

VIVIAN FAYE MCNEILL

COLUMBIA UNIVERSITY

THE FU FOUNDATION SCHOOL OF ENGINEERING AND APPLIED SCIENCE

A. Field of Specialization

Academic specialization: Chemical Engineering

Research specialization: Atmospheric Chemistry, Aerosols, Air Quality, Climate

B. Educational Background

- B.S., California Institute of Technology, Chemical Engineering, 1999.
- M.S., Massachusetts Institute of Technology, Chemical Engineering Practice, 2001.
- Ph. D., Massachusetts Institute of Technology, Chemical Engineering, 2005.
Doctoral thesis: Studies of Heterogeneous Ice Chemistry Relevant to the Atmosphere
Advisors: Prof. Mario J. Molina, Prof. Bernhardt L. Trout

C. List of Positions held since Bachelor's Degree

- Professor of Chemical Engineering, Columbia University (starting July 2019).
- Associate Professor of Chemical Engineering, Columbia University. (2012-2019) (Tenure in 2014)
- Associate Member, Faculty of the Earth Institute at Columbia University (2018-present)
- Faculty Affiliate, Columbia Center on Global Energy Policy (2017-present)
- Assistant Professor of Chemical Engineering, Columbia University. (2007 –2011).
- Postdoctoral Research Associate, University of Washington. (2005 - 2007).
- NASA Earth System Science Fellow, 2000-2003
- Graduate Research Assistant, Massachusetts Institute of Technology, (1999-2004)

D. Honors and Recognitions

- Mellichamp Emerging Leaders Lectureship, U.C. Santa Barbara (2018)
- Kenneth T. Whitby Award, AAAR (2015)
- NSF Career Award, National Science Foundation (2009).
- ACS Petroleum Research Fund Doctoral New Investigator, American Chemical Society (2009).
- Columbia University Professional Schools Research Fellowship, Columbia University (2008).
- NASA Graduate Student Fellowship in Earth System Science, NASA (2000).
- MacAfee Graduate Scholarship, MIT Department of Chemical Engineering (1999).
- Dr. Fred Shair Summer Undergraduate Research Fellowship, Caltech (1998).

E. Teaching Experience

1. Courses Taught

- CHEN 4300, Chemical Process Control and Process Safety, 2018-present
- CHEN 4600, Atmospheric Aerosols. 2009-present
- CHEN 4320, Molecular Phenomena. 2013-present
- CHEN 4001, Module on Kinetics/Reactors for S2E Masters students. 2013-present
- CHEN 3110, Transport Phenomena I. 2013-2017
- CHEN 4330, Advanced Chemical Kinetics. 2009-2012

- CHEN 3100, Material and Energy Balances. 2007-2011
- CHEN 3810, Chemical Engineering and Applied Chemistry Laboratory. 2008
- CHEN 9000, Chemical Engineering Colloquium. 2011-2015

F. Publications

Published peer-reviewed, ISI-indexed journal publications: **56**

Citations as of 4/2/2019: **2644**

Average citations per publication: **47**

h-index as of 4/2/2019: **27**

(Statistics provided by Google Scholar)

Articles in ISI-indexed Journals (published or accepted for publication)

* Denotes corresponding author. McNeill Group student or postdoc co-authors underlined.

