

Associate Professor
Department of Environmental and Radiological Health Sciences
Colorado State University
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Education

Ph.D., Environmental Engineering *University of North Carolina at Chapel Hill (2003)*
M.S., Environmental Engineering *University of North Carolina at Chapel Hill (1999)*
B.S., Civil Engineering *University of Vermont (1996)*

Experience

Associate Professor *Department of Environmental and Radiological Health Sciences
2010 - present
Colorado State University (primary appointment)*

Associate Department Head *Department of Environmental and Radiological Health Sciences
2011 - present
Colorado State University*

Associate Professor *Department of Environmental and Occupational Health
2011-present
Colorado School of Public Health*

Associate Faculty *School of Biomedical Engineering
2007-present
Colorado State University*

Principal Investigator *Engines and Energy Conversion Laboratory
2006-present
Dept. of Mechanical Engineering, Colorado State University*

Assistant Professor *Department of Environmental and Radiological Health Sciences
2004 - 2010
Colorado State University*

Assistant Professor *Department of Environmental and Occupational Health
2009-2011
Colorado School of Public Health*

Visiting Scientist *Clinical Research Branch
2006-2009
National Health and Environmental Effects Research Lab, U.S. EPA*

Postdoctoral Research Fellow *Environmental Characterization and Apportionment Branch
January, 2003 – July 2004
National Exposure Research Laboratory, U.S. EPA*

Special Appointment *Department of Environmental Sciences and Engineering
August, 2003 – August 2004
University of North Carolina at Chapel Hill*

Environmental Engineer *Atmospheric Methods and Monitoring Branch
June – September, 2000, 1999
U.S. EPA*

Water Resources Engineer *The Pitometer Associates
July, 1996 – January, 1997
Boston, MA*

Honors and Awards

Outstanding Project Team, Inhalable Particles Roundtable, AIHA 2011
Cover Issue, Annals of Occupational Hygiene, 54(4) 2010
Best of Session Poster, AIHce, Denver, CO, May 2010, 2011
Cover Issue, Journal of Environmental Monitoring, 11(7) 2009
Best of Session Presentation, presented by the Aerosol Technology
Committee, AIHce, Toronto, CA, June 2009
Leadership Award, American Industrial Hygiene Association, 2009
Best Teacher Award Nomination, CSU, 2006
'S' Award for Special Research Contribution, U.S. EPA, 2003
Best paper, AIHA Journal, "Oil Mist Concentration: A Comparison of
Sampling Methods", 1999
Bunker Award for Most Promising Masters Student, UNC, 1999
American Industrial Hygiene Fellowship Award, 1998
Dean's List, University of Vermont, 1992, 1993

Grants and Fellowships

*'Development of Personal Sampling Technology for Nanoparticle
Exposure Assessment'*

2011-2012 (PI) PA Nano (subcontract to RJ Lee, Inc.)

*'Development of a Microfluidic Paper Analytic Device (μ PAD) for
Airborne Metals'*

2011-2013 (PI) R21OH010050 DHHS/CDC/NIOSH

'Is Green Diesel Healthy Diesel?'

2011 (PI) CSU Clean Energy Supercluster seed-grant.

*'A Portable, Fast Sensor for Oxidative Capacity of Particulate Air
Pollution'*

2010-2012 (PI) R21ES019264 DHHS/NIH/NIEHS

'A Personal Sampler for Assessing Inhaled Nanoparticle Exposures'

2008-2010 (PI) R03OH009381 DHHS/CDC/NIOSH

*'Combustion Chemistry and Pollutant Emissions from Algae-Derived
SVO, FAME and HTRD' 2008 (Co-PI) CSU Clean Energy Supercluster
seed-grant.*

'A High-Flow Personal Sampler for Inhalable Aerosol'

2007-2009 (PI) R21OH009114 DHHS/CDC/NIOSH

'Lung Deposition Sampler for Inhalable Aerosol'

