

# Curriculum Vitae

**Tara Kahan**  
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## Education and Employment

2012 - present Syracuse University: *Assistant Professor (Chemistry)*  
2011 - 2012 University of Colorado Boulder: *Postdoctoral Fellow (Chemistry)*  
2010 - 2011 University of California Irvine: *Postdoctoral Fellow (Chemistry)*  
2005 - 2010 University of Toronto: *PhD Chemistry (Environmental)*  
2000 - 2004 University of Regina: *Bachelor of Science (Chemistry)*

**Refereed Publications** (underlined and italicized names denote graduate and undergraduate students supervised by Dr. Kahan respectively)

27. Kowal, S. F.; Allen, S. R.; **Kahan, T. F.\*** (in press) Wavelength-resolved photon fluxes of indoor light sources: Implications for HO<sub>x</sub> production. *Environmental Science and Technology*. DOI: 10.1021/acs.est.7b02015
26. Biria, S.; Malley, P. P. A.; **Kahan, T. F.**, Hosein, I. (2016) Optical autocatalysis establishes novel spatial dynamics in phase separation of polymer blends during photocuring. *ACS Macro Letters* 5: 1237 – 1241. DOI: 10.1021/acsmacrolett.6b00659
25. Stathis, A. A.; Hendrickson-Stives, A. K.; **Kahan, T. F.** (2016) Photolysis kinetics of toluene, ethylbenzene, and xylenes at ice surfaces. *Journal of Physical Chemistry A*. 120: 6693 – 6697. DOI: 10.1021/acs.jpca.6b05595
24. Biria, S.; Malley, P. P. A.; **Kahan, T. F.**, Hosein, I. (2016) Tunable nonlinear optical pattern formation and microstructure in crosslinking acrylate systems during free-radical polymerization. *Journal of Physical Chemistry C* 120: 4517 – 4528. DOI: 10.1021/acs.jpcc.5b11377
23. Grossman, J. N.; **Kahan, T. F.\*** (2016) Hydroxyl radical production from bacteria-assisted Fenton chemistry at neutral pH under environmentally relevant conditions. *Environmental Chemistry* 13: 757 – 766. DOI: 10.1071/EN15256
22. Grossman, J. N.; Stern, A. P.; Kirich, M. L.; **Kahan, T. F.\*** (2016) Anthracene and pyrene photolysis kinetics in aqueous, organic, and mixed aqueous-organic phases. *Atmospheric Environment* 128: 158 – 164. DOI: 10.1016/j.atmosenv.2015.12.049
21. **Kahan, T. F.**; Wren, S. N.; Donaldson, D. J. (2014) A pinch of salt is all it takes - Chemistry at the frozen water surface. *Accounts of Chemical Research* 47: 1587 – 1594. DOI: 10.1021/ar5000715
20. Malley, P. P. A.; **Kahan, T. F.\*** (2014) Non-chromophoric organic matter suppresses polycyclic aromatic hydrocarbon photolysis in ice and at ice surfaces. *Journal of Physical Chemistry A* 118: 1638 – 1643. DOI: 10.1021/jp500263h
19. 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, Th.; 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. R. (2014) A review of air-ice chemical and physical

