

Yue Zhang

CONTACT INFORMATION

Department of Atmospheric Sciences
College of Geosciences
1105 Eller O&M Bldg., 3150 TAMU, Texas A&M University
College Station, Texas 77843

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EDUCATION

Harvard University, Cambridge, Massachusetts 2015
Ph.D., Environmental Science and Engineering
Thesis: The Physicochemical Properties of Secondary Organic Materials

Peking University, Beijing, China 2010
B.S., Environmental Science (with a minor in Statistics)

APPOINTMENTS

Assistant Professor
Texas A&M University, College Station, TX 2021-Present

National Institute of Health (NIH) Training Award
University of North Carolina at Chapel Hill 2018 – 2020

National Science Foundation Postdoctoral Fellow 2016 – 2018
Using the funding applied from NSF-Atmospheric Geospace (AGS) Postdoctoral Fellowship, I have fostered joint collaborations between University of North Carolina at Chapel Hill, Boston College, Aerodyne Research, MIT, and UC Berkeley

Postdoctoral Associate
Harvard University 2015
Boston College, and Aerodyne Research 2015- 2020

SPONSORED RESEARCH

Currently funded by:
National Science Foundation – Division of Atmospheric and Geospace Sciences (AGS)

Title: Collaborative Research: Characterizing the Cloud Formation Properties of Secondary Organic Aerosol (SOA) Formed from Aqueous Multiphase Chemical Processes

Role: Lead PI

U.S. Department of Energy

Title: Pilot Study: Improving the Characterization of Cloud Formation Properties and Hygroscopicity of Aerosol Particles in the Southeastern U.S. Region

Role: Lead PI

U.S. Environmental Protection Agency (EPA)

Title: Development of High-Resolution Chemical Ionization Mass Spectrometry Methods for Real-Time Measurement of Emerging Airborne Per- and Polyfluoroalkyl Substances (PFASs)

Role: Co-Lead PI

Texas Commission on Environmental Quality (TCEQ)

Title: Quantifying the Emissions and Spatial/Temporal Distributions of Consumer Volatile Chemical Products (VCPs) in the Greater Houston

Role: Lead PI

Department of Energy, Pacific Northwest National Laboratory, Environmental Molecular Sciences Laboratory (EMSL) Large-Scale

Title: Connecting the Physicochemical Properties with Ice Nucleation Properties of Secondary Organic Aerosols (SOAs)

Role: Lead PI

Texas A&M University College of Arts and Sciences Research Development Fund

Title: Type I - Characterizing the reaction kinetics and products of 2-Methyltetrols reacting with Hydroxyl radicals in the atmosphere

Role: Lead PI

National Institute of Environmental Health Sciences, Texas A&M University

Title: Quantifying the Toxicological Response of Aerosol Mixing State, Morphology, and Acidity to Human Lung Cells During Multiphase Reaction Processes.

Role: Lead PI

Texas A&M University T3 Project

Title: Transmission Efficiency and Exposure Risks of Covid-19 Through Aerosols: Prediction and Mitigation

Role: Co-lead PI

Texas A&M University, Innovation Project X

Title: Characterizing Microplastic Particles in the Air

Role: Lead PI

MENTORSHIP

Graduate Student Advisor:

Sining Niu, Ph.D. student

Sahir Gagan, Ph.D. student

Alana Doderer, Ph.D. student

Kyle McCary, Ph.D. student

Joy Lai, Master student

Ruizhe Liu, Visiting student fall 2021-summer 2022 (admitted to Georgia Tech as a Ph.D. student fall 2022 after working in Dr. Zhang's lab)

Yeaseul Kim, Visiting student fall 2022-spring 2023 (admitted to the University of Michigan as a Ph.D. student fall 2022 after working in Dr. Zhang's lab)

Graduate Committee Member:

Min Su Choi (Ph.D., College of Engineering, Texas A&M University)
 Mariana Saitas (Ph.D., School of Public Health, Texas A&M University)

Garrett Laurie (MS, College of Engineering, Texas A&M University)
 Nicolas Buchenau (Ph.D., Department of Environmental Sciences and
 Engineering, University of North Carolina at Chapel Hill)

Undergraduate Research Advisor:

