. Herckes** and G. Engling, Physical, Chemical, and Optical Properties of Smoke-Impacted Aerosols in Yosemite National Park, *AGU Fall Meeting*, San Francisco, CA, December 8-12, 2003. (contributed poster presentation)

136 J.L. Collett\* and **P. Herckes**, Field Observations of the Processing of Organic Aerosol Particles and Trace Gases by Fogs and Clouds, *AGU Fall Meeting*, San Francisco, CA, December 8-12, 2003. (contributed poster presentation)

137 **P. Herckes\***, T. Lee, L. Trenary, G. Kang, and J.L. Collett, Jr., Fog Processing of atmospheric organic compounds during the California Regional PM10/PM2.5 Air Quality Study (CRPAQS), *Annual Meeting of the American Association for Aerosol Research*, Anaheim, CA, October 20-24, 2003. (contributed oral presentation)

138 J.L. Collett, Jr\*, T. Lee, H. Chang and **P. Herckes**, Overview of fog studies during the California Regional PM10/PM2.5 Air Quality Study (CRPAQS), *Annual Meeting of the American Association for Aerosol Research*, Anaheim, CA, October 20-24, 2003. (contributed poster presentation)

- 139 H. Chang\*, **P. Herckes**, T. Lee, and J.L. Collett, Jr., Aerosol processing and removal by fogs: observations in radiation fogs during the CRPAQS study, *Annual Meeting of the American Association for Aerosol Research*, Anaheim, CA, October 20-24, 2003. (contributed poster presentation)
- 140 **P. Herckes**\*, G. Engling, J. Heath, C.M. Carrico, T. Lee, J.L. Collett, S.M. Kreidenweis, D. Day, W. Malm and G. Bench. Chemical characterization of organic aerosol during the 2002 Yosemite aerosol and visibility study, *Annual Meeting of the American Association for Aerosol Research*, Anaheim, CA, October 20-24, 2003. (contributed poster presentation)
- 141 T. Lee\*, C. Carrico, J. Heath, **P. Herckes**, G. Engling, S.M. Kreidenweis, J.L. Collett, D. Day and W. Malm, Continuous measurement of aerosol ionic composition during the Yosemite National Park Special Study in 2002, *Annual Meeting of the Air and Waste Management Association*, San Diego, CA, June 22-26, 2003. (contributed poster presentation)
- 142 J. Carrillo\*, T. Lee, C. Carrico, J. Collett, S. Kreidenweis, **P. Herckes**, G. Engling, D. Day, W. Malm and G. Bench, PM<sub>2.5</sub> Aerosol Properties During the Summer 2002 Yosemite Visibility Study, *Annual Meeting of the Air and Waste Management Association*, San Diego, CA, June 22-26, 2003. (contributed poster presentation)

**2002**

- 143 B. Ervens\*, G. Feingold, **P. Herckes**, J.L. Collett, S.M. Kreidenweis, Uptake of organic acids by water droplets, *AGU Fall Meeting*, San Francisco, CA, December 6-10, 2002. (contributed oral presentation)
- 144 C. M. Carrico\*, D. Day, J. Heath, T. Lee, **P. Herckes**, G. Engling, S.M. Kreidenweis, J.L. Collett, G. Bench, W. Malm, Regional Haze from Forest Fires and San Joaquin Valley Pollution: Aerosol Properties at Yosemite National Park, *AGU Fall Meeting*, San Francisco, CA, December 6-10, 2002. (contributed poster presentation)
- 145 G. Engling\*, **P. Herckes** and J.L. Collett, Levoglucosan detection using a biosensor, *AWMA Symposium on Air Quality Measurement Methods and Technology*, San Francisco, CA, November 13-15, 2002. (contributed oral presentation)
- 146 J.L. Collett\*, T. Lee, J. Heath, C. Carrico, **P. Herckes**, G. Engling, G. McMeeking, S. Kreidenweis, D. Day, W. Malm, G. Bench and T. Cahill, Semi-continuous Measurements of Aerosol Chemical Composition During the Summer 2002 Yosemite National Park Special Study, *AWMA Symposium on Air Quality Measurement Methods and Technology*, November 13-15, 2002. (contributed oral presentation)
- 147 **P. Herckes**\*, L. Trenary, T. Lee and J.L. Collett, Organic matter in fog drops: How far are we from mass closure? *Annual Meeting of the American Association for Aerosol Research*, Charlotte, NC, October 7-11, 2002. (contributed poster presentation)
- 148 G. Engling\*, **P. Herckes** and J.L. Collett, Amperometric detection of Levoglucosan with a biosensor, *Annual Meeting of the American Association for Aerosol Research*, Charlotte, NC, October 7-11, 2002. (contributed poster presentation)

**2001**

- 149 **P. Herckes**\*, L. Trenary, T. Lee, G.U. Kang, M. P. Hannigan and J.L. Collett, Jr. Fog processing of atmospheric organic compounds. *AAAR 2001*, Portland, OR, October 15-19, 2001. (contributed poster presentation)
- 150 **P. Herckes**\*, S. Brown, T. Lee, M.P. Hannigan, S.M. Kreidenweis and J.L. Collett, Jr. Molecular composition of organic aerosol sampled at Big Bend National Park, Texas, during the 1999 Big Bend Regional Aerosol and Visibility Observational (BRAVO) study. *AAAR 2001*, Portland, OR, October 15-19, 2001. (contributed poster presentation)
- 151 **P. Herckes**, S. Brown\*, T. Lee, M.P. Hannigan, S.M. Kreidenweis and J.L. Collett, Jr. Molecular composition of organic aerosol sampled at Big Bend National Park, TEXAS during the 1999 Big

Bend Regional Aerosol and Visibility Observational (BRAVO) study. *Regional Haze and Global Radiation Balance – Aerosol Measurements and Models: Closure, Reconciliation and Evaluation*, Bend, OR, October 2-5, 2001. (contributed oral presentation)