- interactions (AICI): liquid, quasi-liquid, and solid ice in snow. *Atmospheric Chemistry and Physics* 14: 1587 – 1633. DOI: 10.5194/acp-14-1587-2014
18. **Kahan, T. F.\***; Ormond, T. K.; Ellison, G. B.; Vaida, V. (2013) Acetic acid formation via the hydration of gas-phase ketene under ambient conditions. *Chemical Physics Letters* 565: 1 – 4. **Cover article.** DOI: [10.1016/j.cplett.2013.02.030](https://doi.org/10.1016/j.cplett.2013.02.030)
  17. McNeill, V. F.; Grannas, A.M.; Abbatt, J. P. D.; Ammann, M.; Ariya, A.; Bartels-Rausch, T.; Dominé, F.; Donaldson, D. J.; Guzman, M. I.; Heger, D.; **Kahan, T. F.**; Klán, P.; Masclin, S.; Toubin, C.; Voisin, D. (2012) Organics in environmental ices: Sources, chemistry, and impacts. *Atmospheric Chemistry and Physics* 12: 9653 – 9678. DOI: 10.5194/acp-12-9653-2012
  16. **Kahan, T. F.**; Washenfelder, R. A.; Vaida, V.; Brown S. S. (2012) Cavity-enhanced measurements of hydrogen peroxide cross sections from 353 to 410 nm. *Journal of Physical Chemistry A* 116: 5941 – 5947. DOI: 10.1021/jp2104616
  15. Axson, J. L.; Washenfelder, R. A.; **Kahan, T. F.**; Young, C. J.; Vaida, V.; Brown, S. S. (2011) Absolute Ozone Absorption Cross Section in the Huggins Chappuis Minimum (350 – 470 nm) at 296 K. *Atmospheric Chemistry and Physics* 11: 11581 – 11590. DOI: 10.5194/acp-11-11581-2011
  14. **Kahan, T. F.**; Kwamena, N.-O. A.; Donaldson, D. J. (2010) Different photolysis kinetics at the surface of frozen freshwater vs. frozen salt solutions. *Atmospheric Chemistry and Physics* 10: 10917 – 10922. DOI: 10.5194/acp-10-10917-2010
  13. **Kahan, T. F.**; Donaldson, D. J. (2010) Benzene photolysis on ice: Implications for the fate of organic contaminants in the winter. *Environmental Science and Technology* 44: 3819 - 3824. DOI: 10.1021/es100448h
  12. Wren, S. N.; **Kahan, T. F.**; Jumaa, K. B.; Donaldson, D. J. (2010) Spectroscopic studies of the heterogeneous reaction between O<sub>3</sub>(g) and halides at the surface of frozen salt solutions. *Journal of Geophysical Research – Atmospheres* 115: D16309. DOI: 10.1029/2010JD013929
  11. **Kahan, T. F.**; Zhao, R.; Jumaa, K. B.; Donaldson, D. J. (2010) Anthracene photolysis in aqueous solution and ice: Photon flux dependence and comparison of kinetics in bulk ice and at the air-ice interface. *Environmental Science and Technology* 44: 1302 – 1306. DOI: 10.1021/es9031612
  10. **Kahan, T. F.**; Zhao, R.; Donaldson, D. J. (2010) Reactivity of hydroxyl radicals at the air-ice interface. *Atmospheric Chemistry and Physics* 10: 843 – 854. Available at: [www.atmos-chem-phys.net/10/843/2010/](http://www.atmos-chem-phys.net/10/843/2010/)
  9. **Kahan, T. F.**; Ardura, D.; Donaldson, D. J. (2010) The mechanism of aqueous-phase ozonation of S(IV). *Journal of Physical Chemistry A* 114: 2164 – 2170. DOI: 10.1021/jp9085156
  8. Ardura, D.; **Kahan, T. F.**; Donaldson, D. J. (2009) Self-association of naphthalene at the air—ice interface. *Journal of Physical Chemistry A* 113: 7353 – 7359. DOI: 10.1021/jp811385m
  7. Donaldson, D. J.; **Kahan, T. F.**; Kwamena, N.O.-A.; Handley, S. R.; Barbier, C. (2009) Atmospheric chemistry of urban surface films. *American Chemical Society Symposium Series* 1005: 79 – 89.
  6. **Kahan, T. F.**; Donaldson, D. J. (2008) Heterogeneous ozonation kinetics of phenanthrene at the air—ice interface. *Environmental Research Letters* 3: 045006. DOI: 10.1088/1748-9326/3/4/045006

