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### **Professional Experience**

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2002-Present Staff Scientist, Chemical Sciences Division, Lawrence Berkeley National Laboratory  
2000-2002 Research Scientist II at the Cooperative Institute for Research in Environmental Sciences (CIRES) in the Atmospheric Chemical Kinetics Group at the National Oceanic and Atmospheric Administration  
1996-2000 Research Scientist I at CIRES/NOAA Aeronomy Laboratory  
1993-1996 Postdoc with A. R. Ravishankara, NOAA Aeronomy Laboratory  
1992 Summer internship, Tsukuba, Japan  
1987-1993 Ph.D. student, University of Colorado, Boulder  
1986-1987 Student Research Associate at Hahn Meitner Institute Berlin, Germany

### **Education**

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- Post Doctoral position at the National Oceanic and Atmospheric Administration in the Atmospheric Chemical Kinetics Group (1993-1996). Supervisor A. R. Ravishankara
- Ph.D. Chemistry, Photoelectron Spectroscopy of Negative Ions, thesis advisor
- W. C. Lineberger, University of Colorado, Boulder, Colorado, May 1993
- B.S. Chemistry, University of Washington, Seattle, Washington, 1985

### **Additional Training**

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- Emerging Leader Program, Lawrence Berkeley National Laboratory, 2012
- Lawrence Berkeley National Laboratory, 4 Roles of Leadership Training, 2005
- Applications of Synchrotron Radiation in Low Temperature Geochemistry and Environmental Science, Monterey, CA, Dec. 4-5, 2003
- NATO Advanced Study Institute: The Stratosphere and its Role in the Climate System, Sept. 1995, Val Morin, Quebec, Canada
- National Science Foundation Summer Internship for Graduate Students in Japan, National Institute for Environmental Studies, Tsukuba, Japan. Laboratory Atmospheric Chemical Kinetics, June – August 1992, Supervisor N. Washida
- National Center for Atmospheric Research Summer Colloquium in Observational Techniques in Atmospheric Sciences, June 1991
- Summer Internship Technical University of Berlin, Institute for Nuclear
- Engineering, Germany, summer 1985, Development of two-phase flow detection methods for nuclear reactor cooling water supplies.

### **Scientific Community Service**

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- Molecular Science Challenges Workshop, DOE BER, May 27-29, 2014
- User Advisory Committee Environmental Molecular Sciences Laboratory, Pacific Northwest National Laboratory, 2009-2015
- External Proposal Review Panel Canadian Light Source, 2010-2012 External User Proposal Reviewer: Canadian Light Source, William R. Wiley Environmental Science Laboratory, Advanced Light Source, National Synchrotron Light Source
- Journal Referee: Atmospheric Environment, Atmospheric Chemistry and Physics, Atmospheric Chemistry and Physics Discussions, Berichte der Bunsen-Gesellschaft für Physikalische Chemie, Chemical Reviews, Chemical Physics Letters, Environmental Science

& Technology, Geophysical Research Letters, International Journal of Chemical Kinetics, Journal of Atmospheric Chemistry, Journal of Chemical Physics A, Journal of Chemical Physics B, Journal of Geophysical Research: Atmospheres, Physical Chemistry Chemical Physics, Aerosol Science & Technology

- Proposal Referee: National Science Foundation, NASA, National Environmental Research Council, BER Atmospheric Systems Research, SBIR/STTR Phase I Grant Applications, Research Corporation Cottrell College Science Awards, DOE Atmospheric Science Program
- Co-Organizer (A. Laskin, H. Bluhm, M. K. Gilles) AGU conference session on “Multi-modal Characterization of Atmospheric Aerosols Using Unique Capabilities of DOE User Facilities”, Fall 2014
- Co-Organizer (Chui-Un Ro, A. Laskin, M. K. Gilles) Chemical imaging of atmospheric particles, International Aerosol Conference in Busan, Korea, August 2014
- Co-Organizer (A. Laskin, A. Bertram, R. C. Moffet, M. K. Gilles) AGU conference session on “Chemical Imaging Analysis of Atmospheric Particles”, Fall 2013
- Co-Organizer (A. Laskin, A. Bertram, M. K. Gilles) AGU conference session on “Chemical Imaging Analysis of Atmospheric Particles”, Fall 2012
- National Synchrotron Light Source Proposal Review Panel, 2009-2011
- Chemical Sciences Division Staff Committee, 2012-2014
- Organized workshops for the Energy Frontiers Research Centers for the LBNL Center for Ultrafast Science, 2008
- Co-organizer for ALS workshop “Novel Approaches to Soft X-ray Spectroscopy: Scanning Transmission X-ray Microscopy and Ambient Pressure X-ray Photoelectron Spectroscopy” Oct. 2005
- NSF Panel for 2001 Summer Programs in Japan, Korea, and Taiwan.
- Review Panel for National Science Foundation Summer Institute in Japan

### **Mentoring & Outreach**

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- Post Doctoral Advisor (current position)
  - Rachel Sellon, jointly advised with R. C. Moffet, 2012 - present
  - Nour Nijem, jointly advised with S. R. Leone, 2012 - present
  - Zinki Jindal, 2012 – 2013
  - Stephen Kelly, 2010 – 2103 (Lam Research, Portland)
  - Gregory Carroll, 2011-2012 (Sunstac Engineering)
  - Ryan Moffet, 2007 - 2011 (Asst. Prof., Dept. of Chemistry, U. of Pacific)
  - Shruti Prakash, 2009 - 2010
  - Rebecca Hopkins, 2005 - 2007 (Defense and Technology Laboratories, UK)
  - Alexei V. Tivanski, 2005 - 2007 (Prof., Dept. of Chemistry, U. of Iowa)
  - Ligia Muntean, 2004 - 2005 (Varian, Walnut Creek)
- **Interns**
  - Katrin Fürsich Physics M.S. University of Würzburg, Germany, 2013-2014
  - Nils Lundt, Physics M.S. University of Würzburg, Germany, 2012-2013
  - Pascal Nigge, Physics M.S. University of Würzburg, Germany, 2011-2012
  - Lucie Sterckx, Chemistry M.S. University of Orlean, France, 2010
  - Tobias Rödel, Physics M.S. University of Würzburg, Germany, 2010-2011
  - Florent Karsenty, Chemistry M.S. University of Orlean, France, 2010
  - Peter Sprau, Physics M.S. University of Würzburg, Germany, 2009-2010
  - Tobias Henn Physics M.S. University of Würzburg, Germany, 2008-2009

- **SULI/BLUR Semester Intern Undergraduate Students**
  - Dominique Yancey Piens, January- August, 2014
  - Caleb Swain, January - May 2013
  - Alexander Neu, January - May 2013
  
- **Undergraduate Students**
  - Leah Tom, U.C. Berkeley Physics, Summer 2014
  - David Alspaugh, U.C. Berkeley Physics, Summer 2014
  - Jonathan Tuck, San Francisco State University Physics, Summer 2014
  - Kathy Liang, U. C. Berkeley Chemical Engineering, 2005-2006
  - Romain Planques, Ecole Polytechnic, Paris, France, Feb.-Aug, 2004
  - Zi Wang, U. C. Berkeley Engineering, 2006-2007
  
- **Short-term visiting students**
  - Bingbing Wang, Ph.D. student, Stony Brook University, 2011, 2012
  - Peter Alpert, Ph.D. student, Stony Brook University, 2011, 2013
  - Inés Dácil González Jiménez, Post Doc Utrecht, Netherlands, 2010
  - Naruki Hiranamu, Ph.D student, Texas A&M University, 2009
  - Rodrigo González-Abraham, B.Sc. student, University of Mexico 2006
  
- **High School Teachers**
  - Scientific Advisor, Bryan Marten, High School Physics and Chemistry Teacher, Lowell High School, San Francisco, California, Summers 2004 - 2006
  - Laura Casdorff, Douglas Freeman High School, Richland, Virginia, 2009
  
- **High School Students**
  - Peter Lu, Summer intern for CSEE at LBNL, 2006
  - Zi Wang, Summer intern for CSEE at LBNL, 2006
  
- **Other Outreach**
  - Participant in “Women in Sciences & Mathematics” inaugural conference at San Domenico Upper School for Girls, San Anselmo, Ca, January 25. 2006
  - Initiated and organized visit for advanced placement chemistry classes from Lowell High School to tour laboratories at LBNL & the Advanced Light Source
  - Guide for Sons/Daughters at Work at the Advanced Light Source 2003 - 2005
  - Guide for the Berkeley Edge Conference, 2002 - 2005
  - Volunteer at the Advanced Light Source Open House, 2002
  - Supervised research during Earthworks Teacher’s Workshop, August 2001
  - Grant from the National Science Foundation for Studying Japanese, 1992-1993
  - Mentor for Summer Minority Access to Research (SMART) U. Colorado 1992
  - Developed and Instructed Research–Oriented Projects for undergraduate Physical Chemistry Laboratory at the University of Colorado, 1991-1993

### **Funded Proposals**

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- LBNL Laboratory Directed Research and Development  
Photo-switchable Metal Organic Frameworks for CO<sub>2</sub> Sequestration  
PI: M. K. Gilles, Duration 10/01/11-9/30/13  
Budget Request FY11 (\$120K-176K with overhead)

- National Oceanographic and Atmospheric Administration  
CalNex 2010: Characterizing Organic Aerosol Physical, Chemical, and Hygroscopic Properties using Single Particle Scanning Transmission X-ray Microscopy and Atomic Force Microscopy  
PI: Alexei Tivanski, Duration 10/01/12-10/01/13  
Budget Request FY2011 (\$88K), FY2012 (\$89K), FY2013 (\$91K)  
Co-PI: M. K. Gilles (no budget request)
- Work for Others (EMSL, PNNL) Complementary microscopy /spectroscopy of aerosols in reactive and humid environments FY 2011 (50K), FY2012 (50K)
- LBNL Laboratory Directed Research and Development  
Development of in situ cells for Reactive Spectroscopic and Microscopic Studies  
PI: M. K. Gilles, Duration 10/01/08-10/01/10  
Budget Request FY09 (\$93K) FY10 (\$150K) FY2011 (\$136K)
- DOE Atmospheric Systems Research Program LB 04-12  
Soft X-ray Spectromicroscopy of Black Carbon Aerosols  
PI: M. K. Gilles, Duration 10/01/07-10/01/12  
Budget Request Operating FY2008 (\$100K), FY2009 (\$200K), FY2010 (150K), FY2011 (150K), FY2012 (150K), FY2013 (100K), FY201 (100K)
- DOE Atmospheric Science Program LB 04-12  
Soft X-ray Spectromicroscopy of Black Carbon Aerosols  
PI: M. K. Gilles, Duration 10/01/04-10/01/07  
Budget Request Operating FY05 (\$167K), FY06 (\$140K), FY07 (\$140K)