Peyton Langford, U3, Department of Atmospheric Sciences
 Jessica Allen, U4, Department of Atmospheric Sciences
 Geoffrey Roberts, U4, Department of Atmospheric Sciences
 Kyle McCane, U4, Department of Atmospheric Sciences
 Salem Smith, U4, Department of Material Science and Engineering
 Manoharan Pradeep, G1, Department of Industrial Engineering
 Siddharth Gopalakrishnan, U2, Department of Biomedical Sciences
 Nhat Bui, G1, Department of Computer Sciences
 Atharva Mule, G1, Department of Chemical Engineering
 Isabel Wysong, G2, Environmental Science Program

TEACHING

Texas A&M University:

ATMO 201 Weather and Climate	Spring, 2022-23
ATMO 363 Air Pollution and Atmospheric Chemistry	Fall, 2021-22
ATMO 689 Aerosol Physics and Chemistry	Spring, 2021

Guest Lecturer at UNC Chapel Hill 2017-2020

PUBLICATIONS

* represents the corresponding authors

Submitted journal articles (2)

Niu S., Liu R., Gagan S., Doderer A., Ying Q., Ma X., Canagaratna, M.,
Zhang Y., Quantifying the Chemical Composition and Real-time Mass
 Loading of Nanoplastic Particles (NPPs) in the Atmosphere using Aerosol
 Mass Spectrometry., *Environ. Sci. Technol.* under review.

Khan, F.; Chen, Y.; Hartwell H.; Yan J.; Lin. Y-H.; Freedman. A.; Zhang
 Z.; **Zhang, Y.**; Lambe A. T.; Gold, A.; Ault, A. P.; Szmigielski R.;
 Fry, R.C.; Surratt, J.D.; Heterogeneous Oxidation Products of Particulate
 Isoprene Epoxydiol-Derived Methyltetrol Sulfates Increase;
 Environmental Science and Technology the Oxidative Stress and
 Inflammatory Gene Responses in Human Lung Cells, *Environ. Sci.*
Technol., under review.

PUBLICATIONS
CONTINUED

Published journal articles, monograph, and book chapters:

Yan, J., **Zhang, Y.**, Chen Y., Armstrong N.C., Buchenau N., Lei Z., Xiao Y., Zhang Z., Lambe A. T., Chan M. N., Turpin B. J., Gold A., Ault A. P., Surratt J. D., Kinetics and Products of Heterogeneous Hydroxyl Radical Oxidation of Isoprene Epoxydiol-Derived Secondary Organic Aerosol, *Environ. Sci. Technol. Lett.*, under review.

Gagan, S., Kumar S., Liu R., Rudzinski K., Rafal S., **Zhang Y.**, Synthesis and Synthetic Strategies for Oxidation Products Generated from Atmospheric Biogenic Volatile Organic Compounds: A Review, *Atmos. Environ.*, accepted.

Zong T., Wu Z., Wang J., Bi K., Fang W., Yang Y., Yu X., Bao Z., Meng X., **Zhang Y.**, Guo S., Chen Y., Liu C., Zhang Y., Li S., Min H., A new smog chamber system for atmospheric multiphase chemistry simulation: design and characterization, *Atmos. Meas. Tech.*, accepted.

Chief editor of one invited book by the American Chemical Society
Aerosol Particles in Atmospheric Chemistry; Scot T. Martin, **Yue Zhang**, Pengfei Liu, Yuemei Han, Yongjie Li, Qi Chen, and Mikinori Kuwata, *American Chemical Society*, 2022

Bo C., Mirrielees J. A., Chen Y., Onasch T. B., Zhang Z., Gold A., Surratt J. D., **Zhang Y.**, Brooks S. D., Glass Transition Temperatures of Organic Mixtures from Isoprene Epoxydiol (IEPOX)-Derived Secondary Organic Aerosol, *J. Phys. Chem. A*, 2022.

Zhang, J.; Wang, Y.; Teng, X.; Liu, L.; Xu, Y.; Ren, L.; Shi, Z.; **Zhang, Y.**; Jiang, J.; Liu, D.; Hu, M.; Shao, L.; Chen, J.; Martin, S. T.; Zhang, X.; Li, W., Liquid-liquid phase separation reduces radiative absorption by aged black carbon aerosols. *Communications Earth & Environment* **2022**, 3 (1), 128.

