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Professional Experience

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

- 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

- 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

- Review Panel Canadian Light Source, 2010-2012
- Co-Organizer (A. Laskin, A. Bertram, R. C. Moffet) AGU conference session on "Chemical Imaging Analysis of Atmospheric Particles", Fall 2013
- Co-Organizer (A. Laskin, A. Bertram) 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
- User Advisory Committee Environmental Molecular Sciences Lab. 2009-2013

- 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
- 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-Gesselschaft 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
- 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

Mentoring & Outreach

- 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 - present
  - 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 (Asst. 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 Students**
  - Caleb Swain, January - May 2013
  - Alexander Neu, January - May 2013

- **Undergraduate Students**
  - 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 Casdorph, 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 ALS.
  - 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

- LBNL Laboratory Directed Research and Development
  Photo-switchable Metal Organic Frameworks for CO_2 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 s 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

- 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

- Army Research Office W911NF-12-R-0012
  Responsive Metal Organic Framework Thin Films
  PIs: S. R. Leone & M. K. Gilles
  Duration 1/01/13-1/1/15
  Budget Request Operating FY2013($120)FY14 ($120K), FY15 ($120K)

Participation in Atmospheric Chemistry Field Campaigns

- 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*)

- *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 beamline, Fall 2012-Fall 2015
- *Environmental Chemistry of Fe containing Mineral Dust Particles*, Environmental Molecular Science Institute of Pacific Northwest National Laboratory for Spring 2012, #40087
- *Chemical imaging Analysis of Environmental Particles,* Environmental Molecular Science Institute of Pacific Northwest National Laboratory for Spring 2012, #44638

- *Functionalized Metal Organic Framework Materials for CO_2 Capture,* Advanced Light Source, 12.3.2 XRD beamline, 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 Institute of Pacific Northwest National Laboratory for Spring 2010, #40087
- *The Cloud Nucleating Properties of Aerosols at a Continental Site: CHAPS Study*, Environmental Molecular Science Institute of Pacific Northwest National Laboratory, #25638
- *Chemistry of Aerosols in the North Slope of Alaska: ISDAC 2008 Study*, Environmental Molecular Science Institute of Pacific Northwest National Laboratory, #30423
- **Probing Atmospheric Chemistry of Aerosols to Gain Insights into Condensation behavior*, Environmental Molecular Science Institute 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 Institute 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 Nanofabricatio*n, 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

- 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

- 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)
- ChemistryViews: Potassium's Influence on Clouds in Rainforest 2012 (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
- 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)

- *Photoswitchable Metal Organic Frameworks for CO_2 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, E*nvironmental Chemistry of Aerosols, PacificChem Honolulu Hawaii, Dec 18, 2010 (S. Brooks)
- *Heterogeneous Ice Nucleation on Anthropogenic and Laboratory Generated Organic Particles, E*nvironmental 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,* 7th 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_3I: 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

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 = 31, i10-index=53)

1. Hiranuma, N.; Brooks, S. D.; Moffet, R. C.; Glen, A.; Laskin, A.*, et. al.*: 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
2. Kelly, S. T.; Nigge, P.; Prakash, S.; Laskin, A.; Wang, B.*, et. al.*: An environmental sample chamber for reliable scanning transmission x-ray microscopy measurements under water vapor. *Rev. Sci. Instrum.* **2013**, *84*, 073708. doi: 10.10631/1.4816649
3. Moffet, R. C.; Rödel, T. C.; Kelly, S. T.; Yu, X. Y.; Carroll, G. T.*, et. al.*: Spectro-microscopic measurements of carbonaceous aerosol aging in Central California. *Atmos. Chem. Phys.* **2013**, *13*, 10445. doi:10.5194/acp-13-10445-2013
4. Laskin, A.; Moffet, R. C.; Gilles, M. K.; Fast, J. D.; Zaveri, R. A.*, et. al.*: 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
5. Moffet, R. C.; Furutani, H.; Rodel, T. C.; Henn, T. R.; Sprau, P. O.*, et. al.*: Iron speciation and mixing in single aerosol particles from the Asian continental outflow. *J. Geophys. Res. Atmos.* **2012**, *117*, D07204. Doi 10.1029/2011jd016746
6. Pohlker, C.; Wiedemann, K. T.; Sinha, B.; Shiraiwa, M.; Gunthe, S. S.*, et. al.*: Biogenic potassium salt particles as seeds for secondary organic aerosol in the Amazon. *Science* **2012**, *337*, 1075. 10.1126/science.1223264
7. Wang, B.; Laskin, A.; Roedel, T.; Gilles, M. K.; Moffet, R. C.*, et. al.*: 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
8. Zaveri, R. A.; Shaw, W. J.; Cziczo, D. J.; Schmid, B.; Ferrare, R. A.*, 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
9. Liu, Y.; Minofar, B.; Desyaterik, Y.; Dames, E.; Zhu, Z.*, et. al.*: Internal structure, hygroscopic and reactive properties of mixed sodium methanesulfonate-sodium chloride particles. *PCCP* **2011**, *13*, 11846. doi: 10.1039/C1cp20444k
10. McFarquhar, G. M.; Ghan, S.; Verlinde, J.; Korolev, A.; Strapp, J. W.*, 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
11. Moore, M. J. K.; Furutani, H.; Roberts, G. C.; Moffet, R. C.; Gilles, M. K.*, et. al.*: 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

12. Caster, A. G.; Kowarik, S.; Schwartzberg, A. M.; Leone, S. R.; Tivanski, A.*, et. al.*: 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
13. 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
14. 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
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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. Tyliszczak, *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. Tyliszczak, *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. Tyliszczack, *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. Tyliszczak, K. Liang, S. R. Leone and J. A. Liddle, 50th International Conference on Electron, Ion and Photon Beam Technology and Nanofabrication

Other Oral Presentations of Recent Work (*presenter*)

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 Tyliszczak, 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. Tyliszczak, 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

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. Tyliszczak, M. K. Gilles, *In situ sub-micrometer Scale Chemical Imaging with Scanning Transission 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 Chartacterization: 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. Tyliszczak, 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.

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