#### **Funded Equipment Proposals**

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- Biosense Liquid QCM-D, DOE Synthesis Equipment FY2011 (\$160K)
- WITec Raman Confocal Microscope, LDRD equipment request FY2010 (\$122.3K)
- ICMAS Microscope Controller, Division Equipment FY 2010 (\$122.2K)
- Visual Light Microscope with High Resolution Indexed Scanning Stages
- Chemical Sciences Division Equipment Allocation FY2004 (\$65K)
- National Science Foundation, Japanese Language Award 1992 - 1994

#### **Pending Proposals**

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None at this time

#### **Participation in Atmospheric Chemistry Field Campaigns**

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- California 2010 Carbonaceous Aerosols and Radiative Effects Study (CARES), Sacramento, California, June 2010 DOE ASR.
- VAMOS Ocean-Cloud-Atmospheric-Land Study (VOCALS), Arica, Chile, October 2008, DOE ASP
- Indirect and Semi-Direct Aerosol Campaign (ISDAC), Alaska, April 2008, DOE ARM
- FLAME II, Fire Sciences Laboratory, Missoula Montana May (2007).
- Megacity Aerosol Experiment in Mexico City (Mex-Max), Mexico City, March 2006, DOE ASP.
- Marine Stratus Experiment (MASE), Pt. Reyes, California, 2005, DOE ASP.

#### **DOE User Facility Proposals (PI unless indicated\*)**

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- *Chemical Imaging studies of Liquid-Liquid Phase Separation in Atmospheric Aerosols*, Environmental Molecular Science Laboratory of Pacific Northwest National Laboratory for Spring 2013, #47937

- *Ice Nucleation Properties of Authentic Atmospheric Marine Particles*, Environmental Molecular Science Laboratory of Pacific Northwest National Laboratory for Spring 2013, #47949\* (P.I. Ryan Moffet)
- *Atmospheric Chemistry of Biomass Burning Aerosol*, Environmental Molecular Science Laboratory of Pacific Northwest National Laboratory for Spring 2013, #47949\* (P.I. Daniel Knopf)
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- *Theoretical calculations of soft-X-ray spectra for azobenzene photo-switching*, The Molecular Foundry #1629 LBNL, Fall 2012
- *MES Approved Program at 11.0.2*, Advanced Light Source, beamline 11.0.2, Fall 2012-Fall 2015
- *Environmental Chemistry of Fe containing Mineral Dust Particles*, Environmental Molecular Science Laboratory of Pacific Northwest National Laboratory for Spring 2012, #40087
- *Chemical imaging Analysis of Environmental Particles*, Environmental Molecular Science Laboratory of Pacific Northwest National Laboratory for Spring 2012, #44638
- *Functionalized Metal Organic Framework Materials for CO<sub>2</sub> Capture*, Advanced Light Source, XRD beamline 12.3.2, Fall 2012-Fall 2013, ALS-05169
- *CalNex 2010: Determination of Chemical Composition and Mixing State of Aerosols using STXM*, Advanced Light Source, 5.3.2 STXM, Spring 2012-Spring 2013, ALS-05012
- *\*In situ Water Vapor Uptake in Atmospheric Aerosols*, Advanced Light Source, 5.3.2 STXM beamline, Spring 2012, ALS-04771 (P.I. S. Kelly-postdoc)
- *In situ reactions using STXM*, Advanced Light Source, 5.3.2 STXM, Spring 2012, ALS-04301
- *\*Epitaxial growth of metal organic frameworks by CVD*, The Molecular Foundry, LBNL, Summer 2011 (P.I. M.L. Ng –postdoc with H. Bluhm)
- *Small Angle Scattering of Mixed SAMS and MOF Thin Films*, Advanced Light Source, Directors Discretionary time 11.0.1 beamline, Fall 2012
- *California 2010 Carbonaceous Aerosols and Radiative Effects Study (CARES): Atmospheric Processing of Aerosols via STXM*, Advanced Light Source, 5.3.2 STXM beamline, Spring 2010, ALS-03479
- *Charring of biofuels-in situ and ex situ experiments*. Advanced Light Source, 5.3.2 STXM beamline, Spring 2010, ALS-03955
- *Environmental Chemistry of Fe containing Mineral Dust Particles*, Environmental Molecular Science Laboratory of Pacific Northwest National Laboratory for Spring 2010, #40087
- *The Cloud Nucleating Properties of Aerosols at a Continental Site: CHAPS Study*, Environmental Molecular Science Laboratory of Pacific Northwest National Laboratory, #25638
- *Chemistry of Aerosols in the North Slope of Alaska: ISDAC 2008 Study*, Environmental Molecular Science Laboratory of Pacific Northwest National Laboratory, #30423
- *\*Probing Atmospheric Chemistry of Aerosols to Gain Insights into Condensation behavior*, Environmental Molecular Science Laboratory of Pacific Northwest National Laboratory, #30486, (P.I. K. Prather).
- *Atmospheric Processing of Aerosols via STXM*, Advanced Light Source, 5.3.2 STXM beamline, Spring 2010, ALS-31017
- *Marine Boundary Layer Sulfur Partitioning*, Advanced Light Source, 5.3.2 STXM beamline, Spring 2009, Fall 2009, Spring 2010, ALS-02917

- *\*FLAME II: Correlating Combustion Aerosol Properties with Plant Physiology*, Advanced Light Source, 5.3.2 STXM beamline, Spring 2008, Fall 2008, Spring 2009. ALS-02402 (P.I. Rebecca Hopkins-postdoc)
- *\*Characterization Aerosol Particulate Matter Generated from Laboratory Combustion of a Variety of Woodland Fuels*, Advanced Light Source, 5.3.2 STXM beamline, 2007, ALS-02069
- *Chemistry of Aerosols in Mexico City: MILAGRO 2006*, Environmental Molecular Science Laboratory of Pacific Northwest National Laboratory, #19792
- *\*Mexico City Megacity Aerosol Experiment: STXM of Atmospherically Processed Carbonaceous Aerosol Particles*, Advanced Light Source, 5.3.2 STXM beamline, 2006, ALS-01968 (P.I. Rebecca Hopkins-postdoc)
- *\*FTIR study of Hydrogen Silsequioxanes for Nanofabrication*, Advanced Light Source FTIR 1.0.4 beamline, 2006, ALS-01855 (P.I. Alexei Tivanski-postdoc)
- *Spectromicroscopic Studies of soot/black carbon containing aerosols and micro-characterization of atmospheric mineral dust*, Advanced Light Source, 5.3.2 STXM beamline, 2005, ALS-01599
- *Spectromicroscopic Studies of Atmospheric Particles and Water Vapor Uptake on Photoresists*, Advanced Light Source, 5.3.2 STXM, 2003, ALS-01252

#### **Awards**

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- Lawrence Berkeley National Laboratory “Outstanding Mentor Award” 2007
- LBNL “SPOT” Award, 8/21/2006 For outstanding guidance and contribution to the successful selection of outstanding Ultrafast X-ray Science Divisional Fellows

#### **Press Releases & Newsletters**

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- Advanced Light Source Science Briefs: Chloride Depletion in Aged Sea Salt particles 2013 (<http://www-als.lbl.gov/index.php/science-highlights/science-briefs/748-chloride-depletion-in-aged-sea-salt-particles.html>)
- The Scientist: From Plants and Fungi to Clouds, Salt compounds produced by plant and fungus species help form organic aerosols that form clouds and produce rain. August 31, 2012. (<http://www.the-scientist.com/?articles.view/articleNo/32572/title/From-Plants-and-Fungi-to-Clouds/>)
- Max-Planck\_Gesellschaft: How salt in the rainforest becomes Clouds ([http://www.mpg.de/6329380/plants\\_fungi\\_salt-aerosol](http://www.mpg.de/6329380/plants_fungi_salt-aerosol))
- ChemistryViews: Potassium’s Influence on Clouds in Rainforest 2012 ([http://www.chemistryviews.org/details/news/2541231/Potassiums\\_Influence\\_on\\_Clouds\\_in\\_Rainforest.html](http://www.chemistryviews.org/details/news/2541231/Potassiums_Influence_on_Clouds_in_Rainforest.html))
- SciTechDaily: How Aerosol Particles form in the Amazon (<http://scitechdaily.com/how-aerosol-particles-form-in-the-amazon/>)
- Advanced Light Source Highlights: Nanoscale Chemical Imaging (<http://www-als.lbl.gov/index.php/science-highlights/science-highlights/186-nanoscale-chemical-imaging-of-a-working-catalyst.html>)
- EMSL Research Highlights: Atmospheric Aerosol Chemistry: Chemical Speciation of Sulfur in Marine Particles 2008 (<http://www.emsl.pnl.gov/root/publications/reports/2008/200804.pdf>)
- Highlights of the DOE Atmospheric Science Program 2008: (<http://www.asp.bnl.gov>)
- Press release for Mexico City Metal Aerosol Study 2008, <http://www.lbl.gov/publicinfo/newscenter/pr/2008/MILAGRO/ALS-MILAGROprintable.html>

- Science Daily & Environmental News Network: Tracking Down the Menace in Mexico City, (<http://www.sciencedaily.com/releases/2008/09/080908101649.htm>) & (<http://www.enn.com/pollution/article/38118>)
- Advanced Light Source Highlights: Particles from Comet 81P/Wild2 Viewed by ALS Microscopes 2007 (<http://www-als.lbl.gov/index.php/science-highlights/science-highlights/217-particles-from-comet-81pwild-2-viewed-by-als-microscopes.html>)
- Environmental Molecular Science Laboratory Newsletter: One Particle at a Time: Molecular-Level Characterization of Sulfur in Particles Sheds Light on Cloud Chemistry Vol 5 Issue 2 Oct. 2008, [www.emsl.pnl.gov/docs/newsletter](http://www.emsl.pnl.gov/docs/newsletter)
- Advanced Light Source Highlights: Composition and Reactions of Atmospheric Aerosol Particles (<http://www-als.lbl.gov/index.php/science-highlights/science-highlights/284-composition-and-reactions-of-atmospheric-aerosol-particles.html>)
- Berkeley Lab News Center: Aerosols Overstay their Welcome 2005 (<http://newscenter.lbl.gov/feature-stories/2005/02/18/aerosols-overstay-their-welcome/>)