- 152 **P. Herckes\***, Ph. Mirabel and H. Wortham, Fogwater studies in the Vosges Mountains (France) *Second International Conference on Fog and Fog Collection*, St. John's, Newfoundland, Canada, July 15-20, 2001. (contributed poster presentation)
- 153 **P. Herckes\***, M. Millet, Ph. Mirabel and H. Wortham. Fogwater Composition in Strasbourg (France) from 1990 to 1999 – A change in Urban Air Quality? *Second International Conference on Fog and Fog Collection*, St. John's, Newfoundland, Canada, July 15-20, 2001. (contributed poster presentation)
- 154 **P. Herckes\***, L. Trenary, M.P. Hannigan, T. Lee and J.L. Collett, Jr. Cloud and Fog Processing of Atmospheric Organic Compounds *Second International Conference on Fog and Fog Collection*, St. John's, Newfoundland, Canada, July 15-20, 2001. (contributed oral presentation)
- 155 J.L. Collett, Jr. \*, K.F. Moore, J.E. Reilly, A. Bator, K.J. Hoag, D.E. Sherman, **P. Herckes**, T. Lee, M.P. Hannigan, H. Chang and L. Trenary, Aerosol Processing by clouds and fogs. *221st ACS National Meeting*, San Diego, CA, April 1-5, 2001. (contributed oral presentation)
- 156 J.L. Collett, Jr. \*, **P. Herckes**, L. Heglin and M.P. Hannigan. Cloud and fog processing of atmospheric organic compounds. *AMS 81th Annual Meeting*, Albuquerque, NM, January 14-19, 2001. (contributed oral presentation)

## 2000

- 157 J.L. Collett, Jr. \*, **P. Herckes**, L. Trenary, T. Lee, M.P. Hannigan, D.E. Sherman, K.F. Moore, and J. Reilly. Fog and cloud processing of atmospheric organic compounds. *AGU Fall Meeting*, San Francisco, CA, December 15-19, 2000. (contributed oral presentation)
- 158 **P. Herckes\***, M.P. Hannigan, D.E. Sherman, S.M. Kreidenweis and J.L. Collett, Jr, Molecular composition of organic aerosol sampled at the Big Bend National Park (U.S.A.) during the 1999 Big Bend Regional Aerosol and Visibility Observational study (BRAVO), *7th International Conference on Carbonaceous Particles in the Atmosphere*, San Juan, Puerto Rico, November 26-29, 2000. (contributed poster presentation)
- 159 **P. Herckes\***, T. Lee, J.E. Reilly, M.P. Hannigan, D.E. Sherman, S.M. Kreidenweis and J.L. Collett, Chemical characteristics of aerosol sampled at the Big Bend National Park (U.S.A.) during the 1999 Big Bend Regional Aerosol and Visibility Observational study (BRAVO), *Visibility 2000*, Vienna, Austria, September 11-15, 2000. (contributed poster presentation)

## 1999

- 160 **P. Herckes\***, H. Wortham, R. Wendling and Ph Mirabel, Cloudwater studies at an high elevation site in the Vosges Mountains (France), *Sixth Scientific Conference of the International Global Atmospheric Chemistry Project*, Bologna, Italy, September 13-17, 1999. (contributed poster presentation)
- 161 **P. Herckes\***, Ph. Nobelis, M. Millet, Ph. Mirabel and H. Wortham, Fog and rainwater ionic composition in Strasbourg (France) from 1990 to 1998 - A change in urban air quality? *Sixth Scientific Conference of the International Global Atmospheric Chemistry Project*, Bologna, Italy, September 13-17, 1999. (contributed poster presentation)

## 1998

- 162 **P. Herckes\***, M. Millet, H. Wortham and Ph. Mirabel, Fogwater composition at 3 different sites, *First International Conference on Fog and Fog Collection*, Vancouver, Canada, July 19-24, 1998. (contributed oral presentation)

## Invited Lectures

- 15 – **“Behind the faucet: What impacts your drinking water quality”**, Dean’s lecture, CLAS, Arizona State University, Tempe, AZ February 7, 2017.
- 14 – **“Cloud Chemistry – A Chemist’s view on clouds”**, departmental seminar, Department of Chemistry and Biochemistry, Florida International University, Miami, FL, October 3, 2014.
- 13 – **“Air Pollution Studies in Arizona”**, departmental seminar, Department of Atmospheric Science, University of Sao Paulo, Sao Paulo, Brazil, November 23, 2011.
- 12 – **“Cloud Chemistry – A Chemist’s view on clouds”**, departmental seminar, Department of Atmospheric Science, University of Sao Paulo, Sao Paulo, Brazil, November 4, 2011.
- 11 – **“Cloud Chemistry – A Chemist’s view on clouds”**, seminar, Department of Chemistry and Biochemistry, University of Denver, Denver, CO, February 2, 2010.
- 10 – **“Nanomaterials in the water? Brakedust in the air? - Analytical approaches to environmental challenges”**, seminar, Department of Chemistry and Biochemistry, University of Delaware, Newark, DE, September 21, 2009.
- 9 – **“Cloud and fog processing of carbonaceous material”**, departmental seminar, Department of Chemical Engineering, Louisiana State University, Baton Rouge, LA, September 19, 2008.
- 8 – **“Cloud Chemistry”**, departmental seminar, Department of Chemistry and Biochemistry Southern Illinois University, Carbondale, IL, March 28, 2008.
- 7 – **“Pollution processing by fogs and clouds”**, weekly seminar series, Department of Civil and Environmental Engineering, Arizona State University, Tempe, AZ, November 13, 2007.
- 6 – **“A Chemist’s view on clouds”**, departmental seminar, Department of Chemistry and Biochemistry, Northern Arizona University, Flagstaff, AZ, April 13, 2007.
- 5 – **“Pollution processing by fogs and clouds”**, departmental seminar, Department of Atmospheric Science University of Arizona, Tucson, AZ, March 1<sup>st</sup>, 2007.
- 4 – **“La chimie des nuages: du brouillard au climat”**, public lecture, conference series featuring Luxembourg researchers abroad, Luxembourg, March 15, 2004.
- 3 – **“Pollution processing by fogs and clouds”**, departmental seminar, Department of Chemistry and Biochemistry, Arizona State University, Tempe, AZ, February 26, 2004.
- 2 – **“Cloud and Fog Processing of Atmospheric Pollutants”**, institute seminar, Institute of Astronomy and Geophysics, University of Sao Paulo (Brazil), Sao Paulo, Brazil, August 8, 2003.
- 1 – **“Cloud and Fog Processing of Atmospheric Organic Compounds”**, departmental seminar, Department of Chemistry, UC Riverside, Riverside, CA, January 27, 2003.