5. **Kahan, T. F.**; Reid, J. P.; Donaldson, D. J. (2007) Spectroscopic probes of the quasi-liquid layer on ice. *Journal of Physical Chemistry A* 111: 11006 – 11012. DOI: 10.1021/jp074551o
4. Louis, K. A.; **Kahan, T.**; Morley, D.; Peti, N.; Murphy, R. S. (2007) Photochromism of spirooxazines with elements of lipid complementarity in solution and liposomes. *Journal of Photochemistry and Photobiology A – Chemistry* 189: 224 – 231. DOI: 10.1016/j.jphotochem.2007.02.002
3. **Kahan, T. F.**; Donaldson, D. J. (2007) Photolysis of polycyclic aromatic hydrocarbons on water and ice surfaces. *Journal of Physical Chemistry A* 111: 1277 – 1285. DOI: 10.1021/jp066660t
2. Kwamena, N.O.-A.; Clarke, J. P.; **Kahan, T. F.**; Diamond, M. L.; Donaldson, D. J. (2006) Assessing the importance of heterogeneous reactions of polycyclic aromatic hydrocarbons in the urban atmosphere using the Multimedia Urban Model. *Atmospheric Environment* 41: 37 – 50. DOI: 10.1016/j.atmosenv.2006.08.016
1. **Kahan, T. F.**; Kwamena, N.O.-A.; Donaldson, D. J. (2006) Heterogeneous ozonation kinetics of polycyclic aromatic hydrocarbons on organic films. *Atmospheric Environment* 40: 3448 – 3459. DOI: 10.1016/j.atmosenv.2006.02.004

### Funding and Awards

- 2015 NSF CAREER: Photochemistry at “Dirty” Ice Surfaces: Effects of Solutes on Reactivity (PI)
- 2014 NSF NRT: Education Model Program on Water-Energy Research (EMPOWER) at Syracuse University (co-PI)
- 2014 ORAU Ralph E. Powe Junior Faculty Enhancement Award: Effects of urban surface films on air quality: Linking composition to reactivity (PI)
- 2011 Participant in Atmospheric Chemistry Colloquium for Emerging Senior Scientists (ACCESS)
- 2011 NIST Boulder Laboratories Postdoctoral Poster Symposium Best Presentation
- 2010 University of California Irvine Institute of Surface and Interface Science Best Poster Award
- 2010 NSERC Postdoctoral Fellowship
- 2008 University of Toronto Centre for Global Change Sciences Graduate Research Award
- 2007 University of Toronto Environmental Chemistry Colloquium Best Student Presentation
- 2007 NSERC Canada Graduate Scholarship Doctoral
- 2006 NSERC Postgraduate Scholarship Doctoral
- 2002 National Research Council of Canada Scholarship for Women in Engineering and Science

### Invited Conference Presentations

- 2017 Healthy Buildings Europe 2017, Lublin, Poland: “Emission Spectra of Common Indoor Light Sources: Implications for HO<sub>x</sub> Formation” (**Kahan, T. F.**, Kowal, S. F.)
- 2017 Canadian Chemical Society Annual Meeting, Toronto, Canada: “Reactivity of Organic Pollutants in Environmental Condensed Phases” (**Kahan, T. F.**)

- 2015 American Chemical Society North East Regional Meeting, Ithaca, NY: "Photolysis of aromatic pollutants in aqueous, organic, and mixed phases: Implications for reactivity in aerosols, natural waters, and ice" (**Kahan, T. F.**, Grossman, J. N., Malley, P. P. A.)
- 2015 American Chemical Society spring meeting, Denver, CO: "Effects of organic matter on pollutant photolysis at ice surfaces" (**Kahan, T. F.**, Malley, P. P. A., Grossman, J. N.)
- 2014 Workshop on Chemical Atmosphere-Snow-Sea Ice Interactions, Cambridge, England: "Laboratory perspectives on ice as a reaction medium" (**Kahan, T. F.**)
- 2014 American Chemical Society Fall Meeting, San Francisco, CA: "Effects of organic matter on pollutant photolysis at ice surfaces" (**Kahan, T. F.**)
- 2013 Eastern Analytical Symposium, Somerset New Jersey: "Photolysis of pollutants on water and ice surfaces in the presence of environmental contaminants" (**Kahan, T. F.**)
- 2011 ACCESS colloquium, Long Island, NY. "Absorption cross sections of ozone and hydrogen peroxide between 350 nm and 470 nm" (**Kahan, T. F.**; Axson, J. L.; Washenfelder, R. A.; Young, C. J.; Vaida, V.; Brown, S. S.)
- 2009 American Geophysical Union Joint Assembly, Toronto, Canada: "Searching for hydroxyl radicals at the air—ice interface" (**Kahan, T. F.**; Donaldson, D. J.)