#### Talks (\* invited)

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- To BC or not to be BC, Photon Sciences Laboratory, Brookhaven National Lab, May 19, 2014.
- Imaging Aerosols: Past, Present, and Future, or a Tale of Two Cities, Synchrotron-based Probes for Studying the Interactions between Living Systems and the Environment, Users Meeting NSLS, May 21, 2014.
- Spectro-Microscopy of Atmospheric Particles: Viscosity, Goldschmit Sacramento, June 9 2014.
- *Photoswitchable Metal Organic Frameworks for CO<sub>2</sub> Sequestration*, Carbon Cycle 2.0 Lawrence Berkeley National Laboratory, October 5, 2012.
- *Spectro-Microscopic Characterization of Atmospheric Aerosol Aging*, University of the Pacific, September 18, 2012.\*
- *Spectro-Microscopic Characterization of Atmospheric Aerosol Aging*, Canadian Light Source, May 9, 2012.\*
- *Spectromicroscopic Characterization of Atmospheric Aging of Carbonaceous Aerosols*, Div. Geochemistry, ACS meeting San Diego, March 26, 2012.
- *Probing Atmospheric Aerosols by Complementary Spectro-microscopic Methods*, Carbon Cycle 2.0, Lawrence Berkeley National Laboratory, May 19, 2011.
- *Is All Soot Created Equal?*, Science Café, Lawrence Berkeley National Laboratory, June 1, 2011.
- *Probing Atmospheric Aerosols by Complementary Spectro-microscopic Methods*, Carbon Cycle 2.0, Lawrence Berkeley National Laboratory, May 19, 2011.
- *Complementary Spectro-microscopic Techniques: Chemical Characterization of Atmospheric Aerosols*, Analytical Applications and New Technical Developments in soft X-ray Spectroscopy, PacificChem Honolulu Hawaii, Dec 18, 2010.
- *Automated assay of internally mixed individual particles using X-ray Spectromicroscopy maps*, Analytical Applications and New Technical Developments in soft X-ray Spectroscopy, PacificChem Honolulu Hawaii, Dec 18, 2010 (R. C. Moffet)
- *Spectro-microscopic Characterization of Atmospheric Aging of Carbonaceous Particulates*, Environmental Chemistry of Aerosols, PacificChem Honolulu Hawaii, Dec 19, 2010
- *Spatially Resolved Iron Oxidation and Mixing of Atmospheric Particles from the Asian Continental Outflow*, Environmental Chemistry of Aerosols, PacificChem Honolulu Hawaii, Dec 19, 2010 (R. Moffet)

- *The Role of Aerosol Composition in Arctic Cloud Formation*, Environmental Chemistry of Aerosols, PacificChem Honolulu Hawaii, Dec 18, 2010 (S. Brooks)
- *Heterogeneous Ice Nucleation on Anthropogenic and Laboratory Generated Organic Particles*, Environmental Chemistry of Aerosols, PacificChem Honolulu Hawaii, Dec 19, 2010 (D. Knopf)
- *Spectro-Microscopy of Carbonaceous Particulates*: June 14, 2010, Goldschmidt Conference, Knoxville, Kentucky.\*
- *Probing Atmospheric Aerosols by Micro-Spectroscopic Methods*, September 11, 2009, UC Berkeley Environmental Engineering, Berkeley, CA.\*
- *Probing Atmospheric Aerosols by Micro-Spectroscopic Methods*, April 24, 2009, Chemistry Department Hebrew University of Jerusalem, Jerusalem, Israel.\*
- *Probing Atmospheric Aerosols by Micro-Spectroscopic Methods*, February 22, 2009, Department of Environmental Science, Weizmann Institute, Rehovot, Israel.\*
- *Black Carbons, Fresh, and Aged Biomass Burn Particulates*, 9th International Conference on Carbonaceous Particles in the Atmosphere (ICCP 2008), Lawrence Berkeley National Laboratory, August 12-14, 2008\*
- *Atmospheric Aerosols: Lessons from Single Particle Imaging*, Oct 13-14, 2008, Advanced Light Source Users Meeting Workshop on Energy and Environmental Science with Synchrotron Radiation, Berkeley, CA.\*
- *Spectromicroscopy of Single Particles: What Can We Learn?* Sept, 4, 2008, Georgia Institute of Technology, School of Earth and Atmospheric Sciences, Atlanta, GA.\*
- *Characterizing Black Carbons and Biomass Burn Particulates: Evidence for Oxygenated Interfaces on Aged Biomass Burn Particulates*, Physical Chemistry of Environmental Interfaces' Symposium, 235th ACS meeting, April 6-9, 2008, New Orleans, LA.
- *Exploring the Blackness of Black Carbons and Biomass Burn Particulates* AirUCI, NSF-funded Environmental Molecular Sciences Institute at UCI, Environmental Molecular Sciences Institute workshop, January 23 & 24, 2008, Newport Beach, CA.
- *Scanning Transmission X-ray Microscopy*, Joint SSRL/ALS Workshop: Introduction to Synchrotron Radiation Techniques, SLAC, September 30, 2007.\*
- *Diversity of Biomass Burn Aerosols Based on Fuel*, American Association of Aerosol Research, Reno, Nevada, September 24-28, 2007.
- *Exploring the "Blackness" of Black Carbons and Biomass Burn Particulates*, Department of Chemistry and Biochemistry, JILA, University of Colorado, September 8, 2007, Boulder, CO.\*
- *Single Particle STXM/NEXAFS*, FLAME Science Team Meeting, February 22-23, 2007, Ft. Collins, CO.
- *Probing Atmospheric Aerosols using Scanning Transmission X-ray Microscopy*, Advanced Light Source Users Meeting, October 9-11, 2006, Workshop: Introduction to Synchrotron Science, Berkeley, CA.\*
- *Analysis of Field Collected Individual Atmospheric Particle Using Multi-Analytical Microprobe Methods*, 7<sup>th</sup> International Aerosol Conference, American Association of Aerosol Research, St. Paul, Minnesota, September 19-21, 2006.
- *Scanning transmission x-ray microscopy: examining black carbon*, EMSL, Pacific Northwest National Laboratory, January 2006.\*
- *Scanning Transmission X-ray Microscopy: Can We Determine the Mixing States of Aerosols Containing Soot?* PacificChem Honolulu, Hawaii, December 2005.
- *Investigation of Atmospheric Aerosol Mixing States Using Scanning Transmission X-ray Microscopy*, American Association of Aerosol Research, Austin, Texas, Oct. 2005.



- *Investigation of Atmospheric Aerosols: Using Scanning Transmission X-ray Microscopy*, Synchrotron Environmental Science III, Synchrotron Environmental Sciences III, Brookhaven National Laboratory September 19-21, 2005, Brookhaven, NY, September 2005.\*
- *Scanning Transmission X-ray Microscopy: Atmospheric Aerosols*, Experimental Systems Group, Lawrence Berkeley National Laboratory, May, 2004 Berkeley, CA
- *Imaging of Single Particles: Scanning Transmission X-ray Microscopy*, Telluride Workshop on Atmospheric Aerosol Aging, Telluride, CO August 2004.\*
- *First Results from the Molecular Environmental Science Beamline 11.0.2 at the Advanced Light Source*, American Chemical Society National Meeting, New Orleans, LA March 2003.
- *Fate of Bromopropane in the Environment*, Photochemistry Meeting, Miami, FL June 2002.\*
- *Reaction of OH with CF<sub>3</sub>I: A Limit on the Enthalpy of Formation of HOI, ClO + OH and BrO + OH, Rate Coefficients and Atmospheric Implications*, International Kinetics Gas Symposium, Bilbao, Spain, September 1998.\*
- *Halogens in Action*, Weizmann Institute Rehovot, Israel, May 1998.\*
- *Halogens in Action*, Hebrew University, Jerusalem, Israel, May 1998.\*
- *Role of Iodine in Lower Stratospheric Chemistry*, U. Birmingham, UK, Sept 1995.
- *Women in Atmospheric Sciences*, Japan Women's U. Tokyo, Japan, March 1994.\*
- *Photoelectron Spectroscopy of Negative Ions*, Colorado School of Mines, Golden, CO, May 1993\*
- *Photoelectron Spectroscopy of Negative Ions*, U. Tokyo-Komaba, Japan, July 1992.
- *Photoelectron Spectroscopy of Negative Ions*, U. Kobe, Kobe, Japan, July 1992.
- *Photoelectron Spectroscopy of Negative Ions*, National Institute for Environmental Studies, Tsukuba, Japan, July 1992.

## Publications

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### Book Chapters

*Scanning Transmission X-ray Microscopy: Applications in Atmospheric Aerosol Research*, R. C. Moffet, A. V. Tivanski, M. K. Gilles in *Fundamentals and Applications of Aerosol Spectroscopy*, eds Ruth Signorell and Jonathan P. Reid, Boca Raton, CRC Taylor and Francis Books, Inc. (2010) pps 420-462.