Cooke, M. E.; Armstrong, N. C.; Lei, Z.; Chen, Y.; Waters, C. M.; **Zhang, Y.**; Buchenau, N. A.; Dibley, M. Q.; Ledsky, I. R.; Szalkowski, T.; Lee, J. Y.; Baumann, K.; Zhang, Z.; Vizuete, W.; Gold, A.; Surratt, J. D.; Ault, A. P., Organosulfate Formation in Proxies for Aged Sea Spray Aerosol: Reactive Uptake of Isoprene Epoxydiols to Acidic Sodium Sulfate. *ACS Earth and Space Chem.* **2022**, 6 (12), 2790-2800.

Armstrong, N. C.; Chen, Y.; Cui, T.; Zhang, Y.; Christensen, C.; Zhang, Z.; Turpin, B. J.; Chan, M. N.; Gold, A.; Ault, A. P.; Surratt, J. D., Isoprene Epoxydiol-Derived Sulfated and Nonsulfated Oligomers

PUBLICATIONS
CONTINUED

Suppress Particulate Mass Loss during Oxidative Aging of Secondary Organic Aerosol. *Environ. Sci. Technol.* **2022**, *56* (23), 16611-16620.

Lei, Z.; Chen, Y.; Zhang, Y.; Cooke, M. E.; Ledsky, I. R.; Armstrong, N. C.; Olson, N. E.; Zhang, Z.; Gold, A.; Surratt, J. D.; et al. Initial pH Governs Secondary Organic Aerosol Phase State and Morphology after Uptake of Isoprene Epoxydiols (IEPOX). *Environ. Sci. Technol.* **2022**, *56* (15), 10596-10607. DOI: 10.1021/acs.est.2c01579.

Lei, Z.; Olson, N. E.; **Zhang, Y.**; Chen, Y.; Lambe, A. T.; Zhang, J.; White, N. J.; Atkin, J. M.; Banaszak Holl, M. M.; Zhang, Z.; Gold, A.; Surratt, J. D.; Ault, A. P., Morphology and Viscosity Changes after Reactive Uptake of Isoprene Epoxydiols in Submicrometer Phase Separated Particles with Secondary Organic Aerosol Formed from Different Volatile Organic Compounds. *ACS Earth and Space Chem.* **2022**, *6* (4), 871-882.

Pande, P.; Shrivastava, M.; Shilling, J. E.; Zelenyuk, A.; Zhang, Q.; Chen, Q.; Ng, N. L.; Zhang, Y.; Takeuchi, M.; Nah, T.; Rasool, Q. Z.; Zhang, Y.; Zhao, B.; Liu, Y., Novel Application of Machine Learning Techniques for Rapid Source Apportionment of Aerosol Mass Spectrometer Datasets. *ACS Earth and Space Chem.* **2022**, *6* (4), 932-942.

Octaviani, M.; Shrivastava, M.; Zaveri, R. A.; Zelenyuk, A.; **Zhang, Y.**; Rasool, Q. Z.; Bell, D. M.; Riva, M.; Glasius, M.; Surratt, J. D., Modeling the Size Distribution and Chemical Composition of Secondary Organic Aerosols during the Reactive Uptake of Isoprene-Derived Epoxydiols under Low-Humidity Condition. *ACS Earth and Space Chem.* **2021**, *5* (11), 3247-3257.

Wolf, M. J.; **Zhang, Y.**; Zhou, J.; Surratt, J. D.; Turpin, B. J.; Cziczo, D. J., Enhanced Ice Nucleation of Simulated Sea Salt Particles with the Addition of Anthropogenic Per- and Polyfluoroalkyl Substances. *ACS Earth and Space Chem.* **2021**, *5* (8), 2074-2085.

Chen, Y.; **Zhang, Y.**; Lambe, A. T.; Xu, R.; Lei, Z.; Olson, N. E.; Zhang, Z.; Szalkowski, T.; Cui, T.; Vizuete, W.; Gold, A.; Turpin, B. J.; Ault, A. P.; Chan, M. N.; Surratt, J. D., Heterogeneous Hydroxyl Radical Oxidation of Isoprene-Epoxydiol-Derived Methyltetrol Sulfates: Plausible Formation Mechanisms of Previously Unexplained Organosulfates in Ambient Fine Aerosols. *Environ. Sci. Technol. Lett.* **2020**, *7* (7), 460-468.