- 1) Wang, J., **McNeill, V. F.**, Collins, D. R., Flagan, R. C.* (2002). Fast Mixing Condensation Nucleus Counter: Application to Rapid Scanning Differential Mobility Analyzer Measurements. *Aerosol Sci. Technol.*, *36*(6), 678-689.
- 2) **McNeill, V. F.**, Geiger, F. M., Loerting, T., Trout, B. L., Molina, M. J.* (2006). Hydrogen Chloride-Induced Surface Disorder on Ice. *Proc. Natl. Acad. Sci. USA*, *103* (25), 9422-9427.
- 3) **McNeill, V. F.**, Patterson, J., Wolfe, G. M., Thornton, J. A.* (2006). The Effect of Varying Levels of Surfactant on the Reactive Uptake of N₂O₅ to Aqueous Sub-micron Aerosol. *Atmos. Chem. Phys.*, *6*, 1635-1644.
- 4) Wolfe, G. M., Thornton, J. A.*, **McNeill, V. F.**, Jaffe, D. A., Reidmiller, D., Chand, D., Smith, J., Swartzendruber, P., Flocke, F., Zheng, W. (2007). Influence of Trans-Pacific Pollution Transport on Acyl Peroxy Nitrate Abundances and Speciation at Mount Bachelor Observatory During INTEX-B. *Atmos. Chem. Phys.*, *7*, 5309-5325.
- 5) **McNeill, V. F.**, Geiger, F. M., Loerting, T., Trout, B. L., Molina, L. T., Molina, M. J.* (2007). The Interaction of Hydrogen Chloride with Ice Surfaces: The Effects of Grain Size, Surface Roughness, and Surface Disorder. *J. Phys. Chem. A*, *111*, 6274-6284.
- 6) **McNeill, V. F.**, Wolfe, G. M., Thornton, J. A.* (2007). The Oxidation of Oleate in Submicron Aqueous Salt Aerosols: Evidence of a Surface Process. *J. Phys. Chem. A*, *111*, 1073-1083.
- 7) Thornton, J. A.*, Jaegle, L., **McNeill, V. F.** (2008). Assessing Known Pathways for HO₂ Loss in Aqueous Atmospheric Aerosols: Regional and Global Impacts on Tropospheric Oxidants. *J. Geophys. Res. – Atmos.*, *113*, D05303.
- 8) **McNeill, V. F.**, Yatavelli, R. L.N., Thornton, J. A.*, Stipe, C. B., Langrebe, O. (2008). Heterogeneous OH Oxidation of Palmitic Acid in Single Component and Internally Mixed Aerosol Particles: Vaporization and the Role of Particle Phase. *Atmos. Chem. Phys.*, *8*, 5465-5476.
- 9) Shapiro, E. L., Szprengiel, J., Sareen, N., Jen, C. N., Giordano, M. R., **McNeill, V. F.*** (2009). Light-Absorbing Secondary Organic Material Formed by Glyoxal in Aqueous Aerosol Mimics. *Atmos. Chem. Phys.*, *9*, 2289-2300.
- 10) Sahu, K., **McNeill, V. F.***, Eisenthal, K. B.* (2010). Effect of Salt on the Adsorption Affinity of an Aromatic Carbonyl Molecule to the Air-Aqueous Interface: Insight for Aqueous Environmental Interfaces. *J. Phys. Chem. C*, *114*, 18258-18262.

