

Dr. Shantanu H. Jathar

Contact	Colorado State University 1374 Campus Delivery Engineering A103S Fort Collins, CO 80523 Tel: (970) 491-8653 Email: Shantanu.Jathar@colostate.edu Website: http://tinyurl.com/aerosol-csu	
Position	Assistant Professor in Mechanical Engineering	
Education	B.E. in Mechanical Engineering Government College of Engineering Pune, India	2000 - 2004
	M.S. in Mechanical Engineering University of Minnesota, Twin Cities	2005 - 2007
	Ph.D. in Engineering and Public Policy Carnegie Mellon University	2008 - 2012
Areas of Specialization	Atmospheric Particulate Matter Combustion Emissions Photochemical Processing Air Pollution Modeling Environmental Policy Analysis	
Appointments Held	Assistant Professor Mechanical Engineering Colorado State University	2015 - Present
	Postdoctoral Scholar Civil and Environmental Engineering University of California Davis	2012 - 2014
Industry Experience	Product Engineer Eaton Hydraulics Eden Prairie, MN	2007 - 2008
	Management Trainee Larsen and Toubro Mumbai, India	2004 - 2005
Honors	Early Career Award from Environmental Protection Agency (2020) Honorable Mention for Governor's Awards for High-Impact Research (2018) ORAU's Ralph E. Powe Junior Faculty Enhancement Award (2016) John and Claire Bertucci Fellowship, Carnegie Mellon University (2011) Graduate Fellowship, University of Minnesota, Twin Cities (2005)	

Synergistic Activities	<p>Participant at the NSF workshop on Non-traditional Emissions Sources in Boulder, CO (2019)</p> <p>Co-Chair of the Regional/Global Climate/Air Quality Modeling Symposium at the American Association for Aerosol Research Conference (2017)</p> <p>Chair of the Carbonaceous Aerosol Formation Session at the International Aerosol Modeling Algorithms Conference (2017, 2019)</p> <p>Participant at the Air Quality Modeling Research Needs workshop organized by the Coordinating Research Council (2016)</p>
Teaching	<p>MECH 377, Thermodynamics (Fall '17, '18, '19)</p> <p>- Evaluation score: 3.76, 4.36</p> <p>MECH 408, Applied Engineering Economy (Spring '15, '16, '17, '18, '19, '20)</p> <p>- Evaluation score: 4.17, 4.38, 4.55, 4.60</p> <p>MECH 577, Aerosol Physics and Technology (Spring '16, '17, '19)</p> <p>- Evaluation score: 4.67, 5.00</p> <p>MECH 534, Transportation, Energy, and the Environment (Spring '18, '20)</p> <p>- Evaluation score: 3.85</p>
Professional Societies	<p>American Association of Aerosol Research</p> <p>American Geophysical Union</p> <p>European Geophysical Union</p>
Journal Reviewer (past five years)	<p>Aerosol Science and Technology</p> <p>Atmospheric Chemistry and Physics</p> <p>Atmospheric Environment</p> <p>Atmospheric Pollution Research</p> <p>Earth and Space Chemistry</p> <p>Energy and Fuels</p> <p>Environmental Health Perspectives</p> <p>Environmental Sciences</p> <p>Environmental Sciences: Processes and Impacts</p> <p>Environmental Science and Technology</p> <p>Environmental Pollution</p> <p>Geophysical Research Letters</p> <p>Geoscientific Model Development</p> <p>Journal of Aerosol Science</p> <p>Journal of Geophysical Research</p> <p>PLOS ONE</p> <p>Scientific Reports</p> <p>Toxicological Sciences</p> <p>Trends in Chemistry</p>
Proposal Reviewer (past five years)	<p>Department of Energy Office of Science - Atmospheric System Research</p> <p>German Research Foundation (DFG)</p> <p>Natural Environment Research Council (UK)</p> <p>National Science Foundation - Atmospheric Chemistry</p> <p>National Oceanic Atmospheric Administration - AC4</p>

**University
Service**

Awards Committee Member for Mechanical Engineering, CSU (2017-Present)
Faculty Council Representative, CSU (2016-2019)
Host of the Energy & Environment Seminar, Energy Institute (2015-Present)
Faculty Advisor to Pi Tau Sigma Honor Society (2015-Present)
Graduate Center for Diversity and Access Faculty, CSU (2017-2018)
Committee Member for Faculty Search in Energy, CSU (2016)
Co-organizer of the Aerosol Measurement Workshop, CSU (2015, 2016, 2018)
Silver Medal Committee Member, CSU (2015)

Active Grants

[1] *Modeling the complex and dynamic physico-chemical evolution of primary and secondary organic aerosol from wildfire smoke*

Sponsor: National Oceanic and Atmospheric Administration

Award amount and period: \$241,888, 07/2017-06/2020

Months per year: 1.0, Role in project: PI

[2] *Studying cloud and radiative impacts through an improved physically based representation of organic aerosol in large-scale models (WRF-Chem)*

Sponsor: Department of Energy Office of Science, Atmospheric System Research

Award amount and period: \$520,000, 09/2017-08/2020

Months per year: 1.0,1.0,1.0, Role in project: PI

[3] *Southeast Wisconsin Interdisciplinary Study of Children's Health, Ecological Exposures and Social Environment (SWISCHEESE)*

Sponsor: Environmental Protection Agency - Science to Achieve Results

Award amount and period: \$600,000, 04/2018-03/2021

Months per year: 0.45,0.45,0.18, Role in project: Co-PI (PI: Magzamen)

