CHARLES O. (CHARLIE) STANIER

email: charles.stanier@gmail.com
website: https://stanier.lab.uiowa.edu/
phone: 319-335-1399
Google Scholar: https://scholar.google.com/citations?user=CKRhPGIAAAAJ&hl=en
ORCID id: 0000-0001-9924-0853

Summary

I solve problems in energy transition, air pollution, aerosol chemistry, and greenhouse gases with applications to human health and climate change. Our lab's methods include oxidation flow reactors; measurement and analysis of aerosol size distributions; and large-scale models of atmospheric chemistry and transport. My research group has participated in and led field campaigns, particularly in the midwestern US; these have informed model development and air quality management regarding fine particulate and ozone pollution. I am a passionate educator, and I have worked to improve curriculum, policies, and the collaborative learning environment at the University of Iowa. Together with students and colleagues, I have improved knowledge about climate change solutions and fostered reductions in environmental footprints.

Table of Contents

Professional, Industrial, and Academic Positions

2018 - **Professor**, *University of Iowa*, Iowa City, IA, Department of Chemical and Biochemical Engineering.

2018 - **Research Engineer**, *University of Iowa*, Iowa City, IA, IIHR Hydroscience and Engineering.

2012-2018 **Associate Professor**, *University of Iowa*, Iowa City, IA, Department of Chemical and Biochemical Engineering.

2012-2018 **Associate Research Engineer**, *University of Iowa*, Iowa City, IA, IIHR Hydroscience and Engineering.

Fall 2013 **Visiting Associate Professor,** *University of Maryland*, College Park, MD, Department of Atmospheric and Oceanic Sciences

2004-2012 **Assistant Professor**, *University of Iowa*, Iowa City, IA, Department of Chemical and Biochemical Engineering.

2004-2012 **Assistant Research Engineer**, *University of Iowa*, Iowa City, IA, IIHR Hydroscience and Engineering.

2003-2004 **Postdoctoral Researcher**, *Carnegie Mellon University*, Pittsburgh, PA (supervisor Spyros Pandis)

1994-1999 **Environmental Engineer & Maintenance Supervisor**, *International Paper*, Decorative Products Division, Baltimore, MD

Professional Consulting

2021-2022 COVID-19 safety assessment services for the Nashville (TN) Symphony – In collaboration with Adam Schwaljie, Otolaryngology.

2021-2022 COVID-19 safety assessment services for the Louisville (KY) Symphony – In collaboration with Adam Schwaljie, Otolaryngology.

2021 COVID-19 safety plan for the Grant Park Music Festival (Chicago) – In collaboration with Adam Schwaljie, Otolaryngology.

Education

2003 **Ph.D.**, *Carnegie Mellon University*, Chemical Engineering

Doctoral Dissertation: Ultrafine Particles in the Atmosphere: Formation, Emissions, and Growth. Supervisor: Spyros N. Pandis

1998 **M.S.E.**, *Johns Hopkins University*, Environmental Engineering

1994 **B.S.E.**, *Princeton University*, Chemical Engineering

Leadership

Leadership Philosophy

Whether leading my research group, a committee or task force, my lab, or a classroom, I view my role as facilitating success for all those on the team. My goal is to enable the team to meet its objectives and for each member of the team to realize their individual aspirations. As a leader, it is my responsibility to maintain a positive, inclusive, and healthy environment for team members. End goals are important. But so is the path we travel – I try to do my part to make it empowering and fun.

My leadership style is founded on two core strengths: values and organization. In terms of values, I foster a shared sense of commitment toward a positive outcome. I try to do this by raising the team's "work process" (responsibilities, delegation, communication, mutual support, accountability) to a high level, and I try to ground the team's work in values of fairness, hard work, empathy, and mutual respect. In terms of organization, I seek to manage time effectively, delegate, and use measurement metrics and deadlines. While value-based leadership and organization are the tools I'm most comfortable with, I also appreciate, use, and continue to develop many other critical leadership tools, including listening, problem solving, relationship building, making (and communicating) hard decisions, persuasion, crisis management, budget management, and navigating institutional politics.

Leadership Positions

2021-2022	PI of Jumpstart: Decarb 2040, positioning Iowa as an energy exporter in the coming era of deep decarbonization; a grant with six others Co-I's and collaborators.
2018-2019	Chair, Engineering Faculty Council (EFC). Led reorganization of the EFC to include a member from each department and to include teaching faculty in addition to tenure-track faculty.
2016-2021	One of the organizing PI's behind the Lake Michigan Ozone Study (2017), which ultimately became a collaborative study involving NASA, NOAA, USEPA, Universities, the Electric Power Research Institute, and several state governments.
2007-2018	Director of Graduate Studies, Department of Chemical and Biochemical Engineering
2014	Organizing Co-PI of a large EPA Center proposal, EPA ACE Air Climate & Energy ($10M, three institutions). Scored highly / not funded.
1994-1999	Maintenance Supervisor, International Paper. Led a team of union hourly workers at a manufacturing facility.

Committees and Task Forces Chaired or Co-Chaired, past 5-years

2023-	Chair of CBE Marketing and Undergraduate Recruiting Committee
2022-2023	Co-chair of CBE DEI Council.
2022-	Chair of faculty annual review committee for Assistant Professor J. Gomes

2021 Chair of (i) Gomes annual review committee for Assistant Professor J. Gomes, (ii) CBE Task Force on Department Research & Name. Co-chair of (i) CBE DEI Council, (ii) CBE Website Committee.

2020 Chair of (i) annual review committee for Assistant Professor J. Gomes, (ii) CBE Task Force on Department Research & Name, (iii) EFC Task Force on Engineering Core Curriculum, and (iv) Faculty Perception of Administrator formative evaluation for Allan Guymon. Co-chair of CBE Website Committee.

2019 Chair of Engineering Faculty Council. Co-chair of CBE Website Committee.

Leadership Training

2020 - 2021 Fellow of the Big Ten Academic Leadership Program, a 40-hour professional development program taught over six full-day sessions. (virtual due to COVID-19 pandemic)

Honors, Awards, and Licenses

2020 **Fellow of the Big Ten Academic Leadership Program**, a professional development program of approximately 40 hours taught over 6 full-day sessions. (virtual due to COVID-19 pandemic)

2018 Recognition for **Excellence in Teaching** and Dedication to Student Success[1]

2017 Recognition for **Excellence in Teaching** and Dedication to Student Success[1]

2015 **Faculty Excellence Award for Service**. Awarded by the University of Iowa College of Engineering

2015 Recognition for **Excellence in Teaching** and Dedication to Student Success[1]

2013 Recognition for **Excellence in Teaching** and Dedication to Student Success[1]

2012 **Faculty Career Development Award**. Carries one semester of sabbatical support from the University of Iowa.

2012 Recognition for **Excellence in Teaching** and Dedication to Student Success[1]

2008 **National Science Foundation CAREER Award**

2007 **Walter R. Rosenblith New Investigator Award** from the Health Effects Institute

2006 **Sheldon K. Friedlander Award**, from the American Association for Aerosol Research "in recognition of an outstanding dissertation"

2002 Teresa Heinz Scholars for Environmental Research Award

2001 National Science Foundation Graduate Research Fellowship

2001 Air and Waste Management Association Scholarship Program Award

1999 Carnegie Mellon University McCabe Graduate Fellowship

[1] One faculty member in Chemical and Biochemical Engineering is selected for recognition by the graduating class

1998 Professional Engineer – registration and certification have lapsed; was licensed as a PE in Environmental Engineering in Maryland

Research Grants and Contracts

Current Grants and Contracts[2]

2023-2024 **Mid-America Transportation Center for Transportation Safety and Equity (MATC-TSE) ($449,387).** *University of Nebraska-Lincoln (Prime US DOT)*. PI: Paul Hanley, Stanier as co-I.

2023-2025 **Bringing Multi-Sensor Exposures to Respiratory Health and Crop Yield Studies ($659,000).** *NASA*. PI: Greg Carmichael, co-Is: Robert Blount, Charles Stanier, Jun Wang.

2023-2024 **Jumpstart: Living With Smoke. University of Iowa VPR.** PI: Greg Carmichael. Co-Is: Betsy Stone, Jun Wang, Charles Stanier, Alejandro P. Comellas, Jacob Simmerling, Peter Thorne, and Thomas Peters.

2021-2024 **Collaborative Research: Photochemical Silicon Aerosols: Establishing Atmospheric Sources and Significance**, *NSF Atmospheric Chemistry*, $800,000 (co-PI's Elizabeth Stone, Keri Hornbuckle, Charles Stanier, Rachel Marek). Collaborative portion is with Eleanor Browne at University of Colorado.

2023-2025 **Management of the NOAA Tall Tower CO2 / CO Sampling System**, *NOAA Global Monitoring Division*, $19,736 (100%).

Role: My research group performs sample change-outs and periodic maintenance of the WBI (West Branch, Iowa) tall tower for greenhouse gas measurement.

Past Grants and Contracts

2022-2023 **Jumpstart: Iowa Healthy Lakes Initiative: A multi-dimensional approach to measuring, informing, and solving Iowa's Harmful Algal Bloom Challenge University of Iowa VPR ($150,000).** PI: Corey Markfort, Co-PIs: Greg LeFevre, Susan Meerdink, Elise Pizzi, Xun Zhou, Peter Thorne; Collaborators: Kylah Hedding, Marc Linderman, Charles Stanier, Elizabeth Stone, Mary Skopec.

2022-2023 **Management of the NOAA Tall Tower CO2 / CO Sampling System**, *NOAA Global Monitoring Division*, $17,595 (100%).

Role: My research group performs sample change-outs and periodic maintenance of the WBI (West Branch, Iowa) tall tower for greenhouse gas measurement.

2021-2022 **Jumpstart: Decarb 2040, Positioning Iowa as an energy exporter in the coming era of deep decarbonization** University of Iowa VPR ($150,000) PI: Charles Stanier, Co-PIs: Jerry Anthony, Wei Li, Marc Linderman;

[2] Budgets are listed as project total.

Collaborators: Kajsa Dalrymple, Sara Maples, H.S. Udaykumar, Xun Zhou, Ion B. Vasi.

2021-2022 **MRI: Acquisition of Instrumentation for Real-Time Molecular Level Measurement of Atmospheric Gas- and Particle-Phase Compounds.** Led by Shan Hu Lee (Chemistry, Univ. of Alabama) a consortium of atmospheric chemistry investigators received funding ($499,200) from NSF Atmospheric Chemistry for a shared FIGAERO-HR-ToF-CIMS.

2020-2021 **Smart Algal Blooms Detection and Forecasting through an AI-Powered UAV System** *Interdisciplinary, Scalable Solutions for a Sustainable Future (ISSSF) Seed Grant Program of the UI Office of Sustainability and the Environment*, $40,000 (PI: Xun Zhou (Business), my role: unfunded co-I; other co-I's are Corey Markfort (Civil & Environmental Engineering), and Ali Jannesari (ISU, Computer Science).

2020-2021 **Decarbonizing Building Thermal Control in Iowa and the Upper Midwest** *CGRER Seed Grant Program*, $30,000 (100%).

2021-2022 **Management of the NOAA Tall Tower CO2 / CO Sampling System**, *NOAA Global Monitoring Division*, $15,000 (100%).

Role: My research group performs sample change-outs and periodic maintenance of the WBI (West Branch, Iowa) tall tower for greenhouse gas measurement.

2020-2021 **Management of the NOAA Tall Tower CO2 / CO Sampling System**, *NOAA Global Monitoring Division*, $15,000 (100%).

Role: My research group performs sample change-outs and periodic maintenance of the WBI (West Branch, Iowa) tall tower for greenhouse gas measurement.

2019-2020 **Management of the NOAA Tall Tower CO2 / CO Sampling System**, *NOAA Global Monitoring Division*, $15,000 (100%).

Role: My research group performs sample change-outs and periodic maintenance of the WBI (West Branch, Iowa) tall tower for greenhouse gas measurement.

2017-2019 **New measurements to understand coastal ozone production during the 2017 Lake Michigan Ozone Study**, *National Science Foundation*, AGS-1712909, Total Award: $341,618 (24%).

Role: One of four collaborative proposal PI's, together with Elizabeth Stone (Chemistry, Iowa), Tim Bertram (Wisconsin), and Dylan Millet (Minnesota).

2018-2019 **Management of the NOAA Tall Tower CO2 / CO Sampling System**, *NOAA Global Monitoring Division*, $15,000 (100%).

Role: My research group performs sample change-outs and periodic maintenance of the WBI (West Branch, Iowa) tall tower for greenhouse gas measurement.

2017-2018 **Management of the NOAA Tall Tower CO2 / CO Sampling System**, *NOAA Global Monitoring Division*, $15,000 (100%).

Role: My research group performs sample change-outs and periodic maintenance of the WBI (West Branch, Iowa) tall tower for greenhouse gas measurement.

2016-2017 **The Changing Aerosols in the Midwestern U.S. Advanced Tools to Relate Sources, Composition, Climate, and Land Use**, *Center for Global and Regional Environmental Research*, $35,000 (50%).

Role: Co-PI on a seed grant. Co-PI Elizabeth Stone's group is developing new experimental techniques, and the Stanier group is handling analysis of regional observational and model data.

2016-2017 **Management of the NOAA Tall Tower CO2 / CO Sampling System**, *NOAA Global Monitoring Division*, $15,000 (100%).

Role: My research group performs sample change-outs and periodic maintenance of the WBI (West Branch, Iowa) tall tower for greenhouse gas measurement.

2015-2017 **CLEan Air in the River Valley through Environmental Education, Technology, Partnerships, and PM Advance, U.S. Environmental Protection Agency**, *Environmental Education Program*, NE 97749101, $91,000 (100%).

Role: Project Director and Sole PI of this environmental education partnership project focused on Dubuque, IA.

2015-2016 **Widespread Photochemically-Produced Organosilicon Aerosol: Enabling Study of Their Sources and Effects**, *Seed Grant: College of Public Health Environmental Health Science Research Center*, $40,000 (50%).

Role: co-PI of seed grant with Jennifer Fiegel (cell toxicity); the Stanier group conducted aerosol generation, characterization, and modeling.

2015-2016 **Management of the NOAA Tall Tower CO2 / CO Sampling System**, *NOAA Global Monitoring Division*, $15,000 (100%).