## Patents

- 1 US 8,821,703  
M.A. Hayes, T.J. Taylor, K. Booksh, N. Woodbury and **P. Herckes**, *System and method for automated bioparticle recognition*, issued Sept 2, 2014

## Teaching and Mentoring (at ASU)

Nominated for the Zebulon Pearce distinguished teaching award (ASU, CLAS, 2013)

### Undergraduate courses

CHM 302 – <b>Environmental Chemistry</b> (3credits)	F.05, F.06, F.07, F.10, F.12, F.13, F.15, F.16
CHM 325 – <b>Analytical Chemistry</b> (3cr.)	Su. 07, Su. 08, Su. 09
CHM 326 – <b>Analytical Chemistry Lab</b> (1cr./1-2 sections)	Su. 07, Su. 08, Su. 09
CHM 327 – <b>Instrumental Analysis</b> (3cr.)	Sp. 05*, Sp. 07, Sp. 08*, Sp. 10, Sp. 11, Sp. 12, Sp. 13, Sp. 15, Sp.17
CHM 328 – <b>Instrumental Analysis Lab</b> (1cr./3sections) (*- team teaching)	Sp. 05*, Sp. 08*

### Graduate courses

CHM 598 – <b>Environmental Analytical Chemistry</b> (3cr.)**	Sp. 06, F. 14
CHM 598 – <b>Chemistry of Atmospheres</b> (3cr.) (GLG598)** (** - new course)	F. 09, Sp. 14, Sp. 16, F.17

### Graduate seminars

CHM 501 – <b>Current topics in Environmental Chemistry</b>	F06*, Sp07*, F.07*, F. 08*, Sp. 11*, Sp. 12, Sp.14, F.15
CHM 501 – <b>Current topics in Analytical Chemistry</b>	F.10, Sp.13

### Undergraduate research activities (Manager and Instructor of Record)

CHM 392, BCH392 – <b>Intro to Research Techniques</b>	Sp.16 - present
CHM 492, BCH 492 – <b>Honors Directed Study</b>	Sp.16 - present
CHM 493, BCH 493 – <b>Honors Thesis</b>	Sp.16 - present

### Undergraduate students mentored in research activities

Kristina Husman	spring 2005 – fall 2005	<i>left for</i> Medical school
James V Jones	summer 2005 – spring 2006	Aerotech Environmental
Minae Tanaka	summer 2005 - spring 2006	Fuji Film
Nicholas Kunda	summer 2005 – fall 2007	Medical school
Candace Coen	fall 2005 – spring 2006	Dental school
Kandis Knight	fall 2006 – spring 2008	ADEQ, then graduate school
Laura Schultz (co w/Anbar)	summer 2007- fall 2007	Paypal
Claire Lunden	summer 2007 - spring 2008	Intel
Rachel Bender (co w/Anbar)	summer 2008 – spring 2009	ASU
Christopher Shaw	fall 2008-spring 2009	University of Manchester
Mary Graham	summer 2009 – fall 2009	unknown
Richard T. Villa	fall 2009	unknown
Julia Lam	fall 2009	unknown
Michael Wimmer	summer 2010-spring 2011	Graduate School ASU (Chem.)
Lauren Knoell	fall 2010-fall 2011	Stryker Endoscopy
Amanda Wilson	spring 2011- spring 2012 (Honors)	Graduate School Rice (Chemistry)
Kirk Reed	spring 2012 – fall 2012	Paragon Vision Sciences
Kevin Shaffer	spring 2012 – spring 2013	APS Bio Group

Blanca Rodriguez	spring 2013- spring 2015	Graduate School UCI (Chemistry)
Katarine Silva	summer 2014 - fall 2014	Brazil (to finish degree)
Nelson Luciano Da Silva Nieto	summer 2015	Brazil (to finish degree)
Joana Sipe	summer 2013-spring 2016	Graduate School Duke (Env.Eng.)
Clare McClernon	spring 2015- spring 2016	applying to Med School
Kaitlyn Mandigo	spring 2015-spring 2016	chemistry teacher Basis Scottsdale
Vera Cheche	fall 2015- spring 2016	Graduate School ASU (Bioninfo)
Joseph Nuremberg	spring 2016-fall 2016	unknown

## Graduate Student and Postdoctoral advising

### Member of the graduate faculty at ASU for the following PhD degrees:

<i>Chemistry</i>	<i>Biochemistry</i>	<i>Environmental Engineering</i>
<i>Environmental Life Sciences</i>	<i>Geological Science</i>	<i>Materials Science and Engineering</i>