2007-2009 (PI) R03OH009248 DHHS/CDC/NIOSH

'Engineering an In-Vitro Lung for Air Pollution Toxicology'

2006-2011 (PI) K25ES014378 DHHS/NIH/NIEHS

Grants and Fellowships

(continued)

'Novel PM Exposure Assessment for Children with Asthma'
2006 (PI) CSU/CVMBS College Research Council Award

'A Lung-Deposition Model for Particulate Matter'
2005 (PI) CSU/CVMBS College Research Council Award

NIEHS Doctoral Student Training Grant, 2002
U.S. EPA NNEMS Fellow, 2000-2002
UNC Board of Governors Fellowship, 1999-2002
NIOSH-UNC Pilot Project Research Training Grant, 2000
NIOSH Traineeship Award, 1997

Teaching

Principal Instructor	EH 726 "Aerosols and Occupational Health" 2004-2010 EH 636 "Control Methods for Industrial Hygiene" 2005-2010
Guest Lecturer	AS 526 "Health Effects of Air Pollution", 2 lectures, 2005, 2008 EH 502 "Risk Assessment and Toxicology", 1 lecture, 2005, 2006 EH 102 Seminar "Air Pollution Scientists Need to Get Their Heads Out of Their Assessments and Take a Dose of Reality" 1 lecture, 2005 EH 446 "Air Pollution and Human Health," 1 lecture, 2004-2006 EH 526 "Aerosol Measurement," 1 lecture, 2004-2009 EH 693b "Occupational and Environmental Health Colloquium"
UNC Chapel-Hill	ENVR 119 "Introduction to Aerosol Science," co-instructor 2003 ENVR 103 Seminar "Semivolatile Aerosols," 1 lecture, 2002 ENVR 245 "Electrostatic Precipitators," 4 lectures, 2001 ENVR 145 "Evaporation and Condensation," 3 lectures, 2000

Service

President	Board of Directors, Journal of Occ. and Environ. Hygiene (2009)
Chair	AIHA Aerosol Technology Committee (2008, 2009) AAAR Aerosol Control Technology Working Group, 2001-2002
Technical Reviewer	<i>Aerosol Science and Technology</i> <i>Annals of Occupational Hygiene</i> <i>American Industrial Hygiene Association Journal</i> <i>Applied Occupational and Environmental Hygiene</i> <i>Atmospheric Environment</i> <i>Cell Biology and Toxicology</i> <i>Environmental Science and Technology</i> <i>Environmental Health Perspectives</i> <i>Journal of Geophysical Research</i> <i>Journal of Air and Waste Management Association</i> <i>Journal of Environmental Engineering</i>

Service

(continued)

EHS P30 Review Committee, Ad-hoc member, NIH/NIEHS, 2009
ZRG1 HDM-A Challenge Grants Panel 29, NIH/NIEHS, 2009
ZES1 LKB Pathway to Independence Panel, NIH/NIEHS, 2011
EPA-G2011-STAR-B1/B2 Panel, U.S. EPA, 2011
RFA 10-2, New Investigator Award Panel, Health Effects Institute, 2011

Organizing Member

International State of the Science Workshop on Organic Speciation in
Atmospheric Aerosols Research, April 5-7, 2004 Las Vegas, NV.
Science Symposium on Inhalable Particles, American Industrial Hygiene
Conference and Exposition, May 16, 2011, Portland, OR.

**Professional and
Honorary Societies**

American Association for Aerosol Research
Association of Environmental Engineering and Science Professors
American Industrial Hygiene Association
Tau Beta Pi and Chi Epsilon Honor Societies
Order of the Engineer

