

Biographical Sketch: Thomas W. Kirchstetter

Energy Technologies Area • Lawrence Berkeley National Laboratory •
MS90-2024J, Berkeley, California 94720 • Phone: 510-486-7071 • Email: twkirchstetter@lbl.gov

Department of Civil and Environmental Engineering • University of California at Berkeley •
655 Davis Hall, Berkeley, California 94720 • Phone: 510-908-1237 • Email: twkirchstetter@berkeley.edu

(a) Professional Preparation

Alexander Hollaender Distinguished Postdoctoral Fellow, LBNL, 1998 – 2000
Ph.D. Environmental Engineering, University of California at Berkeley, 1998
M.S. Environmental Engineering, University of California at Berkeley, 1994
B.S. Atmospheric Science and Mathematics, State University of New York at Albany, 1991

(b) Current Appointments

Lawrence Berkeley National Laboratory

Acting Director, Energy Analysis and Environmental Impacts Division, June 2017 – present
Department Head, Sustainable Energy and Environmental Systems Department, 2015 – present
Group Leader, Sustainable Energy Systems Group, 2015 – present
Staff Scientist, Lawrence Berkeley National Laboratory, 2000 – present

University of California Berkeley

Adjunct Associate Professor, Department of Civil and Environmental Engineering, 2011 – present

Research interests: Air pollution science & technology: Emissions and clean energy technologies, with a focus on transportation, biomass combustion, and anaerobic digestion of municipal solid waste • Aerosol science: composition, climate-relevant optical properties, black and brown carbon • Aerosol measurement technologies: fabrication and evaluation of low-cost sensors; community air monitoring networks • Waste-to-energy, evaluation of benefits and barriers

Course instruction: Air Quality Engineering (CE218A) Graduate level, Spring 2016; Air and Water Quality Laboratory (CE111L) Upper division, Spring 2016, 2015, 2014; Environmental Engineering (CE111) Upper division, Spring 2008, 2011, Fall 2012

(c) Professional Service and Synergistic Activities

Editor, Aerosol Science and Technology Journal, 2013 – present
Organizer, International Conference on Carbonaceous Particles in the Atmosphere, 2000 – present
Contributor, EPA's Integrated Science Assessment for particulate matter welfare effects – 2016
Editor, Journal of Atmospheric Chemistry and Physics, 2006 – 2013
Member, Distinguished Lecture Series Committee, Lawrence Berkeley National Lab, 2011 – 2013
Member, Bay Area AQMD's Community Air Risk Evaluation Task Force, 2008 – 2010
Panel Expert, Alameda Board of County Supervisors, Local Port Truckers' Panel Hearing, Aug 2011
Panel Reviewer, DOE Atmospheric Systems Research, Aerosol-climate proposals, Sep 2010
Reviewer, DOE SBIR Program, Low emission high efficiency biomass cookstove proposals, Mar 2012
Reviewer, Manuscripts for multiple peer-review journals including ES&T, GRL, JGR, ACP, Recurring

(d) Honors

R&D 100 Award Winner, Cool Roof Time Machine, 2016
 Outstanding Urban Heat Island Group of Researchers Award, 2016
 Outstanding Mentor Award, DOE, Office of Science Undergraduate Research Program, 2005
 Research & Development Award, Lawrence Berkeley National Laboratory, 2011, 2007, 2002
 Alexander Hollaender Distinguished Postdoctoral Fellowship, Department of Energy, 1998
 Golden West Section Graduate Scholarship, Air & Waste Management Association, 1994
 Science and Engineering Research Semester Award, Department of Energy, 1992

(e) Peer-Reviewed Publications

(Google Scholar h-index = 40, citations = 6670; Web of Knowledge h-index = 35, citations = 4300)