- 11) Sareen, N., Schwier, A. N., Shapiro, E. L., Mitroo, D., McNeill, V. F.* (2010). Secondary Organic Aerosol Material Formed by Methylglyoxal in Aqueous Aerosol Mimics. *Atmos. Chem. Phys.*, *10*, 997-1016.
- 12) Schwier, A. N., Sareen, N., Mitroo, D., Shapiro, E. L., McNeill, V. F.* (2010). Glyoxal-Methylglyoxal Cross-Reactions in Secondary Organic Aerosol (SOA) Formation. *Environ. Sci. Technol.*, *44*(16), 6174-6182.
- 13) Chu, S. N., Sands, S., Tomasik, M. R., Lee, P. S., McNeill, V. F.* (2010). Ozone Oxidation of Surface-Adsorbed Polycyclic Aromatic Hydrocarbons (PAHs): Role of PAH-Surface Interaction. *J. Am. Chem. Soc.*, *132*(45), 15968-15975.
- 14) Romakkaniemi, S.*, Kokkola, H., Smith, J. N., Prisle, N. L., Schwier, A. N., McNeill, V. F., Laaksonen, A. (2011). Partitioning of Semivolatile Surface-Active Compounds Between Bulk, Surface, and Gas Phase. *Geophys. Res. Lett.*, *38*, 3, L03807 doi:10.1029/2010GL046147.
- 15) Kuo, M. H., Moussa, S. G., McNeill, V. F.* (2011) Modeling Interfacial Liquid Layers on Environmental Ices. *Atmos. Chem. Phys.*, *11*, 9971-9982.
- 16) Sahu, K., Eisenthal, K.B. *, McNeill, V. F.* (2011) Competitive Adsorption at the Air-Aqueous Interface: A Second Harmonic Generation Study. *J. Phys. Chem. C*, *115* (19), 9701-9705
- 17) Schwier, A. N., Sareen, N., Latham, T., Nenes, A. *, McNeill, V. F.* (2011) Ozone Oxidation of Oleic Acid Films Decreases Aerosol CCN Activity. *J. Geophys. Res.-Atmos.*, *116*, D16202, doi:10.1029/2010JD015520.
- 18) Li, Z., Schwier, A.N., Sareen, N., McNeill, V. F.* (2011) Reactive Processing of Formaldehyde and Acetaldehyde in Aqueous Aerosol Mimics: Surface Tension Depression and Secondary Organic Products. *Atmos. Chem. Phys.*, *11*, 11617-11629.
- 19) Schwier, A.N., Mitroo, D., McNeill, V. F.* (2012) Surface Tension Depression by Low-Solubility Organic Material in Aqueous Aerosol Mimics. *Atmos. Environ.*, *54*, 495-500.
- 20) McNeill, V.F.*, Grannas, A.M., Abbatt, J.P.D., Ammann, M., Ariya, P., Bartels-Rausch, T., Domine, F., Donaldson, D.J., Guzman, M.I., Heger, D., Kahan, T.F., Klan, P., Masclin, S., Toubin, C., Voisin, D. (2012) Organic Material in Environmental Ices: Sources, Chemistry, and Impacts. *Atmos. Chem. Phys.*, *12*, 9653-9678.
- 21) McNeill, V.F.*, Woo, J.L., Kim, D. D., Schwier, A.N., Wannell, N.J., Sumner, A.J., Barakat, J.M. (2012) Aqueous-phase Secondary Organic Aerosol and Organosulfate Formation in Atmospheric Aerosols: A Modeling Study. *Environ. Sci. Technol.* *46* (15) 8075-8081
- 22) Schwier, A.N., Viglione, G.A., McNeill, V. F.* Modeling the surface tension of complex, reactive organic-inorganic mixtures. (2013) *Atmos. Chem. Phys.*, *13*, 10721-10732
- 23) Sareen, N., Schwier, A.N., Latham, T., Nenes, A., McNeill, V. F.* Gas-Phase Surfactants Enhance Aerosol Cloud Nucleation. (2013) *Proc. Natl. Acad. Sci. USA*, *110*, 2723-2728
- 24) Drozd, G.T., Woo, J.L., McNeill, V.F.* Self-limited uptake of α -pinene oxide to acidic aerosol: The effects of liquid-liquid phase separation and implications for the formation of secondary organic aerosol and organosulfates from epoxides. (2013) *Atmos. Chem. Phys.* *13*, 8255-8263
- 25) Sareen, N., Moussa, S.G., McNeill, V. F.* Photochemical Aging of Light-Absorbing Secondary Organic Aerosol Material (2013) *J. Phys. Chem. A*, *117* (14), 2987-2996
- 26) Moussa, S.G., Kuo, M.H., McNeill, V. F.* Nitric acid-induced surface disordering on ice (2013) *Phys. Chem. Chem. Phys.* *15* (26), 10989-10995
- 27) Woo, J.L., Kim D. D., Schwier, A.N., Li R., McNeill, V.F.* Aqueous aerosol SOA formation: Impact on aerosol physical properties (2013) *Faraday Discuss.*, *165*, 357-367