Li, W.; Teng, X.; Chen, X.; Liu, L.; Xu, L.; Zhang, J.; Wang, Y.; **Zhang, Y.**; Shi, Z., Organic Coating Reduces Hygroscopic Growth of

PUBLICATIONS
CONTINUED

Phase-Separated Aerosol Particles. *Environ. Sci. Technol.* **2021**, *55* (24), 16339-16346.

Khan, F.; Kwapiszewska, K.; **Zhang, Y.**; Chen, Y.; Lambe, A. T.; Kołodziejczyk, A.; Jalal, N.; Rudzinski, K.; Martínez-Romero, A.; Fry, R. C.; Surratt, J. D.; Szmigielski, R., Toxicological Responses of α -Pinene-Derived Secondary Organic Aerosol and Its Molecular Tracers in Human Lung Cell Lines. *Chem. Res. Toxicol.* **2021**, *34* (3), 817-832.

Zhang, C.; **Zhang, Y.**; Wolf, M. J.; Nichman, L.; Shen, C.; Onasch, T. B.; Chen, L.; Cziczo, D. J., The effects of morphology, mobility size, and secondary organic aerosol (SOA) material coating on the ice nucleation activity of black carbon in the cirrus regime, *Atmos. Chem. Phys.*, 2020, *20* (22), 13957-13984.

Wolf M. J., **Zhang Y.**, Freney E. J., Goodell M. M., Cui T., Winter M. R. E., Lacher L., Axisa D., DeMott P. J., Levin E., Abbatt J.P.D., Surratt J. D., Cziczo D. J.*, A biogenic secondary organic aerosol source of cirrus ice nucleating particles, *Nat. Commun.*, *11*, 4834, doi:10.1038/s41467-020-18424-6 (2020).

Schmedding R., Rasool Q., **Zhang Y.**, Pye H., Zhang H., Chen Y., Surratt J. D., Lee B., Mohr C., Lopez-Hilfiker F., Thornton J., Goldstein A., and Vizuete W.*: Predicting Secondary Organic Aerosol Phase State and Viscosity and its Effect on Multiphase Chemistry in a Regional Scale Air Quality Model, *Atmos. Chem. Phys.*, doi: 10.5194/acp-20-8201-2020, 2019

Zhang Y. *, Chen Y., Lei Z., Olson N. E., Riva M., Koss A. R., Zhang Z., Gold A., Jayne J. T., Worsnop D. R., Onasch T. B., Kroll J. H., Turpin B. J., Ault A. P. *, Surratt J. D.*: Joint Impacts of Acidity and Viscosity on the Formation of Secondary Organic Aerosol from Isoprene Epoxydiols (IEPOX) in Phase Separated Particles, accepted with minor revision, *ACS Earth & Space Chem.*, doi: 10.1021/acsearthspacechem.9b00209, 2019

Nichman L.*, Wolf M. J., Davidovits P., Onasch T. B., **Zhang Y.**, Worsnop D. R., Bhandari J., Mazzoleni C., Cziczo D. J.: Laboratory Study of the Heterogeneous Ice Nucleation on Black Carbon Containing Aerosol, *Atmos. Chem. Phys.*, *19*, 12175-12194, doi:10.5194/acp-19-12175-2019, 2019

Zhang Y.*, Nichman L., Spencer P., Jung J. L., A., Heffernan B., Gold A., Zhang Z., Chen, Y., Canagaratna M., Jayne J. T., Worsnop D. R., Onasch T. B., Davidovits P. *, Chandler D., Surratt J. D., Kolb C.