### **Invited Seminars**

- 2016 Colgate University, Department of Chemistry, Hamilton, NY
- 2016 University of Regina, Department of Chemistry and Biochemistry, Regina, SK, Canada
- 2016 Syracuse University, Department of Environmental and Civil Engineering, Syracuse, NY
- 2014 Rochester Institute of Technology, Department of Chemistry, Rochester, NY
- 2014 State University of New York Environmental Science and Forestry, Department of Chemistry Lunch Time Seminar Series, Syracuse, NY
- 2013 Syracuse University, Department of Environmental and Civil Engineering, Syracuse, NY
- 2013 State University of New York Environmental Science and Forestry, Department of Chemistry, Syracuse, NY
- 2012 Louisiana State University, Department of Chemistry, Baton Rouge, LA
- 2012 University of California Irvine, Department of Chemistry, Irvine, CA
- 2012 Indiana University, Department of Chemistry, Bloomington, IN
- 2012 Syracuse University, Department of Chemistry, Syracuse, NY
- 2011 University of Waterloo, Department of Chemistry, Waterloo, ON, Canada
- 2011 California Institute of Technology, Pasadena, CA
- 2011 Air-UCI symposium, Laguna Beach, CA
- 2010 Air-UCI seminar series, Irvine, CA
- 2008 Laboratoire de Glaciologie et Géophysique de l'Environnement (LGGE), Grenoble, France
- 2008 CNRS, Lyon, France
- 2007 University of Bristol, Department of Chemistry, Bristol, England

### **Selected National and International Conference Presentations** (of > 40 total)

- 2017 Gordon Research Conference, Atmospheric Chemistry, Sunday River, ME: "Indoor Photochemistry: Photon Fluxes and HO<sub>x</sub> Production Rates"
- 2016 American Geophysical Union Fall Meeting, San Francisco: "Unexpected sources of reactive oxygen species in natural waters"
- 2015 American Geophysical Union Fall Meeting, San Francisco: "Photolysis of aromatic pollutants in clean and dirty ice"
- 2015 Gordon Research Conference, Atmospheric Chemistry, Waterville Valley, NH: "Lightbulbs and Urban Grime: Implications for Photochemistry in Cities"
- 2013 Gordon Research Conference, Atmospheric Chemistry, Mount Snow Resort, VT: "Hydration of gas-phase oxidized organic species"
- 2011 Gordon Research Conference, Atmospheric Chemistry, Mount Snow Resort, VT: "Hydroxyl radicals and hydrogen peroxide in air and on ice: spectroscopic and molecular dynamics investigations"
- 2010 Atmospheric Chemical Mechanisms workshop, Davis, California: "Photooxidation of aromatic hydrocarbons at water and ice surfaces"
- 2010 International Global Atmospheric Chemistry conference, Halifax, Canada: "Uptake and reactivity of hydroxyl radicals on ice"
- 2009 IACIS International Conference on Surface and Colloid Science and ACS Colloid and Surface Science Symposium, New York: "Hydroxyl radical formation rates on ice measured using a novel *in situ* probe"
- 2008 International Global Atmospheric Chemistry conference, Annecy, France: "Uptake, oxidation, and photochemistry of trace organics at the air—ice interface"
- 2008 AICI-HiT-SPARC workshop, Cambridge, England: "Chemistry at the air—ice interface"
- 2007 European Geosciences Union Spring Meeting, Vienna, Austria: "Raman spectroscopy as a probe for the quasi-liquid layer on ice"
- 2006 Canadian Meteorological and Oceanographic Society Annual Meeting, Toronto: "Photolysis kinetics of anthracene on ice"
- 2005 American Geophysical Union Fall Meeting, San Francisco, CA: "Heterogeneous ozonation kinetics of polycyclic aromatic hydrocarbons on organic films"