Role: My research group performs sample change-outs and periodic maintenance of the WBI (West Branch, Iowa) tall tower for greenhouse gas measurement.

2014-2015 **Management of the NOAA Tall Tower CO2 / CO Sampling System**, *NOAA Global Monitoring Division*, $15,000 (100%).

Role: My research group performs sample change-outs and periodic maintenance of the WBI (West Branch, Iowa) tall tower for greenhouse gas measurement.

2009-2014 **Agricultural Soil Erosion and Carbon Cycle Observations in Iowa: Gaps Threaten Climate Mitigating Policies**, *NASA EPSCoR, NNX10AN28A*, $504,459 (33%).

Role: co-Investigator responsible for integration of carbon cycle models and atmospheric measurements. Funded collaborators included Thanos Papanicolaou (PI) and Greg Carmichael (co-I).

2008-2013 **CAREER: Strengthening the Predictive Ability of New Particle Formation – A Combined Field, Data Analysis, and Modeling Approach**, *National Science Foundation*, 0748602, $643,000 (100%).

Role: PI on this study of new particle formation, which included measurements in Mexico City and Illinois, and an educational component on K-12 teacher training.

2008-2013 **Iowa's Multiscale Carbon and Nitrogen Studies,** *Iowa Space Grant Consortium*, $210,500 (50%).

Role: co-Investigator responsible for integration of carbon cycle models and atmospheric measurements. Funded collaborators included Thanos Papanicolaou (PI) and Greg Carmichael (co-I).

2009-2012 **Applying Data Assimilation and Adjoint Sensitivity to Epidemiological and Policy Studies of Airborne Particulate Matter (83386501)**, *United States Environmental Protection Agency*, $899,401 (62%).

Role: PI directing research program on air quality modeling and health, with co-investigators Greg Carmichael, Jacob Oleson, Naresh Kumar, William Field, and Daniel Krewski.

2011 **Linn County Acetaldehyde Regression Analysis Project**, *Linn County Department of Public Health*, $12,671 (50%).

Role: co-PI together with Mark Young, working with a graduate student to perform data analysis and interpretation of measurements and modeling of an air toxic compound in Cedar Rapids, Iowa.

2010-2011 **Siloxanes in Chicago Air, Center for Health Effects of Environmental Contamination**: *Center for Health Effects of Environmental Contamination (CHEEC)*, $30,000 (50%).

Role: co-PI with Keri Hornbuckle. The Hornbuckle group performed measurements while the Stanier group performed data analysis and modeling.

2009-2011 **Data Analysis and Modeling of the LADCO Winter Nitrate Study**, *Lake Michigan Air Directors Consortium*, $135,802 (55%).

Role: I served as PI and project director together with Greg Carmichael (co-I) and Nicole Riemer, co-I, University of Illinois. We jointly worked to perform modeling and data analysis of wintertime measurements of air pollution in the Midwestern U.S.

2007-2010 **Development and Application of a Personal Exposure Screening Model for Size-Resolved Urban Aerosols**, *Walter Rosenblith Young Investigator Program of the Health Effects Institute*, $294,000 (100%).

Role: PI; in that role, I directed the work of post-doctoral researcher Sang Rin Lee on this high resolution modeling project.

2008-2009 **Understanding Iowa Particulate Matter Episodes**, *Bistate Regional Commission*, $39,825 (86%).

Role: PI (Stanier) and co-I Greg Carmichael conducted data analysis and air quality education and advising for the Quad Cities (Bettendorf IA, Davenport IA, Moline IL, and Rock Island IL).

2008-2009 **Discovering the Vertical Dimension of Atmospheric New Particle Formation: Aircraft Profiling Proof of Concept**, *Center for Global and Regional Environmental Research*, $30,000 (100%).

Role: Stanier as PI on seed grant for vertical profiling of atmospheric ultrafine particles.

2006-2007 **Simultaneous Chemical Transport Inversion of CO2 and CO Signal: Data Analysis with MOPITT CO Columns**, *NASA Graduate Student Researchers Program*, $25,000 (50%).

Role: Stanier as co-advisor on a student-led (Elliott Campbell) application to the NASA program.

2006 **Advanced Inlet for Aerosol Chemistry and Physics Studies**, *University of Iowa Vice President for Research Mathematical and Physical Sciences Funding Program (MPSFP)*, $20,000 (100%).

Role: Stanier as PI on seed grant for instrumental development.

2006 **Demonstration Project for Source-Receptor Modeling of Vehicular Toxic Gases and Particulates**, *University of Iowa Center for Health Effects of Environmental Contaminants Seed Grant Program*, $25,000 (100%).

Role: Stanier as PI on seed grant for model development.

National and State of Iowa Service

Service as a Journal and Proposal Reviewer (past 5 years)

Journals

Atmospheric & Air Quality Research
Atmospheric Environment
J. Occupational & Environmental Hygiene
Environmental Science – Atmospheres
Environmental Science and Technology
Environmental Science and Technology Letters
Science of the Total Environment
J. Air and Waste Management Association
J. Geophysical Research – Atmospheres
ACS Earth and Space Chemistry
Elementa
Atmospheric Chemistry & Physics
Atmospheric Pollution Research
Chemosphere
Environmental Research Letters
PNAS Nexus
Journal of Aerosol Science
Nature Sustainability
Remote Sensing
National Science Review
Environmental Policy
Urban Climate

npj Climate and Atmospheric Science

Funding agencies: National Science Foundation, Austrian Science Fund, Alfred P. Sloan Foundation

Publishers: CRC Press Taylor and Francis, Newsweek Fact Checking Program

Current National Service

2024 - Workshop co-chair and steering committee member the launch of the Heartland Environmental Alliance for Resilience and Transformation (HEART). Sept 10-12, 2024, Iowa City, IA.

Past[3] National and International Service

2017 - 2023 Member, Membership Committee of UCAR/NCAR, University Center for Atmospheric Research

2014 - 2017 Awards Committee of the American Association for Aerosol Research, Member 2014-2016; Chair 2016-2017

2016 Member (appointed by the Secretary of Agriculture) USDA Agricultural Air Quality Task Force

2010 - 2012 Board of Directors, American Association of Aerosol Research (elected)

2005 - 2009 Board of Directors, Environmental Division of the American Institute of Chemical Engineers (elected)

Past Service to the State of Iowa

2021 Member, Carbon Energy Workgroup, Advising the Governor's Carbon Sequestration Task Force (State of Iowa, Appointed by Governor Kim Reynolds) https://www.iowaeda.com/carbon-sequestration/

2015 - 2018 Project Director for CLEan Air in the River Valley (CLE4R), a collaborative air quality education project with Dubuque area stakeholders. http://www.iihr.uiowa.edu/clear4/

Research Publications

Highlights:

- 69 peer reviewed articles.
- Additional works include 1 peer-reviewed Health Effects Institute Report, and several technical reports, project websites, and datasets.
- 6000+ citations and google scholar H-index of 40 (as of Nov 2024)
- Google Scholar: https://scholar.google.com/citations?user=CKRhPGIAAAAJ&hl=en
- ORCID id: 0000-0001-9924-0853

[3] Includes all service from past 5 years and notable service contributions prior to that

Journal impact factors for recent papers

- Journal Impact Factors from InCites Journal Citation Reports by Thompson Reuters (formerly ISI). Where possible, the impact factor is listed for the year of publication.

Article number (see Peer-Reviewed Journal Pub Section Below)	**Year**	***Journal (1st author)***	**Journal Impact Factor**
69	2024	*Atmos. Env. (Tang)*	5.0
68	2024	*Environ. Sci. Technol. (Brunet)*	11.4
67	2024	*Environ. Sci. Technol. – Air (Meepage)*	NA
66	2024	*PLOS ONE (Christiansen)*	3.7
65	2023	*International Journal of Hydrogen Energy (Contreras)*	7.2
64	2023	*Elementa (Tang)*	4.6
63	2022	*Atmos. Environ. (Baker)*	4.8
62	2022	*J. Applied Polymer Sci. (Jensen)*	3.1
61	2022	*J. Geophys. Res. Atmos. (Abdi-Oskouei)*	4.3
60	2022	*Energy Sci. & Engineering (Doak)*	4.2
59	2022	*J. Occup. Environ. Hygiene (Peters)*	2.2
58	2022	*J. Atmos. Sci. (Wagner)*	3.2
57	2022	*Atmos. Environ. (Cleary)*	4.8
56	2021	*Bulletin of the American Meteorological Society (Stanier)*	9.4
55	2021	*J. Air Waste Management (Doak)*	2.2
54	2021	*Elementa (Park)*	4.2
53	2021	*Atmos. Environ. (Hughes)*	4.0
52	2020	*Geosci. Model Dev. (Zhao)*	5.1
51	2020	*J. Geophys. Res. Atmos. (Abdi-Oskouei)*	3.6
50	2020	*Chemosphere (King)*	5.1
49	2019	*J. Geophys. Res. Atmos. (Vermeuel)*	3.6
48	2019	*Atmos. Chem. Phys. (Janechek)*	5.5

47	2019	*Aerosol & Air Qual. Res. (Dong)*	2.6
46	2018	*Atmos. Environ. (Li)*	3.7
45	2017	*Atmos. Chem. Phys. (Janechek)*	5.3
44	2017	*Atmos. Environ. (Bullard)*	3.6
43	2017	*Geosci. Model Dev. (Fahey)*	3.5
42	2015	*Environ. Res. Lett. (Turner)*	4.4
41	2015	*J. Geophys. Res. Biogeosci. (Papanicolaou)*	3.4
40	2015	*Environ. Sci. Technol. (Turner)*	5.4
39	2015	*Sci. Total Environ. (Gao)*	4.0
38	2015	*Atmos. Environ. (Downard)*	3.5
37	2015	*Atmos. Environ. (Singh)*	3.5
36	2014	*J. Data Sci. (Porter)*	NA
35	2014	*J. Geophys. Res. Atmos. (Kim)*	2.9
34	2014	*Environ. Sci. Technol. (Bzdek)*	5.3
33	2014	*Atmos. Meas. Tech. (Andrews)*	2.9

Peer-Reviewed Journal Publications

In each publication entry, Stanier is double underlined, and group members are underlined. Corresponding author(s) in boldtype.

[69] **Tang, B.**, Stanier, C.O., Carmichael, G.R., Gao, Meng. Ozone, nitrogen dioxide, and PM2.5 estimation from observation-model machine learning fusion over S. Korea: influence of observation density, chemical transport model resolution, and geostationary remotely sensed AOD. *Atmospheric Environment*, May 2024. https://doi.org/10.1016/j.atmosenv.2024.120603.

[68] Brunet, C.M., Marek, R.F., Stanier, C.O., **Hornbuckle, K.C.** Concentrations of Volatile Methyl Siloxanes in New York City Reflect Emissions from Personal Care and Industrial Use. *Environmental Science and Technology*, 58 (20), 8835-8845, Apr 2024. https://pubs.acs.org/doi/full/10.1021/acs.est.3c10752.

[67] Meepage, J.N., Welker, J.K., Meyer, C.M., Mohammadi, S., Brunet, C., Lewine, H.R., Marek, R.F., Hornbuckle, K.C., Browne, E.C., Stanier, C.O., **Stone, E.A.** Advances in the separation and detection of secondary organic aerosol produced by decamethylpentasiloxane (D5) in laboratory-generated and ambient aerosol. *Environmental Science and Technology -- Air*, Mar 2024. https://pubs.acs.org/doi/10.1021/acsestair.3c00073.

[66] **Christiansen, M.**, Stanier, C.O., Pierce, R.B., Hughes, D.D., Stone, E.A., and Elzey, S. Size-Resolved Aerosol at a Coastal Great Lakes Site: Impacts of New Particle Formation and Lake Spray. *PLOS ONE*, Feb 2024. https://doi.org/10.1371/journal.pone.0300050.

[65] Contreras, M., Mba-Wright, M., Wulf, C., **Stanier, C.**, **Mubeen, S.J.H.** Technoeconomic Analysis of Photoelectrochemical Hydrogen Production from Desalination Waste Brine using Concentrated Solar Flux. *International Journal of Hydrogen Energy*, https://doi.org/10.1016/j.ijhydene.2023.08.222, 2023.

[64] Tang, B., Saide, P.E., Gao, M., Carmichael, G.R., **Stanier, C.O.** WRF-Chem quantification of transport events and emissions sensitivity in Korea during KORUS-AQ. *Elementa*, Mar 2023, https://doi.org/10.1525/elementa.2022.00096, 2023.

[63] **Baker, K.R.**, Liljegren, J., Valin, L., Judd, L., Szykman, J., Millet, D., Czarnetzki, A., Whitehill, A., Murphy, B., and Stanier, C. Photochemical Model Representation of Ozone and Precursors During the 2017 Lake Michigan Ozone Study (LMOS). *Atmospheric Environment*, https://doi.org/10.1016/j.atmosenv.2022.119465, 2022.

[62] Jensen, M.G., O'Shaughnessy, P.T., Shaffer, M., Yu, S., Choi, Y.Y., Christiansen, M., Stanier, C.O., Hartley, M., Bibby, K., Myung, N.V., **Cwiertny, D.M.** Simple Fabrication of an Electrospun Polystyrene Microfiber Filter that Meets N95 FFR Filtration and Breathability Standards. *Journal of Applied Polymer Science*, https://onlinelibrary.wiley.com/doi/10.1002/app.53406, 2022.

[61] **Abdi-Oskouei, M.**, Roozitalab, B., Stanier, C.O., Christiansen, M., Pfister, G., Pierce, R.B., McDonald, B., Adelman, Z., Janssen, M., Dickens, A., and Carmichael, G.R. The Impact of Volatile Chemical Products, Other VOCs, and NOx on Peak Ozone in the Lake Michigan Region. *Journal of Geophysical Research – Atmospheres,* http://dx.doi.org/10.1029/2022JD037042, 2022.

[60] Doak, A., Stanier, C.O., Anthony, J., Udaykumar, H.S. Can heat-pumps provide routes to decarbonization of building thermal control in the US Midwest? *Energy Science & Engineering*, https://onlinelibrary.wiley.com/doi/10.1002/ese3.1159, 2022.

