

Haofei Zhang, Ph.D.

Contact Information

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Education

- ▶ **Ph.D. University of North Carolina – Chapel Hill September 2008 - March 2012**
Environmental Sciences and Engineering
- ▶ **B.S. Shanghai Jiao Tong University, China September 2004 - June 2008**
Environmental Science and Engineering

Research Experience

- ▶ **Postdoctoral Associate Lawrence Berkeley National Laboratory August 2012 - Present**
Chemical Sciences Division, *advisors*: Kevin R. Wilson and Allen H. Goldstein
 - Research Topic: Study the oxidative transformation pathways of organic aerosols at molecular levels.
 - Operation of flow tube reactors.
 - Analyses of detailed chemical composition of oxidized organic aerosols using comprehensive GC×GC/HR-TOF-MS techniques with soft ionization.
- ▶ **Postdoctoral Associate University of North Carolina–Chapel Hill March - August 2012**
Department of Environmental Sciences and Engineering, *advisors*: Richard M. Kamens and Jason D. Surratt
 - Chemical characterization biogenic SOA formation from field studies (BEARPEX 2007 and 2009, AMIGAS 2008, and BEACHON-RoMBAS 2011).
 - Investigation of epoxides as potential intermediate precursors to biogenic SOA formation.
- ▶ **Ph.D. Student University of North Carolina–Chapel Hill September 2008 - March 2012**
Department of Environmental Sciences and Engineering, *advisors*: Richard M. Kamens and Jason D. Surratt
 - Thesis title: Characterization and simulation of isoprene photooxidation from smog chamber studies.
 - Operation of outdoor and indoor smog chambers.
 - Development of gas-phase isoprene chemical mechanism to simulate smog chamber experiments.
 - Development and evaluation of algorithms to model secondary organic aerosol (SOA) formation from oxidation of aromatic and biogenic VOCs.
 - Chemical characterization of isoprene SOA composition from smog chamber studies and ambient aerosol samples using GC/EI-MS and UPLC/ESI-HR-Q-TOFMS techniques.

Haofei Zhang, Ph.D.

Publication (14)

- ▶ **Zhang, H.**, Parikh, H. M., Bapat, J., Lin, Y. -H., Surratt, J. D., Kamens, R. M. Modeling of SOA formation from isoprene photooxidation chamber studies, accepted by *Environ. Chem.*, **2013**.
- ▶ Zhou, Y., Rosen, E. P., **Zhang, H.**, Rattanavaraha, W., Wang, W., Kamens, R. M. SO₂ oxidation and nucleation studies at near-atmospheric conditions in an outdoor smog chamber, accepted by *Environ. Chem.*, **2013**.
- ▶ Lin, Y. -H., **Zhang, H.**, Pye, H. O. T., Zhang, Z., Marth, W. J., Park, S., Arashiro, M., Cui, T., Budisulistiorini, S. H., Sexton, K. G., Vizuete, W., Xie, Y., Luecken, D. J., Piletic, I. R., Edney, E. O., Bartolotti, L. J., Gold, A., Surratt, J. D. Epoxide as a precursor to secondary organic aerosol formation from isoprene photooxidation in the presence of nitrogen oxides, *Proc. Natl. Acad. Sci. USA.* 110, 6718 – 6723, **2013**.
- ▶ Zhang, Z., Lin, Y. -H., **Zhang, H.**, Surratt, J. D., Ball, L. M., Gold, A. Technical Note: Synthesis of isoprene epoxydiol isomers and 3-methyl-3,4-dihydroxytetrahydrofuran derived from atmospherically isoprene oxidation and rearrangement, *Atmos. Chem. Phys.* 12, 8529 – 8535, **2012**.
- ▶ **Zhang, H.**, Worton, D. R., Lewandowski, M., Ortega, J., Rubitschun, C., Park, J. -H., Kristensen, K., Campuzano-Jost, P., Day, D., Jimenez, J. L., Jaoui, M., Offenberg, J. H., Kleindienst, T. E., Gilman, J., Kuster, W. C., de Gouw, J., Park, C., Schade, G. W., Frossard, A. A., Russell, L. M., Kaser, L., Jud, W., Hansel, A., Cappellin, L., Karl, T., Glasius, M., Guenther, A., Goldstein, A. H., Seinfeld, J. H., Gold, A., Kamens, R. M., Surratt, J. D. Organosulfates as tracers for secondary organic aerosol (SOA) formation from 2-Methyl-3-Buten-2-ol (MBO) in the atmosphere, *Environ. Sci. Technol.* 46, 9437 – 9446, **2012**.
- ▶ **Zhang, H.**, Kamens, R. M. The influence of isoprene peroxy radical isomerization mechanisms on ozone simulation with the presence of NO_x, 69, 67 – 81, *J. Atmos. Chem.* **2012**.
- ▶ Parikh, H. M., Carlton, A. G., Zhou, Y., **Zhang, H.**, Kamens, R. M., Vizuete, W. Modeling secondary organic aerosol from xylene and aromatic mixtures using a dynamic partitioning approach incorporating particle aqueous-phase chemistry (II), *Atmos. Environ.* 56, 250 – 260, **2012**.
- ▶ **Zhang, H.**, Lin, Y. -H., Zhang, Z., Zhang, X., Shaw, S. L., Knipping, E. M., Weber, R., Gold, A., Kamens, R. M., Surratt, J. D. Secondary organic aerosol formation from methacrolein photooxidation: Roles of NO_x level, relative humidity, and aerosol acidity, *Environ. Chem.* 9, 247 – 262, **2012**.
- ▶ Lin, Y. -H., Zhang, Z., Docherty, K. S., **Zhang, H.**, Budisulistiorini, S. H., Rubitschun, C. L., Shaw, S. L., Knipping, E. M., Edgerton, E. S., Kleindienst, T. E., Gold, A., Surratt, J. D. Isoprene epoxydiols as precursors to secondary organic aerosol formation: acid-catalyzed reactive uptake studies with authentic compound, *Environ. Sci. Technol.* 46, 250 – 258, **2012**.