### **Courses Taught**

CHE 116: General Chemistry II  
 CHE 347: Physical and Analytical Chemistry Laboratory  
 CHE 436 / 636: Advanced Physical Chemistry  
 CHE 450: Introduction to Chemical Research  
 CHE 460: Introduction to Biochemical Research  
 CHE 600: Atmospheric Aerosol Chemistry  
 CHE 600: Chemistry Colloquium

### **Professional Affiliations**

Member, American Chemical Society  
 Member, American Geophysical Union  
 Member, Women in Science and Engineering (WISE)

## Professional Activities and Service

*Invited peer reviewer* for Analytical Chemistry, Atmospheric Chemistry and Physics, Chemical Physics Letters, Environmental Chemistry, Environmental Science and Technology, Geophysical Research Letters, Journal of Environmental Quality, Journal of Photochemistry and Photobiology A: Chemistry, Journal of Physical Chemistry A, Journal of Physical Chemistry Letters, Photochemical and Photobiological Sciences, Proceedings of the National Academy of Sciences

*Conference session convener:* American Geophysical Union Fall Meeting (Physical and chemical air-snow-ice interactions: From the micro to the global scale, 2013, 2015), American Chemical Society Northeast Regional Meeting (Environmental Chemistry, 2015).

*Conference session chair:* Canadian Society of Chemistry Meeting (Atmospheric Chemistry in a Changing Climate, 2017), American Geophysical Union Fall Meeting (Physical and chemical air-snow-ice interactions: From the micro to the global scale, 2013, 2015), American Chemical Society Fall Meeting (Air-surface interactions: Chemistry from molecular to global climate scales, 2011).

*National grant and scholarship reviewer* for American Chemical Society, United States Department of Energy, National Science Foundation, Israel Science Foundation, Oak Ridge Institute for Science and Education.

## Selected Media Coverage

- 2017 SU Magazine Research Snapshot: <http://sumagazine.syr.edu/2016fall-winter/orangematters/researchsnapshot.html>
- 2015 The Daily Orange "Chemistry Professor Receives Grant to Study Reactions in Ice": <http://dailyorange.com/2015/09/chemistry-professor-receives-grant-to-study-reactions-in-ice/>
- 2015 SU News "Syracuse Scientist Receives CAREER Award to Study 'Ice Chemistry'": [http://asnews.syr.edu/newsevents\\_2015/releases/tara\\_kahan\\_grant.html](http://asnews.syr.edu/newsevents_2015/releases/tara_kahan_grant.html)
- 2015 SU News "Girls Just Want to Do Science": [http://asnews.syr.edu/newsevents\\_2015/releases/Young\\_Women\\_Science\\_Camp\\_VI\\_DEO.html](http://asnews.syr.edu/newsevents_2015/releases/Young_Women_Science_Camp_VI_DEO.html)
- 2011 IGAC News "Young Scientist Spotlight": [http://igac.jisao.washington.edu/Newsletter/IGAC\\_Newsletter\\_Oct11.pdf](http://igac.jisao.washington.edu/Newsletter/IGAC_Newsletter_Oct11.pdf)
- 2011 Cooperative Institute for Research in Environmental Sciences feature: <http://cires.colorado.edu/news/press/2011/Kahan.html>