[59] **Peters**, T., Rabbidoux, D., Stanier, C.O., Anthony, T.R. Assessment of University Classroom Ventilation during the COVID-19 Pandemic. *Journal of Occupational and Environmental Hygiene*, https://doi.org/10.1080/15459624.2022.2053142, 2022.

[58] **Wagner**, T.J., Czarnetzki, A.C., Christiansen, M., Pierce, R.B., Stanier, C.O., Eloranta, E.W. Observations of the Development and Vertical Structure of Lake Michigan Lake Breezes. *Journal of Atmospheric Sciences*, https://doi.org/10.1175/JAS-D-20-0297.1, 2022.

[57] **Cleary**, P.A., Dickens, A., McIlquham, M., Sanchez, M., Geib, K., Hedberg, C., Hupy, J., Watson, M.W., Fuoco, M., Olson, E.R., Pierce, R.B., Stanier, C.O., Long, R., Valin, L., Conley, S., Smith, M. "Impacts of lake breeze meteorology on ozone gradient observations along Lake Michigan shorelines in Wisconsin." *Atmospheric Environment*, 269, 118834, https://doi.org/10.1016/j.atmosenv.2021.118834, 2022.

[56] **Stanier, C.O.**, Pierce, R.B., Abdioskouei, M., Adelman, Z.E., Al-Saadi, J., Alwe, H.D., Bertram, T.H., Carmichael, G.R., Christiansen, M.B., Cleary, P.A., Czarnetzki, A.C., Dickens, A.F., Fuoco, M.A., Hughes, D.D., Hupy, J.P., Janz, S.J., Judd, L.M., Kenski, D., Kowalewski, M.G., Long, R.W., Millet, D.B., Novak, G., Roozitalab, B., Shaw, S.L., Stone, E.A., Szykman, J., Valin, L., Vermeuel, M., Wagner, T.J., Whitehill, A.R. Overview of the Lake Michigan Ozone Study 2017. *Bulletin of the American Meteorological Society*, https://doi.org/10.1175/BAMS-D-20-0061.1, 2021.

[55] Doak, A.G., **Christiansen, M.B.**, Alwe, H.D., Bertram, T.H., Carmichael, G.C., Cleary, P., Czarnetzki, A.C., Dickens, A.F., Janssen, M., Kenski, D., Millet, D.B., Novak, G., Pierce, R.B., Stone, E.A., Long, R., Vermeuel, M., Wagner, T.J., Valin, L., Stanier, C.O. "Characterization of ground-based atmospheric pollution and meteorology sampling stations during the Lake Michigan Ozone Study 2017." *Journal of Air and Waste Management*, https://doi.org/10.1080/10962247.2021.1900000, 2021.

[54] **Park, R.J.**, Oak, Y.J., Emmons, L.K., Kim, C.-H., Pfister, G.G., Carmichael, G.R., Saide, P.E., Cho, S.-Y., Kim, S., Woo, J.-H., Crawford, J.H., Gaubert, B., Lee, H.-J., Park, S.-Y., Jo, Y.-J., Gao, M., Tang, B., Stanier, C.O., Shin, S.S., Park, H.Y., Bae, C., Kim, E. "Multi-model inter-comparisons of air quality simulations for the KORUS-AQ campaign." *Elementa,* 9 (1): 00139. https://doi.org/10.1525/elementa.2021.00139, 2021.

[53] Hughes, D.D., Christiansen, M., Milani, A., Vermeuel, M.P., Novak, G.A., Alwe, H.D., Dickens, A.F., Pierce, R.B., Millet, D.B., Bertram, T.H., Stanier, C.O., **Stone**, E.A. "PM2.5 chemistry, organosulfates, and SOA formation during the 2017 Lake Michigan Ozone Study." *Atmospheric Environment*, 244, 117939, https://doi.org/10.1016/j.atmosenv.2020.117939, 2021.

[52] Zhao, S., Russell, M., **Hakami**, A., Capps, A., Turner, M., Henze, D., Percell, P., Resler, J., Shen, H., Russell, A., Nenes, A., Pappin, A., Napelenok, A., Bash, J., Fahey, K., Carmichael, G., Stanier, C., and Chai, T. "A Multiphase CMAQ Version 5.0 Adjoint." *Geosci. Model Dev.*, 13, 2925–2944, https://doi.org/10.5194/gmd-13-2925-2020, 2020.

[51] **Abdi-Oskouei**, M., Carmichael, G.R., Christiansen, M., Ferrada, G., Roozitalab, B., Sobhani, N., Wade, K., Czarnetzki, A., Pierce, R.B., Wagner, T., and C.O. Stanier. "Sensitivity of meteorological skill to selection of WRF-Chem physical parameterizations and impact on ozone prediction during the Lake Michigan Ozone Study (LMOS)." *J. Geophys. Res. Atmos.*, https://doi.org/10.1029/2019JD031971, 2020.

[50] King, B.M., Janechek, N.J., Bryngelson, N., Adamcakova-Dodd, A., Lersch, T., Bunker, K., Casuccio, G., Thorne, P., **Stanier**, C.O., and J. **Fiegel**. "Lung cell exposure to secondary photochemical aerosols generated from OH oxidation of cyclic siloxanes." *Chemosphere*, **241**, 125126, https://doi.org/10.1016/j.chemosphere.2019.125126, 2020.

[49] Vermeuel, M. P., G. A. Novak, H. D. Alwe, D. D. Hughes, R. Kaleel, A. F. Dickens, D. Kenski, A. Czarnetzki, E. A. Stone, C. O. Stanier, R. B. Pierce, D. B. Millet and T. H. **Bertram**. "Sensitivity of Ozone Production to NOx and VOC along the Lake Michigan Coastline." *J. Geophys. Res. Atmos.*, **124**, 20, pp. 10989-11006, https://agupubs.onlinelibrary.wiley.com/doi/10.1029/2019JD030842, 2019.

[48] Janechek, N., Marek, R.F., Bryngelson, N., Singh, A., Bullard, R.L., Brune, W.H., and **Stanier**, C.O. "Physical Properties of Secondary Photochemical Aerosol from OH Oxidation of a Cyclic Siloxane," *Atmos. Chem. Phys.*, **19**, 1649-1664, https://doi.org/10.5194/acp-19-1649-2019, 2019.

[47] Dong, C., Matsui, H., Spak, S., Kalafut-Pettibone, A., **Stanier**, C.O. "Impacts of new particle formation on short-term meteorology and air quality as determined by NPF-explicit WRF-Chem in the Midwestern United States." *Aerosol and Air Quality Research*, **19**, 204-220, http://doi:10.4209/aaqr.2018.05.0163, 2019.

[46] Li, X., Dallmann, T.R., May, A.A., Stanier, C.O., Grieshop, A.P., Lipsky, E.M., Robinson, A.L., **Presto**, A.A. "Size distribution of vehicle emitted primary particles measured in a traffic tunnel." *Atmos. Environ.*, https://doi.org/10.1016/j.atmosenv.2018.07.052, 2018.

[45] Janechek, N., Hansen, K. M., and **Stanier**, C. O. "Comprehensive atmospheric modeling of reactive cyclic siloxanes and their oxidation products." *Atmos. Chem. Phys*., **17**, 8357-8370, https://doi.org/10.5194/acp-17-8357-2017, 2017.

[44] Bullard, R.L., Singh, A., Anderson, S.M., Lehmann, C.M.B., and **Stanier**, C.O. "10-Month Characterization of the Aerosol Number Size Distribution and Related Air Quality and Meteorology at the Bondville, IL Midwestern Background Site." *Atmos. Environ.*, **154**, 348-361, doi:10.1016/j.atmosenv.2016.12.055, 2017.

[43] **Fahey**, K. M., Carlton, A. G., Pye, H. O. T., Baek, J., Hutzell, W. T., Stanier, C. O., Baker, K. R., Appel, K. W., Jaoui, M., and Offenberg, J. H. "A framework for expanding aqueous chemistry in the Community Multiscale Air Quality (CMAQ) model version 5.1." *Geosci. Model Dev.*, **10**, 1587-1605, doi:10.5194/gmd-10-1587-2017, 2017.

[42] **Turner**, M., Henze, D., Hakami, A., Capps, S., Zhao, S.-L., Resler, J., Carmichael, G.R., Stanier, C.O., Baek, J.., Sandu, A., Russell, A., Nenes, A., Pinder, R., Napelenok, S., Bash, J., Percell, P., Chai, T. "Premature deaths attributed to source-specific BC emissions in six urban US regions." *Environ. Res. Lett.*, **10**(11), 114014, doi:10.1088/1748-9326/10/11/114014, 2015.

[41] **Papanicalaou**, A.N. (Thanos), Wacha, K.M., Abban, B.K., Wilson, C.G., Hatfield, J., Stanier, C.O., Filley, T. "From Soilscapes to Landscapes: A Landscape-oriented Approach to Simulate Soil Organic Carbon Dynamics in Intensely Managed Landscapes." *J. Geophys. Res. Biogeosci.*, **120**, 2375–2401, doi:10.1002/2015JG003078, 2015.

[40] **Turner**, M.D., Henze, D.K., Hakami, A., Zhao, A., Resler, J., Carmichael, G.R., Stanier, C.O., Baek, J., Sandu, A., Russell, A.G., Nenes, A., Jeong, G.-R., Capps, S.L., Percell, P.B., Pinder, R.W., Napelenok, S.L., Bash, J.O., Chai, T. "Differences between magnitudes and health impacts of BC emissions across the United States using 12 km scale seasonal source apportionment." *Environ. Sci. Technol.* **49**(7), pp. 4362-4371, doi 10.1021/es505968b, 2015.

[39] **Gao**, M., Guttikunda, S.K., Carmichael, G.R., Wang, Y., Liu, Z., Stanier, C.O. "Health Impacts and Economic Loss Assessment of the 2013 Severe Haze Event in Beijing." *Sci. Total Environ.* **511**, pp. 553-561, doi 10.1016/j.scitotenv.2015.01.005, 2015.

[38] Downard, J., Singh, A., Bullard, R.L., Jayarathne, R. Rathnayake, C., Simmons, D.L., Wels, B.R., Spak, S.N., Peters, T., Beardsley, D., Stanier, C.O., **Stone**, E.A. "Uncontrolled combustion of shredded tires in a landfill - Part 1: Characterization of gaseous and particulate emissions." *Atmos. Environ.* **104**, pp. 195-204, doi 10.1016.j.atmosenv.2014.12.059, 2015.

[37] Singh, A., Spak, S.N., Stone, E.A., Downard, J., Bullard, R.L., Pooley, M., Kostle, P.A., Mainprize, M.W., Wichman, M.D., Peters, T., Beardsley, D., **Stanier**, C.O. "Uncontrolled combustion of shredded tires in a landfill - Part 2: Population Exposure, Public Health Response, and an Air Quality Index for Urban Fires." *Atmos. Environ.*, **104**, pp. 273–283, doi: 10.1016/j.atmosenv.2015.01.002, 2015.

[36] Porter, A.T., **Oleson**, J.J., Stanier, C.O. "On the Spatio-Temporal Relationship Between MODIS AOD and PM2.5 Particulate Matter Measurements." *J. Data Sci.*, **12**, pp. 255–275, 2014.

[35] Kim, Y.J., Spak, S.N., Carmichael, G.R., Riemer, N., **Stanier**, C.O. "Modeled aerosol nitrate formation pathways during wintertime in the Great Lakes region of North America." *J. Geophys. Res*., **119**(21), pp. 12420–12445, doi 10.1002/2014JD022320, 2014.

[34] Bzdek, B.R., Horan, A.J., Pennington, M.R., Janechek, N.J., Baek, J., Stanier, C.O., **Johnston**, M.V. "Silicon is a Frequent Component of Atmospheric Nanoparticles." *Environ. Sci. Technol*. **48**(19), pp. 11137–11145, doi: 10.1021/es5026933, 2014.

[33] **Andrews**, A.E., Kofler, J.D., Trudeau, M.E., Williams, J.C., Neff, D.H., Masarie, K.A., Chao, D.Y., Kitzis, D.R., Novelli, P.C., Zhao, C.L., Dlugokencky, E.J., Lang, P.M., Crotwell, M.J., Fischer, M.L., Parker, M.J., Lee, J.T., Baumann, D.D., Desai, A.R., Stanier, C.O., de Wekker, S.F.J., Wolfe, D.E., Munger, J.W., Tans, P.P. "CO2, CO and CH4 Measurements from tall towers in the NOAA Earth System Research Laboratory's Global Greenhouse Gas Reference Network: Instrumentation, Uncertainty Analysis and Recommendations for Future High-Accuracy Greenhouse Gas Monitoring Efforts." *Atmos. Meas. Tech*. **7**, 647-687, doi:10.5194/amt-7-647-2014, 2014.

[32] Yucuis, R., Stanier, C.O., **Hornbuckle**, K. "Cyclic Siloxanes in Air, Including Identification of High Levels in Chicago and Distinct Diurnal Variation." *Chemosphere*. **92**(8), pp. 905–910. 2013.

[31] **Stanier**, C.O., Singh, A., Adamski, W., Baek, J., Caughey, M., Carmichael, G.R., Edgerton, E., Kenski, D., Koerber, M., Oleson, J., Rohlf, T., Lee, S.R., Riemer, N., Shaw, S., Sousan, S., Spak, S.N. "Overview of the LADCO Winter Nitrate Study: Hourly Ammonia, Nitric Acid and PM2.5 Composition at an Urban and Rural Site Pair During PM2.5 Episodes in the U.S. Great Lakes Region." *Atmos. Chem. Phys*. **12**, pp. 1-12. doi:10.5194/acp-12-1-2012, 2012.

[30] Chen, H., Stanier, C.O., **Young**, M.A., **Grassian**, V.H. "A Kinetic Study of Ozone Decomposition on Illuminated Oxide Surfaces." *J. Phys. Chem. A*. **115**(43), pp. 11979-11987, 2011.

[29] Navea, J., Young, M., Xu, S., Grassian, V., **Stanier**, C. "The atmospheric lifetimes and concentrations of cyclic methylsiloxanes octamethylcyclotetrasiloxane (D4) and decamethylcyclopentasiloxane (D5) and the influence of heterogeneous uptake." *Atmos. Environ*. **45**(18), pp. 3181-3191, doi.org/10.1016/j.atmosenv.2011.02.038, 2011.