PUBLICATIONS
CONTINUED

E.*: The Cooling Rate- and Volatility-Dependent Glass-Forming Properties of Organic Aerosols Measured by Broadband Dielectric Spectroscopy. *Environ. Sci. Technol.* 53, 12366-12378, doi:10.1021/acs.est.9b03317, 2019

Olson, N. E., Lei Z., Craig R. Y., **Zhang Y.**, Chen Y., Lambe A. T., Zhang Z., Gold A., Surratt J. D.*, Ault A. P.*: Reactive Uptake of Isoprene Epoxydiols Increases the Viscosity of the Core of Phase-Separated Aerosol Particles." *ACS Earth & Space Chem.*, 3, 1402-1414, doi: 10.1021/acsearthspacechem.9b00138, 2019

Upshur M. A., Vega M. M., Bé A. G., Chase H.M., **Zhang Y.**, Tuladhar A., Chase Z. A., Fu, L., Ebben C. J., Wang Z., Martin, S. T., Franz M. Geiger F. M., Regan T. J.*: Synthesis and Surface Spectroscopy of α -Pinene Isotopologues and Their Corresponding Secondary Organic Material, *Chem. Sci.*, 10, 8390-8398, doi: 10.1039/C9SC02399B, 2019

Riva M.*, Chen Y., **Zhang Y.**, Lei Z., Olson N. E., Boyer Chelmo H. C., Narayan S., Yee L. D., Green H. S., Cui T., Zhang Z., Baumann K., Fort M., Edgerton E., Budisulistiorini S. H., Rose C. A., Ribeiro I. O., e Oliveira R. L., dos Santos E. O., Machado M. D., Szopa S., Zhao Y., Alves E. G., de Sa S. S., Hu W., Knipping E. M., Shaw S. L., Duvoisin Junior S., de Souza R. A. F., Palm B. B., Jimenez J. L., Glasius M., Goldstein A. H., Pye H. O. T., Gold A., Turpin B. J., Vizuite W., Martin S. T., Thornton J. A., Dutcher C. S., Ault A. P.*, Surratt J. D.*: Increasing Isoprene Epoxydiol-to-Inorganic Sulfate Aerosol (IEPOX:Sulf_{inorg}) Ratio Results in Extensive Conversion of Inorganic Sulfate to Organosulfur Forms: Implications for Aerosol Physicochemical Properties, *Environ. Sci. Technol.*, 53, 8682-8694, doi: 10.1021/acs.est.9b01019, 2019

Schmedding R., Ma, M., **Zhang Y.**, Farrell S., Pye H. O. T., Chen Y., Wang C., Rasool Q., Budisulistiorini S. H., Ault A. P., Surratt J. D., Vizuite, W.*, α -Pinene-Derived Organic Coatings on Acidic Sulfate Aerosol Impacts Secondary Organic Aerosol Formation from Isoprene in a Box Model, *Atmos., Environ.*, 213, 456-462, doi: 10.1016/j.atmosenv.2019.06.005, 2019

Wolf M. J., Coe A., Dove L. A., Zawadowicz M. A., Dooley K., Biller S. J., **Zhang Y.**, Chisholm S. W., and Cziczo D. J.*: Investigating the Heterogeneous Ice Nucleation of Sea Spray Aerosols Using *Prochlorococcus* as a Model Source of Marine Organic Matter, *Environ. Sci. Technol.*, 53(3): 1139-1149, doi: 10.1021/acs.est.8b05150, 2019

PUBLICATIONS
CONTINUED

Zhang Y.*, Gong Z., Bateman A. P., Liu Y., Li Y., Geiger F. M.*, and Martin S. T.*: Production and Measurement of Organic Particulate Matter in the Harvard Environmental Chamber, *J. Vis. Exp.* (141), e55685, doi: 10.3791/55685, 2018.

Zhang Y.*, Liu P., Gong Z., Geiger F. M. *, and Martin S. T.*: Production of Organic Particulate Matter in a Flow Tube Reactor, *J. Vis. Exp.* (142), e55684, doi: 10.3791/55684, 2018.

Cui T., Zeng Z., dos Santos E. O., Zhang Z., Chen Y., **Zhang Y.**, Rose C. A., Budisulistiorini S. H., Collins L. B., Bodnar W. M., de Souza R. A. F., Martin S. T., Machado C. M. D., Turpin B. J., Gold A., Ault A. P., and Surratt J. D.*: Development of a hydrophilic interaction liquid chromatography (HILIC) method for the chemical characterization of water-soluble isoprene epoxydiol (IEPOX)-derived secondary organic aerosol, *Environ. Sci. Process. Impact*, doi: 10.1039/C8EM00308D, 2018.

