

Dr. Shantanu H. Jathar

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Current 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 Air Pollution and Photochemical 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	John and Claire Bertucci Fellowship, Carnegie Mellon University (2011) Graduate Fellowship, University of Minnesota, Twin Cities (2005)	

Teaching MECH 408, Applied Engineering Economy (2015, 2016)
MECH 581A5, Aerosol Physics and Technology (2016)

Professional Societies American Association of Aerosol Research
American Geophysical Union
European Geophysical Union

Reviewer Atmospheric Chemistry and Physics
Atmospheric Environment
Environmental Sciences
Environmental Science and Technology
Geophysical Research Letters
National Science Foundation - Atmospheric Chemistry

Service Co-organizer of the Aerosol Measurement Workshop, CSU (2015)
Faculty Advisor to Pi Tau Sigma Honor Society (2015-Present)
Silver Medal Committee Member, CSU (2015)

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

[17] Cappa, C. D., **Jathar, S. H.**, Kleeman, M. J., Docherty, K. S., Jimenez, J. L., Seinfeld, J. H., and Wexler, A. S. (2015). 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*, 15, 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., Kirkevg, A., Koch, D., Kokkola, H., Lee, Y. H., Lin, G., Liu, X., Luo, G., Ma, X., Mann, G. W., Mihalopoulos, N., Morcrette, J.-J., Mller, 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, ., Shindell, D. T., Sillman, S., Skeie, R. B., Spracklen, D., Stavrakou, 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 photo-oxidation 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
Invited in Bold

[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.