[4] *Citizen-Enabled Aerosol Measurements for Satellites (CEAMS): A network for high-resolution measurements of PM_{2.5} and aerosol optical depth*

Sponsor: National Aeronautics and Space Administration

Award amount and period: \$1,700,000, 07/2018-06/2021

Months per year: 1.0,1.0,1.0, Role in project: Co-I (PI: Volckens)

[5] *Linking volatile organic compound chemistry to secondary organic aerosol formation from use of next-generation biofuels and volatile chemical products*

Sponsor: Colorado Energy Research Collaboratory

Award amount and period: \$45,000, 08/2018-07/2019

Months per year: 0.0, Role in project: PI

[6] *Cows as canaries: Impacts of regional air Quality on health*

Sponsor: One Health Institute, Colorado State University

Award amount and period: \$50,000, 02/2019-01/2020

Months per year: 0.0, Role in project: Co-I (PI: Magzamen)

[7] *Developing mechanisms for secondary organic aerosol from oxygenated volatile organic compounds in biomass burning and volatile chemical product emissions*

Sponsor: Environmental Protection Agency
Award amount and period: \$400,000, 06/2020-05/2023
Months per year: 1.1, Role in project: PI

Pending Grants [7] *Collaborative Research: Atmospheric Formation and Implications of Secondary Organic Aerosol from Glycols and Glycol Ethers*
Sponsor: National Science Foundation, Atmospheric Chemistry
Award amount and period: \$453,522, 01/2020-12/2022
Months per year: 0.5,0.5,0.5, Role in project: PI

Completed Grants [1] *Fuel economy and emissions modeling using neural network models*
Sponsor: Lightning Hybrids
Award amount and period: \$17,965, 01/2016-06/2016
Months per year: 0; Role in project: Collaborator (PI: Bradley)

[2] *Role of Alternative fuels & emissions control systems on the atmospheric & health properties of primary organic aerosol from diesel engines*
Sponsor: ORAU Ralph E. Powe Junior Faculty Award
Award amount and period: \$10,000, 06/2016-05/2017
Months per year: 0.25; Role in project: PI

[3] *Influence of fuel treatment and additives on performance & emissions from off-road diesel engines*
Sponsor: Air Water Earth Inc.
Award amount and period: \$20,104, 04/2016-12/2017
Months per year: 0.5; Role in project: PI

[4] *Application of the Statistical Oxidation Model to Study the Chemistry and Thermodynamics of Secondary Organic Aerosol*
Sponsor: National Institute of Environmental Studies, Japan
Award amount and period: \$14,390, 05/2016-12/2017
Months per year: 0.875; Role in project: PI

[5] *Portable GC-FID to support smog chamber research in air quality, climate and health*
Sponsor: Office of the Vice President for Research, CSU
Award amount and period: \$10,000, 08/2016-07/2017
Months per year: 0.0; Role in project: PI

[6] *Citizen-Enabled Aerosol Measurements for Satellites (CEAMS): A network for high-resolution measurements of PM_{2.5} and aerosol optical depth*
Sponsor: National Aeronautics and Space Administration
Award amount and period: \$161,556, 03/2017-02/2018
Months per year: 0.25, Role in project: Co-I (PI: Volckens)

[7] *Rapid field-deployable low-cost sensor to measure fuel quality*
Sponsor: Colorado State University Ventures

Award amount and period: \$8,500, 05/2017-12/2017
Months per year: 0.0, Role in project: PI

[8] *Health Impact Assessment of Coal-Fired Boiler Retirement at the Martin Drake and Comanche Power Plants*

Sponsor: American Lung Association

Award amount and period: \$18,000, 08/2017-07/2018

Months per year: 0.0, Role in project: Co-I (PI: Magzamen)

Peer-Reviewed Publications

*Colorado State University Work, **Student Author in Bold**,#under review

[*#44] **Akherati, A., He, Y.**, Coggon, M. M., Koss, A. R., **Hodshire, A. L.**, Sekimoto, K., Warneke, C., de Gouw, J., Yee, L., Seinfeld, J. H., Onasch, T. B., Herndon, S. C., Knighton, W. B., Cappa, C. D., Kleeman, M. J., Lim, C. Y., Kroll, J. R., Pierce, J. R., and Jathar, S. H. (2020). Oxygenated Aromatic Compounds are Important Precursors of Secondary Organic Aerosol in Wildfire Emissions, *Environmental Science and Technology*.

[*#43] **He, Y., King, B.**, Pothier, M., **Lewane, L., Akherati, A.**, Mattila, J., Farmer, D. K., McCormick, R., Thornton, M., Pierce, J. R., Volckens, J., and Jathar, S. H. (2020). Secondary organic aerosol formation from evaporated biofuels: comparison to gasoline and correction for vapor wall losses, *Environmental Sciences: Processes and Impacts*.

[*#42] **Chenna, S.**, Asher, Z., Johnston, B., Bradley, T. H., Anderson, C., and Jathar, S. H. (2019). On the use of artificial neural networks to model in-use fuel consumption and tailpipe emissions from light-duty vehicles, *Atmospheric Environment*.