72. Apte, JS; Messier, KP; Gani, S; Brauer, M; Kirchstetter, TW; Lunden, MM; Marshall, JD; Portier, CJ; Vermeulen, RCH; Hamburg, SP (2017) High-resolution air pollution mapping with Google Street View cars: exploiting big data, *Environ. Sci. Technol.*, doi: 10.1021/acs.est.7b00891
71. Kirchstetter, TW; Preble, CV; Hadley, OL; Bond, TC; Apte, JS (2017) Large reductions in urban black carbon concentrations in the United States between 1965 and 2000, *Atmos. Environ.*, 151, 17-23, doi:10.1016/j.atmosenv.2016.11.001
70. Berdahl P, Chen SS, Destailats H, Kirchstetter TW, Levinson RM, Zalich MA (2016) Fluorescent cooling of objects exposed to sunlight – The ruby example. *Solar Energy Materials & Solar Cells*, doi:10.1016/j.solmat.2016.05.058
69. Sleiman, M; Chen, S; Gilbert, HE; Kirchstetter, TW; Berdahl, P, et al (2015) Soiling of building envelope surfaces and its effect on solar reflectance - Part III: Interlaboratory study of an accelerated aging method for roofing materials, *SOLMAT*, 143, 581-590, doi:10.1016/j.solmat.2015.07.031
68. Preble, CV, Dallmann, TR; Kreisberg, NM; Hering, SV; Harley, RA; Kirchstetter, TW (2015) Effects of particle filters and selective catalytic reduction on heavy-duty diesel drayage truck emissions at the Port of Oakland, *Environ. Sci. Technol.*, doi:10.1021/acs.est.5b01117
67. Tang, NW; Apte, JS; Martien, PT; Kirchstetter, TW (2015) Measurement of black carbon emissions from in-use diesel-electric passenger locomotives in California, *Atmos. Environ.*, 115, 295-303, doi:10.1016/j.atmosenv.2015.05.001
66. Browne, EC; Franklin, JP; Canagaratna, MR; Massoli, P; Kirchstetter, TW; Worsnop, DR; Wilson, KR; Kroll, JH (2015) Changes to the Chemical Composition of Soot from Heterogeneous Oxidation Reactions, *J. Physical Chem. A*, 119, 1154-1163, doi: 10.1021/jp511507d.
65. Canagaratna, MR; Massoli, P; Browne, EC; Franklin, JP; Wilson, KR; Onasch, TB; Kirchstetter, TW; Fortner, EC; Kolb, CE; Jayne, JT; Kroll, JH; Worsnop, DR (2015) Chemical Compositions of Black Carbon Particle Cores and Coatings via Soot Particle Aerosol Mass Spectrometry with Photoionization and Electron Ionization, *J. Physical Chem. A*, 119, 4589-4599, doi:10.1021/jp510711u.
64. Preble, CV; Hadley, OL; Gadgil, AJ; Kirchstetter, TW (2014) Emissions and climate-relevant optical properties of pollutants emitted from a Three-Stone Fire and the Berkeley-Darfur Stove tested under laboratory conditions, *Environ. Sci. Technol.*, doi:10.1021/es5002715.
63. Dallmann, TR; Onasch, TB; Kirchstetter, TW; Worton, DR; Fortner, EC; Herndon, SC; Wood, EC; Franklin, JP; Worsnop, DR; Goldstein, AH; Harley, RA (2014) Characterization of particulate matter emissions from on-road gasoline and diesel vehicles using a soot particle aerosol mass spectrometer, *Atmos. Chem. Phys. Discuss*, doi: 10.5194/acpd-14-4007-2014.