- 28) Drozd, G.T., Woo, J.L., Haakinen, S., Nenes, A., **McNeill, V.F.*** Inorganic salts and organic diacids interact to form material with low hygroscopicity and low volatility (2014) *Atmos. Chem. Phys.* 14, 5205-5215
- 29) Ortiz-Montalvo, D.L., Haakinen, S., Schwier, A.N., Lim, Y.B., **McNeill, V.F.**, Turpin, B.J.* Ammonium Addition (and Aerosol pH) has a Dramatic Impact on Volatility and Yield of Glyoxal SOA (2014) *Environ. Sci. Technol.* 48 (1), 255-262.
- 30) Bartels-Rausch, T.*, Jacobi, H.-W., Kahan, T. F., Thomas, J. L., Thomson, E.S., Abbatt, J. P. D., Ammann, M., Blackford, J.R., Bluhm, H., Boxe, C., Domine, F., Frey, M.M., Gladich, I., Guzman, M.I., Heger, D., Huthwelker, T., Klan, P., Kuhs, W. F., Kuo, M.H., Maus, S., Moussa, S.G., **McNeill, V. F.**, Newberg, J.T., Pettersson, J.B.C., Roeselova, M., Sodeau, J. (2014) A review of air-ice chemical and physical interactions (AICI): liquids, quasi-liquids, and solids in snow. *Atmos. Chem. Phys.*, 14, 1587-1633
- 31) Drozd, G.T., **McNeill, V.F.*** Organic matrix effects on aqueous-phase secondary organic aerosol formation (2014) *Environ. Sci. Processes & Impacts*, 16 (4), 741-747
- 32) **McNeill, V. F.***, Sareen, N., Schwier, A.N. (2014) Surface-Active Organics in Atmospheric Aerosols. *Topics in Current Chemistry*, 339, 201-259, doi:10.1007/128_2012_404.
- 33) Upshur, M.A., Strick, B.F., **McNeill, V.F.**, Thomson, R.J.* , Geiger, F.M.* (2014) Climate-relevant Physical Properties of Molecular Constituents Relevant for Isoprene-Derived Secondary Organic Aerosol Particles. *Atmos. Chem. Phys.*, 14 (19), 10731-10740
- 34) Kuo, M.-H., Moussa, S.G., **McNeill, V. F.*** (2014) Surface Disordering and Film Formation on Ice Induced by Formaldehyde and Acetaldehyde *J. Phys. Chem. C.*, 118 (50), 29108-29116
- 35) Sumner, A.J., Woo, J.L., **McNeill, V.F.*** (2014) Model Analysis of Secondary Organic Aerosol Formation by Glyoxal in Laboratory Studies: The Case for Photoenhanced Chemistry. *Environ. Sci. Technol.* 48 (20), 11919-11925.