### Refereed Publications (H index = 35, i10-index=62)

1. Knopf, D. A.; Alpert, P. A.; Wang, B.; O'Brien, R. E.; Kelly, S. T.; Laskin, A.; Gilles, M. K.; Moffet, R. C.: Micro-Spectroscopic Imaging and Characterization of Individually Identified Ice Nucleating Particles *Journal of Geophysical Research-Atmospheres*, submitted **2014**.
2. Nijem, N.; Bluhm, H.; Ng, M. L.; Kunz, M.; Leone, S. R.; Gilles, M. K.: Selective gas adsorption in the presence of water in reduced oxidation state unsaturated metal center HKUST-1. *Chemistry of Materials*, submitted **2014**.
3. O'Brien, R. E.; Neu, A.; Epstein, S. A.; MacMillan, A.; Nizkorodov, S.; Laskin, A.; Moffet, R. C.; Gilles, M. K.: Phase State and Physical Properties of Ambient and Laboratory Generated Secondary Organic Aerosol. *Geophysical Research Letters*, accepted **2014**.
4. Szymanski, C. J.; Prabhakaran, M.; Cosmin, M.; Xie, Y.; Ajay, K.; Gilles, M. K.; Kilcoyne, A. L.; Tyliszczak, T.; Hu, D.; Thevuthasan, S., *et. al.*: Shifts in

- oxidation states of cerium oxide nanoparticles detected inside intact alveolar epithelial cells by correlated x-ray and super resolution fluorescence microscopy. *ACS Nano*, submitted **2014**.
5. Hiranuma, N.; Brooks, S. D.; Moffet, R. C.; Glen, A.; Laskin, A.; Gilles, M. K.; Liu, P.; Macdonald, A. M.; Strapp, J. W.; McFarquhar, G. M.: Chemical characterization of individual particles and residuals of cloud droplets and ice crystals collected on board research aircraft in the ISDAC 2008 study. *J. Geophys. Res. Atmos.* **2013**, *118*, 6564. doi 10.1002/Jgrd.50484
  6. Kelly, S. T.; Nigge, P.; Prakash, S.; Laskin, A.; Wang, B.; Tyliszczak, T.; Leone, S. R.; Gilles, M. K.: An environmental sample chamber for reliable scanning transmission x-ray microscopy measurements under water vapor. *Rev. Sci. Instrum.* **2013**, *84*, 073708. doi: 10.1063/1.4816649
  7. Lundt, N.; Kelly, S. T.; Roedel, T.; Remez, B.; Schwartzberg, A. M.; Ceballos, A.; Baldasseroni, C.; Anastasi, P. A. F.; Cox, M.; Hellman, F., *et. al.*: High spatial resolution Raman thermometry analysis of TiO<sub>2</sub> microparticles. *Rev. Sci. Instrum.* **2013**, *84*, 073708.
  8. Moffet, R. C.; Rödel, T. C.; Kelly, S. T.; Yu, X. Y.; Carroll, G. T.; Gilles, M. K.: Spectro-microscopic measurements of carbonaceous aerosol aging in Central California. *Atmos. Chem. Phys.* **2013**, *13*, 10445. doi:10.5194/acp-13-10445-2013
  9. Laskin, A.; Moffet, R. C.; Gilles, M. K.; Fast, J. D.; Zaveri, R. A.; Wang, B.; Nigge, P.; Shutthanandan, J.: Tropospheric chemistry of internally mixed sea salt and organic particles: Surprising reactivity of NaCl with weak organic acids. *J. Geophys. Res. Atmos.* **2012**, *117*, D15302. doi:10.1029/2012JD017743
  10. Moffet, R. C.; Furutani, H.; Rodel, T. C.; Henn, T. R.; Sprau, P. O.; Laskin, A.; Uematsu, M.; Gilles, M. K.: Iron speciation and mixing in single aerosol particles from the Asian continental outflow. *J. Geophys. Res. Atmos.* **2012**, *117*, D07204. Doi 10.1029/2011jd016746
  11. Pohlker, C.; Wiedemann, K. T.; Sinha, B.; Shiraiwa, M.; Gunthe, S. S.; Smith, M.; Su, H.; Artaxo, P.; Chen, Q.; Cheng, Y., *et. al.*: Biogenic potassium salt particles as seeds for secondary organic aerosol in the Amazon. *Science* **2012**, *337*, 1075. 10.1126/science.1223264
  12. Wang, B.; Laskin, A.; Roedel, T.; Gilles, M. K.; Moffet, R. C.; Tivanski, A.; Knopf, D. A.: Heterogeneous ice nucleation and water uptake by field-collected atmospheric particles below 273 K. *J. Geophys. Res. Atmos.* **2012**, *117*, D00V19. doi:10.1029/2012JD017446
  13. Zaveri, R. A.; Shaw, W. J.; Cziczo, D. J.; Schmid, B.; Ferrare, R. A.; Alexander, M. L.; Alexandrov, M.; Alvarez, R. J.; Arnott, W. P.; Atkinson, D. B., *et. al.*: Overview of the 2010 Carbonaceous Aerosols and Radiative Effects Study (CARES). *Atmos. Chem. Phys.* **2012**, *12*, 7647. doi:10.5194/acp-12-7647-2012
  14. Liu, Y.; Minofar, B.; Desyaterik, Y.; Dames, E.; Zhu, Z.; Cain, J. P.; Hopkins, R. J.; Gilles, M. K.; Wang, H.; Jungwirth, P., *et. al.*: Internal structure, hygroscopic and reactive properties of mixed sodium methanesulfonate-sodium chloride particles. *PCCP* **2011**, *13*, 11846. doi: 10.1039/C1cp20444k
  15. McFarquhar, G. M.; Ghan, S.; Verlinde, J.; Korolev, A.; Strapp, J. W.; Schmid, B.; Tomlinson, J. M.; Wolde, M.; Brooks, S. D.; Cziczo, D., *et. al.*: Indirect and

- Semi-Direct Aerosol Campaign: The impact of arctic aerosols on clouds. *B. Am. Meteorol. Soc.* **2011**, *92*, 183. doi: 10.1175/2010bams2935.1
16. Moore, M. J. K.; Furutani, H.; Roberts, G. C.; Moffet, R. C.; Gilles, M. K.; Palenik, B.; Prather, K. A.: Effect of organic compounds on cloud condensation nuclei (CCN) activity of sea spray aerosol produced by bubble bursting. *Atmos. Environ.* **2011**, *45*, 7462. doi: 10.1016/J.Atmosenv.2011.04.034
  17. Caster, A. G.; Kowarik, S.; Schwartzberg, A. M.; Leone, S. R.; Tivanski, A.; Gilles, M. K.: Quantifying reaction spread and x-ray exposure sensitivity in hydrogen silsesquioxane latent resist patterns with x-ray spectromicroscopy. *J. Vac. Sci. Technol. B* **2010**, *28*, 1304. doi: 10.1116/1.3514124
  18. Knopf, D. A.; Wang, B.; Laskin, A.; Moffet, R. C.; Gilles, M. K.: Heterogeneous nucleation of ice on anthropogenic organic particles collected in Mexico City. *Geophys. Res. Lett.* **2010**, *37*, L11803. doi: 10.1029/2010gl043362
  19. Moffet, R. C.; Henn, T.; Laskin, A.; Gilles, M. K.: Automated chemical analysis of internally mixed aerosol particles using X-ray spectromicroscopy at the carbon K-edge. *Anal. Chem.* **2010**, *82*, 7906. doi: 10.1021/Ac1012909
  20. Moffet, R. C.; Henn, T. R.; Tivanski, A. V.; Hopkins, R. J.; Desyaterik, Y.; Kilcoyne, A. L. D.; Tylliszczak, T.; Fast, J.; Barnard, J.; Shutthanandan, V., *et. al.*: Microscopic characterization of carbonaceous aerosol particle aging in the outflow from Mexico City. *Atmos. Chem. Phys.* **2010**, *10*, 961. <http://www.atmos-chem-phys.net/10/961/2010/>
  21. Pratt, K. A.; Twohy, C. H.; Murphy, S. M.; Moffet, R. C.; Heymsfield, A. J.; Gaston, C. J.; DeMott, P. J.; Field, P. R.; Henn, T. R.; Rogers, D. C., *et. al.*: Observation of playa salts as nuclei in orographic wave clouds. *J. Geophys. Res. Atmos.* **2010**, *115*, D15301. doi: 10.1029/2009JD013606
  22. Zaveri, R. A.; Berkowitz, C. M.; Brechtel, F. J.; Gilles, M. K.; Hubbe, J. M.; Jayne, J. T.; Kleinman, L. I.; Laskin, A.; Madronich, S.; Onasch, T. B., *et. al.*: Nighttime chemical evolution of aerosol and trace gases in a power plant plume: Implications for secondary organic nitrate and organosulfate aerosol formation, NO<sub>3</sub> radical chemistry, and N<sub>2</sub>O<sub>5</sub> heterogeneous hydrolysis. *J. Geophys. Res. Atmos.* **2010**, *115*, D12304. doi: 10.1029/2009jd013250
  23. Cody, G. D.; Ade, H.; Alexander, C. M. O.; Araki, T.; Butterworth, A.; Fleckenstein, H.; Flynn, G.; Gilles, M. K.; Jacobsen, C.; Kilcoyne, A. L. D., *et. al.*: Quantitative organic and light-element analysis of comet 81P/Wild 2 particles using C-, N-, and O-mu-XANES. *Meteorit. Planet. Sci.* **2008**, *43*, 353.
  24. de Smit, E.; Swart, I.; Creemer, J. F.; Hoveling, G. H.; Gilles, M. K.; Tylliszczak, T.; Kooyman, P. J.; Zandbergen, H. W.; Morin, C.; Weckhuysen, B. M., *et. al.*: Nanoscale chemical imaging of a working catalyst by scanning transmission X-ray microscopy. *Nature* **2008**, *456*, 222. doi:10.1038/nature07516
  25. Doran, J. C.; Fast, J. D.; Barnard, J. C.; Laskin, A.; Desyaterik, Y.; Gilles, M. K.: Applications of Lagrangian dispersion modeling to the analysis of changes in the specific absorption of elemental carbon. *Atmos. Chem. Phys.* **2008**, *8*, 1377. <http://www.atmos-chem-phys.net/8/1377/2008/>
  26. Hopkins, R. J.; Desyaterik, Y.; Tivanski, A. V.; Zaveri, R. A.; Berkowitz, C. M.; Tylliszczak, T.; Gilles, M. K.; Laskin, A.: Chemical speciation of sulfur in marine cloud droplets and particles: Analysis of individual particles from the marine