Qin C., Bai X.*, **Zhang Y.**, Gao K.: Photoelectrochemical Cdse/TiO₂ Nanotube Array Microsensor for High-Resolution in-Situ Detection of Dopamine." *Microchim. Acta*, 185, 278-287, doi: 10.1007/s00604-018-2788-4, 2018.

Zhang Y.*, Katira S., Lee A., Lambe A. T., Onasch T. B., Xu W., Brooks W. A., Canagaratna M. R., Freedman A., Jayne J. T., Worsnop D. R., Davidovits P.*, Chandler D., and Kolb C. E.*: Kinetically controlled glass transition measurement of organic aerosol thin films using broadband dielectric spectroscopy, *Atmos. Meas. Tech.*, 11, 3479-3490, doi: 10.5194/amt-11-3479-2018, 2018.

Zhang Y.*, Chen Y., Lambe A. T., Olson N. E., Lei Z., Craig R. L., Zhang Z., Gold A., Onasch T. B., Jayne J. T., Worsnop D. R., Gaston C. J., Thornton J. A., Vizuete W., Ault A. P.*, and Surratt J. D.*: Effect of Aerosol-Phase State on Secondary Organic Aerosol Formation from the Reactive Uptake of Isoprene-Derived Epoxydiols (IEPOX), *Environ. Sci. Technol. Lett.*, 5, 167-174, doi: 10.1021/acs.estlett.8b00044, 2018.
(Selected as one of the best papers of 2018 from the *ES&T Journal*, one of the top journals in the field of environmental science and engineering)

Liu P., Li Y. J., Wang Y., Bateman A. P., **Zhang Y.**, Gong Z., Bertram A. K., and Martin S. T.*: Highly Viscous States Affect the Browning of Atmospheric Organic Particulate Matter, *ACS Cent. Sci.*, 4, 207-215, doi: 10.1021/acscentsci.7b00452, 2018.

Renbaum-Wolff L., Song M., Marcolli C., **Zhang Y.**, Liu P. F., Grayson, J. W., Geiger F. M., Martin S. T., and Bertram A. K.*: Observations and

PUBLICATIONS
CONTINUED

implications of liquid–liquid phase separation at high relative humidities in secondary organic material produced by α -pinene ozonolysis without inorganic salts, *Atmos. Chem. Phys.*, 16, 7969-7979, doi: 10.5194/acp-16-7969-2016, 2016.

Grayson J. W., **Zhang Y.**, Mutzel A., Renbaum-Wolff L., Böge O., Kamal S., Herrmann H., Martin S. T., and Bertram A. K.*: Effect of varying experimental conditions on the viscosity of α -pinene derived secondary organic material, *Atmos. Chem. Phys.*, 16, 6027-6040, doi: 10.5194/acp-16-6027-2016, 2016.

Bateman A. P., Gong Z., Liu P., Sato B., Cirino G., **Zhang Y.**, Artaxo P., Bertram A. K., Manzi A. O., Rizzo L. V., Souza R. A. F., Zaveri R. A., and Martin S. T.*: Sub-micrometre particulate matter is primarily in liquid form over Amazon rainforest, *Nat. Geosci.*, 9, 34, doi: 10.1038/ngeo2599, 2015.

Zhang Y., Sanchez M. S., Douet C., Wang Y., Bateman A. P., Gong Z., Kuwata M., Renbaum-Wolff L., Sato B. B., Liu P. F., Bertram, A. K., Geiger, F. M., and Martin S. T.*: Changing shapes and implied viscosities of suspended submicron particles, *Atmos. Chem. Phys.*, 15, 7819-7829, doi: 10.5194/acp-15-7819-2015, 2015.

Price H. C., Mattsson J., **Zhang Y.**, Bertram A., Davies J. F., Grayson J. W., Martin S. T., O'Sullivan D., Reid J. P., Rickards A. M. J., and Murray B. J.*: Water diffusion in atmospherically relevant [small alpha]-pinene secondary organic material, *Chem. Sci.*, 6, 4876-4883, doi: 10.1039/C5SC00685F, 2015.