- 36) Haakinen, S.A.K., **McNeill, V.F.***, Riipinen, I.* (2014) Organic salt formation by dicarboxylic acids in atmospheric aerosols: Impact on aerosol volatility. *Environ. Sci. Technol.* 48 (23), 13718-13726.
- 37) **McNeill, V.F.*** (2015) Aqueous organic chemistry in the atmosphere: Sources and chemical processing of organic aerosols (Feature) *Environ. Sci. Technol.* 49 (3) 1237-1244
- 38) Woo, J.L., **McNeill, V.F.*** (2015) simpleGAMMA v1.0 - A reduced model of secondary organic aerosol formation in the aqueous aerosol phase (aaSOA). *Geosci. Model. Dev.* 8 (6), 1821-1829
- 39) S.H. Budisulistiorini, X. Li, S.T. Bairai, J. Renfro, Y. Liu, Y.J. Liu, K.A. McKinney, S.T. Martin, **V.F. McNeill**, H.O.T. Pye, A. Nenes, M.E. Neff, E.A. Stone, S. Mueller, C. Knote, S.L. Shaw, Z. Zhang, A. Gold, and J.D. Surratt* (2015) Examining the effects of anthropogenic emissions on isoprene-derived secondary organic aerosol formation during the 2013 Southern Oxidant and Aerosol Study (SOAS) at the Look Rock, Tennessee, ground site. *Atmos. Chem. Phys.*, 15 (15), 8871-8888 (2015)
- 40) E.A. Marais*, D. J. Jacob, J. L. Jimenez, P. Campuzano-Jost, D. A. Day, W. Hu, J. Krechmer, L. Zhu, P.S. Kim, C.C. Miller, J.A. Fisher, K. Travis, K. Yu, T.F. Hanisco, G.M. Wolfe, H. L. Arkinson, H. O. T. Pye, K. D. Froyd, J. Liao, and **V.F. McNeill** Aqueous-phase mechanism for secondary organic aerosol formation from isoprene: application to the southeast United States and co-benefit of SO₂ emission controls. *Atmos. Chem. Phys.*, 16, 1603-1618 (2016)
- 41) Li, J., Mao, J.*, Min, K.-E., Washenfelder, R.A., Brown, S.S., Kaiser, J., Keutsch, F.N., Volkamer, R., Wolfe, G.M., Hanisco, T.F., Pollack, I.B., Ryerson, T.B., Graus, M., Gilman, J.B., Lerner, B.M., Warneke, C., de Gouw, J., Middlebrook, A.M., Liao, J., Welti, A., Henderson, B.H., **McNeill, V. F.**, Hall, S., Ullmann, K., Donner, L.J., Paulot, F., and Horowitz, L.W. Observational constraints on glyoxal production from isoprene oxidation and its contribution to organic aerosol over the Southeast United States, *JGR-Atmospheres*, 121 (16) 9849-9861 (2016)