- boundary layer over the California current. *J. Geophys. Res. Atmos.* **2008**, *113*, D04209. doi: 10.1029/2007JD008954
27. Moffet, R. C.; Desyaterik, Y.; Hopkins, R. J.; Tivanski, A. V.; Gilles, M. K.; Wang, Y.; Shutthanandan, V.; Molina, L. T.; Abraham, R. G.; Johnson, K. S., *et. al.*: Characterization of aerosols containing Zn, Pb, and Cl from an industrial region of Mexico City. *Environmental Science & Technology* **2008**, *42*, 7091. doi: 10.1021/Es7030483
  28. Davis, M. E.; Gilles, M. K.; Ravishankara, A. R.; Burkholder, J. B.: Rate coefficients for the reaction of OH with (E)-2-pentenal, (E)-2-hexenal, and (E)-2-heptenal. *PCCP* **2007**, *9*, 2240. doi: 10.1039/B700235a
  29. Hopkins, R. J.; Lewis, K.; Desyaterik, Y.; Wang, Z.; Tivanski, A. V.; Arnott, W. P.; Laskin, A.; Gilles, M. K.: Correlations between optical, chemical, and physical properties of biomass burn aerosols. *Geophys. Res. Lett.* **2007**, *34*, L18806. doi: 10.1029/2007GL030502
  30. Hopkins, R. J.; Tivanski, A. V.; Marten, B. D.; Gilles, M. K.: Chemical bonding and structure of black carbon reference materials and individual carbonaceous atmospheric aerosols. *J. Aerosol Sci* **2007**, *38*, 573.
  31. Michelsen, H. A.; Tivanski, A. V.; Gilles, M. K.; van Poppel, L. H.; Dansson, M. A.; Buseck, P. R.: Particle formation from pulsed laser irradiation of soot aggregates studied with a scanning mobility particle sizer, a transmission electron microscope, and a scanning transmission x-ray microscope. *Appl. Opt.* **2007**, *46*, 959.
  32. Tivanski, A. V.; Hopkins, R. J.; Tyliczszak, T.; Gilles, M. K.: Oxygenated interface on biomass burn tar balls determined by single particle scanning transmission X-ray microscopy. *J. Phys. Chem. A* **2007**, *111*, 5448. doi: 10.1021/Jp070155u
  33. Bluhm, H.; Andersson, K.; Araki, T.; Benzerara, K.; Brown Jr., G. E.; Dynes, J. J.; Ghosal, S.; Gilles, M. K.; Hansen, H. C.; Hemminger, J. C., *et. al.*: Soft x-ray microscopy and spectroscopy at the molecular environmental science beamline at the Advanced Light Source. *J. Electron. Spectrosc. Relat. Phenom.* **2006**, *150*, 86. doi:10.1016/j.elspec.2009.08.006
  34. Brownlee, D.; Tsou, P.; Aleon, J.; Alexander, C. M. O.; Araki, T.; Bajt, S.; Baratta, G. A.; Bastien, R.; Bland, P.; Bleuet, P., *et. al.*: Research article - Comet 81P/Wild 2 under a microscope. *Science* **2006**, *314*, 1711. doi: 10.1126/Science.1135840
  35. De Stasio, G.; Rajesh, D.; Ford, J. M.; Daniels, M.; Erhardt, R.; Frazer, B. H.; Tyliczszak, T.; Gilles, M. K.; Conhaim, R. L.; Howard, S. P., *et. al.*: Motexafin-gadolinium taken up in vitro by at least 90% of glioblastoma cell nuclei. *Clin. Cancer. Res.* **2006**, *12*, 206. doi: 10.1158/1078-0432.Ccr-05-0743
  36. Drake, I. J.; Zhang, Y. H.; Gilles, M. K.; Liu, C. N. T.; Nachimuthu, P.; Perera, R. C. C.; Wakita, H.; Bell, A. T.: An in situ Al K-edge XAS investigation of the local environment of H<sup>+</sup> and Cu<sup>+</sup> exchanged USY and ZSM-5 zeolites. *J. Phys. Chem. B* **2006**, *110*, 11665. Doi 10.1021/Jp058244z
  37. Drake, I. J.; Zhang, Y. H.; Gilles, M. K.; Liu, C. N. T.; Nachimuthu, P.; Perera, R. C. C.; Wakita, H.; Bell, A. T.: An in situ Al K-edge XAS investigation of the

- local environment of H<sup>+</sup> and Cu<sup>+</sup> exchanged USY and ZSM-5 zeolites (vol 110 B, pg 11672, 2006). *J. Phys. Chem. B* **2006**, *110*, 18072. Doi 10.1021/Jp068083e
38. Olynick, D. L.; Liddle, J. A.; Tivanski, A. V.; Gilles, M. K.; Tyliszczak, T.; Salmassi, F.; Liang, K.; Leone, S. R.: Scanning x-ray microscopy investigations into the electron-beam exposure mechanism of hydrogen silsesquioxane resists. *J. Vac. Sci. Technol., B* **2006**, *24*, 3048. doi: 10.1116/1.2395957
  39. Sandford, S. A.; Aleon, J.; Alexander, C. M. O.; Araki, T.; Bajt, S.; Baratta, G. A.; Borg, J.; Bradley, J. P.; Brownlee, D. E.; Brucato, J. R., *et. al.*: Organics captured from comet 81P/Wild 2 by the Stardust spacecraft. *Science* **2006**, *314*, 1720. doi: 10.1126/Science.1135841
  40. Cappa, C. D.; Smith, J. D.; Wilson, K. R.; Messer, B. M.; Gilles, M. K.; Cohen, R. C.; Saykally, R. J.: Effects of alkali metal halide salts on the hydrogen bond network of liquid water. *J. Phys. Chem. B* **2005**, *109*, 7046. doi: 10.1021/jp0445324
  41. De Stasio, G.; Rajesh, D.; Casalbore, P.; Daniels, M. J.; Erhardt, R. J.; Frazer, B. H.; Wiese, L. M.; Richter, K. L.; Sonderegger, B. R.; Gilbert, B., *et. al.*: Are gadolinium contrast agents suitable for gadolinium neutron capture therapy? *Neurol. Res.* **2005**, *27*, 387. doi: 10.1179/016164105x17206
  42. Messer, B. M.; Cappa, C. D.; Smith, J. D.; Wilson, K. R.; Gilles, M. K.; Cohen, R. C.; Saykally, R. J.: pH dependence of the electronic structure of glycine. *J. Phys. Chem. B* **2005**, *109*, 5375. doi: 10.1021/Jp0457592
  43. Muntean, L.; Planques, R.; Kilcoyne, A. L. D.; Leone, S. R.; Gilles, M. K.; Hinsberg, W. D.: Chemical mapping of polymer photoresists by scanning transmission x-ray microscopy. *J. Vac. Sci. Technol., B* **2005**, *23*, 1630. doi: 10.1116/1.1978899
  44. Russell, L.; Maria, S. F.; Gilles, M. K.; Myneni, S. C. B.: Organic aerosol growth mechanisms. *Abstr Pap Am Chem S* **2005**, *229*, U92.
  45. Drake, I. J.; Liu, T. C. N.; Gilles, M.; Tyliszczak, T.; Kilcoyne, A. L. D.; Shuh, D. K.; Mathies, R. A.; Bell, A. T.: An in situ cell for characterization of solids by soft x-ray absorption. *Rev. Sci. Instrum.* **2004**, *75*, 3242. doi: 10.1063/1.1791320
  46. Maria, S. F.; Russell, L. M.; Gilles, M. K.; Myneni, S. C. B.: Organic aerosol growth mechanisms and their climate-forcing implications. *Science* **2004**, *306*, 1921. doi; 10.1126/Science.1103491
  47. Gierczak, T.; Gilles, M. K.; Bauerle, S.; Ravishankara, A. R.: Reaction of hydroxyl radical with acetone. 1. Kinetics of the reactions of OH, OD, and O<sup>18</sup>H with acetone and acetone-d(6). *J. Phys. Chem. A* **2003**, *107*, 5014. doi: 10.1021/Jp027301a
  48. Jimenez, E.; Gilles, M. K.; Ravishankara, A. R.: Kinetics of the reactions of the hydroxyl radical with CH<sub>3</sub>OH and C<sub>2</sub>H<sub>5</sub>OH between 235 and 360 K. *J. Photoch. Photobio. A* **2003**, *157*, 237. doi: 10.1016/S1010-6030(03)00073-X
  49. McCabe, D. C.; Brown, S. S.; Gilles, M. K.; Talukdar, R. K.; Smith, I. W. M.; Ravishankara, A. R.: Kinetics of the removal of OH(v = 1) and OD(v = 1) by HNO<sub>3</sub> and DNO<sub>3</sub> from 253 to 383 K. *J. Phys. Chem. A* **2003**, *107*, 7762. doi: 10.1021/Jp0346413
  50. Burkholder, J. B.; Gilles, M. K.; Gierczak, T.; Ravishankara, A. R.: The atmospheric degradation of 1-bromopropane (CH<sub>3</sub>CH<sub>2</sub>CH<sub>2</sub>Br): The

- photochemistry of bromoacetone. *Geophys. Res. Lett.* **2002**, *29*. doi: 10.1029/2002gl014712
51. Gilles, M. K.; Burkholder, J. B.; Gierczak, T.; Marshall, P.; Ravishankara, A. R.: Rate coefficient and product branching measurements for the reaction OH plus bromopropane from 230 to 360 K. *J. Phys. Chem. A* **2002**, *106*, 5358. doi: 10.1021/Jp014736+
  52. \*Gilles, M. K.; McCabe, D. C.; Burkholder, J. B.; Ravishankara, A. R.: Measurement of the rate coefficient for the reaction of OH with BrO. *J. Phys. Chem. A* **2001**, *105*, 5849.
  53. Talukdar, R. K.; Mellouki, A.; Burkholder, J. B.; Gilles, M. K.; Le Bras, G.; Ravishankara, A. R.: Quantification of the tropospheric removal of chloral (CCl<sub>3</sub>CHO): Rate coefficient for the reaction with OH, UV absorption cross sections, and quantum yields. *J. Phys. Chem. A* **2001**, *105*, 5188.
  54. \*Gilles, M. K.; Ravishankara, A. R.: Upper limit for the rate coefficient for the reaction of OH with N<sub>2</sub>O<sub>5</sub>. *PCCP* **2000**, *2*, 4045.
  55. Gilles, M. K.; Talukdar, R. K.; Ravishankara, A. R.: Rate coefficients for the OH+CF<sub>3</sub>I reaction between 271 and 370 K. *J. Phys. Chem. A* **2000**, *104*, 8945. doi: 10.1021/Jp001827i
  56. Gilles, M. K.; Burkholder, J. B.; Ravishankara, A. R.: Rate coefficients for the reaction of OH with Cl<sub>2</sub>, Br<sub>2</sub>, and I<sub>2</sub> from 235 to 354 K. *Int. J. Chem. Kinet.* **1999**, *31*, 417.
  57. Kegley-Owen, C. S.; Gilles, M. K.; Burkholder, J. B.; Ravishankara, A. R.: Rate coefficient measurements for the reaction OH + ClO → products. *J. Phys. Chem. A* **1999**, *103*, 5040.
  58. Loomis, R. A.; Leone, S. R.; Gilles, M. K.: Novel five-membered ring intermediates in gas phase reactions. *Res. Chem. Intermed.* **1998**, *24*, 707.
  59. Talukdar, R. K.; Longfellow, C. A.; Gilles, M. K.; Ravishankara, A. R.: Quantum yields of O(<sup>1</sup>D) in the photolysis of ozone between 289 and 329 nm as a function of temperature. *Geophys. Res. Lett.* **1998**, *25*, 143.
  60. Gilles, M. K.; Turnipseed, A. A.; Burkholder, J. B.; Ravishankara, A. R.: A study of the Br + IO → I + BrO and the reverse reaction. *Chem. Phys. Lett.* **1997**, *272*, 75.
  61. Gilles, M. K.; Turnipseed, A. A.; Burkholder, J. B.; Ravishankara, A. R.; Solomon, S.: Kinetics of the IO radical 2: Reaction of IO with BrO. *J. Phys. Chem. A* **1997**, *101*, 5526.
  62. Goldfarb, L.; Schmoltner, A. M.; Gilles, M. K.; Burkholder, J. B.; Ravishankara, A. R.: Photodissociation of ClONO<sub>2</sub> 1: Atomic resonance fluorescence measurements of product quantum yields. *J. Phys. Chem. A* **1997**, *101*, 6658.
  63. Talukdar, R. K.; Burkholder, J. B.; Hunter, M.; Gilles, M. K.; Roberts, J. M.; Ravishankara, A. R.: Atmospheric fate of several alkyl nitrates 2: UV absorption cross-sections and photodissociation quantum yields. *J. Chem. Soc. Faraday Trans.* **1997**, *93*, 2797.
  64. Talukdar, R. K.; Gilles, M. K.; BattinLeclerc, F.; Ravishankara, A. R.; Fracheboud, J. M.; Orlando, J. J.; Tyndall, G. S.: Photolysis of ozone at 308 and 248 nm: Quantum yield of O(<sup>1</sup>D) as a function of temperature. *Geophys. Res. Lett.* **1997**, *24*, 1091.