Shrestha M., **Zhang Y.**, Upshur M. A., Liu P., Blair S. L., Wang H., Nizkorodov S. A., Thomson R. J., Martin S. T., and Geiger F. M.*: On surface order and disorder of α -pinene-derived secondary organic material, *J. Phys. Chem. A*, doi: 10.1021/jp510780e, 2014.

Liu P., **Zhang Y.**, and Martin S. T.*: Complex Refractive Indices of Thin Films of Secondary Organic Materials by Spectroscopic Ellipsometry from 220 to 1200 nm, *Environ. Sci. Technol.*, 47, 13594-13601, doi: 10.1021/es403411e, 2013.

Shrestha M., **Zhang Y.**, (**Equal contribution between the two first authors**), Ebben C. J., Martin S. T., and Geiger F. M.*: Vibrational sum frequency generation spectroscopy of secondary organic material produced by condensational growth from α -pinene ozonolysis, *J. Phys. Chem. A*, 117, 8427-8436, doi: 10.1021/jp405065d, 2013.

ESSP (Earth System Science Partnership) Report Chinese Version, U. Confalonieri, A. McMichael, ESSP
Chapter 1.4—2.1.2 (<http://www.essp.org>)

INVITED TALKS

Seminar at the University of British Columbia, September 2023
Talk title: “Connecting the Composition and Physicochemical Properties of Traditional and Emerging Atmospheric Particles with Their Climate Effects”

Seminar at the ETH, Switzerland, September 2023
Talk title: “Connecting the Composition and Physicochemical Properties of Traditional and Emerging Atmospheric Particles with Their Climate Effects”

Seminar at the Hong Kong University of Science and Technology,
May 2023
Talk title: “New Insights on the Formation and Climate Impacts of Organic Aerosols in the Atmosphere”

Seminar at the Chinese University of Hong Kong, May 2023
Talk title: “The Formation and Climate Impacts of Organic Aerosols in the Atmosphere”

Seminar at the EMSL of Pacific Northwest National Laboratory,
April 2023
Talk title: “Connecting the Composition and Physicochemical Properties of Traditional and Emerging Atmospheric Particles with Their Climate Effects”

Seminar at Duke Kunshan University, Kunshan, April 2022,
Talk title: “New Insights on the Formation and Climate Impacts of Organic Aerosols in the Atmosphere”

Seminar at Climate Dynamics Working Group, April 2022, Online,
Talk title: “New Insights on the Formation and Climate Impacts of Organic Aerosols in the Atmosphere”

Seminar at University of Texas, Arlington, April 2022, Arlington, TX
Talk title: “New Insights on the Formation and Climate Impacts of Organic Aerosols in the Atmosphere”

Atmospheric Environmental Chemistry Seminar at Harvard University, September 2020, Cambridge, MA
Talk title: “The Interconnections between the Physicochemical Properties, Multiphase Chemistry, and Climate Effects of Isoprene-Derived Secondary Organic Aerosols”

Guest Seminar at the Atmospheric Sciences and Global Change of Pacific Northwest National Laboratory, October 2019, Pacific Northwest National Laboratory, Richland, WA
Talk title: “The Effects of Chemical Composition, Phase State, and Acidity on the Multiphase Chemistry and Climate Effects of Isoprene-derived Secondary Organic Aerosols”

Guest Seminar at the Environmental and Climate Sciences of Brookhaven National Laboratory, May 2019, Brookhaven National Laboratory, Upton, NY
Talk title: “The Influence of Aerosol Chemical Composition, Morphology, and Phase State on Water and Ice Cloud Particle Formation”

ARI Seminar, December 2018, Aerodyne Research, Billerica, MA
Talk Title: “The Physicochemical Properties of Organic Aerosols”

2018 Peking University Young Talents in the Fields of Engineering and Sciences International Forum, March 2018, Beijing, China
Talk Title: “The Interconnected Physicochemical Properties of Particulate Matter and Its Climate Effects”

Guest Seminar, September 2015, University of North Carolina at Chapel Hill, Chapel Hill, NC
Talk Title: “The Physical and Chemical Interactions of Organic Aerosols”