[28] Kalafut-Pettibone, A.J., Wang, J., Eichinger, W.E., Clarke, A., Vay, S.A., Blake, D.R., **Stanier**, C.O. "Size-resolved aerosol emission factors and new particle formation/growth activity occurring in Mexico City during the MILAGRO 2006 Campaign." *Atmos. Chem. Phys*. **11**, pp. 8861–8881, doi:10.5194/acpd-11-6651-2011, 2011.

[27] Rubasinghege, G., Spak, S.N., Stanier, C.O., Carmichael, G.R., **Grassian**, V.H. "Abiotic Mechanism for the Formation of Atmospheric Nitrous Oxide from Ammonium Nitrate." *Environ. Sci. Technol*., **45**(7), pp 2691–2697, doi: 10.1021/es103295v, 2011.

[26] Navea, J., Xu, S., Stanier, C., **Young**, M., **Grassian**, V. "Heterogeneous uptake of octamethylcyclotetrasiloxane (D4) and decamethylcyclopentasiloxane (D5) onto mineral dust aerosol under variable RH conditions." *Atmos. Environ*., **43**(26), pp. 4060-4069, 2009.

[25] Navea, J., Xu, S., Stanier, C., **Young**, M., **Grassian**, V. "Effect of Ozone and Relative Humidity on the Heterogeneous Uptake of Octamethylcyclotetrasiloxane and

Decamethylcyclopentasiloxane on Model Mineral Dust Aerosol Components." *J. Phys. Chem.* A, 113(25), pp. 7030-7038, 2009.

[24] **Stanier**, C.O., Donahue, N.M., Pandis, S.N. "Parameterization of Secondary Organic Aerosol Mass Fractions from Smog Chamber Data", *Atmos. Environ.* **42**, pp. 2276-2299, 2008.

[23] **Campbell**, J.E., Carmichael, G.R., Chai, T., Mena-Carrasco, M., Tang, Y., Blake, D.R., Blake, N.J., Vay, S.A., Collatz, G.J., Baker, I., Berry, J.A., Montzka, S.A., Sweeney, C., Schnoor, J.L., Stanier, C.O. "Photosynthetic Control of Atmospheric Carbonyl Sulfide During the Growing Season." *Science*, **322**, pp. 1085-1088, 2008.

[22] Pathak, R.K., Stanier, C.O., Donahue, N.M., Pandis, S.N. "Ozonolysis of α-pinene at atmospherically relevant concentrations: Temperature dependence of aerosol mass fractions (yields)." *J. Geophys. Res.*, **112**, D03201, doi:10.1029/2006JD007436, 2007.

[21] **Campbell**, J. E., Carmichael, G. R., Tang, Y., Chai, T., Vay, S. A., Choi, Y.-H., Sachse, G. W., Singh, H. B., Schnoor, J. L., Woo, J., Vukovich, J.M., Streets, D.G., Huey, L.G., Stanier, C.O. "Analysis of Anthropogenic CO2 Signal in ICARTT Observations Using a Regional Chemical Transport Model and Observed Tracers." *Tellus B*, **59B**(2), pp. 199-210, 2007.

[20] **Stanier**, C., Pathak, R., Pandis, S.N. "Measurements of the Volatility of Aerosols from α-Pinene Ozonolysis." *Environ. Sci. Technol.*, **41**, pp. 2756-2763, 2007.

[19] Pathak, R.K., Presto, A., Lane, T., Stanier, C.O., Donahue, N.M., **Pandis**, S.N. "Ozonolysis of α-pinene: Parameterization of Secondary Organic Aerosol Mass Fraction." *Atmos. Chem. Phys.*, **7**, pp. 3811-3821, 2007.

[18] **Donahue**, N.M., Robinson, A.L., Stanier, C.O., Pandis, S.N., "The Coupled Partitioning, Dilution and Chemical Aging of Semivolatile Organics." *Environ. Sci. Technol.*, **40**, pp. 2635-2643, 2006.

[17] Shrivastava, M., Lipsky, E., Stanier, C.O., **Robinson**, A.L. "Modeling Semi-Volatile Organic Aerosol Mass Emissions from Combustion Systems." *Environ. Sci. Technol.*, **40**, pp. 2671-2677, 2006.

[16] Stanier, C.O., Solomon, P.A. "Preface to the special section on Particulate Matter Supersites Program and Related Studies", *J. Geophys. Res. – Atmos.*, **111**, doi:10.1029/2006JD007381, 2006. (see footnote regarding this article)

[15] Millet, D.B., Donahue, N.M., Pandis, S.N., Polidori, A., Stanier, C.O., Turpin, B.J., Goldstein, A.H. "Atmospheric volatile compound measurement during the Pittsburgh Air Quality Study: Results, interpretations, and quantification of primary and secondary contributions." *J. Geophys. Res. – Atmos.*, **110**(D7), D07S07, doi:10.1029/2004JD004601, 2005.

[14] Zhou, L., Hopke, P.K., Stanier, C., Pandis, S.N., Ondov, J.M., Pancras, P. "Investigation of the relationship between chemical composition and size distribution of airborne particles by Partial Least Squares (PLS) and Positive Matrix Factorization (PMF)." *J. Geophys. Res. – Atmos.*, **110**(D7), D07S18, doi:10.1029/2004JD005050, 2005.

[13] Gaydos, T.M., Stanier, C.O., Pandis, S.N. "Modeling of in-situ ultrafine atmospheric particle formation in the eastern United States." *J. Geophys. Res. – Atmos.*, **110**(D7), D07S12, doi:10.1029/2004JD004683, 2005.

[12] Khlystov, A., Stanier, C., Takahama, S., Pandis, S.N. "Water Content of Ambient Aerosol During the Pittsburgh Air Quality Study.", *J. Geophys. Res. – Atmos*., **110**(D7), D07S10, doi:10.1029/2004JD00465114, 2005.

[11] Khlystov, A., Zhang, Q., Jimenez, J.-L., Stanier, C., Pandis, S.N., Caragaratna, M.R., Fine, P., Misra, C., Sioutas, C. "In-situ concentration of semi-volatile aerosol using water-condensation technology." *J. Aerosol Sci*., **36**(7), pp. 866-880, 2005.

[10] Zhou, L., Kim, E., Hopke, P.K., Stanier, C., Pandis, S.N. "Mining Airborne Particulate Size Distribution Data by Positive Matrix Factorization (PMF)." *J. Geophys. Res. – Atmos*., **110**(D7), D07S19, doi:10.1029/2004JD004707, 2005.

[9] Donahue, N.M., Huff Hartz, K.E., Chuong, B., Presto, A., Stanier, C., Rosenhørn, T., Robinson, A.L., Pandis, S.N. "Critical factors determining the variation in SOA yields from terpene ozonolysis: A combined experimental and computational study." *Faraday Discussions*, **130**, pp. 1-15, 2005.

[8] Stanier, C., Khlystov, A., Pandis, S.N. "Nucleation Events during the Pittsburgh Air Quality Study: Description and Relation to Key Meteorological, Gas Phase, and Aerosol Parameters." *Aerosol Sci. Technol*., **38**(S1), pp. 253-264, 2004.

[7] Stanier, C., Khlystov, A., Chan, W.R., Mandiro, M., Pandis, S.N. "A Method for the In-situ Measurement of Fine Aerosol Water Content of Ambient Aerosol: the Dry-Ambient Aerosol Size Spectrometer (DAASS)." *Aerosol Sci. Technol*., **28**(S1), pp. 215-228, 2004.

[6] Stanier, C., Khlystov, A., Pandis, S.N. "Ambient Aerosol Size Distributions and Particle Number Concentrations Measured during the Pittsburgh Air Quality Study." *Atmos. Environ*., **38**, pp. 3275-3284, 2004.

[5] Khlystov, A., Stanier, C., Pandis, S.N. "An Algorithm for Combining Electrical Mobility and Aerodynamic Size Distribution Data when Measuring Ambient Aerosol." *Aerosol Sci. Technol*., **28**(S1), pp. 229-238, 2004.

[4] Zhou, L., Kim, E., Hopke, P.K., Stanier, C., Pandis, S.N. "Advanced Factor Analysis on Pittsburgh Particle Size Distribution Data." *Aerosol Sci. Technol*., **28**(S1), pp. 118-132, 2004.

[3] Rees, S., Robinson, A., Khlystov, A., Stanier, C., Pandis, S.N. "Mass Balance Closure and the Federal Reference Method for PM2.5 in Pittsburgh Pennsylvania." *Atmos. Environ*., **28**(20), pp. 3305-3318, 2004.

[2] Zhang, Q., Stanier, C., Caragaratna, M. Pandis, S.N., Jimenez, J.L. "Insights into the Chemistry of Nucleation Bursts and Particle Growth Events in Pittsburgh Based on Aerosol Mass Spectrometry." *Environ. Sci. Technol*., **38**(18), pp. 4797-4809, 2004.

[1] Lipsky, E., Stanier, C., Pandis, S.N., Robinson, A.L. "Effects of Sampling Conditions on the Size Distribution of Fine Particulate Matter Emitted From a Pilot-Scale Pulverized-Coal Combustor." *Energy & Fuels*, **16**(2), pp. 302-310, 2002.

Book Chapters

Stanier, C.O., Carmichael, G.R., and Thorne, P. North America's summer of wildfire smoke: 2023 was only the beginning. Chapter in The Conversation on Extreme Weather, Johns Hopkins University Press (anticipated summer 2025).

Stanier, C.O., Gutierrez, C., and Schnoor, J. Iowa's Potential Role in Climate Mitigation. Chapter in Iowa Climate Assessment 2024, Ed., Takle, G. Iowa Natural Heritage Foundation. (submitted Mar 2024)

Stanier, C.O. Climate change, global implications. Chapter in Tending Iowa's Land: Pathways to a Sustainable Future, edited book by Connie Mutel. 2022. University of Iowa Press. https://uipress.uiowa.edu/books/tending-iowas-land

Peer-Reviewed Technical Reports

[1] Stanier, C.O., Lee, S.R. "Development and Application of an Aerosol Screening Model for Size-Resolved Urban Aerosols." Walter A. Rosenblith New Investigator Award Research Report. Health Effects Institute Report Number 179, 2014.

Publicly-Released Datasets

[7] Brunet, C., Marek, R.F., Stanier, C.O., and Hornbuckle, K.C. Dataset for Concentrations of Volatile Methyl Siloxanes in New York City reflect Emissions from Personal Care and Industrial Use, *Iowa Research Online*, doi: 10.25820/data.006807, https://doi.org/10.25820/data.006807, 2024.

[6] Abdi-Oskouei, M., Roozitalab, B., Stanier, C.O., Carmichael, G.R.. WRF-Chem model outputs to study the impact of Volatile Chemical Products, Other VOCs, and NOx on Peak Ozone in the Lake Michigan Region during June 2017, *Iowa Research Online*, doi: 10.25820/data.006193, https://iro.uiowa.edu/esploro/outputs/dataset/9984304533602771, 2022.

[5] Lake Michigan Ozone Study 2017 Team. "LMOS 2017 Public Data Archive." *NASA Airborne Science Data for Atmospheric Composition*, https://www-air.larc.nasa.gov/cgi-bin/ArcView/lmos, 2018.

[4] Janechek, N., Stanier, C., Hansen, K. "Data in support of Comprehensive Atmospheric Modeling of Reactive Cyclic Siloxanes and Their Oxidation Products." *Harvard Dataverse*, doi:10.7910/DVN/68FO9B, 2017.

[3] Stanier, C.O, Bullard, R.L, Singh, A. "Measurements in support of 10-Month Characterization of the Aerosol Number Size Distribution and Related Air Quality and Meteorology at the Bondville, IL Midwestern Background Site." *Harvard Dataverse*, doi 10.7910/DVN/7LZBD3, 2016.

[2] Stanier, C.O. "Aerosol Size Distribution from Pittsburgh Air Quality Study, 2001-2002." *Harvard Dataverse*, doi:10.7910/DVN/8BWJNS, 2016.

[1] Stanier, C., Edgerton, E. Hourly air pollution and meteorology variables from the LADCO Winter Nitrate Study and the SEARCH network (Jefferson St. Atlanta and Yorkville GA sites), in support of the LADCO Winter Nitrate Study. [Data Set]. University of Iowa, https://doi.org/10.25820/data.006812, 2024.

Publicly-Released Code

[2] Sample code and documentation for Python in Chemical Engineering Process Controls and Thermodynamics. https://github.com/charles-stan/learn_python_Stanier/. Released Fall 2020.

[1] Sample code and documentation for MATLAB in Chemical Engineering Process Controls. https://github.com/charles-stan/learn_MATLAB_Stanier/. Released Fall 2020.

Other Significant Technical Writings, Not Formally Peer-Reviewed (Preprints, Technical Reports, Dissertations, Magazine Articles, White Papers, etc.)

[18] Stanier, C.O., Carmichael, G.R., and Thorne, P. Wildfire smoke is back: fires burning across Canada are already triggering US air quality alerts in the Midwest and Plains. *The Conversation*. https://theconversation.com/wildfire-smoke-is-back-fires-burning-across-canada-are-already-triggering-us-air-quality-alerts-in-the-midwest-and-plains-229992, 2024.

[17] Stanier, C.O., Carmichael, G.R., and Thorne, P. North America's summer of wildfire smoke: 2023 was only the beginning. *The Conversation*. https://theconversation.com/north-americas-summer-of-wildfire-smoke-2023-was-only-the-beginning-210246, 2023.

[16] **Christiansen, M.**, Stanier, C.O., Pierce, R.B., Hughes, D.D., Stone, E.A., and Elzey, S. Size Resolved Aerosol Characterization and In-field Comparative Evaluation of TSI 1 nm SMPS at Lake Michigan Coastal Station. *EarthArXiv* Preprint Server. https://doi.org/10.31223/X5J65B, 2023.

[15] Adelman, Zachariah E., Pierce, R. Bradley, Stanier, Charles O., and Kenski, Donna M. "LMOS: 2017 Lake Michigan Ozone Study," *em, The Magazine for Environmental Managers*, by the Air and Waste Management Association, pp. 23-27, Oct 2020.