Haofei Zhang, Ph.D.

- **Zhang, H.**, Surratt, J. D., Lin, Y. -H., Bapat, J., Kamens, R. M. Effect of relative humidity on SOA formation from isoprene/NO photooxidation: Enhancement of 2-methylglyceric acid and its corresponding oligoesters under dry conditions, *Atmos. Chem. Phys.* 11, 6411 – 6424, **2011**.
- **Zhang, H.**, Rattanavaraha, W., Zhou, Y., Bapat, J., Rosen, E. P., Sexton, K. G., Kamens, R. M. A new gas-phase condensed mechanism of isoprene-NO_x photooxidation, *Atmos. Environ.* 45, 4507 – 4521, **2011**.
- Kamens, R. M., **Zhang, H.**, Chen, E. H., Zhou, Y., Parikh, H. M., Wilson, R. L., Galloway, K. E., Rosen, E. P. Secondary organic aerosol formation from toluene in an atmospheric hydrocarbon mixture: water and particle seed effects, *Atmos. Environ.* 45, 2324 – 2334, **2011**.
- Zhou, Y., **Zhang, H.**, Parikh, H. M., Chen, E. H., Rattanavaraha, W., Rosen, E. P., Wang, W., Kamens, R. M. Secondary organic aerosol formation from xylenes and mixtures of toluene and xylenes in an atmospheric urban hydrocarbon mixture: Water and particle seed effects (II), *Atmos. Environ.* 45, 3882 – 3890, **2011**.
- Rattanavaraha, W., Rosen, E. P., **Zhang, H.**, Li, Q., Pantong, K., Kamens, R. M. The reactive oxidant potential of different types of aged atmospheric particles: an outdoor chamber study, *Atmos. Environ.* 45, 3848 – 3855, **2011**.

Peer Reviewed Journal Articles under Review or in Preparation (3)

- **Zhang, H.**, Ruehl, C. R., Chan, A. W. H., Nah, T., Worton, D. R., Isaacman, G., Goldstein, A. H., Wilson, K. R. OH-initiated heterogeneous oxidation of cholestane: a model system for understanding the aging of cyclic alkane aerosols, in prep., **2013**.
- **Zhang, H.**, Zhang, Z., Lin, Y. -H., Ortega, J., Bhatela, N., Gold, A., Surratt, J. D. Secondary organic aerosol (SOA) formation from 2-Methyl-3-buten-2-ol (MBO) photooxidation: evidence for acid-catalyzed reactive uptake of epoxide, in prep., **2013**.
- Kristensen, K., Cui, T., **Zhang, H.**, Surratt, J. D., Glasius, M. Characterization of the formation of dimers in SOA from α -pinene: Effect of OH, ozone, relative humidity, and acidity, in prep., 2013.

Abstract Presentation (7)

- Secondary organic aerosol (SOA) formation from 2-Methyl-3-buten-2-ol (MBO) photooxidation: evidence for acid-catalyzed reactive uptake of epoxide, *American Geophysical Union Fall Meeting*, San Francisco, CA, Dec 3-7, **2012**. (**Oral Presentation**)
- Modeling of SOA formation from isoprene photooxidation chamber studies using different approaches. *Atmospheric Chemistry Mechanisms Conference*, Davis, CA, Dec 10-13, **2012**. (**Poster Presentation**)
- Organosulfates as tracers for secondary organic aerosol (SOA) formation from 2-Methyl-3-Buten-2-ol (MBO) in the atmosphere, *31th American Association for Aerosol Research (AAAR) Annual Conference*, Minneapolis, MN, Oct 8-12, **2012**. (**Poster**)

Haofei Zhang, Ph.D.

Presentation)

- New Algorithms to Describe SOA Formation, *International Aerosol Modeling Algorithms (IAMA) Conference*, Davis, CA, Nov 30 – Dec 2, **2011**. (**Invited Talk**)
- Effect of relative humidity on SOA formation from isoprene/NO photooxidation: Enhancement of 2-methylglyceric acid and its corresponding oligoesters under dry conditions, *30th American Association for Aerosol Research (AAAR) Annual Conference*, Orlando, FL, Oct 3-7, **2011**. (**Oral Presentation**)
- A combined kinetic and volatility basis set approach to model secondary organic aerosol from toluene and diesel exhaust/meat cooking mixtures, *30th American Association for Aerosol Research (AAAR) Annual Conference*, Orlando, FL, Oct 3-7, **2011**. (**Poster Presentation**)
- A new gas-phase condensed mechanism of isoprene photooxidation. *Atmospheric Chemistry Mechanisms Conference*, Davis, CA, Dec 8-12, **2010**. (**Poster Presentation**)