Refereed Publications

1. Koehler, K.A., Van Dyke, M., Anthony, T.R., and J. Volckens (2011) "Solid versus Liquid Particle Sampling Efficiency of Three Personal Aerosol Samplers when Facing the Wind." *Annals of Occupational Hygiene*. doi: 10.1093/annhyg/mer077
2. Koehler, K.A., and J. Volckens. (2011) "Prospects and Pitfalls of Occupational Hazard Mapping: Between These Lines There Be Dragons." *Annals of Occupational Hygiene*. 55(8): 829-840. doi: 10.1093/annhyg/mer063
3. Thayer, D., Koehler, K.A., Marchese, A., and J. Volckens. (2011) "A Personal, Thermophoretic Sampler for Airborne Nanoparticles." *Aerosol Science and Technology*. 45(6): 734-740. doi: 10.1080/02786826.2011.558943
4. Clark, M.L., Bazemore, H., Reynolds, S.J., Heiderscheidt, J.M., Conway, S., Bachand, A.M., Volckens, J., and Peel, J.L. (2011) "A Baseline Evaluation of Traditional Cook Stove Smoke Exposures and Indicators of Cardiovascular and Respiratory Health among Nicaraguan Women." *International Journal of Occupational and Environmental Health*. 17(2).
5. Koehler, K., Anthony, T.R., Van Dyke, M., and J. Volckens, (2011) "A Rotating Bluff-Body Disc for Reduced Variability in Wind Tunnel Aerosol Studies." *Annals of Occupational Hygiene*. 55(1): 86-96. doi: 10.1093/annhyg/meq078
6. B.C. Fisher, A.J. Marchese, J. Volckens, T. Lee, and J.L. Collett. (2010) "Measurement of Gaseous and Particulate Emissions from Algae-Based Fatty Acid Methyl Esters." *SAE International Journal of Fuels and Lubricants*. 3:292-321
7. Anthony, T.R., Landázuri, A.C., Van Dyke, M., and Volckens, J. (2010) "Use of Computational Fluid Dynamics For Design and Evaluation of a Personal High-Flow Inhalable Sampler." *Annals of Occupational Hygiene*. 54(4): 427-442. doi:10.1093/annhyg/meq029

Refereed Publications

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8. Rosenbaum, M., VandeWoude, S., Volckens, J., and Johnson, T. (2010) "Disparities in Ammonia, Temperature, Humidity, and Airborne Particulate Matter between the Micro-and Macroenvironments of Mice in Individually Ventilated Caging." *Journal of the American Association for Laboratory Animal Science*. 49(2): 177-183.
9. Koehler, K., Clark, P., Volckens, J. (2009) "Development of a sampler for total aerosol deposition in the human respiratory tract." *Annals of Occupational Hygiene*. 53: 731-738. doi:10.1093/annhyg/mep053
10. Volckens, J., Dailey, L., Walters, G., and Devlin, R. (2009) "Direct particle-to-cell deposition of coarse ambient particulate matter increases the production of inflammatory mediators from cultured human airway epithelial cells." *Environmental Science and Technology*. 43: 4595-4599. doi 10.1021/es900698a
11. Adams, C., Riggs, P., and Volckens, J.(2009) "Development of a method for personal, spatiotemporal exposure assessment" *Journal of Environmental Monitoring*. 11: 1331-1339. doi: 10.1039/B903841H
12. Clark, P., Koehler, K., Volckens, J. (2009) "An Improved Method for Particle Deposition in Porous Foams." *Journal of Aerosol Science*. 40: 563-572. doi 10.1016/j.jaerosci.02.005
13. Schroeder, W.G., Mitrescu, L.M., Hart, M.L. Smith, E.E., Shanley, C., Benedict, K.M., Taraba, L., Volckens, J. Basaraba, R.J., Schenkel, A. (2009) "Flexible low cost system for small animal aerosol inhalation exposure to drugs, proteins, inflammatory agents, and infectious agents." *Biotechniques*. 48(3): Piii-Pviii. doi 10.2144/00011289
14. Bennett, M., Volckens, J., Stanglmaier, R., McNichol, A., Ellenson, W.D., and C.W. Lewis. (2008) "Biodiesel effects on radiocarbon emissions from a diesel engine." *Journal of Aerosol Science*. 39 (8): 667-678. doi:10.1016/j.jaerosci.2008.04.001
15. Quillen, K., Bennet, M., Volckens, J., Stanglmaier, R. (2008) "Characterization of particulate matter emissions from a 4-stroke, lean burn, natural-gas engine." *Journal of Engineering for Gas Turbines and Power*. doi:10.1115/1.2906218
16. Benton-Vitz, K.B., and J. Volckens (2008) "Evaluation of the pDR-1200 Real-time aerosol monitor." *Journal of Occupational and Environmental Health*. 5 (6): 353-359. doi: 0.1080/15459620802009919
17. Volckens, J., Olson, D, and M. Hays. (2008) "Carbonaceous species emitted from handheld two-stroke engines." *Atmospheric Environment*. 42 (6): 1239 - 1248. doi:10.1016/j.atmosenv.2007.10.032
18. Volckens, J. Braddock, J., Snow, R.F., and W. Crews.. (2007) "Emissions profile of new and in-use handheld, two-stroke engines." *Atmospheric Environment*. 41(3): 640-649. doi:10.1016/j.atmosenv.2006.08.033
19. Lewis, C.W., Volckens, Braddock, J.N., Crews, W., Lonneman, W.A., and A.P. McNichol (2006) "Absence of ¹⁴C in PM_{2.5} emissions from gasohol combustion in small engines." *Aerosol Science and Technology*. 40:657-663. doi: 10.1080/02786820600784315
20. Volckens, J., and Peters, T.M. (2005) "Counting and particle transmission efficiency of the Aerodynamic Particle Sizer." *Journal of Aerosol Science*. 36(12): 1400-1408. doi:10.1016/j.jaerosci.2005.03.009