[14] Stanier, C.O. "Considering Air Quality and Climate Co-Benefits During Climate Mitigation and Adaptation in the Mississippi River Watershed," in Passe, Ulrike, Janette Thompson, and Kimberly Zarecor, eds. *SUS-RURI: Proceedings of a workshop on developing a convergence sustainable urban systems agenda for redesigning the urban-rural interface along the Mississippi River watershed held in Ames, Iowa, August 12–13, 2019*. Ames, Iowa: Iowa State University Digital Press. https://doi.org/10.31274/isudp.35, 2020.

[13] Lake Michigan Ozone Study 2017 Team. "2017 Lake Michigan Ozone Study (LMOS) Preliminary Finding Report," https://www.ladco.org/wp-content/uploads/Research/LMOS2017/LMOS_LADCO_report_revision_apr2019_final.pdf, 2019.

[12] City of Iowa City, and the Iowa City Climate Action Plan Team. "Iowa City Climate Action Plan." https://www.icgov.org/project/iowa-city-climate-action-and-adaptation-plan, 2018.

[11] Neal, T., Herder, S., Malek, A., Miller, Z., Spak, S., and Stanier, C. "Iowa 8th Grade Science Bundles," https://pressbooks.uiowa.edu/8thgradescience/, with video introduction at https://www.youtube.com/watch?v=KgDKFCBhzOI, 2018.

[10] Pierce, B., Al-Saadi, J., Bertram, T., Dickens, A., Kaleel, R., Kenski, D., Stanier, C. "Open letter to parties interested in the 2017 Lake Michigan Ozone Study." https://www-air.larc.nasa.gov/missions/lmos/docs/update_statement_mar21_final.pdf, 2017.

[9] Stanier, C. O., Reed, D. "Draft White Paper on Presidential Leadership and Innovation Award in Climate Smart Agriculture."

http://user.engineering.uiowa.edu/~cs_proj/publications/climate_smart_ag_awards_program_ver_jul13.pdf, 2016.

[8] Pierce, B., Kaleel, R., Dickens, A., Bertram, T., Stanier, C, Kenski, D. "White Paper: Lake Michigan Ozone Study 2017 (LMOS 2017)." https://www-air.larc.nasa.gov/missions/lmos/docs/Great_Lakes_Ozone_Study_White_Paper_Draft_v6.pdf, 2016.

[7] Stanier, C. "Data analysis and thermodynamic sensitivity analysis of Ashland, WI and Cassville, WI filter data (July 1, 2010 – June 30, 2011)." Technical memorandum to the Lake Michigan Air Directors Consortium (LADCO). Rosemont, IL, 2012.

[6] Spak, S., Baek, J., Carlson, J., Carmichael, G., Kim, Y.J., Riemer, N., Stanier, C.O. "Episodic Air Pollution in Wisconsin (LADCO Winter Nitrate Study) and Georgia (SEARCH Network) During Jan-Mar 2009. Phase II Report: Three Dimensional Modeling, Process Analysis and Emissions Sensitivity." Archived at Iowa Research Online, https://doi.org/10.17077/rep.006597, 2012.

[5] Baek, J., Carmichael, G., Lee, S.R., Oleson, J., Riemer, N., Rohlf, T., Sousan, S., Spak, S., Stanier, C. "Episodic Air Pollution in Wisconsin (LADCO Winter Nitrate Study) and Georgia (SEARCH Network) During Jan-Mar 2009. Phase I Report." Prepared for the Lake Michigan Air Directors Consortium, archived at Iowa Research Online, https://doi.org/10.17077/rep.006598, 2010.

[4] Stanier, C., Schoenfelder, J., Yarker (Brown), M. "Evaluation of the Vaisala CL31 ceilometer as a tool for boundary layer characterization within carbon cycle studies." Report to the NOAA Global Monitoring Division and Vaisala, 2009.

[3] Bender, A., Carmichael, G., Beranek-Collins, A., Brown, M., Holloway, T., Jamroensan, A., Lee, S.-R., Marrapu, P., Pettibone, A., Sousan, S., Spak, S., Stanier, C. "Understanding Episodes of High Airborne Particulate Matter in Iowa." A report commissioned by the Bi-State State Regional Commission, 2009.

[2] Stanier, C. "Ultrafine Particles in the Atmosphere: Emissions, Formation, and Growth", Ph.D. Thesis, Carnegie Mellon University Department of Chemical Engineering, 2003.

[1] Stanier, C., "Work-Driven Adsorption Refrigeration: Theory, Model, and Prototype", Undergraduate Senior Thesis, Princeton University Department of Chemical Engineering, 1994.

Lectures and Conferences

Highlights (within last 5 years):

- Invited presentations at conferences and workshops (past 5 years): University of Iowa Grand Rounds, NCAR, Expert Workshop of the Global Silicones Council Growing Sustainable Communities Conference, SUS-RURI workshop on developing a convergence sustainable urban systems agenda for redesigning the urban-rural interface along the Mississippi River watershed.
- Students regularly contribute to the annual meetings of the American Association of Aerosol Research (AAAR), American Geophysical Union (AGU), and American Meteorological Society (AMS) meetings.

Invited Seminars, Presentations, Workshops and Short Courses

(last 10 years; indicates a conference with archived or published program or abstract book)

[87] Carmichael, G.R., Comella, F., Stanier, C.O., and Thorne, P. "Health Impacts of Climate Exacerbated Wildfires." Presentation to Grand Rounds of the Department of Internal Medicine, University of Iowa Hospitals and Clinics. Iowa City, IA, Dec 2024.

[86] Stanier, C.O. "Modeling Transport and Chemical Fate of cVMS." Presented (virtual) to the European Chemical Industry Council. Sept 2024.

[85] Stanier, C.O., "Secondary Aerosol Formation from Volatile Siloxanes." Presented (virtual) to Dow Chemical. Aug 2024.

[84] Stanier, C.O. (moderator). "Facing the Inferno, The Wildfire Photography of Kari Greer." https://pentacrestmuseums.uiowa.edu/facing-inferno, Iowa City, IA, Mar 2024.

[83] Stanier, C.O. "Impacts of climate change on wildfires and air quality." Presented as part of the 2024 Barbara Schlachter Memorial Lecture Series by 100Grannies for a Livable Future. Iowa City, IA, Mar 2024.

[82] Stanier, C.O. "Atmospheric Oxidation of Personal Care Products: Effects on Air Quality." Chemistry Departmental Seminar, University of Wisconsin at Eau Claire. Eau Claire, WI, Feb 2024.

[81] Stanier, C.O. "Cyclic Volatile Methyl Siloxanes and their Oxidation Products – Atmospheric Marker of Humans? Status of Experiments, Field Sampling, and Modeling." National Center for Atmospheric Research (NCAR) Atmospheric Chemistry Observations & Modeling Laboratory seminar series. Boulder, CO, Aug, 2023.

[80] Stanier, C.O. "Thoughts on Carbon Dioxide Removal and Solar Geoengineering. Presented as an invited panelist at The Human Rights Conundrum: Climate Change Interventions as Both Problem and Solution, a workshop held at the University of Iowa College of Law, and convened by The Journal of Gender, Race & Justice (JGRJ) and Transnational Law and Contemporary Problems (TLCP). Iowa City, IA, Mar, 2023.

[79] Mutel, C., Schnoor, J., Stanier, C.O., and Thicke, F. Tending Iowa's Land Anthology Reading. Prairie Lights Bookstore, Feb 2023.

[78] Stanier, C.O. "Decarb 2040 – Positioning Iowa as an energy exporter in the coming era of deep decarbonization," Presented at Workshop on Climate Change and Health. University of Iowa, Jan 2023.

[77] Stanier, C.O. Panelist and presenter during Carbon Pipelines Across Iowa: A Panel Discussion. University of Iowa College of Law, Nov 2022.

[76] Stanier, C.O. Panelist and presenter during Carbon Dioxide Pipelines: Do they have a public benefit? Iowa Ideas 2023 (virtual) Conference by the Cedar Rapids Gazette, https://www.iowaideas.com/replays, Oct 2022.

[75] Stanier, C.O. "The air quality-energy-climate-water-agriculture nexus in the upper Midwest: Status, trends, and research needs," presented as part of the Climate / Atmospheric Science & Engineering (CASE) Colloquium series at the University of Iowa (virtual), https://iti.uiowa.edu/articles/2022/02/charles-stanier-air-quality-energy-climate-water-agriculture-nexus-upper-midwest, Feb 2022.

[74] Stanier, C.O. "Secondary Aerosol Formation from Volatile Siloxanes," Presented (remotely) to Expert Workshop to Review Potential Mechanisms of Degradation of Siloxanes/Silanols in the Atmosphere, convened by the Global Silicones Council, Aug 2021.

[73] Stanier, C.O., Abdi-Oskouei, M., Carmichael, G., Christiansen, M., Roozitalab, B. Update to the LADCO Ozone Technical Working Group, presented remotely to the LADCO Ozone Technical Working Group. Apr 2021.

[72] Stanier, C.O. "Graduate School vs. Working with Your Bachelor's Degree: Perspectives from the University of Iowa," Presented (remotely) to the *University of Wisconsin Eau Claire* Student Chapter of the American Chemical Society, Eau Claire WI. Oct 2020.

[71] Stanier, C.O. "Viruses in air: COVID-19 transmission as a case study," Presented (remotely) as part of the *University of Iowa College of Public Health Science Café* series. Fairfield Public Library, Fairfield IA. Sept 2020.

[70] Harry Hoffman, H., Schwalje, A., Stanier, C.O., Walker, T. "Assessment of buildings, ventilation, and SARS-CoV-2 transmission," Presented (remotely) to the bi-weekly meeting of the *National Association of Music Executives at State Universities*. Aug 2020.

[69] Stanier, C.O. "Assessment of buildings, ventilation, and SARS-CoV-2 transmission," Presented (remotely) to the Faculty of the University of Iowa School of Music. Iowa City IA. Aug 2020.

[68] Stanier, C.O. "Update on Lake Michigan Ozone Study LMOS 2017," Presented remotely to the *Interagency Air Quality Research Seminars and Discussion Program*, https://www.esrl.noaa.gov/csd/aqrs/. Remote presentation, November 2019.

[67] Stanier, C.O. "Considering Air Quality and Climate Co-Benefits During Climate Mitigation and Adaptation in the Mississippi River Watershed," Presented at the *SUS-RURI workshop on developing a convergence sustainable urban systems agenda for redesigning the urban-rural interface along the Mississippi River watershed*. Ames, Iowa, August 2019.

[66] Stanier, C.O. "An update on the Lake Michigan Ozone Study (2017)" Climate Change Science and Impacts of Climate Change." Presented remotely during LADCO Webinar *May 2019 Update on the Lake Michigan Ozone Study*. Chicago, IL. May 2019.

[65] Stanier, C.O. "Clean Air for the Upper Midwest." Presented at the *Johnson County Department of Public Health* seminar series. Iowa City, IA. Apr 2019.

[64] Stanier, C.O. "Clean Energy in Iowa." Presented as part of the *University of Iowa College of Public Health Science Café* series. Fairfield Public Library, Fairfield IA. Apr 2019.

[63] Stanier, C.O. and Spak, S.N. "Climate Change Science and Impacts of Climate Change." Presented during the *8th Grade Phenomena Bundle Professional Development Workshop*. University of Iowa. Iowa City IA. Oct 2017.

[62] Stanier, C.O. "Gas and Aerosol Pollutants in the Midwestern US. Insights from models and measurements." Seminar at *University of Wisconsin – Eau Claire Department of Chemistry*. Eau Claire WI. Oct 2017.

[61] Stanier, C.O. "Graduate School vs. Working with your Bachelor's Degree: Perspectives from the University of Iowa." Informational Seminar at *University of Wisconsin – Eau Claire Department of Chemistry*. Eau Claire WI. Oct 2017.

[60] Stanier, C.O. "Critical Issues in Climate Science and Advocacy." Presented at the *Sustainable Living Coalition*. Fairfield IA. Oct 2017.

[59] Stanier, C.O. "Review of LMOS Science Objectives." Presentation at *LMOS 2017 Data Workshop*. Chicago IL. Sept 2017.

[58] Stanier, C.O., Givens, B. "Graduate School vs. Working with your STEM BS Degree: Perspectives from the University of Iowa." Undergraduate Seminar at *Pitt Department of Chemical Engineering*. Pittsburgh PA. Nov 2016.

[57] Stanier, C.O. "Fine and Ultrafine Particles in the Midwestern U.S." Seminar at *Carnegie Mellon University Center for Atmospheric Particle Studies (CAPS)*. Pittsburgh PA. Nov 2016.

[56] Stanier, C.O., Frommelt, J., Corrigan, M.R., Schultz, P., Dong, C. "Teaching and Learning about Air Quality by Citizen Science." Workshop (1-h) at the *Growing Sustainable Communities Conference*. Dubuque IA, Oct 2016.*

[55] Stanier, C.O. "Leadership and Innovation Award in Climate Smart Agriculture." *Coalition for Agricultural Greenhouse Gases (C-AGG) Meeting*. Denver CO, Jul 2016.*

[54] Stanier, C.O. "Fine and Ultrafine Particles in the Atmosphere: Aerosol-Cloud Interactions and Midwestern Haze." *Department of Atmospheric Science Seminar, University of Michigan*. Ann Arbor MI, Feb 2016.

[53] Stanier, C.O., Spak, S.N., Kim, Y.J., Carmichael, G., Dong, C. "Great Lakes Air Quality." Presented at *Meteorology And Climate - Modeling for Air Quality (MAC-MAQ)*. Sacramento CA, Sept 2015.*

[52] Stanier, C.O. "Fundamentals of Air Pollution." 4-h workshop given for the *IEEE "SusTech" Conference on Technologies for Sustainability*. Ogden UT, Aug 2015.*

[51] Stanier, C.O. "Two Perspectives on Ultrafine Particles." Seminar given for the *Southern Ontario Centre for Atmospheric Aerosol Research (SOCAAR) at the University of Toronto*. Toronto, Ontario, Canada, Dec 2014.

[50] Stanier, C.O. "New Particle Formation and Growth." Invited 2-h Tutorial at the *32nd Annual American Association for Aerosol Research Conference*. Orlando FL, Oct 2014.*

[49] Stanier, C.O. "Aerosol and Air Pollution Studies in the Midwestern United States." Departmental Seminar for *Civil and Environmental Engineering Department at the University of Illinois*. Champaign-Urbana IL, Oct 2014.