65. Turnipseed, A. A.; Gilles, M. K.; Burkholder, J. B.; Ravishankara, A. R.: Kinetics of the IO radical 1: Reaction of IO with ClO. *J. Phys. Chem. A* **1997**, *101*, 5517.
66. Gilles, M. K.; Turnipseed, A. A.; Talukdar, R. K.; Rudich, Y.; Villalta, P. W.; Huey, L. G.; Burkholder, J. B.; Ravishankara, A. R.: Reactions of O(<sup>3</sup>P) with alkyl iodides: Rate coefficients and reaction products. *J. Phys. Chem.* **1996**, *100*, 14005.
67. Turnipseed, A. A.; Gilles, M. K.; Burkholder, J. B.; Ravishankara, A. R.: LIF Detection of IO and the Rate Coefficients for I + O<sub>3</sub> and IO + NO Reactions. *Chem. Phys. Lett.* **1995**, *242*, 427.
68. Yokelson, R. J.; Burkholder, J. B.; Goldfarb, L.; Fox, R. W.; Gilles, M. K.; Ravishankara, A. R.: Temperature-Dependent Rate Coefficient for the Cl + ClONO<sub>2</sub> Reaction. *J. Phys. Chem.* **1995**, *99*, 13976.
69. Gilles, M. K.; Lineberger, W. C.; Ervin, K. M.: Photoelectron spectroscopy of the monofluorovinylidene and difluorovinylidene anions - the monofluorovinylidene-fluoroacetylene rearrangement. *J. Am. Chem. Soc.* **1993**, *115*, 1031.
70. Polak, M. L.; Gilles, M. K.; Gunion, R. F.; Lineberger, W. C.: Photoelectron-Spectroscopy of PbO<sup>-</sup>. *Chem. Phys. Lett.* **1993**, *210*, 55.
71. Gilles, M. K.; Ervin, K. M.; Ho, J.; Lineberger, W. C.: Negative ion photoelectron spectroscopy of HCF<sup>-</sup>, HCCl<sup>-</sup>, HCB<sup>-</sup>, and HCl<sup>-</sup>: Photoelectron angular distributions and neutral triplet excitation energies. *J. Phys. Chem.* **1992**, *96*, 1130.
72. Gilles, M. K.; Polak, M. L.; Lineberger, W. C.: Photoelectron spectroscopy of the halogen oxide anions FO<sup>-</sup>, ClO<sup>-</sup>, BrO<sup>-</sup>, IO<sup>-</sup>, OClO<sup>-</sup>, and OIO<sup>-</sup>. *J. Chem. Phys.* **1992**, *96*, 8012.
73. Gunion, R. F.; Gilles, M. K.; Polak, M. L.; Lineberger, W. C.: Ultraviolet photoelectron spectroscopy of the phenide, benzyl and phenoxide anions, with ab initio calculations. *Int. J. Mass Spectrom. Ion Processes* **1992**, *117*, 601.
74. Polak, M. L.; Gilles, M. K.; Lineberger, W. C.: Photoelectron-Spectroscopy of SF<sup>-</sup>. *J. Chem. Phys.* **1992**, *96*, 7191.
75. Gilles, M. K.; Polak, M. L.; Lineberger, W. C.: Photoelectron spectroscopy of IO<sup>-</sup>. *J. Chem. Phys.* **1991**, *95*, 4723.
76. Ho, J.; Ervin, K. M.; Polak, M. L.; Gilles, M. K.; Lineberger, W. C.: A study of the electronic structures of Pd<sub>2</sub><sup>-</sup> and Pd<sub>2</sub> by photoelectron spectroscopy. *J. Chem. Phys.* **1991**, *95*, 4845.
77. Polak, M. L.; Gilles, M. K.; Ho, J.; Lineberger, W. C.: Photoelectron spectroscopy of CuO<sup>-</sup>. *J. Phys. Chem.* **1991**, *95*, 3460.
78. Ervin, K. M.; Gronert, S.; Barlow, S. E.; Gilles, M. K.; Harrison, A. G.; Bierbaum, V. M.; Depuy, C. H.; Lineberger, W. C.; Ellison, G. B.: Bond Strengths of Ethylene and Acetylene. *J. Am. Chem. Soc.* **1990**, *112*, 5750.

#### ***Non-refereed Publications***

1. Y. Desyaterik, R. J. Hopkins, A. V. Tivanski, C.M. Berkowitz, M. K. Gilles, A. Laskin, *Chemical Speciation of Sulfur in Marine Cloud Droplets and Particles: 1. Analysis of Individual Particles Using Complementary Microprobe Methods*, *Eos Trans. AGU*, 87(52), Fall Meet. Supplement, Abstract A33A-0938.

2. R. J. Hopkins, A. V. Tivanski, Y., Desyaterik, A. Laskin, A., Gilles, M K., *Chemical Speciation of Sulfur in Marine Cloud Droplets and Particles: 2. Partitioning of Methanesulfonate and non-Sea Salt Sulfate in Individual Sea Salt Particles*, *EOS Trans. AGU*, 87(52), *Fall Meeting Supplement*, Abstract A33A-0939
3. H. Bluhm, M. K. Gilles, S. Mun, T. Tyliczszak, *Novel Approaches to Soft X-ray Spectroscopy: Scanning transmission X-ray Microscopy and Ambient Pressure X-ray Photoelectron Spectroscopy*, *Synch. Rad. News* 19(11) 9-10 (2005). LBNL-59749
4. T. Warwick, N. Andresen, J. Comins, A. Franck, M. Gilles, T. Tonnessen, and T. Tyliczszak, *Large Aperture Micro-focus KB Mirrors for Spectroscopy Experiments at the Advanced light source*, *Synchrotron Radiation Instrumentation*, AIP Conference Proceedings 705, 772-775 (2003). LBNL-54377
5. T. Gierczak, M. K. Gilles, R. K. Talukdar, S. Bauerle, A. R. Ravishankara, *Atmospheric OH Reactions: Simple to Complex Pathways and their Consequences*, *Abs. Am. Chem. Soc.* 233, 95 (2002).
6. T. Warwick, H. Ade, S. Farkra, M. Gilles, A. Hitchcock, D. Kilcoyne, D. Shuh, and T. Tyliczszak, *Further development of soft X-ray Scanning Microscopy with an Elliptical Undulator at the Advanced Light Source*, *Synchrotron Radiation News*, 16, 22-27 (2003).

**Abstracts (refereed)**

Investigations into the Exposure Mechanism of Hydrogen Silsesquioxane Resists

D. L. Olynick, A. V. Tivanski, M. K. Gilles, T. Tyliczszak, K. Liang, S. R. Leone and J. A. Liddle, 50<sup>th</sup> International Conference on Electron, Ion and Photon Beam Technology and Nanofabrication

**Other Oral Presentations of Recent Work (presenter)**

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- Ryan Moffet, Alexander Laskin, and Mary Gilles, *Microscopic Analysis of Aerosols Collected During the CARES Campaign*, Atmospheric Systems Research Program Meeting, March 12-15, 2013 Bolger Center, Washington D.C.
- Ryan Moffet, Tobias R. Henn, Rebecca Hopkins, Alexei Tivanski, Yury Desyaterik, Jerome Fast, V. Shutthanandan, A. Laskin and M. K. Gilles, *Microscopic Characterization of Carbonaceous Aerosol Aging In the Outflow from Mexico City*, 13th IACIS International Conference on Surface and Colloid Science and the 83rd ACS Colloid & Surface Science Symposium, June 14-19, 2009 New York, New York.
- Ryan Moffet, Mary K. Gilles and Alexander Laskin, *CCN and Microscopy Summary for ISDAC*, Atmospheric Radiation Monitoring Program Annual Meeting, March 29-31, 2009, Louisville, KY.
- Ryan Moffet, Tobias R. Henn, Alexei V. Tivanski, Rebecca J. Hopkins, Yury Desyaterik, J. D. Fast, J. C. Barnard, V. Shutthanandan, Alexander Laskin, Mary K. Gilles, *Microscopic Characterization of the Carbonaceous Aerosol Aging in the Outflow from Mexico City*, American Geophysical Union Joint Assembly, May 24-27, 2009, Toronto, Canada.
- Ryan Moffet, Tobias R. Henn, Alexei V. Tivanski, Rebecca J. Hopkins, Yury Desyaterik, J. D. Fast, J. C. Barnard, V. Shutthanandan, Alexander Laskin, Mary K. Gilles, *Microscopic Characterization of the Carbonaceous Aerosol Aging in the Outflow from Mexico City*, Atmospheric Science Program Annual Meeting, February 25-27, 2009, Santa Fe, New Mexico.
- Ryan Moffet, Mary K. Gilles and Alexander Laskin, *Atmospheric CCN and Microscopy Summary for ISDAC Golden Day (4/26/08-4/27/08)*, Science Program Annual Meeting, February 25-27, 2009, Santa Fe, New Mexico.
- Alexander Laskin, Ryan Moffet, Tobias Henn, J. Fast and M. K. Gilles *Microscopy Analysis of Fine Mineral Dust Particles in Soils from the Atacama Desert*, Atmospheric Science Program Annual Meeting, February 25-27, 2009, Santa Fe, New Mexico.