Refereed Publications

(continued)

21. Leith, D., Volckens, J., Boundy, M., and D. Hands. (2003) "Control methods for mineral oil mists." *Applied Occupational and Environmental Hygiene*. 18 (11): 883-889. doi: 10.1080/10473220390237412
22. Volckens, J., and Leith, D. (2003) "Comparison of methods for measuring gas-particle partitioning of semivolatile compounds." *Atmospheric Environment*. 37: 3177-3188. doi:10.1016/S1352-2310(03)00352-2
23. Volckens, J., and Leith, D. (2003) "Effects of sampling bias on gas-particle partitioning of semivolatile compounds." *Atmospheric Environment*. 37: 3385-3393. doi:10.1016/S1352-2310(03)00356-X
24. Volckens, J., and Leith, D. (2003) "Partitioning theory for respiratory deposition of semivolatile aerosols." *Annals of Occupational Hygiene*. 47(2): 157-164. doi: 10.1093/annhyg/meg015
25. Volckens, J., and Leith, D. (2002) "Electrostatic sampler for semivolatile aerosols: Chemical artifacts." *Environmental Science and Technology*. 36(21): 4608-4612. doi: 10.1021/es0207100
26. Volckens, J., and Leith, D. (2002) "Filter and electrostatic samplers for semivolatile aerosols: Physical artifacts." *Environmental Science and Technology*. 36(21): 4613-4617. doi: 10.1021/es020711s
27. Cardello, N., Volckens, J., Wiener, R., Tolocka, M., and Buckley, T. (2002) "Performance of a personal electrostatic precipitator particle sampler." *Aerosol Science and Technology*. 36: 162-165. doi: 10.1080/027868202753504029
28. Volckens J., Boundy M., and Leith D. (2000) "Mist concentration measurements II: Laboratory and field evaluation." *Applied Occupational and Environmental Hygiene*. 15(4): 370-379. doi: 10.1080/104732200301494
29. Raynor P.C., Volckens J., and Leith D. (2000) "Modeling evaporative losses of oil mist collected by sampling filters." *Applied Occupational and Environmental Hygiene*. 15(1): 90-96. doi: 10.1080/104732200301890
30. Volckens J., Boundy M., Leith D., and Hands D. (1999) "Oil mist concentration: A comparison of sampling methods." *American Industrial Hygiene Association Journal*. 60: 684-689. doi: 10.1080/00028899908984492
31. Volckens J., O'Shaughnessy P.T., and Hemenway D.R. (1998) "An aerosol generation system for the production of respirable grain dust." *Applied Occupational and Environmental Hygiene*. 13(2): 122-126. doi: 10.1080/1047322X.1998.10389136