### Postdoctoral (P) and visiting associates (VA)

Olivier Delhomme (VA)	3/2005 – 10/2005	now assistant professor Univ. Metz (F)
Jenny Cox (P)	7/2005 – 4/2006	lab manager University of Guelph (Can)
Xiufen Long (P)	3/2006 – 10/2007	scientific editor China
Zhuo Chen (co w/Westerhoff) (P)	5/2006 – 8/2007	research associate Imperial College (UK)
Brian Majestic (co w/Anbar) (P)	10/2007 – 8/2009	assistant professor University of Denver
James Hutchings (P)	5/2010 – 9/2010	scientist Virginia Dept. of Forensics
Nabin Uphadyay (P)	5/2010 – 12/2010	scientist Conoco Phillips, Qatar
Olivier Delhomme (VA)	6/2010 – 9/2010	assistant professor Univ. Metz (F)
Raphael Scholze (VA)	8/2010 – 2/2011	University of Mainz (D)
Yasmany Mancilla (VA)	7/2012 – 10/2012	adjunct faculty ITESM Monterrey (Mex)
Gerardo Medina Gaitan (VA)	2/2015 – 3/2015	ITESM (Mex)
Edith Neulen (VA)	9/2016 – 2/2017	University of Mainz (D)

### Graduate students (Dissertation Committee Chair, chemistry if not marked otherwise)

Quinye Sun	<i>Ph.D. Chem.E. (09)</i>	Scientist AZ Dept. Environmental Quality
James Hutchings	<i>Ph.D. (2010)</i>	Scientist Virginia Dept. of Forensics
Nabin Uphadyay	<i>Ph.D. (2010)</i>	Environmental Scientist Conoco Phillips, Qatar
Heide McIlwraith	<i>M.N.S. (2010)</i>	Lecturer ASU Polytechnic campus
John Benedet	<i>M.S. (2010)</i>	Instructor ASU/MCC
Hansina Hill	<i>M.S. (2011)</i>	Lab. Manager Evergreen College
Sarah Frey	<i>Ph.D. (2014)</i>	Environmental Scientist US EPA
Youliang Wang	<i>Ph.D. (2014)</i>	Business Owner/Art Dealer
Christy Long	<i>M.S. (2014)</i>	Chemist Environ International
Aurelie Marcotte	<i>Ph.D. (2015)</i>	postdoc US EPA
Jinwei Zhang	<i>Ph.D. (2016)</i>	Analytical Chemist Xenobiotic Laboratories Inc.
Jershon Eagar	<i>Ph.D. (2016)</i>	instructor BASIS Phoenix and SMCC
Denise Napolitano	<i>Ph.D. student</i>	entered fall 2012
Takayuki Nosaka	<i>Ph.D. student</i>	entered fall 2013 (Materials Engineering)
Alyssa Sherri	<i>Ph.D. student</i>	entered fall 2014 (co-chair)
Samantha Donovan	<i>Ph.D. student</i>	entered fall 2015

**Graduate students (Committee Member)**

Soame Banerji	<i>(Chemistry, K. Booksh advisor)</i>	PhD defended June 06
Matt Petkus	<i>(Chemistry, M. Hayes)</i>	PhD defended Dec. 06
Corey Tyree	<i>(Chemical Engineering, J. Allen)</i>	PhD defended April07
Brijesh Nair	<i>(Environmental Engineering, P. Fox)</i>	PhD defended April07
Shayla Banerji	<i>(Chemistry, M. Hayes)</i>	PhD defended July 07
Olivier Delhomme	<i>(University of Strasbourg, France)</i>	PhD defended April08
Yuling Jia	<i>(Rice University, M. Fraser)</i>	PhD defended Sept.09
Troy Benn	<i>(Environmental Eng. P. Westerhoff)</i>	PhD defended Nov. 09
Michelle Meghan	<i>(Chemistry, M. Hayes)</i>	PhD defended Apr. 10
Yevgeniy Marushenko	<i>(Life Sciences, S. Hall)</i>	MS defended Apr. 10
Jun Wang	<i>(Environmental Eng. P. Westerhoff)</i>	MS defended June 10
Xiaoding Zhuo	<i>(Chemistry, E. Shock)</i>	PhD defended Aug. 10
Alex Weir	<i>(Environmental Eng. P. Westerhoff)</i>	MS defended July 11
Josemar Castillo	<i>(Chemistry, M. Hayes)</i>	PhD defended July 11
Andrea Clements	<i>(Rice University, M. Fraser)</i>	PhD defended Aug. 12
Fariya Sharif	<i>(Environmental Eng. P. Westerhoff)</i>	PhD defended Aug. 13
George Hamilton	<i>(Chemistry, H. Hartnett)</i>	PhD defended Oct. 13
Yasmany Mancilla	<i>(Chem. E. ITESM Monterrey, Mexico)</i>	PhD defended Dec. 13
Chris Mead	<i>(Geology, A. Anbar)</i>	PhD defended Apr. 14
Dinesh Medpelli	<i>(Chemistry, D. Seo)</i>	PhD defended Feb. 15
Margaret Bowman	<i>(Chemistry, H. Hartnett)</i>	MS defended Apr. 15
Natalia Hoogestijn	<i>(Environmental Eng. P. Westerhoff)</i>	MS defended Apr.15
Zhicheng Yu	<i>(Environmental Eng. P. Westerhoff)</i>	MS defended Apr. 15
Chen Xinming	<i>(Chemistry, A. Anbar)</i>	MS defended Apr. 15
Paul Jones	<i>(Chemistry, M. Hayes)</i>	PhD defended Apr. 15
David Hannigan	<i>(Environmental Eng. P. Westerhoff)</i>	PhD defended Aug. 15
Daniel Mieritz	<i>(Chemistry, D. Seo)</i>	PhD defended Sep. 16
Jared Schoepf	<i>(Chemical Eng. P. Westerhoff)</i>	PhD defended Jun. 17
Parker Castleberry	<i>(Chemistry, A. Anbar)</i>	MS defended Jun. 17
Kirtland Robinson	<i>(Chemistry, E. Shock)</i>	
Claire Crowther	<i>(Chemistry, M. Hayes)</i>	
Shannon Huey	<i>(Chemistry, M. Hayes)</i>	
Xiangyu Bi	<i>(Environmental Eng. P. Westerhoff)</i>	
Natalia Hoogestijn	<i>(Environmental Eng. P. Westerhoff)</i>	
Zijian Du	<i>(Electrical Eng, N.J. Tao)</i>	