- Ryan Moffet, Yury Desyaterik, Alexi Tivanski, Rebecca Hopkins, Alexander Laskin, Mary Gilles, *A Lagrangian Study Aging of Carbonaceous Aerosols from Mexico City Using Soft X-Ray Spectromicroscopy*, American Physical Society, New Orleans, LA, March 2009.
- Mary K. Gilles, Rebecca J. Hopkins, Alexei V. Tivanski, Tolek Tyliczszak, Bryan Marten, Zi Wang, Yury Desyaterik, Alex Laskin, *Characterizing black carbons and biomass burn particulates: Evidence for oxygenated interfaces on aged biomass burn particulates*, American Chemical Society, April 6-10 2008, New Orleans, LA.
- Mary K. Gilles, *Soots and Black Carbon: the Fresh, the Old and the Oxygenated*, Atmospheric Science Program Annual Meeting (BER), February 25-27, 2008, Annapolis, Maryland.
- Ryan C. Moffet, Alexei Tivanski, Rebecca Hopkins, Yury Desyaterik, Jerome Fast, James Barnard, Alexander Laskin, Mary K. Gilles, *Aging of an Urban Plume*, Atmospheric Science Program Annual Meeting (BES), February 25-27, 2008, Annapolis, Maryland.
- M. K. Gilles, R. J. Hopkins, Z. Wang, A. V. Tivanski, K. Lewis, W.P. Arnott, Y. Desyaterik, A. Laskin, *Diversity of Biomass Burn Aerosols Based on Fuel*, American Association for Aerosol Research, September 24-29, 2007, Reno, NV.
- Y. Desyaterik, R. J. Hopkins, A. V. Tivanski, M. K. Gilles, A. Laskin, *Partitioning of Methanesulfonate and Non-Sea-Salt Sulfate in Individual Sea Salt Particles Collected at the Pt. Reyes National Seashore*, Air UCI workshop, Christchurch, New Zealand, December 10-14, 2006.
- Y. Desyaterik, A. Laskin, R. J. Hopkins, A. V. Tivanski, and M. K. Gilles, *Partitioning of Methanesulfonate and Non-Sea-Salt Sulfate in Individual Sea Salt Particles Collected at the Pt. Reyes National Seashore*, Department of Energy Atmospheric Science Program Annual Science Team Meeting, October 25-27, 2006, Boulder, CO.
- A. V. Tivanski, R. J. Hopkins, M. K. Gilles, *Size-dependent chemical composition of individual organic aerosol particles studied with scanning transmission X-ray microscopy*, American Chemical Society National Meeting September 10-14, 2006, San Francisco, CA.
- R. J. Hopkins, A. V. Tivanski, B. D. Marten, M. K. Gilles, *Black Carbon in the Atmosphere*, 232nd American Chemical Society National Meeting September 10-14, 2006, San Francisco, CA.
- L. M. Russell, S. Gilardoni, S. Takahama, M. K. Gilles, *Microscopy and Spectroscopy of Organic Functional Groups in Atmospheric Particles*, American Association for the Advancement of Science, Pacific Division, San Diego, June 19, 2006.
- B. D. Marten, R. J. Hopkins, A.V. Tivanski, M. K. Gilles, *Extracting Chemical Information on the Smog in Mexico City One Nano-particle at a Time*, Lawrence Berkeley National Laboratory Science Teacher Professional Development Program, Summer 2006, Berkeley, CA.
- D. L. Olynick, J. A. Liddle, A. V. Tivanski, M. K. Gilles, T. Tyliczszak, F. Salmassi, K. Liang and S. R. Leone, *Investigation into the Exposure Mechanisms of Hydrogen Silsesquioxane Resists: HSQ-Friend or Foe?*, 50th International Conference on Electron, Ion, and Photon Beam Technology and Nanofabrication, May 30-June 1, 2006, Baltimore, MD.

### Poster Presentations

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- C. Szymanski, C. Mihai, Y. Xie, P. Munusamy, A. Karakoti, D. Hu, M. Gilles, D. Kilcoyne, T. Tyliczszak, T. Thevuthasan, D. Baer, G. Orr, *Shifts in oxidation states of cerium oxide nanoparticles detected inside living cells by correlated x-ray and super resolution fluorescence microscopy*, American Chemical Society Meeting, San Francisco, August 2014.
- R. E. O'Brien, N. Sharma, D. Pham, R. Zaveri, J. Shilling, C. Mazzoleni, A. Laskin, M. K. Gilles, R. C. Moffet, *Chemical Composition and Morphological Characteristics of Ambient and Laboratory Generated Soot Particles*, Goldschmidt Conference, Sacramento 2014.

- R. E. O'Brien, B. Wang, A. Laskin, M. West, N. Riemer, M. K. Gilles, R. C. Moffet, *Spectro-Microscopy of Ambient Aerosol Particles: Observational Constraints on Mixing State Parameterization*, Goldschmidt Conference, Sacramento 2014.
- D. Yancey Piens, R. E. O'Brien, M. K. Gilles, *Automated characterization of single aerosol particle mixing state*, Science Undergraduate Laboratory Internship (SULI) Poster Session, May 2014 LBNL.
- S. Christensen, S. T. Kelly, M. K. Gilles, T. Tyliczszak, C. Beall, K. Jones, I. Repins, *Structural investigations of  $Cu_2ZnSnSe_4$  in the bulk and at interfaces using X-ray absorption spectroscopy*, Material Research Sciences, Spring 2014.
- R. O'Brien, N. Sharma, D. Pham, R. Zaveri, J. Shilling, C. Mazzoleni, A. Laskin, M. K. Gilles, R. C. Moffet, *Chemical Composition and Morphological Characteristics of Ambient and Laboratory Generated Soot Particles*, Atmospheric Systems Research Program Meeting, Spring 2014.
- R. A. Zaveri, J. E. Shilling, M. Pekour, G. Kulkarni, D. Chand, J. Wilson, A. Zelenyuk-Imre, A. Laskin, S. Liu, A. Aiken, M. Dubey, R. Subramanian, N. Sharma, S. China, Claudio Mazzoleni, A. Sedlacek, T. Onasch, R. Sellon, M. Gilles, R. Moffet, *An Early Overview of the Soot Aerosol Aging Study (SAAS) Laboratory Campaign*, Atmospheric Systems Research Program Meeting, Spring 2014
- B. Wang, R. E. O'Brien, S. T. Kelly, J. Shilling, A. V. Tivanski, R. C. Moffet, M. K. Gilles, and A. Laskin, *Reactivity of Water Soluble Organic Acids with Chloride and Nitrate Particles Investigated by Micro-spectroscopy Analysis*, American Geophysical Union San Francisco December 2013.
- D. A. Knopf, P. A. Alpert, B. Wang, R. O'Brien, R. C. Moffet, J. Y. Aller, A. Laskin, M. K. Gilles, *Micro-spectroscopic chemical imaging of individual identified marine biogenic and ambient organic ice nuclei*, American Geophysical Union San Francisco December 2013.
- B. Wang, S. T. Kelly, R. Sellon, J. Shilling, A. V. Tivanski, R. C. Moffet, M. K. Gilles, and A. Laskin, *Reactivity of Water Soluble Organic Acids with Inorganic Particles Investigated by Micro-spectroscopy Analysis*, AAAR Portland, OR October 2013.
- R. O'Brien, B. Wang, S. Kelly, N. Lundt, Y. You, A. Laskin, A. Bertram, R. C. Moffet, M. K. Gilles, *Spectro-microscopic Characterization of Liquid-Liquid Phase Separation in Aerosols*, Gordon Conference on Atmospheric Chemistry, August 2013, West Dover, Vermont.
- N. Nijem, M. K. Gilles, *Functional HKUST Metal Organic Framework thin films for  $CO_2$  separation*, Gordon Conference on Nanoporous Materials, Holderness, New Hampshire, August 2013
- B. Wang, R. O'Brien, S. T. Kelly, J. Shilling, A. Tivanski, R. C. Moffet, M. K. Gilles, A. Laskin, *Field and laboratory studies of reactions between atmospheric water soluble organic acids and inorganic particles*. Gordon Conference on Atmospheric Chemistry, August 2013, West Dover, Vermont.
- C. Swain, Z. Jindal, N. Nijem, M. K. Gilles, *Synthetic Parameters Influencing the Formation of Metal Organic Thin Films*, Science Undergraduate Laboratory Internship (SULI) Poster Session, April 30, 2013 LBNL.
- A. T. Neu, R. E. O'Brien, S. A. Epstein, S. A. Nizkordov, R. C. Moffet, M. K. Gilles, *Phase State Determination of Laboratory-Generated and Ambient Secondary Organic Aerosols*, Science Undergraduate Laboratory Internship (SULI) Poster Session, April 30, 2013 LBNL.
- N. Lundt, S. T. Kelly, B. Remez, A. M. Schwartzberg, M. K. Gilles, *Sub-micron Spatially Resolved Temperature Measurements*, Material Research Society, April 1-5, 2013, San Francisco, CA.
- A. Laskin, R. C. Moffet, M. K. Gilles, J. D. Fast, R. A. Zaveri, B. Wang, J. Shutthanandan, *Atmospheric Aging of Internally Mixed Sea Salt and Organic Particles: Surprising Reactivity of NaCl with Weak Organic Acids*, Atmospheric System Research Program Meeting, March 12-15, 2013 Bolger Center, Washington D.C.