- 42) Ortiz-Montalvo, D.L., Schwier, A.N., Lim, Y.B., **McNeill, V. F.**, Turpin, B.J.* “Volatility of Methylglyoxal Cloud SOA Formed through OH Radical Oxidation and Droplet Evaporation” *Atmos. Environ.* 130,145-152 (2016)
- 43) Wu, Y., Li, W.-Y., Xu, B., Li, X., Wang, H., **McNeill, V.F.***, Rao, Y.*, and Dai, H.-L. "Observation of Organic Molecules at the Aerosol Surface" *J. Phys. Chem. Lett.*, 7(12), 2294-2297 (2016).
- 44) Li, W.-Y., Li, X., Jockusch, S., Wang, H., Xu, B., Wu, Y., Tsui, W.G., Dai, H.-L., **McNeill, V.F.***, Rao, Y.*, Photoactivated Production of Secondary Organic Species from Isoprene in Aqueous Systems, *J. Phys. Chem. A.*, 120(45) 9042-9048 (2016)
- 45) Budisulistiorini, S. H., Nenes, A., Carlton, A. M. G., Surratt, J. D., **McNeill, V.F.***, Pye, H. O. T*. Simulating Aqueous-Phase Isoprene-Epoxydiol (IEPOX) Secondary Organic Aerosol Production During the 2013 Southern Oxidant and Aerosol Study (SOAS) *Environ. Sci. Technol.*, 51(9) 5026-5034 (2017)
- 46) Burkholder, J.B., Abbatt, J.P.D., Barnes, I., Roberts, J.M., Melamed, M.L., Ammann, M., Bertram, A.K., Cappa, C.D., Carlton, A.M.G., Carpenter, L.J., Crowley, J.N., Dubowski, Y., George, C. Heard, D.E., Herrmann, H., Keutsch, F.N., Kroll, J.H., **McNeill, V.F.**, et al. “The Essential Role for Laboratory Studies in Atmospheric Chemistry” *Environ. Sci. Technol.* 51(5), 2519-2528 (2017).
- 47) **McNeill, V.F.***, “Atmospheric Aerosols: Clouds, Chemistry, and Climate” *Annu. Rev. Chem. Biomolec. Eng.* 8, 427-444 (2017).
- 48) Tsui, W.G., Rao, Yi, Dai, Hai-Lung, **McNeill, V.F.***, “Modeling Photosensitized Secondary Organic Aerosol Formation in Laboratory and Ambient Aerosols” *Environ. Sci. Technol.* 51(13), 7496-7501 (2017).
- 49) Xu, J., Wang, Q., Deng, C., **McNeill, V.F.**, Fankhauser, A., Wang, F., Fu, J.S., Huang, K.*, Zhuang, G. “Insights into the characteristics and sources of primary and secondary organic carbon: High time resolution observation in urban Shanghai” *Environ. Pollution* 233, 1177-1187 (2018)
- 50) Mao, J.*, Carlton, A., Cohen, R.C., Brune, W.H., Brown, S.S., Wolfe, G.M., Jimenez, J.L., Pye, H.O.T., Ng, N.L., Xu, L., **McNeill, V.F.**, Tsigaridis, K., McDonald, B.C., Warneke, C., Guenther, A., Alvarado, M.J., de Gouw, J., Mickley, L.J., Liebensperger, E.M., Mathur, R., Nolte, C.G., Portmann, R.W., Unger, N., Tosca, M., Horowitz, L.W. “Southeast Atmosphere Studies: learning from model-observation syntheses.” *Atmos. Chem. Phys.* 18, 2615-2651 (2018).
- 51) Tsui, W.G. **McNeill, V.F.*** “Modeling photosensitized secondary organic aerosol production by Humic-like Substances (HULIS)” *Environ. Sci. Technol. Lett.* 5 (5) 255-259 (2018)
- 52) Xu, J., Cui, T., Fowler, B., Fankhauser, A.M., Yang, K., Surratt, J. **McNeill, V.F.*** “Aerosol Brown Carbon Formation from Dark Reactions of Syringol in Aqueous Aerosol Mimics” *ACS Earth Space Chem.* 2 (6) 608-617 (2018)
- 53) Curry, L.A., Tsui, W.G., **McNeill, V.F.*** “Technical Note: Recommended reactive uptake coefficients for uptake of glyoxal and methylglyoxal by atmospheric aerosols and cloud droplets” *Atmos. Chem. Phys.* 18, 9823-9830 (2018)
- 54) **McNeill, V.F.*** “Addressing the global air pollution crisis: Chemistry’s role”. In press, *Trends Chem.* (2019)
- 55) Shrivastava, M.K.*, Andreae, M.O., Artaxo, P., Barbosa, H., Berg, L.K., Brito, J., Ching, J., Easter, R.C., Fan, J., Fast, J.D., Feng, Z., Fuentes, J.D., Glasius, M., Goldstein, A.H., Gomes, E.A., Gomes, H., Gu, D., Guenther, A., Jathar, S.H., Kim, S., Liu, Y., Lou, S., Martin, S.T., **McNeill, V.F.**, Medeiros, A., de Sa, S.S., Shilling, J.E., Springston, S.R., Souza, R.F., Thornton, J.A., Isaacman-VanWertz, G., Yee, L., Ynoue, R., Zaveri, R., Zelenyuk, A., Zhao, C. “Urban pollution greatly