[48] Stanier, C.O. "A Story of Midwestern Air Quality." Departmental Seminar for *Energy, Environmental, and Chemical Engineering Department at Washington University*. St. Louis MO, Sept 2014.

[47] Stanier, C.O. "The Earth's Energy Budget: The Physical Basis Underlying Predictions of Climate Change." Presented at the *2014 Iowa Climate Festival*. Iowa City IA, April 2014.

[46] Stanier, C.O. "Elevated Winter Nitrate in the Upper Midwest." Presented at *2014 Midwest and Central States Air Quality Workshop*. St. Louis MO, Apr 2014.

[45] Stanier, C.O. "Understanding Climate Change." Presented at the *Sustainability Circle Meeting of Eastern Iowa*, led by True Market Solutions. Cedar Rapids IA, February 2014.

Conference Presentations and Posters

(Presenting Author is Marked with an Asterisk; Stanier Group Members are Underlined; All conference entries listed for past 5 years; selected presentations listed for up to 10 years)

[226] Mohammadi, S.,* McMillan, B., Brunet, C., Meepage, J., Welker, J., Lewine, H., Gibson, N., Marek, R., Hornbuckle, K., Stone, E.A., Browne, E., and Stanier, C. "Chemical Characteristics, Aerosol Formation, and RO2 Fate From Decamethylcyclopentasiloxane (D5) Oxidation in a Flow Reactor (A31F-1798)." *American Geophysical Union Fall Meeting*, Washington, DC, Dec 2024.

[225] Mohammadi, S.,* Brunet, C., Roozitalab, B., Hornbuckle, K., and Stanier, C. "Global Multiscale Modeling of Decamethylcyclopentasiloxane (D5) Oxidation in MUSICAv0 Model, Including Secondary Organic Aerosol Formation (A21E-1773)." *American Geophysical Union Fall Meeting*, Washington, DC, Dec 2024.

[224] Wang, J.,* Stanier, C., and Gomes, J. Teaching Big Data Science to Undergraduate Students in the University of Iowa. Presented at the *2024 AICHE Conference*, San Diego, CA, Nov 2024.

[223] Rundlett, B.,* and Stanier, C. Reflecting Changes in Communication Styles within Laboratory Courses. Presented at the *2024 AICHE Conference*, San Diego, CA, Nov 2024.

[222] Lewine, H.,* Meepage, J., Mohammadi, S., Gutierrez, C., Stanier, C., Stone., E. "Investigating SOA Formation from Volatile Methyl Siloxanes. *42nd Annual American Association for Aerosol Research Conference,* Albuquerque, NM, Oct 2024."

[221] Welker, J.,* Meepage, J., Mohammadi, S., Brunet, C., Lewine, H., Marek, R., Hornbuckle, K., Browne, E., Stanier, C.O., and Stone, E. "Gas-Particle Partitioning of Volatile Methyl Siloxane Oxidation Products in the New York City Airshed." *42nd Annual American Association for Aerosol Research Conference,* Albuquerque, NM, Oct 2024.

[220] Brunet, C.,* Marek, R., Stanier, C., Mohammadi, S., Roozitalab, B., Gibson, N., Hornbuckle, K. "Modeled Impacts of Chlorine Oxidation and Temperature Dependence on the Atmospheric Lifetimes and Concentrations of Volatile Methyl Siloxanes," Society of Environmental Toxicology and Chemistry North American Meeting, Fort Worth, TX, Oct 2024. (Poster)

[219] Brunet, C.,* Marek, R., Stanier, C., Mohammadi, S., Roozitalab, B., Gibson, N., Hornbuckle, K. "Concentrations and Lifetimes of Volatile Methyl Siloxanes from Urban Measurements and Atmospheric Modeling," American Chemical Society Fall Meeting, Denver, CO, Aug 2024. (Oral)

[218] Brunet, C.,* Marek, R., Stanier, C., Mohammadi, S., Roozitalab, B., Gibson, N., Hornbuckle, K. "Exploring the impact of chlorine oxidation and temperature dependent reaction rates on the atmospheric lifetimes and concentrations of Volatile Methyl Siloxanes in CESM," Community Earth System Model Work Shop, Boulder, CO, Jun 2024. (Oral)

[217] Mohammadi, S.,* Brunet, C., Meepage, J., Massa, N., Gutierrez, C., Colby, C., Welker, J., Lewine, H., Hornbuckle, K.C., Marek, R.F., Stone, E.S., Browne, E.C., and Stanier, C.O. "Secondary Organic Aerosol Yields and Molecular Markers from Oxidation of Decamethylcyclopentasiloxane (D5) in an Oxidation Flow Reactor (A13M-2327)," *American Geophysical Union Fall Meeting*, San Francisco, CA, Dec 2023.

[216] Mohammadi, S., Gutierrez, C., Massa, N., Brunet, C., Marek, R., Hornbuckle, K., Stanier, C. "Secondary organic aerosol yields of decamethylcyclopentasiloxane (D5) and Octamethylcyclotetrasiloxane (D4) in an Oxidation Flow Reactor," Poster Presentation (Virtual) at International Global Atmospheric Chemistry Early Career Researchers (IGAC-ECRs), Nov. 2023.

[216] Christiansen, M.,* Carmichael, G.R., Tang, B., Stanier, C.O., Blount, R. "Multi-pollutant high resolution exposure assessment in Vietnam, in support of tuberculosis research (A43A-06)," American Geophysical Union Fall Meeting, Chicago, IL, Dec 2022.

[215] Tang, B.,* Carmichael, G., Stanier, C.O., Saide, P., Gao, M. "WRF-Chem Quantification of Transport Events and Emissions Sensitivity in Korea during KORUS-AQ (A45B-09)," American Geophysical Union Fall Meeting, Chicago, IL, Dec 2022.

[214] Tang, B.,* Carmichael, G., Stanier, C.O., Gao, M. "1-km-resolution, multi-species (PM2.5, NO2, O3, black carbon) surface air pollution by machine learning data fusion: effects of surface observation sparsity, and inclusion of GEMS geostationary satellite fields over Korea. (A53A-07)," American Geophysical Union Fall Meeting, Chicago, IL, Dec 2022.

[213] Mohammadi, S.,* McMillan, B., Massa, N., Meepage, J., Welker, J., Stone, E.A., Marek, M., Brunet, C., Hornbuckle, K., Stanier, C. "Experimental characterization of cyclic siloxane oxidation with hydroxyl radicals, Oxidation Flow Reactor (OFR) results," American Geophysical Union Fall Meeting, Chicago, IL, Dec 2022.

[212] McMillan, B.,* Mohammadi, S., Stanier, C.O. "Utilizing a Permeation System with an Oxidation Flow Reactor," poster at the Annual Meeting of AIChE, Phoenix, AZ, Nov 2022.

[211] Doak, A.,* Stanier, C., Anthony, J., & Udaykumar, H. S. "Can heat-pumps provide routes to decarbonization of building thermal control in the US Midwest?" American Society of Mechanical Engineers 16th International Conference on Energy Sustainability. Philadelphia, PA, July 2022.

[210] Tang, B.,* Saide, P., Gao, M., Stanier, C.O., Carmichael, G. "Modeling analysis to advance understanding of air pollution in South Korea during KORUS-AQ," American Meteorological Society Meeting, virtual, Jan 2022.

[209] Stanier, C.O.,* Doak, A., Mubeen, S., Anthony, J., Udaykumar, H.S. "The status of decarbonization in Iowa, and how heat pumps, electrification, hydrogen, and/or biofuels will displace natural gas and propane," Iowa Energy Summit, Altoona, IA, Nov 2022.

[208] Wang, J.,* Stanier, C., Gomes, J. "Teaching Big Data Science and Analytical Tools to Undergraduate Students in the University of Iowa," Fall 2021 Meeting of AICHE, Boston MA, Nov 2021.

[207] Christiansen, M.,* Abdi-Oskouei, M., Stanier, C., Carmichael, Hughes, D.D., Stone, E.A. "WRF-Chem modeling of PM2.5 and AOD of Summertime Air Quality around Lake Michigan," *Meteorology and Climate - Modeling for Air Quality (MAC-MAQ).* Davis CA, Sept 2021 (virtual).

[206] Christiansen, M.,* Stanier, C., Doak, A., Carmichael, G., Pierce, R.B., Bertram, T., Stanier, E.A., Abdi-Oskouei, M., Roozitalab, B., Hughes, D.D., Ferrada, G. "The Lake Michigan Ozone Study (LMOS 2017) Field Campaign and Ozone Control Strategy from It," Fall 2020 Meeting of AICHE. Virtual, Nov 2020. https://plan.core-apps.com/aiche2020/event/74d8cf75e00c20cd8f09bd3f0e5236d2

[205] Christiansen, M.,* Doak, A., Bertram, T., Stone, E.A., Ferrada, G., Hughes, D.D., Stanier, C.O., Carmichael, G.R. "Overview of Meteorology and Chemistry of Ozone Episodes during the Lake Michigan Ozone Study 2017," 101st Meeting of the American Meteorological Association. Virtual, Jan 2021. https://eventpower-res.cloudinary.com/video/upload/v1/media/American%20Meteorological%20S/21ams/session_recording/Overview%20of%20Meteorology%20a/ywilzoswuwydjfoagnvu

[204] Abdi-Oskouei, M.,* Carmichael, G.R., Christiansen, M., Czarnetzki, A.C., Ferrada, G., Pierce, R.B., Roozitalab, B., Sobhani, N., Stanier, C.O. "WRF-Chem Modeling of Lake Michigan Summertime Ozone Air Quality: Optimization of Meteorology and Its Impact on Air Quality Forecast," ACOM Seminar Series (monthly series of the Atmospheric Chemistry Observations & Modeling Laboratory of the National Center for Atmospheric Research), Boulder CO, Aug 2020 (virtual).

[203] Abdi-Oskouei, M.,* Carmichael, G.R., Christiansen, M., Czarnetzki, A.C., Ferrada, G., Pierce, R.B., Roozitalab, B., Sobhani, N., Stanier, C.O. "WRF-Chem Modeling of Lake Michigan Summertime Ozone Air Quality: Optimization of Meteorology and Its Impact on Air Quality Forecasts," *100th Meeting of the American Meteorological Association*. Boston MA, Jan 2020.

[202] Tang, B.,* Gao, M., Stanier, C.O., Carmichael, G. "Evaluation of high resolution WRF-Chem model with observations during KORUS-AQ using updated emission estimates," *Fall Meeting of the American Geophysical Union*. San Francisco CA, Dec 2019.

[201] Christiansen, M.,* Doak, A., Hughes, D., Stanier, C., Stone, E., Millet, D., Alwe, H. "Using Highly Time-resolved Data to Improve the Lake Michigan Ozone Study: Particle Size Distributions and VOCs at a Coastal Site," *38th Annual American Association for Aerosol Research Conference,* Portland OR, Oct 2019.

[199] Contreras, M.,* Mubeen, S., Stanier, C. "Technoeconomic analysis of photoelectrochemical hydrogen production from waste brine," Presented at the *American Chemical Society Meeting*, 2019.

[197] Carmichael, G.,* Abdioskouei, M., Alwe, H.D., Christiansen, M., Millet, D.B., Pierce, R.B., Roozitalab, B., Sobhani, N., and Stanier, C.O. "Impact of Anthropogenic and Biogenic Emissions on High Ozone Episodes Along the Lake Michigan Shoreline" (abstract A53C-05). *Fall Meeting of the American Geophysical Union*. Washington DC, Dec 2018.

[196] Pierce, R.B.* Stanier, C.O., Dickens, A.F., Szykman, J., Bertram, T., Stone, E.A., Al-Saadi, J.A., Czarnetzki, A., Millet, D.B., Alwe, H.D., Judd, L.M., Abdioskouei, M., Valin, L., Cleary, P.A., Fuoco, M., Gregory, G., Christiansen, M., Harkey, M., Kenski, D.M., Adelman, Z., and Wagner, T.J. "Overview of the 2017 Lake Michigan Ozone Study" (abstract A53C-04). *Fall Meeting of the American Geophysical Union*. Washington DC, Dec 2018.

[190] Stanier, C.O.,* Janechek, N., Bryngelson, N., Christiansen, M. "Determination of the Size-Resolved Sampling Efficiency for a Commodity (AirBeam) PM2.5 Ambient Aerosol Sensor at a Background U.S. Continental Site." *2018 International Aerosol Conference*. St. Louis, MO, Sept 2018.

[183] Stanier, C.,* Dong, C., Janechek, N., Bryngelson, N., Schultz, P., Heimbinder, M. "Challenges and Opportunities for Using Crowd-Sourced Air Pollution Measurements for Education and Outreach." Abstract 299866, Session ED030. *Fall Meeting of the American Geophysical Union*. New Orleans LA, Dec 2017.

[181] Stanier, C.,* Abdioskouei, M., Carmichael, G.R., Christiansen, M., Sobhani, N. "Meteorological air quality forecasting using the WRFChem model during the LMOS2017 field campaign." Abstract 298957, Session A082. *Fall Meeting of the American Geophysical Union*. New Orleans LA, Dec 2017.

[172] Stanier, C.,* Dong, C., Janechek, N., Bryngelson, N., A'Hearn, J., Christiansen, M. "Using Low-cost PM2.5 Sensors for Air Quality Education Outreach." Poster at *36th Annual American Association for Aerosol Research Conference*. Raleigh NC, Oct 2017.

[156] Stanier, C.O.*, Bullard, R.L., Dong, C., Singh, A. "Physical Characterization and Modeling of Particle Nucleation and Particle Growth in the Central U.S." Presentation at *34th Annual American Association for Aerosol Research Conference*. Minneapolis MN, Oct 2015.

[155] Stanier, C.O.* "Teaching Green Chemical and Energy Technologies." Presentation at the *Iowa Climate Science Educators Forum*. Des Moines IA, Oct 2015.