**Graduate students (Oral Examination Committee Member (M) or Chair (C))**

Ugur Demirok (M); Michael Keebaugh (M); Stacy Kenyon (M); Timothy Lamb (C);  
 Rawiwan Laocharoensuk (M); Shelly Seerly (C); Ramesh Sharma (C); Sarah Staton (C);  
 Yun Xiang (M); Kristopher Fecteau (C). Adam Monroe (M); Christiana Bockisch (C); Austin  
 Echelmeier(C); Yameng Liu (C)

## Grants/Contracts

### *Current:*

#### **45- “LTER-CAP IV: Design with Nature: a research framework for exploring urban ecology and sustainability”**

NSF, November 1<sup>st</sup> 2016 – TBD; 6M requested, partially awarded  
(D. Childers PI, numerous Co-PIs. P. Herckes (1%) Co-PI)

#### **44- “Understanding the Source and Fate of Polymer-Derived Nitrosamine Precursors”**

Water Research Foundation, January 1<sup>st</sup> 2016- December 31<sup>st</sup> 2017, \$350,000.  
(P. Westerhoff (60%), PI, P. Herckes (40%) Co-PI)

#### **43 - “NCCLCs: Material Life Cycle of Nanomaterials (LCNano)”**

EPA, December 1<sup>st</sup> 2013 – November 30<sup>th</sup> 2017, \$5,000,000  
(P. Westerhoff PI (45%); P. Herckes (20%), T. Seager (20%), I. Bennett (5%), J. Wetmore(5%), K. Hristovski (5%). Co- PIs (ASU))

#### **42 – “Nanoprospecting: An Approach Towards Environmental Monitoring Of Engineered Nanomaterials “**

NSF, September 1<sup>st</sup> 2013 – August 31<sup>st</sup> 2017, \$306,000  
(P. Westerhoff (60%), PI, P. Herckes (20%) and K. Hristovski (20%) Co-PIs)

### *Completed*

#### **41- “Identification and Quantification of Nanomaterials in/on Fruits and Vegetables”**

Friends of the Earth, May 2<sup>nd</sup> 2014- November 16 2016, \$17,500.  
(P. Westerhoff (80%), PI, P. Herckes (20%) Co-PI)

#### **40- “Proposal to Test Carbobyk-9810 to Determine Sludge Sorption and Subsequent Receiving Stream Concentration”,**

BYK USA Inc. July 1<sup>st</sup> 2015- May 15 2016, \$25,000.  
(P. Westerhoff (60%), PI, P. Herckes (20%) Co-PI)

#### **39- “Influence of haboobs on Phoenix air quality and resulting deposition enhancement of metals, ions and trace organics”**

SRP- Salt River Project, October 1<sup>st</sup> 2014- April 30<sup>th</sup> 2016, \$25,000.  
(P. Herckes PI, 100%)

#### **38 - “Relative Importance And Contribution Of Anthropogenic And Natural Sources Of Nitrosamine Precursors “**

Water Research Foundation, December 1<sup>st</sup> 2013 – December 31<sup>st</sup> 2015, \$300,000  
(P. Westerhoff PI (70%); P. Herckes Co- PI (30% ))

#### **37- \*confidential\***

Intel Corporation, December 1<sup>st</sup> 2014- May 31<sup>st</sup> 2015, \$30,000.  
(P. Herckes PI, 100%)

#### **36 – “Detection Of Engineered Nanomaterials At Semi-Conductor Facilities And in Consumer Products“**

Semiconductor Research Corporation, January 1<sup>st</sup> 2012 – December 31<sup>st</sup> 2014, \$334,297  
(P. Westerhoff PI (60%); P. Herckes Co- PI(40%))

#### **35 - “Controlling The Formation Of Nitrosamines During Water Treatment“**

Water Research Foundation, January 1<sup>st</sup> 2012 – December 31<sup>st</sup> 2014, \$115,000  
(P. Westerhoff PI (80%); P. Herckes Co- PI (20%))