[*41] Ford, B., Pierce, J. R., Wendt, E., Long, M., Jathar, S. H., Mehaffy, J., Tryner, J., Quinn, C., van Zyl, L., L'Orange, C., Miller-Lionberg, D., and Volckens, J. (2019). A low-cost monitor for measurement of fine particulate matter and aerosol optical depth - Part 2: Citizen science pilot campaign in northern Colorado, *Atmospheric Measurement Techniques*, 12, 6385–6399.

[*40] Jathar, S. H., **Sharma, N., Galang, A. A., Vanderheyden, C.**, Takhar, M., Chan, A. W. H., Pierce, J. R., and Volckens, J. (2019). Measuring and modeling the primary organic aerosol volatility from a modern non-road diesel engine, *Atmospheric Environment*, 223, 117221.

[*39] Wendt, E. A., Quinn, C. W., Miller-Lionberg, D. D., Tryner, J., L'Orange, C., Ford, B., Yalin, A. P., Pierce, J. R., Jathar, S. H., and Volckens, J. (2019). A low-cost monitor for simultaneous measurement of fine particulate matter and aerosol optical depth - Part 1: Specifications and testing, *Atmospheric Measurement Techniques*, 12, 5431-5441.

[*38] Martenies, S., **Akherati, A.**, Jathar, S. H., Magzamen, S. (2019). Health

and environmental justice implications of retiring two coal-fired power plants in the southern Front Range region of Colorado, *GeoHealth*, 3 (9), 266-283.

[*37] **Hodshire, A., Akherati, A.**, Alvarado, M. J., Brown-Steiner, B., Jathar, S. H., Jimenez, J. L., Kreidenweis, S. M., Lonsdale, C. R., Onasch, T. B., Ortega, A., and Pierce, J. R. (2019). Aging effects on biomass burning aerosol mass and composition: A critical review of field and laboratory studies, *Environmental Science and Technology*, 53 (17), 10007-10022.

[*36] **Hodshire, A. L.**, Bian, Q., Ramnarine, E., Lonsdale, C. R., Alvarado, M. J., Kreidenweis, S. M., Jathar, S. H., and Pierce, J. R. (2019). More than emissions and chemistry: Fire size, dilution, and background aerosol also greatly influence near-field biomass burning aerosol aging, *Journal of Geophysical Research*, 124 (10), 5589-5611.

[*35] **Sharma, N., Vanderheyden, C.**, Klunder, K., Henry, C. S., Volckens, J., and Jathar, S. H. (2019). Oxidative potential of diesel exhaust particles: Role of fuel, engine load, and emissions control, *Environmental Sciences: Processes and Impacts*, 21 (5), 819-830.

[*34] Shrivastava, M., M. O. Andreae, P. Artaxo, H. M. J. Barbosa, L. K. Berg, J. Brito, J. Ching, R. C. Easter, J. Fan, J. D. Fast, Z. Feng, J. D. Fuentes, M. Glasius, A. H. Goldstein, E. G. Alves, H. Gomes, D. Gu, A. Guenther, Jathar, S. H. S. Kim, Y. Liu, S. Lou, S. T. Martin, V. F. McNeill, A. Medeiros, S. S. de Sa, J. E. Shilling, S. R. Springston, R. A. F. Souza, J. A. Thornton, G. Isaacman-VanWertz, L. D. Yee, R. Ynoue, R. A. Zaveri, A. Zelenyuk and C. Zhao. (2019). Urban pollution greatly enhances formation of natural aerosols over the Amazon rainforest, *Nature Communications*, 10(1), 1046.

[*33] **Akherati, A.**, Cappa, C. D., Kleeman, M. J., Docherty, K. S., Jimenez, J. L., Griffith, S. M., Dusanter, S., Stevens, P. S., and Jathar, S. H. (2019). Simulating secondary organic aerosol in a regional air quality model using the statistical oxidation model - Part 3: Assessing the influence of semi-volatile and intermediate volatility organic compounds and NO_x, *Atmospheric Chemistry and Physics*, 19 (7), 4561-4594.

[*32] Kodros, J., Volckens, J., Jathar, S., and Pierce, J. (2018). Ambient particulate matter size distributions drive regional and global variability in particle deposition in the respiratory tract, *GeoHealth*, 2, 298-312.

[*31] Asher, Z. D., **Galang, A. A.**, Briggs, W., Johnston, B., Bradley, T. H., and Jathar, S. (2018). Economic and efficient hybrid vehicle fuel economy and emissions modeling using an artificial neural network, *SAE Technical Paper*, 0148-7191.

[*30] McDonald, B. C., de Gouw, J. A., Gilman, J. B., Jathar, S. H., **Akherati, A.**, Cappa, C. D., Jimenez, J. L., Lee-Taylor, J., Hayes, P. L., McKeen, S. A., Cui, Y. Y., Kim, S.-W., Gentner, D. R., Isaacman-VanWertz, G., Goldstein, A.

H., Harley, R. A., Frost, G. J., Roberts, J. M., Ryerson, T. B., and Trainer, M. (2018). Volatile chemical products emerging as largest petrochemical source of urban organic emissions, *Science*, 359, 760-764.

[*29] **Eluri, S.**, Cappa, C. D., Friedman, B., Farmer, D. K., and Jathar, S. H. (2018). Modeling the formation and composition of secondary organic aerosol from diesel exhaust using parameterized and semi-explicit chemistry and thermodynamic models, *Atmospheric Chemistry and Physics*, 18, 13813-13838.