enhances formation of natural aerosols over the Amazon rainforest". *Nature Comm.*10:1046
doi:10.1038/s41467-019-08909-4 (2019)

56) Woo, J.L.*, Sareen, N., Schwier, A.N., **McNeill, V.F.***, Concept for an electrostatic focusing device for continuous ambient pressure aerosol concentration. *Atmos. Meas. Tech. Discuss.*
DOI:10.5194/amt-2019-43 (2019)

II. Conference Proceedings (published or accepted for publication)

57) Yinon, L., Themelis, N. J., **McNeill, V. F.*** "Ultrafine Particle Formation by WTE and Other Combustion Sources" in *NAWTEC 18 Proceedings*, ASME International, Tampa, FL (May 2010)

58) **McNeill, V.F.***, Barakat, J. M. "Ultrafine particle emissions from waste transportation averted as a result of WTE: A case study of the New York metropolitan area," WtERT USA, New York, NY (October 2010)

III. Books Edited or Co-Edited (published or accepted for publication)

Advances in Atmospheric Chemistry, Topics in Current Chemistry vol. 339 (Springer), ISBN: 978-3-642-41214-1 (2014)

IV. Editorials and other non peer-reviewed publications

Cox RA, Ammann M, Crowley JN, Herrmann H, Jenkin ME, **McNeill VF**, Mellouki AW, Rossi MJ, Troe J, Wallington TJ "IUPAC in the (real) clouds," *Chemistry International* 40(4) 10-13 (2018)

McNeill VF, Nunes JK "India's Air Pollution Crisis: By the Numbers," *Huffpost India*, October 26, 2017 (2017)

Nunes JK, **McNeill VF** "Tips on How to Pick and Optimise the Use of Air Sensors, Air Purifiers, and Masks," *HuffPost India*, October 14, 2017 (2017)

Nunes JK, **McNeill VF** "No, You Do Not Become "Immune" to Air Pollution. Yes, It Can Kill You!," *HuffPost India*, October 13, 2017 (2017)

Blum, J., **McNeill, VF**, Herbst, E., Liu, C., Chakraborty, S. "Welcome to ACS Earth and Space Chemistry" *ACS Earth and Space Chemistry* 1 (1),1-2 (2017)

Surratt, J. D., Szmigielski, R., **McNeill, V.F.** (2016) Special issue: Chemical characterization of secondary organic aerosol – Dedication to Professor Magda Claeys. *Atmos. Environ.*, 130, 1-4

McNeill, V. F., Prather, K., Geiger, F.M., Bertram A., Volkamer, R. (2015). A Tribute to Mario Molina. *J. Phys. Chem. A.* 119 (19) 4277-4278

McNeill, V. F., Ariya, P.A. (2014). Atmospheric and Aerosol Chemistry: Preface. *Topics in Current Chemistry*.

McNeill, V. F., Hastings, M. G. (2008). Ice in the Environment: Connections to Atmospheric Chemistry. *Environ. Res. Lett.*, 3, 045004.

J. Selected Service (Professional/Disciplinary, University, Outreach and Public Engagement)

1. Offices Held in Professional Societies

- Secretary (2016-2019), Board of Directors (2011-2014), AAAR
- Secretary (Composition, Chemistry, Aerosols, and Clouds), 2016-2019, Fall Meeting Program Committee Chair 2018, AGU Atmospheric Sciences Section
- Chair (2016), First Vice Chair (2015), Second Vice Chair (2014), Board of Directors (2010-2012), AIChE Environmental Division

2. Editorships of Journals

- Associate Editor, ACS Earth and Space Chemistry 2017-
- Co-editor, *Atmospheric Chemistry and Physics*. 2007-2017

3. Selected Service to Disciplinary and Professional Societies or Associations

- Fall Meeting Program Committee Chair, Atmospheric Sciences Section, AGU 2018
- Lead organizer, International Workshop on Air Pollution Extremes (APEXCU), Columbia University, November 2018
- Member (appointed), IUPAC Task Group on Kinetic Data evaluation 2015-
- Member (appointed), ACS Committee on Environmental Improvement, Public Policy subcommittee 2015-
- Co-Chair, AICI/OASIS: Air-Ice Chemical Interactions/Ocean-Air-Sea Ice-Snow (a Task of the International Global Atmospheric Chemistry Project), 2011-2015

5. Selected University/Campus Service

Chemical Engineering Departmental Service

- Chair, Undergraduate Committee (2016-present)
- ABET Liaison (2016-present)

SEAS/University-wide Service

- SEAS Executive Committee ad hoc member (2018-)
- Elected member, Earth Institute Faculty (2018-)
- Faculty Affiliate, Center for Global Energy Policy (2017-)
- Member, Committee on Atmospheric Science, Columbia University (July 2007 - Present)