- 34 - “Identification and Quantification of Nanomaterials in on Fruits and Vegetables “**  
Friends of the Earth, May 2<sup>nd</sup> 2014 – August 1<sup>st</sup> 2014, \$12,500  
(*P. Westerhoff PI (60%); P. Herckes (20%) and D. Capco (20%), Co- PIs*)
- 33 - “Chemical Characterization Of Carbonaceous Aerosol In Monterrey (Mexico)”**  
ITESM Monterrey, September 1<sup>st</sup> 2012- August 31<sup>st</sup> 2014, \$25,999  
(*P. Herckes PI (50%); M. Fraser Co-PI(50%)*)
- 32 – “CAREER Cloud and fog processing of organic matter”**  
NSF - National Science Foundation, September 1<sup>st</sup> 2009 – August 31<sup>st</sup> 2014, \$561,491  
(*P. Herckes PI, 100%*)
- 31 - “Titanium Dioxide Nanomaterials In Public Water Bodies - Reactions With Simulated Bodily Fluids And Chlorine-Based Oxidants “**  
NIST, September 1<sup>st</sup> 2013 – April 20<sup>th</sup> 2014, \$15,000  
(*P. Westerhoff PI (67%); P. Herckes Co- PI (33%)*).
- 30 – “Collaborative Research: Atmospheric processing of iron - Does particle size influence solubility?”**  
NSF - National Science Foundation, May 1<sup>st</sup> 2010 – April 30<sup>th</sup> 2014, \$228,770  
(*P. Herckes PI (50%); A. Anbar, Co-PI (50%)*)
- 29 – “Evolution of Organic Matter during cloud events at Whistler during WACS 2010“**  
Environment Canada, April 1<sup>st</sup> 2013 – March 31<sup>st</sup> 2014, \$40,000  
(*P. Herckes PI, 100%*)
- 28 – “Collaborative Research: Source apportionment of iron in the marine atmosphere - application of stable iron isotopic measurements”**  
NSF - National Science Foundation, October 1<sup>st</sup> 2010 – December 31<sup>st</sup> 2013, \$225,202  
(*A. Anbar PI (50%); P. Herckes Co-PI(50%)*)
- 27 - “Sustainable development of critical earth materials”**  
Science Foundation Arizona, October 1<sup>st</sup> 2009 - September 30<sup>th</sup> 2013, \$98,526 (ASU part)  
(*P. Herckes, ASU-PI (34%); A. Anbar(33%), M. Fraser(33%), Co-PIs*)
- 26 – “Constructed Wetlands for Treatment of Organic and Nanomaterial Pollutants“**  
Water Research Foundation, August 15<sup>th</sup> 2010 - August 15<sup>th</sup> 2013, \$ 127,825  
(*P. Westerhoff PI (75%), P. Herckes Co-PI(25%)*)
- 25 –“Fog Sampling And Characterization In The Mongstad Area (Norway)“**  
Norwegian Institute for Air Research (NILU), October 1<sup>st</sup> 2012- February 28, 2013, \$30,000  
(*P. Herckes PI, 100%*)
- 24 – “Studies on the processing of organic compounds by clouds during WACS 2010“**  
Environment Canada, January 1<sup>st</sup> 2012 – March 31<sup>st</sup> 2013, \$75,000  
(*P. Herckes PI, 100%*)
- 23 - “Organic chemical processing by a fog cloud : field and laboratory studies”**  
NSF - National Science Foundation, July 1<sup>st</sup> 2009 – June 30<sup>th</sup> 2012, \$147,817 (ASU part)  
(*P. Herckes PI, 100% on ASU part*)
- 22 - “Atmospheric Aqueous Phase Chemistry: Formation And Photolysis Of Nitrosamines And Nitramines“**  
SINTEF, October 1<sup>st</sup> 2011-March 31<sup>st</sup> 2012, \$98,480  
(*P. Herckes PI (100%)*)

**21 - “Detection Of Engineered Nanomaterials In Drinking Water, Food, Commercial Products And Biological Samples”**

NIH-NIEHS - National Institutes of Health, September 1<sup>st</sup> 2009 – August 31<sup>st</sup> 2011, \$1,497,531  
(*P. Westerhoff (38%), PI, R. Halden (28%), P. Herckes (28%), K. Hristovski (6%) Co-PIs*)

**20 - “Trace Metal Analysis for the South Phoenix Air Pollution Study”**

Arizona Department of Environmental Quality, June 1<sup>st</sup> 2009 - March 30<sup>th</sup> 2010, \$20,000  
(*P. Herckes PI (100%)*)

**19 - “Regional Water Quality Monitoring and Evaluation for the Metropolitan-Phoenix Area Water Supply”**

City of Phoenix, July 1<sup>st</sup> 2007- June 30<sup>th</sup> 2010, \$155,250  
(*P. Westerhoff, PI (60%), R. Halden (20%), P. Herckes (20%), Co-PIs*)

**18 – “Chemical characterization of ambient coarse particulate matter in rural areas of Arizona impacted by significant population growth”**

EPA, July 1<sup>st</sup> 2008 - June 30<sup>th</sup> 2013, \$262,000  
(*M.P. Fraser, PI (50%); P. Herckes Co-PI (50%)*)

**17 - “Aerosol particles formed during wastewater aeration and their contribution to organic species in the Environment”**

Science Foundation Arizona Competitive Advantage Awards, \$106,131, July 1<sup>st</sup> 2008- June 30, 2009  
(*P. Herckes, PI (34%); J.O. Allen (33%), P. Westerhoff (33%), Co-PIs*)

**16- “Monitoring of Trace-Level Pharmaceuticals and Personal Care Products in Salt River Project Waters (Year 2)”**

Salt River Project, \$45,879, July 1<sup>st</sup> 2008- June 30, 2009  
(*P. Westerhoff, PI (50%); P. Herckes Co-PI (50%)*)

**15- “Mass Dependent Isotope Fractionation Of Bioessential And Toxic Metals: A New Perspective On The Environmental Chemistry Of Metals”**

Dreyfus Foundation, October 2005 to September 2007, \$120,000 (start delayed to October 2007)  
(*A. Anbar, PI (40%); P Herckes (20%), E. Shock (20%), H. Hartnett (20%) Co-PIs*)

**14- “Regional Water Quality Monitoring Project”**

Central Arizona Project, through the ASU Water Quality Center, February 2<sup>nd</sup> 2007- December 31 2008  
\$30,000  
(*P. Westerhoff, PI (70%); M. Sommerfeld (15%), P. Herckes (15)% Co-PIs*)

**13- “Monitoring Of Trace-Level Pharmaceuticals in Salt River Project Waters”**

SRP- Salt River Project, July 1, 2007- June 30, 2008; \$39,750  
(*P. Westerhoff, PI (70%); P. Herckes, Co-PI (30%)*)

**12- “Determination of caffeine at Trace Levels in ground water”**

HDR Engineering through Water Quality Center at ASU, October 2007 to September 2008, \$7,000  
(*P. Herckes PI (100%)*)

**11- “Characterization of pharmaceuticals in hospital waste effluents”**

NSF- Water Quality Center at ASU, January 2007 – Mai 2008, \$15,000  
(*P. Herckes, PI (60%); P. Westerhoff, Co-PI (40%)*)