[*28] Friedman, B., Link, M. F., Fulgham, S. R., Brophy, P., **Galang, A. A.**, Brune, W. H., Jathar, S. H., and Farmer, D. K. (2017). Primary and secondary sources of gas-phase organic acids from diesel exhaust, *Environmental Science & Technology*, 51, 10872-10880.

[*27] Nanthagopal, K., Ashok, B., Raj, T. D., Jathar, S. H., John Samuel, K., Krishnan, R., Sathyanand, T., Logesh, S. (2017). Lemon essential oil - A partial substitute for petroleum diesel fuel in compression ignition engine, *International Journal of Renewable Energy Research*, 7(2), 467-475.

[*26] Jathar, S. H., **Heppding, C.**, Link, M. F., Farmer, D. K., **Akherati, A.**, Kleeman, M. J., de Gouw, J. A., Veres, P. R., and Roberts, J. M. (2017). Investigating diesel engines as an atmospheric source of isocyanic acid in urban areas, *Atmospheric Chemistry and Physics*, 17(14), 8959-8970.

[*25] Jathar, S. H., Woody, M., Pye, H. O. T., Baker, K. R., and Robinson, A. L. (2017). Chemical transport model simulations of organic aerosol in southern California: Model evaluation and gasoline and diesel source contributions, *Atmospheric Chemistry and Physics*, 17(6), 4305-4318.

[*24] Bian, Q., Jathar, S. H., Kodros, J. K., Barsanti, K. C., Hatch, L. E., May, A. A., Kreidenweis, S. M., and Pierce, J. R. (2017). Secondary organic aerosol formation in biomass-burning plumes: Theoretical analysis of lab studies and ambient plumes, *Atmospheric Chemistry and Physics*, 17(8), 5459-5475.

[*23] Hu, J., Jathar, S. H., Zhang, H., Ying, Q., Chen, S. H., Cappa, C. D., and Kleeman, M. J. (2016). Long-term particulate matter modeling for health effects studies in California - Part II: Concentrations and sources of ultrafine organic aerosols, *Atmospheric Chemistry and Physics*, 17(8), 5379-5391.

[*22] Jathar, S. H., Friedman, B., **Galang, A. A.**, Link, M. F., Brophy, P., Volckens, J., **Eluri, S.**, and Farmer, D. K. (2017). Linking load, fuel and emission controls to photochemical production of secondary organic aerosol from a diesel engine, *Environmental Science & Technology*, 51(3), 1377-1386.

[*21] Gentner, D. R., Jathar, S. H., Gordon, T. D., Bahreini, R., Day, D. A., El Haddad, I., Hayes, P. L., Pieber, S. M., Platt, S. M., and de Gouw, J. A. (2017). A review of urban secondary organic aerosol formation from gasoline and diesel motor vehicle emissions, *Environmental Science & Technology*, 51(3),

1074-1093.

[*20] Zhao, B., Wang, S., Donahue, N. M., Jathar, S. H., Huang, X., Wu, W., Hao, J., and Robinson, A. L. (2016). Quantifying the effect of organic aerosol aging and intermediate-volatility emissions on regional-scale aerosol pollution in China, *Scientific Reports*, 6, 28815.

[*19] Schill, G., Jathar, S. H., Kodros, J., Levin, E., **Galang, A.**, Friedman, B., Link, M., Farmer, D., Pierce, J., and Kreidenweis, S. (2016). Ice-nucleating particle emissions from photochemically aged diesel and biodiesel exhaust, *Geophysical Research Letters*, 43, 5524-5531.

[*18] Link, M. F., Friedman, B., Fulgham, R., Brophy, P., **Galang, A.**, Jathar, S. H., Veres, P., Roberts, J. M., Farmer, D. K. (2016). Photochemical processing of diesel fuel emissions forms a large secondary source of isocyanic acid (HNCO), *Geophysical Research Letters*, 43, 4033-4041.

[17] Cappa, C. D., Jathar, S. H., Kleeman, M. J., Docherty, K. S., Jimenez, J. L., Seinfeld, J. H., and Wexler, A. S. (2016). Simulating secondary organic aerosol in a regional air quality model using the statistical oxidation model-Part 2: Assessing the influence of vapor wall losses, *Atmospheric Chemistry and Physics*, 16, 3041-3059.

[16] Jathar, S. H., Cappa, C. D., Wexler, A. S., Seinfeld, J. H., and Kleeman, M. J. (2016). Simulating secondary organic aerosol in a regional air quality model using the statistical oxidation model-Part 1: Assessing the influence of constrained multi-generational ageing, *Atmospheric Chemistry and Physics*, 16, 2309-2322.

[15] Jathar, S. H., Mahmud, A., Barsanti, K. C., Asher, W. C., Pankow, J. F., and Kleeman, M. J. (2016). Water uptake and its influence on gas/particle partitioning of secondary organic aerosol in the United States, *Atmospheric Environment*, 129, 142-154.

[14] Pankow, J. F., Marks, M. C., Barsanti, K. C., Mahmud, A., Asher, W. E., Li, J., Ying, Q., Jathar, S. H., and Kleeman, M. J. (2015). Molecular view modeling of atmospheric organic particulate matter incorporating molecular structure and co-condensation of water, *Atmospheric Environment*, 122, 400-408.

[13] Jathar, S. H., Cappa, C. D., Wexler, A. S., Seinfeld, J. H., and Kleeman, M. J. (2015). Multi-generational oxidation model to simulate secondary organic aerosol in a 3-D air quality model, *Geoscientific Model Development*, 8, 2553-2567.