Research Group

Highlights

Ph.D. students advised to completion: 11
Postdoctoral researchers advised or co-advised: 3
Thesis MS students advised: 1
Non-Thesis MS students advised: 2
Undergraduate researchers advised: 30
High school researchers advised: 3

Ph.D. Students Advised

Current **Saeideh Mohammadi,** *2022 – (expected 2025)*

Arinze Okoye, *2024 – (expected 2025, co-advised with Al Ratner)*

Former **Marisol Contreras,** *2024, co-advised with Syed Mubeen*

Dissertation: Cost and Environmental Impact of Photoelectrochemical Hydrogen Production from Waste Brine

Beiming Tang, *2023, co-advised with Gregory Carmichael (now Postdoctoral Research Fellow at the National Oceanic & Atmospheric Administration)*

Dissertation: Improving Understanding of Korea's Air Quality using Chemical Transport Modeling and Machine Learning Data Fusion

Megan Christiansen, *2022 (now Scientific Programmer at Guidehouse Inc., working with NOAA on fire and air quality)*

Dissertation: Observation, Modeling, and Analysis of Air Quality at the Urban Regional Interface

Nathan Janechek, *2018 (now Scientific Programmer – Meteorological Application Developer at Guidehouse Inc., working with NOAA on storm surge model development)*

Dissertation: Atmospheric Modeling and Experimental Characterization of Gas and Aerosol Phase Cyclic Volatile Methyl Siloxanes

Can Dong, *2018 (now postdoctoral researcher with Likun Xue at Shandong University)*

Dissertation: Modeling Study of Nucleation and Air Quality in the Midwestern United States

Ashish Singh, *2015 (now a Research Associate in the Environment/Climate Science Division of the DOE's Brookhaven National Lab)*

Dissertation: Measurement of the Physical Properties of Ultrafine Particles in the Rural Continental US

Robert Bullard, *2015 (now at Sandia National Laboratory)*

Dissertation: Characterization of Nucleation & Ultrafine Particle Growth in Rural Continental Environments

Aditsuda Jamroensan, *2013 (co-advised with Gregory Carmichael)*

Dissertation: Understanding Biosphere and Anthropogenic CO_2 over the Midwestern USA: A Combined Observation and Model-Based Analysis

Sinan Sousan, *2012 (now an Assistant Professor at East Carolina University)*

Dissertation: Optimal Interpolation of Satellite and Model-Based Aerosol Data

Alicia Pettibone, *2009 (now at Gryphon Shafer Corporation)*

Dissertation: Toward a Better Understanding of New Particle Formation

J. Elliott Campbell, *2007 (co-advised with Gregory Carmichael, now Gliessman Presidential Chair in Water Resources and Food Sustainability, University of California, Santa Cruz)*

Dissertation: Optimal Recovery of Regional CO_2 Surface Fluxes by Data Assimilation of Anthropogenic and Biogenic Tracers

Ph.D. Student Awards

2023 **Saeideh Mohammadi,** The Air & Waste Management Association Environmental Management and Study Related to Air Quality Award (national award from the AWMA, $1500 prize)

2022 **Beiming Tang**, Ballard and Seashore Dissertation Fellowship, University of Iowa Graduate College (Fall 2022)

2022 **Marisol Contreras**, Ballard and Seashore Dissertation Fellowship, University of Iowa Graduate College (Fall 2022)

2022 **Megan Christiansen**, Best Poster Award, CGRER Category, University of Iowa College of Engineering Research Open House

2021 **Megan Christiansen**, Ballard and Seashore Dissertation Fellowship, University of Iowa Graduate College (Fall 2021)

2021 **Beiming Tang**, Graduate College Post-Graduate Fellowship Award, University of Iowa Graduate College (Fall 2021)

2021 **Megan Christiansen**, James Osburn Award for Excellence in Teaching, Awarded by the University of Iowa Department of Chemical and Biochemical Engineering

2021 **Beiming Tang**, Summer Graduate Fellowship, University of Iowa Graduate College

2021 **Marisol Contreras, Fulbright Fellowship for Study in Germany** (with Petra Zapp, Jülich, Institute for Energy and Climate Research)

2021 **Marisol Contreras**, Summer Graduate Fellowship, University of Iowa Graduate College

2021 **Megan Christiansen**, Summer Graduate Fellowship, University of Iowa Graduate College

2020 **Marisol Contreras**, Arthur Vetter Award for Excellence in Service, Awarded by the University of Iowa Department of Chemical and Biochemical Engineering

2020 **Marisol Contreras**, Associate Fellow of National GEM Consortium

2020 **Megan Christiansen**, Summer Graduate Fellowship, University of Iowa Graduate College

2019 **Nathan Janechek**, 2nd Place Winner of the 2019 AICHE Environmental Division Graduate Student Paper Award, for "Physical properties of secondary photochemical aerosol from OH oxidation of a cyclic siloxane."

2019 **Beiming Tang**, selected in competitive process for the DOE Aerosol Summer School at PNNL.

2019 **Megan Christiansen**, Arthur Vetter Award for Excellence in Service, Awarded by the University of Iowa Department of Chemical and Biochemical Engineering

2019 **Beiming Tang**, Chinese American Chemical Society, Great Lakes Chapter, 2nd place in the Student Research Presentation Competition, Chicago IL, April 2019

2019 **Megan Christiansen**, Graduate College Post-Comprehensive Research Award

2019 **Beiming Tang**, Best Poster Award, CGRER Category, University of Iowa College of Engineering Research Open House

2019 **Marisol Contreras**, Best Poster Award, Green Chemical and Energy Technology Category, University of Iowa College of Engineering Research Open House

2018 **Can Dong**, James Osburn Award for Excellence in Teaching, Awarded by the University of Iowa Department of Chemical and Biochemical Engineering

2018 **Nate Janechek**, Best Poster Award, CGRER Category, University of Iowa College of Engineering Research Open House

2017 **Nate Janechek**, Karl Kammermeyer Award for Excellence in Research, Awarded by the University of Iowa Department of Chemical and Biochemical Engineering

2016 **Nate Janechek**, Graduate College Ballard and Seashore Dissertation Fellowship

2016 **Can Dong**, Graduate College Post-Comprehensive Research Award

2016 **Nate Janechek**, Vetter Service Award from the University of Iowa Department of Chemical and Biochemical Engineering

2016 **Nate Janechek,** Best Poster Award, CGRER Category, University of Iowa College of Engineering Research Open House

2015 **Nate Janechek**, Awarded a position in the NCAR/UCAR workshop IMAGe - Frontiers in Ensemble Data Assimilation for Geoscience Applications. Boulder, Colorado.

2015 **Ashish Singh**, AWMA Midwest Section Graduate Student Award

2012 **Robert Bullard,** Best Poster Award, CGRER Category, University of Iowa College of Engineering Research Open House

2011 **Robert Bullard**, Iowa Space Grant Consortium Fellowship

2010 **Robert Bullard**, Iowa Space Grant Consortium Fellowship

2009 **Sinan Sousan**, Graduate Student Poster Award, Annual Meeting of American Association for Aerosol Research

2008 **Alicia Kalafut-Pettibone,** Best Poster Award, CGRER Category, University of Iowa College of Engineering Research Open House

2007 **Sinan Sousan**, Fulbright Fellowship to Study at the University of Iowa

2007 **Alicia Kalafut-Pettibone,** Best Poster Award, CGRER Category, University of Iowa College of Engineering Research Open House

2006 **J. Elliott Campbell**, 2nd place, University of Iowa Sandra H. Barkan Mentor Award for mentoring of undergraduate researchers

2006 **J. Elliott Campbell,** Awarded a position in the NASA-NSF workshop on data assimilation, Berkeley, CA.

2006 **J. Elliott Campbell**, NASA Graduate Research Fellowship

Post-Doctoral Researchers Advised

Former **Jaemeen Baek,** *2009-2014*

Sang Rin Lee, *2007-2011, currently Adjunct Assistant Professor, Graduate school of Environmental Public Health, Seoul National University*

Juan Navea, *2006 – 2009, (co-advised by Vicki Grassian, Mark Young) currently Professor of Chemistry, Skidmore College, New York*

Thesis M.S. Students Advised

Current none

Non-Thesis M.S. Students Advised

Former **Austin Doak** (2022, now Associate Process Automation Engineer, Experitec Inc.)

Kelsey (Counter)-Petrich (2011, now at Principle Asset Management)

Adam Beranek-Collins (2010)

M.S. Student Awards

2010 **Kelsey (Coulter) Petrich**, Iowa Space Grant Consortium Scholarship

2010 **Kelsey (Coulter) Petrich**, Best Undergraduate Poster Award, Iowa College of Engineering Research Open House, CGRER Category

2010 **Adam Beranek-Collins**, Iowa Space Grant Consortium Scholarship

Undergraduate Students Advised

Current Carlos Gutierrez (2023, 2024)
Grace Ceynar (2024)

Former
Benjamin McMillan (2022, 2023, 2024)
Nathan Massa (2021, 2022, 2023)
Mayra Narvaez Cardenas (2021)
Jonah Marks (2020)
Joe A'Hearn (2019)
Jessica (Bella) Larson (2018)
Brad Olsen (2018)
Nathan Bryngelson (2017)
Jeff Hamilton (2017)
Matt Johnson (2016)
Zach Behrendt
Andrew Hesselink (2013)
Benjamin Behrendt (2012)

Chandra Colby (2023, 2024)
Olivia Dohm (2021, 2022)
Austin Doak (2020)
Ping He (2020)
Kathleen Wade (2020)
Bjorn Blomquist (2018)
Fahad Alokla (2018)
Kyle Wersinger (2020)
John Mauk (2018)
Nathan White (2016)
Allaa Hassanein (2014)
Caitlin Andersen (2013)
Jessica Carlson (2012)

Patrick Saylor (2011)
Taylor Malott (2013)
Jameson Schoenfelder (2012)
Nick Petrich (2012)
Michael Toraason
Andrew Hirsch (2009)
Jay Raife (2009)
Chris Miller (2008)
Tyler Gunn (2009)
Andrew Myers (2012)
Kelsey (Counter)-Petrich (2010)
Tim Rohlf (2011)
Alex Bender (2016)
Adam Beranek-Collins (2009)
Kyle Lilly (2008)
Zach Rodenburg (2009)
Jessica Cowart (2008)

Undergraduate Student Awards

2020 **Austin Doak,** Best Poster Award, CGRER Category, University of Iowa College of Engineering Research Open House

2019 **Austin Doak,** Best Poster Award, CGRER Category, University of Iowa College of Engineering Research Open House

2018 **Kathleen Wade,** ICRU Summer Fellowship, awarded by the Iowa Center for Research by Undergraduates

2018 **Austin Doak,** Best Poster Award, CGRER Category, University of Iowa College of Engineering Research Open House

2017 **Jeff Hamilton,** Iowa Space Grant Consortium Scholarship

High School Students Advised

former Jojo Hayes (2020), Vendana Venkatesh (2017), Hannah Humes (2016)

Inclusive Excellence

In my fields of education, engineering, environmental health, and energy transition – issues of (1) historic underrepresentation and barriers for some demographic groups and (2) environmental justice – are critical.

I have developed a much better understanding of these issues as I have accumulated life and professional experience, engaged in trainings and efforts within and without the workplace, and learned more about how current events influence the student experience and research and discovery environment.

In my current roles as a leader, mentor, team builder, and designer/implementer of solutions, I keep these two issues as priority concerns.

Specific steps that I have taken at the University of Iowa to improve student outcomes and departmental climate include the following: (1) Participation in extensive DEI trainings. (2) Co-chairing the Chemical and Biochemical Engineering DEI Council from 2021 to 2023, where I worked on TA training and on providing DEI service opportunities for our graduate and undergraduate ambassador volunteers. (3) Recruiting and mentoring from historically underrepresented groups.

Of the 13 students I have advised or co-advised to completion at the Ph.D. or M.S. level, 46% have been female. (4) I have improved my skills at listening to and supporting individual students. (5) In my classes, I have made many changes, such as clearly stating our commitment to a welcoming and equitable learning environment in the syllabus, in class, and in my mentoring of teaching assistants. Many best practices are incorporated into my courses, such as providing learning supports in multiple formats, being accommodating for students with unusual scheduling challenges, avoiding wordy exam problems that are unnecessarily difficult for non-native English readers, using anonymous discussion boards, having student advisory groups, having structured small group work that encourages peer connections, and recognizing and responding to test anxiety. (6) I have participated in training on the role of implicit bias in the hiring process, once for the search committee for the Engineering Dean in 2019, and once for the CBE Space Physics search committee in 2021. (7) I completed the training requirements to be an LGBTQ ally and show that my office is an LGBTQ Safe Zone through the University's Safe Zone placard program. This is a sign of inclusivity in our department and a reminder to me about the need to continue to grow as an effective ally with members of our LGBTQ campus community.

In 2020, I was inspired by the passion of minority students as they shared some of the challenges they face. When my lab group members needed a safe, supportive space for discussion, we opened up research group meetings to talk about issues including the campus climate. That "opening up" of the group meetings has continued, and we have institutionalized regular discussion of DEI by beginning each meeting with a "DEI or Safety Minute."

Selected Inclusive Excellence Activities & Accomplishments

2021-2023	Co-chair of Chemical and Biochemical Engineering DEI Council
2021-	Representative of the CBE Department to the College of Engineering DEI Council (shared role with Jennifer Fiegel)
2007-2018	As Director of Graduate Studies, instituted many best practices for graduate education, such as universal peer and faculty mentoring of graduate students
2016	Represented the College at the National GEM Consortium Annual Conference, Miami Beach FL

Selected Inclusive Excellence Training

2023	BUILD: Understanding & Intervening Effectively in Micro-Aggressions
2022	Cultivating Inclusive Communities (Online Course, 1-h, University of Iowa)
2020 - 2021	Current National Fellow of the Big Ten Academic Leadership Program, a 40-hour professional development program taught over six full-day sessions. DEI as a challenge and opportunity for academic leaders was a major component.
2020	BUILD: Beyond The Numbers-Foundations For Diversity, Equity, & Inclusion
2019	BUILD: Creating Equitable Gateway Course Experiences
2017	LGTBQ Safe Zone: Phase II
2017	Safe Zone: Trans Awareness Workshop

Media Coverage of Stanier Group Activities

National Coverage

2021

The University of Iowa's efforts to protect musicians in the School of Music during the pandemic, with mention of testing and simulations by Charles Stanier, in the article by Tammy Walker (Director of the Voxman School of Music), "Studying the Coronavirus to Help Teachers and Musicians Worldwide," in the June 2021 edition of the Music Educators Journal; this is the Journal of the National Association for Music Education (NAfME), DOI: 10.1177/00274321211021815.