**10- “Characterization of high Particulate Matter events in Nogales (AZ)”**

EPA Southwest Center for Environmental Research and Policy (SCERP), June 2006-December 2007,  
\$67,000  
(*P. Herckes, PI (50%); J.O. Allen (50%), A. Mendoza (ITESM) (0%)Co-PIs*)

**9- “Identification of Particulate Matter Sources in the Nogales Border Region Using Electron Microscopy and Organic Tracer Compounds”**

Arizona Department of Environmental Quality, October 2005-September 2007, \$200,000  
(*J.O. Allen, PI (34%); J.R. Anderson (33%) and P. Herckes (33%) Co-PIs*)

**8- “Occupational carcinogenic exposures in Native American firefighters”**

NIH Native American Cancer Research Partnership, Pilot Project Proposal; June 2006-Mai 2007,  
\$100,000 (M. Robinson (NAU); J. Burgess (Arizona Cancer Center) Co-PIs)  
(*P. Herckes, PI (100%) on subcontract from NAU*)

**7- “Contribution of Wastewater To DBP Formation - Photolysis Of Nitrosamines”**

Malcolm Pirnie Inc., September 2006-December 2006, \$10,020.  
(*P. Westerhoff, PI (70%); P. Herckes Co-PI (30%)*).

**6- “Volatile Organic Compound Measurements in Phoenix”**

Sonoma Technologies, Mai 1<sup>st</sup> 2007 – October 2007, \$15,417  
(*P. Herckes, PI (100%)*)

**5- “Aerosol collection on estrogens in enclosed activated sludge systems”**

NSF Water Quality Center at Arizona State University; January 2006-December 2006, \$5,000  
(*P. Herckes, PI (100%)*)

**4- “Laboratory Studies on the Aqueous Phase Reactivity of Molecular Markers”,**

National Science Foundation, February 2004 - August 2006.  
*Original grant: ATM0342181: \$149,969 to Colorado State University (Collett Co-PI)*  
*Grant transfer to Arizona State University as ATM0530718, \$115,393 P. Herckes sole PI*

*Prior to ASU (no formal credit allocations)*

**3- “Investigation of the organic composition of fogs and clouds”**

National Science Foundation, \$608,224, September 2002 – August 2007).  
(*J.L. Collett, PI, P. Herckes Co-PI*)

**2- “Examination of the influence of California Regional Particulate Air Quality Study (CRPAQS) fog episodes on aerosol formation and removal”**

California Air Resources Board, \$56,901, May 2002 – August 2003.  
(*J.L. Collett PI, P. Herckes Co-PI*)

1- Luxembourg Ministry of Research, Grant for Ph.D. Research, \$36,000, January 1996-December 1999.

## Professional Service and Responsibilities

- Associate Editor *Atmospheric Measurement Techniques* (4/2012- present)  
(Impact Factor 3.33; published by European Geophysical Union)
- Editorial Board Member *International Journal of Environmental Analytical Chemistry* (2/2017- )  
(Impact Factor 1.41; published by Taylor and Francis)
- Managing Guest Editor *Atmospheric Research* (5/2013-1/2015)  
Special issue, International Conference on Fog, Fog Collection and Dew
- 7<sup>th</sup> International Conference on Fog, Fog Collection and Dew (Wroclaw, Poland, 2016)  
*Member of the Scientific Committee*
- 6<sup>th</sup> International Conference on Fog, Fog Collection and Dew (Yokohama, Japan, 2013)  
*Member of the Scientific Committee*  
*Session chair*  
*Guest Editor* for the conference Special Issue in Atmospheric Research.
- 5<sup>th</sup> International Conference on Fog, Fog Collection and Dew (Muenster, Germany, 2010)  
*Session chair*
- American Association for Aerosol Research  
*Session chair* and *Technical Program Committee* at annual meetings (multiple times)  
*Student Liaison Committee* 2009-2011
- American Meteorological Association - 17<sup>th</sup> Conference on Atmospheric Chemistry,  
*Session Organizer & Session Chair, 2015*
- Western Alliance to Expand Student Opportunities  
*Undergraduate research mentor (~15K in funding for 4 minority students)*  
*Proposal Reviewer*  
*Poster Judge*
- Reviewer for manuscripts (~20 per year) submitted to
- |   |  |
|---|--|
| <i>Aerosol and Air Quality Research</i>               | <i>Aerosol Science and Technology</i>                |
| <i>Analytical and Bioanalytical Chemistry</i>         | <i>Analytical Chemistry</i>                          |
| <i>Analytical Methods</i>                             | <i>Atmospheric Environment</i>                       |
| <i>Atmospheric Chemistry and Physics</i>              | <i>Atmospheric Measurement Techniques</i>            |
| <i>Atmospheric Pollution Research</i>                 | <i>Atmospheric Research</i>                          |
| <i>Atmosphere</i>                                     | <i>Chemical Research in Toxicology</i>               |
| <i>Chemosphere</i>                                    | <i>CLEAN</i>   |
| <i>Environmental Chemistry and Toxicology</i>         | <i>Environmental Engineering Science</i>             |
| <i>Environmental Monitoring and Assessment</i>        | <i>Environmental Science: nano</i>                   |
| <i>Environmental Science: Processes and Impacts</i>   | <i>Environmental Science and Technology</i>          |
| <i>Environmental Science and Pollution Research</i>   | <i>Environmental Science and Technology Letters</i>  |
| <i>Geochimica Cosmochimica Acta</i>                   | <i>Int. J. of Environmental Analytical Chemistry</i> |
| <i>J. of the Air and Waste Management Association</i> | <i>Journal of Chromatographic Science</i>            |
| <i>Journal of Chromatography</i>                      | <i>Journal of Environmental Monitoring</i>           |
| <i>Journal of Geophysical Research</i>                | <i>Journal of Hazardous Materials</i>                |
| <i>Journal of Hydrology</i>                           | <i>Journal of Separation Science</i>                 |
| <i>Nature Communications</i>                          | <i>PLOS One</i>                                      |
| <i>RSC Advances</i>                                   | <i>Sustainability</i>                                |