[12] Woody, M. C., West, J. J., Jathar, S. H., Robinson, A. L., and Arunachalam, S. (2014). Estimates of non-traditional secondary organic aerosols from aircraft SVOC and IVOC emissions using CMAQ, *Atmospheric Chemistry and*

Physics, 15, 6929-6942.

[11] Tkacik, D. S., Lambe, A., Jathar, S. H., Li, X., Presto, A. A., Zhao, Y., Blake, D., Meinardi, S., Jayne, J. T., Croteau, P. L., and Robinson, A. L. (2014). Secondary organic aerosol formation from in-use motor vehicle emissions using a Potential Aerosol Mass reactor, *Environmental Science & Technology*, 48(19), 11235-11242.

[10] Jathar, S. H., Gordon, T. D., Hennigan, C. J., Pye, H. O. T., Pouliot, G.A., Adams, P. J., Donahue, N. M., and Robinson, A. L. (2014). Unspeciated organic emissions from combustion sources and their influence on the secondary organic aerosol budget in the United States, *Proceedings of the National Academy of Sciences*, 111(29), 10473-10478.

[9] Jathar, S. H., Donahue, N. M., Adams, P. J., and Robinson, A. L. (2014). Testing secondary organic aerosol models using smog chamber data for complex precursor mixtures: influence of precursor volatility and molecular structure, *Atmospheric Chemistry and Physics*, 14, 5771-5780.

[8] Zhang, X., Cappa, C. D., Jathar, S. H., McVay, R. C., Ensberg, J. J., Kleeman, M. J. and Seinfeld, J. H (2014). Influence of vapor wall loss in laboratory chambers on yields of secondary organic aerosol, *Proceedings of the National Academy of Sciences*, 111(16) 5802-5807.

[7] Ensberg, J. J., Hayes, P. L., Jimenez, J. L., Gilman, J. B., Kuster, W. C., de Gouw, J. A., Holloway, J. S., Gordon, T. D., Jathar, S. H., Robinson, A. L., and Seinfeld, J. H. (2014). Emission factor ratios, SOA mass yields, and the impact of vehicular emissions on SOA formation, *Atmospheric Chemistry and Physics*, 14, 2383-2397.

[6] Tsigaridis, K., Daskalakis, N., Kanakidou, M., Adams, P. J., Artaxo, P., Bahadur, R., Balkanski, Y., Bauer, S. E., Bellouin, N., Benedetti, A., Bergman, T., Berntsen, T. K., Beukes, J. P., Bian, H., Carslaw, K. S., Chin, M., Curci, G., Diehl, T., Easter, R. C., Ghan, S. J., Gong, S. L., Hodzic, A., Hoyle, C. R., Iversen, T., Jathar, S. H., Jimenez, J. L., Kaiser, J. W., Kirkevåg, A., Koch, D., Kokkola, H., Lee, Y. H., Lin, G., Liu, X., Luo, G., Ma, X., Mann, G. W., Mihalopoulos, N., Morcrette, J.-J., Müller, J.-F., Myhre, G., Myriokefalitakis, S., Ng, S., O'Donnell, D., Penner, J. E., Pozzoli, L., Pringle, K. J., Russell, L. M., Schulz, M., Sciare, J., Seland, Ø., Shindell, D. T., Sillman, S., Skeie, R. B., Spracklen, D., Stavroukou, T., Steenrod, S. D., Takemura, T., Tiitta, P., Tilmes, S., Tost, H., van Noije, T., van Zyl, P. G., von Salzen, K., Yu, F., Wang, Z., Wang, Z., Zaveri, R. A., Zhang, H., Zhang, K., Zhang, Q., and Zhang, X. (2014). The AeroCom evaluation and intercomparison of organic aerosol in global models, *Atmospheric Chemistry and Physics*, 14(19), 10845-10895

[5] Gordon, T. D., Tkacik, D. S., Presto, A. A., Zhang, M., Jathar, S. H., Nguyen, N., Massetti, J., Truong, T., Cicero-Fernandez, P., Maddox, C., Rieger, P., Chattopadhyay, S., Maldonado, H., Maricq, M. M. and Robinson, A. L.

(2013). Primary gas-and particle-phase emissions and secondary organic aerosol production from gasoline and diesel off-road engines. *Environmental science and technology*, 47(24), 14137-14146.

[4] Jathar, S. H., Miracolo, M., Tkacik, D., Donahue, N. M., Adams, P. J., and Robinson, A. L. (2013). Secondary organic aerosol formation from photooxidation of unburned fuel: experimental results and implications for aerosol formation from combustion emissions. *Environmental science and technology*, 47(22), 12886-12893.

[3] Miracolo, M. A., Drozd, G. T., Jathar, S. H., Presto, A. A., Lipsky, E. M., Corporan, E., and Robinson, A. L. (2012). Fuel composition and secondary organic aerosol formation: Gas-turbine exhaust and alternative aviation fuels. *Environmental science and technology*, 46(15), 8493-8501.

[2] Jathar, S. H., Miracolo, M. A., Presto, A. A., Donahue, N. M., Adams, P. J., and Robinson, A. L. (2012). Modeling the formation and properties of traditional and non-traditional secondary organic aerosol: problem formulation and application to aircraft exhaust. *Atmospheric Chemistry and Physics*, 12(19), 9025-9040.