62. Thatcher, TL; Kirchstetter, TW; Malejan, CJ; Ward, CE (2014) Infiltration of black carbon particles from residential woodsmoke into nearby homes, *Open J. Air Poll.*, 3, doi:10.4236/ojap.2014.34011.
61. Thatcher, TL; Kirchstetter, TW; Tan, SH; Malejan, CJ; Ward, CE (2014) Near-field variability of residential woodsmoke concentrations, *Atmos. Climate Sci.*, 4, doi: 10.4236/acs.2014.44055.
60. Worton, DR; Isaacman, G; Gentner, DR; Dallmann, TR; Chan, AWH; Ruehl, CR; Kirchstetter, TW; Wilson, KR; Harley, RA; Goldstein, AH (2014) Lubricating oil dominates primary organic aerosol emissions from motor vehicles, *Environ. Sci. Technol.*, doi:10.1021/es405375j.
59. Wang, Y; Sohn, MD; Wang, Y; Lask, KM; Kirchstetter, TW; Gadgil, AJ (2014) How many replicate tests are needed to test cookstove performance and emissions? – Three is not adequate, *Energy for Sustainable Development*, 20, 21–29, doi:10.1016/j.esd.2014.02.002.
58. Sleiman, M; Kirchstetter, TW; Berdahl, P; Gilbert, HE; Quelen, S; Marlot, L; Preble, C; Chen, S; Montalbano, A; Rosseler, O; Akbari, H; Levinson, R; Destailats, H (2014) Soiling of building envelope surfaces and its effect on solar reflectance - Part II: Development of an accelerated aging method for roofing materials, *SOLMAT*, 122, 271-281, doi:10.1016/j.solmat.2013.11.028.
57. Dallmann, TR; Kirchstetter, TW; DeMartini, SJ; Harley, RA (2013) Quantifying on-road emissions from gasoline-powered motor vehicles: accounting for the presence of medium and heavy-duty diesel trucks, *Environ. Sci. Technol.*, 47, 13873-13881, doi:10.1021/es402875u
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54. Hadley, OL; Kirchstetter, TW (2012) Black carbon snow albedo reduction, *Nature Climate Change*, 2, 437-440, doi: 10.1038/NCLIMATE1433.
53. Dallmann, TR; DeMartini, SJ; Kirchstetter, TW; Herndon, SC; Onasch, TB; Wood, EC; Harley, RA (2012) On-Road Measurement of Gas and Particle Phase Pollutant Emission Factors for Individual Heavy-Duty Diesel Trucks, *Environ. Sci. Technol.*, 46, 8511-8518, doi:10.1021/es301936c.
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49. Dallmann, TR; Harley, RA; Kirchstetter, TW (2011) Effects of diesel particle filter retrofits and accelerated fleet turnover on drayage truck emissions at the port of Oakland, *Environ. Sci. Technol.*, 45, 10773–10779.

48. Sleiman, M; Ban-Weiss, G; Gilbert, HE; Francois, D; Berdahl, P; Kirchstetter, TW; Destailats, H; Levinson, R (2011) Soiling of building envelope surfaces and its effect on solar reflectance – Part 1: Analysis of roofing product databases, *Sol. Energ. Mat. Sol. Cells*, *95*, 3385-3399, doi:10.1016/j.solmat.2011.08.002.
47. Apte, JS; Kirchstetter, TW; Reich, AH; Deshpande, SJ; Kaushik, G; Chel, A; Marshall, JD; Nazaroff, WW (2011) Concentrations of fine, ultrafine, and black carbon particles in auto-rickshaws in New Delhi, India, *Atmos. Environ.*, *45*, 4770-4480.
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43. Strawa, AW; Kirchstetter, TW; Puxbaum, (2010) Special issue for the 9th international conference on carbonaceous particles in the atmosphere, *J. Aerosol Sci.*, *41*, 1-4.
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41. Ban-Weiss, GA; Lunden, MM; Kirchstetter, TW; Harley, RA (2009) Size-resolved particle number and volume emission factors for on-road gasoline and diesel motor vehicles, *J. Aerosol Sci.*, *41*, 5-12.
40. Ban-Weiss, G; Lunden, MM; Kirchstetter, TW; Harley, RA (2009) Measurement of black carbon and particle number emission factors from individual heavy-duty trucks, *Environ. Sci. Technol.*, *43*, 1419–1424.
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38. Shehabi, A; Ganguly, S; Gundel, LA; Horvath, A; Kirchstetter, TW; Lunden, MM; Tschudi, W; Gadgil, AJ; Nazaroff, WW. (2009) Can combining economizers with improved filtration save energy and protect equipment in data centers?, *Building Environ.*, *45*, 718-726.
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32. Ban-Weiss, GA; McLaughlin, JP; Harley, RA; Lunden, MM; Kirchstetter, TW; Kean, AJ; Strawa, AW; Stevenson, ED; Kendall, GR. (2008) Long-term changes in emissions of nitrogen oxides and particulate matter from on-road gasoline and diesel vehicles, *Atmos. Environ.*, *42*, 220-232.
31. Kirchstetter, T.W.; Novakov, T. (2007) Controlled generation of black carbon particles from a diffusion flame and applications in evaluating black carbon measurement methods. *Atmos. Environ.*, *41*, 1874-1888, doi:10.1016/j.atmosenv.2006.10.067.
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27. Harley, RA; Hooper, DS; Kean, AJ; Kirchstetter, TW; et al. (2006) Effects of reformulated gasoline and motor vehicle fleet turnover on emissions and ambient concentrations of benzene, *Environ. Sci. Technol.*, *40*, 5084-5088, doi:10.1021/es0604820.
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