Presentations (previous 4 years)

1. "The State of the Science of Inhalable Particles," Science Symposium at the American Industrial Hygiene Conference and Exposition, Portland OR, May 2011.
2. Invited Speaker. "Statistical Approaches and Data Analysis," at the AIHce Symposium: Conquering Industrial Hygiene Problems with the Use of Real-Time Instruments, Portland OR, May 2011.
3. Invited Speaker. "Engineering an In Vitro Lung Model for Air Pollutant Deposition and Toxicology," Division of Environmental and Occupational Health Sciences, National Jewish Health, July 2010.

Presentations

(continued, previous 4 years)

4. Invited Speaker. "Development of a system for direct, particle-to-cell deposition at the air-liquid interface in vitro," Particles 2010 Conference, Orlando FL, May 2010.
5. "Effects of Improved Cookstove Emissions on Normal Human Bronchial Epithelial Cells," Poster Presentation. AAAR Air Pollution and Health Specialty Conference, San Diego CA, March 2010.
6. Invited Speaker. "Air Pollution Scientists Need to Get Their Heads Out of Their Assessments and Take a Dose of Reality," Dept. of Environmental Health Engineering, Johns Hopkins Bloomberg School of Public Health, November 2009.
7. "Using GIS to Understand Environmental Factors in Childhood Asthma." Platform Presentation. American Industrial Hygiene Association, Rocky Mountain Section Annual Conference, Arvada, CO, September, 2009.
8. "An Improved Model of Particulate Matter Deposition and Toxicology in the Human Lung In Vitro." Platform Presentation. Aspen Lung Conference, Aspen, CO, June 2009.
9. "New Insights into Personal Exposure to Particulate Matter Air Pollution: A Case Study of Asthmatic Children." Platform Presentation. Aspen Lung Conference, Aspen, CO, June 2009.
10. "A Personal Sampler for Assessing Inhaled Nanoparticle Exposures." Platform Presentation. American Industrial Hygiene Conference and Exposition, Toronto, Canada, June 2009.
11. "Direct, Air-to-Cell Deposition of Coarse Particulate Matter Increases the Inflammatory Response In Vitro." Poster Presentation. American Thoracic Society Conference, San Diego, CA, May 2009.
12. Invited Speaker. "Nanoparticle Exposure Assessment: Finding a Needle in a Haystack." Rocky Mountain Academy of Occupational and Environmental Medicine. Denver, CO, January 2009.
13. "Mechanical Engineers Can do Anything, so I Asked Them to Solve Today's Global Health Problems." Oral Presentation, MCEN Graduate Seminar, University of Colorado, Boulder, CO, November 2008.
14. "Exposure Assessment and GIS." Oral Presentation. Colorado Public Health GIS Users Group, Denver, CO, December 2008.
15. "Development of an Electrostatic Aerosol In Vitro Exposure System (EAVES 2) for Inhaled Particle Toxicology." Poster Presentation. Inhaled Particles X, Sheffield England, September 2008.
16. "Lung Deposition Sampler for Inhalable Aerosol." Poster Presentation. Inhaled Particles X, Sheffield England, September 2008.
17. "A Rotary Sampling Disc for Unbiased Measurements of Large Particle Aerosols in a Wind Tunnel." Poster Presentation. American Association for Aerosol Research, Shingle Creek, FL, October 2008.
18. "A Model for Diffusive Particle Deposition Through Porous Foam Media." Oral Presentation. American Industrial Hygiene Conference and Exposition, Minneapolis, MN, June 2008.
19. "Nanoparticle Measurement." Invited symposia on Nanotechnology: Wonders and Worries. American Industrial Hygiene Conference and Exposition. Philadelphia, PA. June 2007.