[1] Jathar, S. H., Farina, S. C., Robinson, A. L., and Adams, P. J. (2011). The influence of semi-volatile and reactive primary emissions on the abundance and properties of global organic aerosol. *Atmospheric Chemistry and Physics*, 11(15), 7727-7746.

Book Chapters [1] Arunachalam, S., Woody, M., Rissman, J., Binkowski, F., Wong, H. W., Jathar, S. H., and Robinson, A. (2014). An enhanced sub-grid scale approach to characterize air quality impacts of aircraft emissions. In *Air Pollution Modeling and its Application XXII* (pp. 327-332). Springer Netherlands.

Presentations *Colorado State University Work, Invited in Bold

[*33] **Oxygenated aromatic compounds contribute substantially to secondary organic aerosol formation from photooxidation of wild-fire emissions, American Geophysical Union Fall Meeting, December 9-13, 2019, San Francisco, CA.**

[*32] Ground- and aerial-based platforms to measure aerosol size distributions: Spatiotemporal variability, vertical profiles, and near source sampling, 37th American Association for Aerosol Research Conference, October 14-18, 2019, Portland, OR.

[*31] Artificial neural networks for emissions modeling and environmental routing for light-duty passenger vehicles, CRC Real World Emissions Workshop, March 11-13, 2019, Long Beach, CA.

[*30] Artificial neural networks for emissions modeling and environmental routing for light-duty passenger vehicles, Center for Advancing Research in Transportation Emissions, Energy, and Health, February 18-20, 2019, Austin, TX.

[*29] Carbon-, oxygen-, and size- resolved model to simulate the microphysics, chemistry, and thermodynamics of wildfire organic aerosol, American Meteorological Society Conference, January 6-10, 2019, Phoenix, AZ.

[*28] Hands-on aerosol science and technology workshops in the Colorado Front Range, 10th International Aerosol Conference, September 2-7, 2018, St. Louis, MO.

[*27] Modeling the Formation and Composition of Secondary Organic Aerosol in Oxidation Flow Reactors Using Simple and Detailed Chemistry and Thermodynamic Models, 10th International Aerosol Conference, September 2-7, 2018, St. Louis, MO.

[*26] Atmospheric Formation of Secondary Organic Fine Particles from Combustion Sources: Tractors, Trees, and Traffic, Indian Institute of Science Education and Research, June, 4, 2018, Pune, India.

[*25] Atmospheric Formation of Secondary Organic Fine Particles from Combustion Sources: Tractors, Trees, and Traffic, University of Wyoming, November 28, 2017, Laramie, WY.

[*24] Linking Chemical Composition and Volatility to the Oxidative Potential of Diesel Exhaust Aerosols, 36th American Association for Aerosol Research Conference, October 16-20, 2017, Raleigh, NC.

[*23] Estimating Gasoline and Diesel Source Contributions to Organic Aerosol in Southern California using a Chemical Transport Model, 36th American Association for Aerosol Research Conference, October 16-20, 2017, Raleigh, NC.

[*22] Heterogeneous adoption and environmental impacts of clean energy technology, American Lung Association, February 21, Denver, CO.

[*21] Investigating diesels and emissions controls as an atmospheric source of isocyanic acid, Mobile Source Air Toxics Workshop, February 13-15, Sacramento, CA.

[*20] Investigating the atmospheric contribution of primary and secondary organic pollutants from mobile sources: a little bit of this (measurements) and a little bit of that (modeling), National Center for Atmospheric Research, November 15, 2016, Boulder, CO.

[*19] Photochemical Production of Secondary Organic Aerosol from a Non-road Diesel Engine: Influence of Engine Load, Fuel and Aftertreatment, 35th

American Association for Aerosol Research Conference, October 17-21, 2016, Portland, OR.

[*18] The influence of constrained multi-generational oxidation on the mass, composition and properties of secondary organic aerosol in the United States, Atmospheric Sciences and Applications to Air Quality, November 11-13, 2015, Kobe, Japan.

[*17] Secondary organic aerosol from combustion sources: Measurements, models and policy implications, National Institute of Environmental Studies, November 10, 2015, Tsukuba, Japan.

[*16] The influence of constrained multi-generational oxidation on the mass, composition and properties of secondary organic aerosol in the United States, Analytical and Environmental Chemistry Division and Atmospheric Chemistry Program Seminar, March 9, 2015, Boulder CO.

[15] Estimating marginal social costs from tailpipe emissions of motor vehicles, 33rd American Association for Aerosol Research Conference, October 20-24, 2014, Orlando, FL.

[14] Exploring new pathways of SOA formation in a 3-D model: Role of aging, water, IVOCs and aqueous and surface chemistry, 33rd American Association for Aerosol Research Conference, October 20-24, 2014, Orlando, FL.

[13] Explicit modeling of multi-generational aging of organic aerosol in a 3-D model, 33rd American Association for Aerosol Research Conference, October 20-24, 2014, Orlando, FL.

[12] Influence of the absorbed aerosol water on secondary organic aerosol in a source-oriented model, 4th International Aerosol Modeling Algorithms Conference, December 4-6, 2013, Davis, CA.

[11] SOA formation from photo-oxidation of evaporated fuels: Experiments and implications for SOA formation from combustion emissions, 32nd American Association for Aerosol Research Conference, September 30 - October 4, 2013, Portland, OR.

[10] Modeling the behavior and effects of hygroscopic organic aerosol in a chemical transport model, 32nd American Association for Aerosol Research Conference, September 30 - October 4, 2013, Portland, OR.