*Tellus B*  
*Water Air and Soil Pollution*

*The Science of the Total Environment*  
*Water Research*

Reviewer and/or panel member for proposals submitted to

<i>Department of Energy (USA)</i>	<i>SBIR program</i>
<i>EPA- Environmental Protection Agency (USA)</i>	<i>various air quality related panels</i>
<i>NSF- National Science Foundation (USA)</i>	<i>Graduate Research Fellowships,</i>
	<i>Arctic Programs, Atmospheric</i>
	<i>Chemistry, MRIs</i>
<i>European Commission Framework Programs (Europe)</i>	<i>nanotechnology, climate and</i>
	<i>Marie Curie program panels</i>
<i>NASA- National Aeronautics and Space Administration (USA)</i>	<i>Astrobiology</i>
<i>Research Corporation (USA)</i>	
<i>Natural Sciences and Engineering Research Council of Canada (Canada)</i>	
<i>Petro-Canada Young Innovator Awards Program (Canada)</i>	
<i>Canada Research Chairs (Canada)</i>	
<i>Research Promotion Foundation of Cyprus (Cyprus)</i>	
<i>Swiss National Science Foundation (Switzerland)</i>	
<i>French National Research Agency –ANR (France)</i>	
<i>German Research Foundation - DFG (Germany)</i>	
<i>Ministère de la recherche (Luxembourg)</i>	
<i>Research Grants Council (RGC) (Hong Kong)</i>	
<i>Fulbright Scholar Discipline Peer Review Committee (USA)</i>	
<i>Israeli Ministry of Science, Technology and Space (Israel)</i>	
<i>Vienna Science and Technology Fund (Austria)</i>	

Reviewer of Chemistry textbooks for *W.H. Freeman* and *Oxford University Press*.

Author and co-author of reports to various air pollution agencies including

*Arizona Department of Environmental Quality (USA)*  
*Pinal County Air Quality Department (USA)*  
*Environmental Protection Agency (USA)*  
*California Air Resource Board (USA)*  
*National Park Service (USA)*  
*Administration of the Environment (Luxembourg)*  
*City Council of Strasbourg (France)*

## **Professional Societies**

American Geophysical Union, member  
Sustainable Nanotechnology Organization, member  
Institut Grand-Ducal (Luxembourg), corresponding member

## University Service

### Arizona State University, School of Molecular Sciences

2004 - 2005 Shop Oversight Committee  
2005 - 2016 Graduate Admission Committee  
2007 - 2009 Strategic Planning Committee: Chemistry of Sustainability  
2011 – 2013 Budget and Personnel Committee (elected)  
2014 Budget and Personnel Committee (sabbatical replacement)  
2016 - Committee on Undergraduate Student Research, Mentoring and Advising (Chair)  
2016- Honors College Programs Liaison

### Arizona State University, Fulton School of Engineering

Faculty Search Committee: Air Toxics position

### Arizona State University, Barrett Honors College

2005- Barrett's Disciplinary Faculty  
2016- Faculty Honors Adviser (FHA)

### Arizona State University, university wide

2016- Leadership Academy, member TEAM LA "Planetworks"

## Interviews, press and news coverage of research

- 2009 - Chemical Heritage Foundation: Interview on environmentally benign dry cleaning (podcast)
- 2010 - *Cloud Chemistry* research featured in US News and World Report  
<http://www.usnews.com/science/articles/2012/09/19/chemistry-and-clouds>
- 2015 - Article in ES&T Letters (#83) on the discovery that methadone is a significant contributor to NDMA formation in drinking water, picked up by PBS News and LC/GC Magazine.
- 2015 - Article in ES&T (#85) on *metals in waste water and their recycling potential*, picked up by numerous news outlets in the US and abroad including Science Magazine online, Gizmodo, Le Monde (France), Der Spiegel (Germany), etc
- Interviews by P. Herckes:*
- Money Magazine/Time  
(<http://time.com/money/3678299/gold-silver-platinum-sewage-study/>)
  - Takepart.com  
(<http://www.takepart.com/article/2015/03/26/mining-gold-sewage-and-sludge>)
  - Interview with “Science & vie” French Science Magazine  
(July 2015, “Nos égouts sont des mines d’or” p.108-113)
  - Radio Interview with Luxembourg National Radio Station (RTL)  
(<http://radio.rtl.lu/emissionen/feature/601804.html>)
- 2016 – Article in ES: nano (#84) featured in press release from U of A for highly downloaded RSC paper  
[https://www.eurekalert.org/pub\\_releases/2016-02/uoac-nsw021916.php](https://www.eurekalert.org/pub_releases/2016-02/uoac-nsw021916.php)  
picked up by media including R&D Magazine as no safety threat from industrial nanoparticles  
<http://www.rdmag.com/news/2016/02/study-finds-no-safety-threat-brief-exposure-industrial-nanoparticles>
- 2016 – Article in ES&T (#90) on *nanosilver in clothing* came with press release by the American Chemical Society, picked up by various online media including:  
<https://www.sciencedaily.com/releases/2016/03/160330122634.htm>
- 2016/7- Multiple media reports on research done for Friends of the Earth, which released their report in 2016, our manuscript published in 2017 (#96) detailing findings on nano hydroxyapatite in baby Formula.  
FoE report and release:  
<http://www.foe.org/projects/food-and-technology/nanotechnology/baby-formula>  
also USnews, parents.com and many others.
- 2017 ABC15 Interview on Haboobs and Valley Fever.  
<http://www.abc15.com/news/region-phoenix-metro/central-phoenix/haboobs-bring-increased-risk-of-valley-fever-to-arizona>