2016

Kelleher, S. (2016, February 3) Conservation Farming Shown to Protect Carbon in Soil. *EOS Earth & Space Science News*. Retrieved from https://eos.org/research-spotlights/conservation-farming-shown-to-protect-carbon-in-soil

USDA Office of Communications (2016, January 27) USDA Renews Agricultural Air Quality Task Force, Appoints Members. Press Release No. 0026.16. Retrieved from https://www.usda.gov/media/press-releases/2016/01/27/usda-renews-agricultural-air-quality-task-force-appoints-members

2014

Lockwood, D. (2014, October 7) Some Atmospheric Nanoparticles Could Have Cosmetic Sources. *Chemical & Engineering News*. Retrieved from http://cen.acs.org/articles/92/web/2014/10/Atmospheric-Nanoparticles-Cosmetic-Sources.html?utm_source=feedburner&utm_medium=feed&utm_campaign=Feed%3A+analytical_scene+%28Chemical+%26+Engineering+News%3A+Analytical+SCENE%29

2013

Ritter, S. (2013, October 28) Tire Inferno. *Chemical & Engineering News*. Retrieved from http://cen.acs.org/articles/91/i43/Tire-Inferno.html

Local, State and Regional Coverage

2024

Kieffer, B., and Gehr, D. (2024, Mar 13) Giving students a voice. Charles Stanier discussed the impact of wildfire smoke on health in the context of Kari Greer's wildfire photography exhibit at the University of Iowa https://www.iowapublicradio.org/podcast/river-to-river/2024-03-13/giving-students-a-voice

2023

Jordan, E., and Mónica Cordero (2023, Feb 16) Despite national goals, agricultural greenhouse gases grow unchecked in many Midwest states. Retrieved from https://www.thegazette.com/agriculture/despite-national-goals-agricultural-greenhouse-gases-grow-unchecked-in-many-midwest-states/

2022

Morozov, A. (2022, Nov) From the Front Row - Student Podcast of the University of Iowa, College of Public Health. Climate Change Ep. 2: What can we do to fight climate change? https://podcasts.apple.com/us/podcast/climate-change-ep-2-what-can-we-do-to-fight-climate-change/id1365191930?i=1000583333452

Tran, L. (2022, Jan 6) Breeze Boost: What's the connection between breezy Lake Michigan days and high ozone levels? Great Lakes Now. Retrieved from https://www.greatlakesnow.org/2022/01/lake-michigan-ozone-levels/

Jordan, E. (2022, Oct 14) How much 'net' CO2 would pipelines remove? Cedar Rapids Gazette. Retrieved from https://www.thegazette.com/energy/how-much-net-co2-would-pipelines-remove/

2021

Jordan, E. (2021, Dec 13) Researchers say carbon dioxide could be stored underground in Iowa. The Gazette. Retrieved from https://www.thegazette.com/environment-nature/researchers-say-carbon-dioxide-could-be-stored-underground-in-iowa/

Keicher, N. (2021, Nov 9) UI professor looks toward a carbon-free Iowa. Daily Iowan. Retrieved from https://dailyiowan.com/2021/11/09/university-of-iowa-professor-looks-toward-a-carbon-free-iowa/

Press Release from the Office of the Governor of Iowa (2021, Jul 30) Gov. Reynolds announces members of Carbon Sequestration Task Force Working Groups. https://governor.iowa.gov/press-release/gov-reynolds%C2%A0announces-members-of%C2%A0carbon-sequestration-task-force-working-groups%C2%A0

2020

Poulsen, L. (2020, Jul 16) UI researchers use aerosol-transmission calculator to assess classroom safety. Daily Iowan. Retrieved from https://dailyiowan.com/2020/07/16/university-of-iowa-researchers-use-aerosol-transmission-calculator-assess-classroom-safety/

University of Iowa and Local Service

Current Service to Iowa Communities, Schools, and Local Governments

2022 Conceived of and held the Hawkeye Decarbonization Summit. Co-chaired and co-organized the summit with Jerry Anthony (Urban and Regional Planning)

2013 - Center for Global and Regional Environmental Research, Executive Committee Member

Current Service to the University of Iowa

2018 - Certified to display the LGBTQ Safe Zone placard through the University of Iowa Safe Zone Project of the University's Diversity, Equity and Inclusion efforts

Current Service to the University of Iowa College of Engineering

2006 - Course Coordinator, Engineering Fundamentals -- Thermodynamics

Current Service to the Department of Chemical and Biochemical Engineering

2020 - Chair, DCG for Joe Gomes

2023 - Chair, Marketing and Undergraduate Recruiting Committee

Past Service to Iowa Communities, Schools, and Local Governments

2016 - 2018 Faculty Advisor to the Iowa K-12 Climate Science Education Initiative, a joint project between the Center for Global and Regional Environmental Research and the University of Department of Science Education

2017 - 2018 Member, City of Iowa City Climate Action Steering Committee

2012 Iowa City Landfill Fire -- Assisted with air sampling, emergency response planning, and "lessons learned" analysis.

Past Service to the University of Iowa

2021 - 2023 Representative of the CBE Department to the College of Engineering DEI Council (shared role with Jennifer Fiegel)

2022 Attended the Energy Data Hub meeting by Engie and Ohio State University, reporting back to the University of Iowa Office of Sustainability and Environment, and to UI Facilities. (Aug 2022).

2020 - 2022 Informal Consultant, COVID Ventilation Safety, UI School of Music, and the UI Center for the Book

efforts recognized in part in acknowledgement in an article on COVID protections in the College of Medicine: Hoffman et al., Laser plume containment during flexible transnasal laryngoscopy, in *Laryngoscope Investigative Otolaryngology* (2021) https://onlinelibrary.wiley.com/doi/full/10.1002/lio2.526

2020 - 2022 Member, 2030 UI Sustainability Goal Setting Task Force

2020 Member, Ventilation Subcommittee of the COVID recovery Safety Committee

2019 Search Committee for Dean of University of Iowa College of Engineering

2006 - 2009 Member Representative to the University Corporation for Atmospheric Research (UCAR)

Past Service to the University of Iowa College of Engineering

2021 - 2023 Representative of the CBE Department to the College of Engineering DEI Council (shared role with Jennifer Fiegel)

2020 Chair, EFC Task Force on Engineering Core Curriculum

2020 Chair, Faculty Perception of Administrator formative evaluation for Allan Guymon, Chairperson of Chemical and Biochemical Engineering Dept.

2017 - 2020 Engineering Faculty Council (EFC) (elected). Member 2017-2020; Chair 2018 – 2019.

Past Service to the Department of Chemical and Biochemical Engineering

2018-2023 Co-chair, CBE DEI Council

2021-2022 Member, Search Committee for Space Physics P3 Chemical and Biochemical Engineering Faculty Search

2020 - 2021 Chair, CBE Task Force on Department Research & Name

2018 - 2021 Departmental Website Committee, co-chair

2016 - 2020 Graduate Education Subcommittee

2019 Created the Computational Chemical and Biochemical Engineering Elective Focus Area

Member of Ph.D. Committees (Department is Chemical and Biochemical Engineering unless otherwise noted)

Jonah Marks (in progress)
Christopher Brunet (in progress, Civil and Environmental Engineering)
Chuck Okafor (2024, Mechanical Engineering)
Teresa Feldman (in progress, Chemistry)
Jim Kacer (2023, Occupational and Environmental Health)
Behrooz Roozitalab (2022)
Jacob Jahnke (2021, Civil and Environmental Engineering)
Gonzalo Ferrada (2022)

Sepehr Roudini (2019)
Dagen Hughes (2021, Chemistry)
Nathan Quarderer (2020, Science Education)
Yi Wang (2019, Interdisciplinary Geoinformatics Program)
Yunyi Shi (2019, Mechanical Engineering)
Benjamin King (2018)
Maryam Abdi (2018, Environmental Engineering)
Nick Herkert (2018, Environmental Engineering)
Changie Cai (2017, Occupational and Environmental Health)
Yunyi Shi (2017, Mechanical Engineering)
Negin Sobhani (2017)
Maryam Abdi (2017, Environmental Engineering)
Gao, Meng (2015)
Sawvel, Eric (2014, Occupational and Environmental Health)
Yu, Man (2014)
Yarker, Morgan (2013, Science Education)
Anderson, Kim (2013, Occupational and Environmental Health)
Marrapu, Pallavi (2012)
Chen, Haihan (2012)
Huang, Min (2012)
Nilausen, Akim (na)
Benus, Matthew (2011, Science Education)
Wei, Chao (2010)
Elzey, Sherry (2010)
Kulkarni, Sarika (2009)
Lewandowski, Piot (2009, Environmental Engineering)
Pettibone, John (2009)
Obaci, Ozan (2009, Civil Engineering)
Huang, Yun (2008, Mechanical Engineering)
Schmoll, Linda (2008, Occupational & Environmental Health)
Adhikary, Bhupesh (2008, Environmental Engineering)
Zhang, Taiying (2007)
Mena, Marcelo (2007, Environmental Engineering)
Mogili, Praveen (2007, Chemistry)
Pan, Li (2006)
Hashim Al-Hosney (2005, Chemistry)

Member of Thesis M.S. Committees (Department is Chemical and Biochemical Engineering unless otherwise noted)

Rabidoux, David (2021, Occupational and Environmental Health)
Du, Lingyun (Esther) (2017)
Lennartson, Elizabeth (2017)
Grandquist, Josh (2015)
Downard, Jared (2014, Chemistry)

Courses Taught

Summary list of courses taught:

- Large Lecture Courses
  - Fundamentals of Engineering: Thermodynamics
- Undergraduate Courses
  - Chemical Engineering Thermodynamics
  - Engineering Flow and Heat Exchange
  - Process Dynamics and Control in Design
  - Green Chemical and Energy Technologies
  - Chemical Reaction Engineering / Separations Lab
- Graduate Courses
  - Atmospheric Chemistry and Physics
  - Transport Phenomenon
  - Intermediate Thermodynamics
- Seminars, Workshops, and Guest Lectures
  - Guest Lecture on "Climate Change Basics & A Vision for the Future." Part of Connie Mutel's University of Iowa Senior College Class: Tending Iowa's Land: Working Toward Environmental Health and Sustainability
  - Graduate Professional Development Seminar
  - Advanced Topics in Teaching and Learning: Inquiry Approaches to Climate Weather and Energy in the 6-9 Classroom
  - Graduate Seminar in Chemical and Biochemical Engineering

Significant content or course developments are discussed in italicized type.

Current and Recent Courses

Process Dynamics and Control in Design (CBE:4105). Taught F2024, primarily for 4th year students in Chemical and Biochemical Engineering. Theory and application of process dynamics to the design of chemical process control systems; mathematical models of unit operations, transfer functions, feedback and feed-forward control, instrumentation, computer methods, including simulation and commercial software use; laboratory focus on process equipment and control. *The laboratory experiments were significantly expanded, upgraded, and integrated into the curriculum starting in 2009. Python was introduced as the primary language for numerical methods in F2019. In F2020, the course was delivered in hybrid mode due to the pandemic.*

Also taught in F2023, F2022, F2021, F2020, F2019, F2018, F2017, F2016, F2015, F2014, F2012, F2011, F2010, F2009.

Fundamentals of Engineering Thermodynamics (ENGR:2130). F2024. Worked with co-instructor Justin Garvin for instruction on core thermodynamics to 200+ students in two sections, implementing a new Zybook textbook and Gradescope grading systems.

Green Chemical and Energy Technologies (CBE:5405). S2023. Strategies for pollution prevention and greenhouse gas footprint minimization for chemical processes and energy production studied at the macroscale (industrial sector), the mesoscale (unit operations), and the microscale (molecular level); case studies. Targeted to juniors, seniors, and graduate students in engineering. Also taught S2021, S2019, S2015 (co-instructed), S2013, S2011, S2009, S2007, F2004. *The course was first taught on the model initially developed by Greg Carmichael, and this it was expanded to include climate, energy, and carbon footprint accounting in addition to the original sustainable process design content.*

Atmospheric Chemistry and Physics (CBE:5425). Taught in S2024, for graduate students and advanced undergraduates. Principal chemical and physical processes affecting atmospheric trace gas and pollutant cycles; emphasis on atmospheric photochemistry, aerosol science, major sources and removal processes. *This was a new graduate course that I created.* Also taught in S2022, S2020, S2018, S2016, S2014, S2012, S2010, S2008, S2006.

Tending Iowa's Land: Working Toward Environmental Health and Sustainability (Iowa Senior College). F2024. Guest Lecture on "Climate Change Basics & A Vision for the Future." Course led by Connie Mutel's University of Iowa Senior College Class.

Prior Courses

Chemical Reaction Engineering / Separation Lab (CBE:3155). F2022. Led a laboratory course with experiments and design scale-up for wiped-film evaporation, isothermal enzymatic kinetics in plug flow, isothermal CSTR reactors, distillation, and membrane gas separation.

Intermediate Thermodynamics (CBE:5405). Graduate chemical engineering thermodynamics with focus on mixture properties, vapor-liquid equilibrium, activity and fugacity models, and activity coefficients in ionic solutions. Introduced Python for complex solution of phase equilibrium problems. F2019.

Chemical Engineering Thermodynamics (CBE:3105). For 2nd year students in Chemical and Biochemical Engineering. Applications of thermodynamic principles to chemical and physical processes; prediction of material properties; phase and chemical equilibria applied to mixtures and reacting systems.

Engineering Flow and Heat Exchange (052:151).

Advanced Topics in Teaching and Learning: Inquiry Approaches to Climate Weather and Energy in the 6-9 Classroom (07E:340:WKB). Summer 2011: two s.h. professional development for in-service teachers, co-taught with Science Education Ph.D. candidate Morgan Yarker. *This was a new workshop designed, assembled, and delivered by Yarker and Stanier.*

Graduate Seminar in Chemical and Biochemical Engineering (052:191).

Transport Phenomenon (052:217). F2008 (co-taught with Greg Carmichael).