[9] The role of volatility and molecular structure on secondary organic aerosol formation, 31st American Association for Aerosol Research Conference, October 8-12, 2012, Minneapolis, MN.

[8] Unspeciated emissions from combustion sources and their potential to form

SOA, 31st American Association for Aerosol Research Conference, October 8-12, 2012, Minneapolis, MN.

[7] Understanding the formation of secondary organic aerosol from combustion sources, Indian Institute of Technology, Gandhinagar, January 24, 2012, Ahmedabad, India.

[6] Modeling SOA formation from low volatility organics: Application to aircraft exhaust, 3rd International Aerosol Modeling Algorithms Conference, November 30 - December 2, 2011, Davis, CA.

[5] Modeling SOA formation from combustion emissions: Application to aircraft exhaust, 30th American Association for Aerosol Research Conference, October 4-7, 2010, Orlando, FL.

[4] Modeling fine particle pollution from aircraft using JP8, Fischer-Tropsch and blend Fuels, 28th Annual International Pittsburgh Coal Conference, October 12-15, 2011, Pittsburgh, PA.

[3] Simulating the formation of secondary organic aerosol from combustion systems in atmospheric models, Department of Civil Engineering, August 10, 2011, University of Minnesota, MN.

[2] Modeling the formation and properties of secondary organic aerosol from aircraft exhaust, 14th Annual Environmental Chemistry Student Symposium, April 8-9, 2011, Pennsylvania State University, PA.

[1] The sources and fate of global organic aerosol, Technology, Management and Policy Consortium, June 27-29, 2010, Cambridge, UK.

Posters

Colorado State University Work only

[9] Predicting the fuel consumption and tailpipe emissions from light-duty passenger vehicles using artificial neural networks, 37th American Association for Aerosol Research Conference, October 14-18, 2019, Portland, OR.

[8] Volatility and Oxidative Potential of Diesel Exhaust Particles: Role of Fuel, Engine Load, and Emissions Control, CRC Real World Emissions Workshop, March 11-13, 2019, Long Beach, CA.

[7] Oxidative Potential of Diesel Exhaust Particles: Role of Fuel, Engine Load, and Emissions Control, Center for Advancing Research in Transportation Emissions, Energy, and Health, February 18-20, 2019, Austin, TX.

[6] A Network of Autonomous Particle Spectrometers to Measure Spatiotemporal Variability in Particle Size Distributions in Intraurban Environments, 99th American Meteorological Society Conference, January 6-10, 2019, Phoenix, AZ.

[5] Secondary Organic Aerosol Formation Potential of Next-Generation Biofuels, 10th International Aerosol Conference, September 2-7, 2018, St. Louis, MO.

[4] Hydroxyl and Nitrate Radical Aging of Organic Emissions from Wildfires, 10th International Aerosol Conference, September 2-7, 2018, St. Louis, MO.

[3] Improving the Representation of Organic Aerosol in Atmospheric Models, Joint ARM User Facility and ASR PI Meeting, March 19-23, 2018, Tysons, VA.

[2] Modeling and Constraining the Production and Composition of Secondary Organic Aerosol from a Diesel Engine using Parameterized and Semi-Explicit Chemistry and Thermodynamics Models, 35th American Association for Aerosol Research Conference, October 17-21, 2016, Portland, OR.

[1] Investigating Diesels and Emissions Controls as an Anthropogenic Source of Isocyanic Acid in Urban Areas, International Global Atmospheric Chemistry Conference, September 26-30, 2016, Breckenridge, CO.

**Postdoc/
Student
Presentations
and Posters**

Colorado State University Work Only, **Presenting Author in Bold**

[15] **Chuang, W.** et al., An experimentally constrained chemistry-microphysics model for organic aerosol aging and particle phase state, American Geophysical Union Fall Meeting, December 9-13, 2019, San Francisco, CA. [Presentation]

[14] **Hodshire, A.** Dilution rules everything around me: How can we constrain impacts of dilution on smoke aerosol aging and photochemistry?, International Aerosols Modeling Algorithms Conference, December 4-6, Davis, CA [Presentation]

[13] **Akherati, A.** et al., Dilution rules everything around me: How can we constrain impacts of dilution on smoke aerosol aging and photochemistry?, American Geophysical Union Fall Meeting, December 9-13, 2019, San Francisco, CA. [Presentation]

[12] **Hodshire, A.** et al., Where's the mass: why might field and laboratory studies on aging of biomass burning aerosols disagree on mass enhancements?, 37th American Association for Aerosol Research Conference, October 14-18, 2019, Portland, OR. [Presentation]

[11] **Akherati, A.** et al., Large contribution of oxygenated aromatic compounds in biomass burning emissions to secondary organic aerosol formation, 37th American Association for Aerosol Research Conference, October 14-18, 2019, Portland, OR. [Presentation]

[10] **He, Y.** et al., Translating environmental chamber data for secondary organic aerosol for use in atmospheric models, 37th American Association for

Aerosol Research Conference, October 14-18, 2019, Portland, OR. [Presentation]

[9] **Hodshire, A.** et al., Where's the mass: why might field and laboratory studies on aging of biomass burning aerosols disagree on mass enhancements?, Gordon Research Conference on Atmospheric Chemistry, July 28-August 1, 2019, Sunday River, MA. [Poster]

[8] **He, Y.** et al., Secondary Organic Aerosol Formation Potential of Next-Generation Biofuels, Energy Transition Symposium 2020, April 1-2, 2019, Denver, CO. [Poster]