**PROFESSIONAL
ACTIVITIES &
SERVICE**

Professional Society Memberships	
<i>American Chemical Society (ACS)</i>	<i>2014-Present</i>
<i>American Association for Aerosol Research (AAAR)</i>	<i>2012-Present</i>
<i>American Geophysical Union (AGU)</i>	<i>2013-Present</i>
Texas A&M Departmental Seminar Coordinator	<i>2021</i>
Texas A&M Departmental Undergraduate Mentor	<i>2021-Present</i>
College Teaching - High Impact Learning Experience	<i>2021-Present</i>
Texas A&M University Student Services Center Mentor	<i>2021-Present</i>
Texas A&M Graduate Thesis Committee Member	<i>2021-Present</i>
Education Committee Chair in AAAR	<i>2020-Present</i>
Working Group of AAAR Aerosol Chemistry Division	<i>2014-Present</i>
Atmospheric Aerosols Division	<i>2014-Present</i>
Conference Co-chairs and Judges	<i>2016-Present</i>
Harvard Environmental Science and Engineering Departmental and Seminar Organizer	<i>2013-2015</i>
Chief editor for the ACS In Focus Series Book	<i>2021-2023</i>
Co-editor for the Frontiers in Science Special Issue	<i>2022-Present</i>

	Peer Reviews for Government Agencies and Journals	2014-Present
	<i>National Oceanic and Atmospheric Administration Proposals</i>	
	<i>National Science Foundation (AGS, GEO, ECS) Proposals</i>	
	<i>Department of Energy Proposals</i>	
	<i>Nature Geosciences</i>	
	<i>Natural Communications</i>	
	<i>Npj: Climate and Atmospheric Science</i>	
	<i>Atmospheric Chemistry and Physics</i>	
	<i>Environmental Science and Technology</i>	
	<i>Geophysical Research Letters</i>	
	<i>Aerosol Science and Technology</i>	
	<i>Atmospheric Environment</i>	
	<i>Aerosol and Air Quality Research</i>	
	<i>Atmospheric Measurement Techniques</i>	
	<i>Geoscientific Model Development</i>	
	<i>Environmental Science Processes & Impacts</i>	
	<i>ACS Omega</i>	
	<i>Journal of Physical Chemistry</i>	
	<i>Science of the Total Environment</i>	
	<i>ACS Omega</i>	
	<i>Atmosphere</i>	
	<i>Chemosphere</i>	
	<i>Remote Sensing</i>	
	<i>Sensors</i>	
	Panel reviews for the <i>National Science Foundation</i>	2019-Present
	and <i>Department of Energy</i>	
	Interviewed by New Jersey Community YouTube Channel	2021-2022
	on Airborne COVID-19 and also by the Maine Radio Station on	
	the topic of aerosols and climate change	
	News report on the <i>NSF-AGS Collaborative Grant</i> , DOE	2021-2022
	EMSL grant, U.S. EPA grant, and <i>ATMO 363 Undergraduate</i>	
	<i>Poster Session</i>	
OUTREACH	Volunteer Summer Camp Instructor for the Brazos Valley Museum	2023
	Of Natural History	
	Lesson designer and teacher at the Navasota High School	2023
AWARDS	University of North Carolina <i>Postdoctoral Award for Research</i>	2019
	<i>Excellence</i>	
	Selection to the <i>ACS Postdoc to Faculty Workshop</i> in Atlanta	2019
	(Expense awarded by the American Chemical Society, ACS)	
	Best Papers of 2018: <i>Journal Environmental Science and</i>	2019
	<i>Technology Letters</i> , American Chemical Society	

2018 “Atmosphere” Travel Award (news report https://bit.ly/2Rrf6hi ; https://unc.live/2qkUqvA)	2018
Certificate of Merit by the American Chemical Society Division of Environmental Chemistry (ACS-Envr) (“high quality in both intellectual merit and presentation style”)	2017
Selection to the 14th Atmospheric Chemistry Colloquium for Emerging Senior Scientists (ACCESS XIV) at Brookhaven National Laboratory	2017
U.S. National Science Foundation Postdoctoral Fellowship	2015
First Prize National Scholarship of Chinese Ministry of Education	2009
First Prize of Academic competition of Environmental Eutrophication and Toxicology International Graduate Summer School	2009
First Prize Scholarship of Peking University	2008