- B. Wang, R. Sellon, S. Kelly, J. Shilling, A. Tivanski, R.C. Moffet, M. K. Gilles, A. Laskin, *Reactivity of NaCl with Secondary Organic Acids: An Important Mechanism of the Chloride Depletion in Sea Salt Particles Mixed with Organic Materials*, American Geophysical Union Meeting, Dec. 3-7, 2012, San Francisco, CA.
- S. T. Kelly, P. Nigge, A. Laskin, B. Wang, S. Ghorai, A. Tivanski, T. Tylliszczak, M. K. Gilles, *In situ sub-micrometer Scale Chemical Imaging with Scanning Transmission X-ray Microscopy*, American Vacuum Society Meeting, Oct 28 - Nov 2, 2012, San Francisco, CA.
- A. Laskin, M. K. Gilles, *Chemical Imaging Analysis of Nanomaterial*, Materials Research Society, November 26-30, 2012 Boston, MA.
- S. Prakash, R. C. Moffet, P. Sprau, T. Kirchstetter, M. K. Gilles, *Microscopic and Spectroscopic Changes in Soot Produced from Cellulose Burns*, Materials Research Society, April 5-10, 2010, San Francisco, California.
- R. C. Moffet, A. Laskin, S. Prakash, P. Sprau, T. Kirchstetter, M. K. Gilles, *Spectromicroscopic Characterization: Field Campaigns-Single Particle Studies*, Atmospheric Systems Research Meeting (DOE), March 14-17, 2010 Boulder, Colorado.
- M. K. Gilles, *Atmospheric Aerosols: Morphology & Spectroscopy, Forty Years of Ion Chemistry*, June 12-13, 2009 Boulder, Colorado.
- R. C. Moffet, H. Furutani, M. Uematsu, M. K. Gilles, *Single Particle Iron Speciation in Ambient Asian Mineral Dust*, American Geophysical Union Meeting, Dec. 15-19, 2008, San Francisco, CA.
- R. J. Hopkins, Y. Desyaterik, A. V. Tivanski, R. A. Zaveri, C. M. Berkowitz, T. Tylliszczak, R. C. Moffet, V. Shutthanandan, L. T. Molina, R. A. Gonzalez, K. S. Johnson, V. Mugica, M. J. Molina, K. A. Prather, A. Laskin, M. K. Gilles, *Atmospheric Aerosols: Single Particle Studies from Field Campaigns*, Advanced Light Source Users Meeting, Oct. 13-15, 2008, Berkeley, CA.
- R. J. Hopkins, Y. Desyaterik, A. V. Tivanski, M. K. Gilles, A. Laskin *Partitioning of Methanesulfonate and non-Sea-Salt Sulfate in Individual Sea Salt Particles Collected at the Pt. Reyes National Seashore*. Gordon Research Conference on Atmospheric Chemistry, August 26-31, 2007, Big Sky, Montana.
- R. C. Moffet, Y. Desyaterik, R. J. Hopkins, A. V. Tivanski, M. K. Gilles, V. Shutthanandan, L. T. Molina, R. A. Gonzalez, K. S. Johnson, M. J. Molina, A. Laskin, K. A. Prather, *A Comprehensive Study of Metal Rich Aerosol in an Industrial Region of Mexico City*, Gordon Research Conference on Atmospheric Chemistry, August 26-31, 2007, Big Sky, Montana.
- Y. Desyaterik, A. Laskin, R. J. Hopkins, A. V. Tivanski, and M. K. Gilles, *Partitioning of Methanesulfonate and Non-Sea-Salt Sulfate in Individual Sea Salt Particles Collected at the Pt. Reyes National Seashore*, Gordon Conference Atmospheric Chemistry, August 26-31, 2007, Big Sky Resort, Montana.
- A. V. Tivanski, M. K. Gilles, D. L. Olynick and S. R. Leone, *Investigation into the Exposure Mechanisms of Hydrogen Silsesquioxane using Infrared Spectromicroscopy*, 51<sup>st</sup> International Conference on Electron, Ion, and Photon Beam Technology and Nanofabrication, May 29-June 1, 2007, Denver, CO.
- Y. Desyaterik, R. J. Hopkins, A. V. Tivanski, M. K. Gilles, A. Laskin, *Chemical Speciation of Sulfur in Marine Cloud Droplets and Particles*, 54th ASMS Conference on Mass Spectrometry, May 28 - June 1, 2007, Seattle, WA.
- Y. Desyaterik, A. Laskin, R. J. Hopkins, A. V. Tivanski, and M. K. Gilles, *Partitioning of Methanesulfonate and Non-Sea-Salt Sulfate in Individual Sea Salt Particles Collected at the Pt. Reyes National Seashore*, MILAGRO meeting, May 15-18, 2007, Mexico City, Mexico.
- K. S. Johnson, R. Gonzalez, L. T. Molina, R. J. Hopkins, A. V. Tivanski, Y. Desyaterik, A. Laskin, *Microscopy and Microprobe Methods in Mexico City: Single Particle Studies of Individual Particles Collected during the MILAGRO 2006 Study*, MILAGRO meeting, May 15-18, 2007, Mexico City, Mexico.

- R. C. Moffet, A. Laskin, Y. Desyaterik, R. J. Hopkins, A. V. Tivanski, M. K. Gilles, L. T. Molina, R. Gonzalez, K. S. Johnson, M. Molina, K. A. Prather, *Measurements of Single Aerosol Particles Containing Pb, Zn, and Cl from an Industrial Region of Mexico City*, MILAGRO meeting, May 15-18, 2007, Mexico City, Mexico.
- R. C. Moffet, A. Laskin, Y. Desyaterik, R. J. Hopkins, A. V. Tivanski, M. K. Gilles, L. T. Molina, R. Gonzalez, K. S. Johnson, M. Molina, K. A. Prather, *Measurements of Single Aerosol Particles Containing Pb, Zn, and Cl from an Industrial Region of Mexico City*, Joint Assembly American Geophysical Union, May 22-25, 2007, Acapulco, Mexico.
- Y. Desyaterik, R. J. Hopkins, A. V. Tivanski, C. M. Berkowitz, M. K. Gilles, and A. Laskin, *Chemical Speciation of Sulfur in Marine Cloud Droplets and Particles 1: Analysis of Individual Particles Using Complementary Microprobe Methods*, American Geophysical Union Fall Meeting, December 11-15, 2006, San Francisco, CA.
- A. V. Tivanski, R. J. Hopkins, T. Tyliczszak, M. K. Gilles, *Atmospheric Black Carbon: Chemical Bonding and Structural Information of Individual Aerosol Particles*, American Geophysical Union Fall Meeting, December 11-15, 2006, San Francisco, CA.
- Y. Desyaterik, C. M. Berkowitz, A. Laskin, R. J. Hopkins, A. V. Tivanski, and M. K. Gilles, *Chemical Speciation of Sulfur in Marine Cloud Droplets and Particles*, MILAGRO meeting, October 23-25, 2006, Boulder, CO.
- K. S. Johnson, R. Gonzalez, L. T. Molina, R. J. Hopkins, A. V. Tivanski, Y. Desyaterik, R. Shutthanandan, J. Wang, Y. Liu, A. Laskin, *Microprobe Studies of Individual Particles Collected at the During MILAGRO 2006*, MILAGRO meeting, October 23-25, 2006, Boulder, CO.
- R. J. Hopkins, A. V. Tivanski, B. D. Marten, M. K. Gilles. *Chemical Bonding and Structural Information of Black Carbon Reference Materials and Individual Carbonaceous Atmospheric Aerosols*, MILAGRO meeting, October 23-25, 2006, Boulder, CO.
- A. V. Tivanski, R.J. Hopkins, T. Tyliczszak, M. K. Gilles, *Tar Balls: Size Dependent Chemical Composition of Individual Organic Aerosol Particles Studied with STXM*, MILAGRO meeting, October 23-25, 2006, Boulder, CO.
- T. B. Onasch, J. G. Slowik, P. Davidovits, S. C. Herndon, E. Wood, D. R. Worsnop, C. E. Kolb, W. B. Knighton, M. Zavala, D. Thornhill, L. Marr, W. P. Arnott, C. Mazzoleni, M. K. Dubey, R. J. Hopkins, M. K. Gilles, Y. Desyaterik, A. Laskin, *Carbonaceous Aerosol Processing in the Mexico City Metropolitan Area*, MILAGRO meeting, October 23-25, 2006, Boulder, CO.
- R. J. Hopkins, A. V. Tivanski, B. D. Marten, M. K. Gilles. *Chemical Bonding and Structural Information of Black Carbon Reference Materials and Individual Carbonaceous Atmospheric Aerosols*, Advanced Light Source Users Meeting, October 9-11, 2006.
- A. V. Tivanski, R.J. Hopkins, T. Tyliczszak, M. K. Gilles, *Tar Balls: Size Dependent Chemical Composition of Individual Organic Aerosol Particles Studied with STXM*, Advanced Light Source Users Meeting, October 9-11, 2006.
- R. J. Hopkins, A. V. Tivanski, M. K. Gilles, Y. Desyaterik, A. Laskin, *Chemical Speciation of Sulfur in Marine Cloud Droplets: Analysis of Environmental Particles using Microprobe Methods*, Advanced Light Source Users Meeting, October 9-11, 2006, Berkeley CA.
- Scanning Transmission X-ray Microscopy Imaging of Aerosol Particles*  
American Geophysical Union, San Francisco, Dec 6-10, 2004.
- Soft x-ray spectroscopy of Liquid Jet Surfaces of Organic/Salt Solutions*  
Gordon Conference on Atmospheric Chemistry, Big Sky, Montana Sept 7-12, 2004.
- Advanced Light Source Molecular Environmental Science Beamline 11.0.2*  
Advanced Light Source Users Meeting, Berkeley, California, Oct. 10-12, 2002.
- Measurements for the OH + 1-bromopropane (CH<sub>3</sub>CH<sub>2</sub>CH<sub>2</sub>Br) Between 230 to 360 K: Insights into the Product Branching Ratios*, Workshop on Laboratory Studies of Upper Troposphere/Lower Stratospheric Processes, Breckenridge, Colorado, July 2001.
- Rate Coefficient and Kinetics of ClO and BrO with IO*,

XXII Informal Conference on Photochemistry, Reaction Dynamics, Chiba, Japan, July 1997.  
*Iodine in the Lower Stratosphere: Laboratory Studies of Relevant Reactions: The Role of IO +  
ClO in the Lower Stratosphere*, International Conference on Ozone in the Lower  
Stratosphere, Halkidiki, Greece, May 1995.  
*Photoelectron Spectroscopy of Acetaldehyde/Acetone Enolate Negative Ions*  
American Chemical Society National Meeting, Denver, Colorado, April 1993  
*Photoelectron Spectroscopy: A Study of the Fluorovinylidene Rearrangement* American Chemical  
Society National Meeting, San Francisco, CA, April 1992.  
*Photoelectron Spectroscopy of the Halogen Oxides*,  
American Chemical Society National Meeting, Atlanta, Georgia, April 1991.