[7] **Chuang, W.** et al., Improving the representation of secondary organic aerosol in atmospheric models, American Geophysical Union Fall Meeting, December 10-14, 2018, Washington DC. [Presentation]

[6] **Akherati, A.** et al., Carbon-, Oxygen-, and Size- Resolved Model to Simulate the Chemistry, Thermodynamics, and Microphysics of Organic Aerosol, Atmospheric Chemical Mechanisms Conference, December 5-7, 2018, Davis, CA. [Poster]

[5] **Akherati, A.** et al., Carbon-, Oxygen-, and Size- Resolved Model to Simulate the Microphysics, Chemistry, and Thermodynamics of Biomass Burning Organic Aerosol, 10th International Aerosol Conference, September 2-7, 2018, St. Louis, MO. [Poster]

[4] **Akherati, A.** et al., Investigating the role of aromatic compounds on anthropogenic secondary organic aerosol in urban environments, 36th American Association for Aerosol Research Conference, October 16-20, 2017, Raleigh, NC. [Presentation]

[3] **Akherati, A.** et al., Simulating the combined effect of volatility, multigenerational chemistry, unspciated precursors and vapor wall-losses on ambient organic aerosol in 3-D air quality model, 35th American Association for Aerosol Research Conference, October 17-21, 2016, Portland, OR. [Presentation]

[2] **Eluri, S.** et al., Modeling and Constraining the Production and Composition of Secondary Organic Aerosol from a Diesel Engine using Parameterized and Semi-Explicit Chemistry and Thermodynamics Models, International Global Atmospheric Chemistry Conference, September 26-30, 2016, Breckenridge, CO. [Poster]

[1] **Galang, A.** et al., Volatility of Particulate Matter Emissions from Diesel Engines: Role of Fuel and Engine load, National Biodiesel Conference and Exposition, January 24-28, 2016, Tampa, FL. [Poster]

**Student/
Postdoc
Advising**

Dr. Wayne Chuang, 06/18, Postdoctoral Scholar

Ali Akherati, Ph.D., 08/15, Graduation: Summer 2020, GRA
Charles He, Ph.D., 08/18, Graduation: Summer 2022, GRA
Sreejith Sasidharan, Ph.D., 8/19, Graduation: Summer 2023, GRA
Dylan Giardina, B.S., 05/18, Graduation: Spring 2020, Researcher
Zachary Lustig, B.S., 08/19, Graduation: Spring 2020, Researcher
Scott Parmelee, B.S., 08/19, Graduation: Spring 2020, Researcher

Senior Design Advising	<p>[3] UAV-POPS: Airborne Measurements of the Particle Size Distribution, 2018-2019 <i>Alex Lieberman, Vance Payne, Joshua Weller, Kepler Worobec</i></p> <p>[2] Low-cost Ozone Sensor, 2016-2017 <i>Alex Gabriel, Ian Huber, Aaron Radack, Jonathan Sharf, Keith Syrstad, Kyle Tallakson</i></p> <p>[1] Low-cost Air Quality Monitor, 2015-2016 <i>Collin Babcock, Matt Houghton, Alex Mitchell, Kyle Roberts, Ashlee Sanchez</i></p>
Students Graduated	<p>Anna Hodshire, Ph.D., 12/19 (Co-advisor, Primary Advisor: Dr. Jeffrey Pierce) Sailaja Eluri, M.S., 02/17 Abril Galang, M.S., 02/17 Naman Sharma, M.S., 10/18 Shiva Tarun, M.S., 06/19</p>
Undergraduate Researchers	<p>Mikaela Henness-Wilson, B.S, 05/19 (thesis) Christopher Heppding, B.S., 05/16 (thesis) Brandon King, B.S., 05/17 (thesis) Liam Lewane, B.S., 05/18 Cody Vanderheyden, B.S., 05/17</p>
Committee Member (present)	<p>Jennie Bukowski, Ph.D., Atmospheric Sciences; Katie DeRose, Ph.D., Mechanical Engineering; Luke Giugliano, M.S., Mechanical Engineering; Jacob Lindaas, Ph.D., Atmospheric Sciences ; Alex Sokolowsky, Ph.D., Atmospheric Sciences; Evan Sproul, Ph.D., Mechanical Engineering; Chris Van Roekel, Ph.D., Mechanical Engineering; Eric Wendt, Ph.D., Mechanical Engineering; Amir Yazdan, Ph.D., EPFL, Switzerland</p>
Committee Member (past)	<p>Kelly Banta, M.S., 03/17; Kelsey Bilsback, Ph.D., 09/18; Jared Brewer, Ph.D., 01/20; Ethan Emerson, 08/19; Betsy Farris, M.S., 03/19; Max Flagge, M.S., 05/17; Thor Hogberg, M.S., 01/17; Jared Khattak, M.S., 12/17; Kevin Klunder, Ph.D., 06/18; Scott Kelleher, M.S., 05/17; Michael Link, Ph.D., 09/19; Emily Ramnarine, M.S., 8/18 ; Sally Runions, M.A., 05/18; Yixing Shao, M.S., 02/18; McKay Stoker, M.S., 05/19; James Tillotson, M.S., 10/18 ; Lizette Van Zyl, M.S., 05/18; Derek Weber, M.S., 12/17; Eric Wendt, M.S., 05/18; Zitely Tzompa, Ph.D., 11/18;</p>