

Assistant 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

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## Experience

**Assistant Professor**     *Environmental and Radiological Health Sciences*  
2004 - present     *Colorado State University (primary appointment)*

**Adjunct Assistant Professor**     *Department of Environmental and Occupational Health*  
2009-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     *Colorado State University, Dept. of Mechanical Engineering*

**Visiting Scientist**     *Clinical Research Branch*  
2006-present     *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*

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**Honors and Awards**

Cover Issue, Journal of Environmental Monitoring, 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

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**Grants and Fellowships**

*'A Personal Sampler for Assessing Inhaled Nanoparticle Exposures'*  
2008-2010 (PI) 1R03OH009381-01 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) 5R21OH009114-02 DHHS/CDC/NIOSH

*'Lung Deposition Sampler for Inhalable Aerosol'*  
2007-2009 (PI) 5R03OH009248-02 DHHS/CDC/NIOSH

*'Engineering an In-Vitro Lung for Air Pollution Toxicology'*  
2006-2011 (PI) 5K25ES014378-02 DHHS/NIH/NIEHS

*'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 National Network for Environmental Management Studies Fellow, 2000-2002  
UNC Board of Governors Fellowship, 1999-2002  
NIOSH-UNC Pilot Project Research Training Grant, 2000  
NIOSH Traineeship Award, 1997

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**Teaching**

**Principal Instructor** EH 726 "Aerosols and Occupational Health" 2004-2009  
EH 636 "Control Methods for Industrial Hygiene" 2005-2009

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**Teaching**

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- 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

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**Service**

- President** Board of Directors, Journal of Occupational and Environmental Hygiene (2009)
- Chair** AIHA Aerosol Technology Committee (2008, 2009)  
AAAR Aerosol Control Technology Working Group, 2001-2002
- Technical Reviewer** *Aerosol Science and Technology*  
*Annals of Occupational Hygiene*  
*American Industrial Hygiene Association Journal*  
*Applied Occupational and Environmental Hygiene*  
*Atmospheric Environment*  
*Environmental Science and Technology*  
*Environmental Health Perspectives*  
*Journal of Geophysical Research*  
*Journal of Air and Waste Management Association*  
*Journal of Environmental Engineering*  
*EHS (P3) P30 Review Committee, Ad-hoc member, NIH/NIEHS, 2009*  
*ZRG1 HDM-A (58) Challenge Grants Panel 29, NIH/NIEHS, 2009*
- Organizing Member** International State of the Science Workshop on Organic Speciation in Atmospheric Aerosols Research, April 5-7, 2004 Las Vegas, NV.

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**Professional and  
Honorary Societies**

American Association for Aerosol Research  
Association of Environmental Engineering and Science Professors  
American Industrial Hygiene Association  
Chi Epsilon Honor Society  
Engineer in Training, State of Vermont  
Order of the Engineer  
Tau Beta Pi Honor Society

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**Refereed Publications**

1. Koehler, K. and Volckens, J.(2009) "A Rotary Sampling Disc for Unbiased Measurements of Wind Tunnel Aerosols." *Annals of Occupational Hygiene*. Submitted.
2. Anthony, T.R., Landázuri, A.C., Van Dyke, M., and Volckens, J. (2009) "Design and Computational Fluid Dynamic Investigation of a Personal, High-Flow, Inhalable Sampler." *Journal of Aerosol Science*. Submitted.
3. 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
4. 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
5. 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
6. 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
7. 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
8. 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
9. 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
10. 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
11. 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
12. 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.2006.08.03
13. Lewis, C.W., Volckens, Braddock, J.N., Crews, W., Lonneman, W.A., and A.P. McNichol (2006) "Absence of <sup>14</sup>C in PM<sub>2.5</sub> emissions from gasohol combustion in small engines." *Aerosol Science and Technology*, 40:657-663.
14. 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.

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**Refereed Publications**

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15. 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.
16. Volckens, J., and Leith, D. (2003) "Comparison of methods for measuring gas-particle partitioning of semivolatile compounds." *Atmospheric Environment*, 37: 3177-3188.
17. Volckens, J., and Leith, D. (2003) "Effects of sampling bias on gas-particle partitioning of semivolatile compounds." *Atmospheric Environment*, 37: 3385-3393.
18. Volckens, J., and Leith, D. (2003) "Partitioning theory for respiratory deposition of semivolatile aerosols." *Annals of Occupational Hygiene*, 47(2): 157-164.
19. Volckens, J., and Leith, D. (2002) "Electrostatic sampler for semivolatile aerosols: Chemical artifacts." *Environmental Science and Technology*, 36(21): 4608-4612.
20. Volckens, J., and Leith, D. (2002) "Filter and electrostatic samplers for semivolatile aerosols: Physical artifacts." *Environmental Science and Technology*, 36(21): 4613-4617.
21. 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.
22. 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.
23. 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.
24. 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.
25. 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.

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**Presentations**

1. "Using GIS to Understand Environmental Factors in Childhood Asthma." Platform Presentation. American Industrial Hygiene Association, Rocky Mountain Section Annual Conference, Arvada, CO, September, 2009.
2. "An Improved Model of Particulate Matter Deposition and Toxicology in the Human Lung In Vitro." Platform Presentation. Aspen Lung Conference, Aspen, CO, June 2009.
3. "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.
4. "A Personal Sampler for Assessing Inhaled Nanoparticle Exposures." Platform Presentation. American Industrial Hygiene Conference and Exposition, Toronto, Canada, June 2009.

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**Presentations**

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5. "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.
6. Invited Speaker. "Nanoparticle Exposure Assessment: Finding a Needle in a Haystack." Rocky Mountain Academy of Occupational and Environmental Medicine. Denver, CO, January 2009.
7. "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.
8. "Exposure Assessment and GIS." Oral Presentation. Colorado Public Health GIS Users Group, Denver, CO, December 2008.
9. "Development of an Electrostatic Aerosol In Vitro Exposure System (EAVES 2) for Inhaled Particle Toxicology." Poster Presentation. Inhaled Particles X, Sheffield England, September 2008.
10. "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.
11. "A Model for Diffusive Particle Deposition Through Porous Foam Media." Oral Presentation. American Industrial Hygiene Conference and Exposition, Minneapolis, MN, June 2008.
12. "Biodiesel Effects on Radiocarbon (<sup>14</sup>C) PM Emissions from a Diesel Engine." Poster Presentation. American Association for Aerosol Research Conference, Reno, NV, September 2007.
13. "Nanoparticle Measurement." Invited symposia on Nanotechnology: Wonders and Worries. American Industrial Hygiene Conference and Exposition. Philadelphia, PA. June 2007.
14. "Advantages of Spatiotemporal Exposure Assessment Over Traditional, Time-Integrated Filter Sampling." Poster Presentation. American Industrial Hygiene Conference and Exposition. Philadelphia, PA. June, 2007.
15. "Nanoparticle Update: Measuring, Evaluating, and Managing Exposures." Web-based oral seminar. American Industrial Hygiene Association. March 2007.
16. "New innovations in exposure assessment: Mapping personal exposure to airborne particles with GPS, GIS, and real-time PM monitors." Oral presentation, International Society for Exposure Assessment / International Society of Environmental Epidemiology, Paris, France, September 2006.
17. "Instrumentation for measuring the concentrations of inhaled nanoparticles in the workplace." Invited Speaker. American Industrial Hygiene Conference and Exposition, Chicago, IL, May 2006.
18. "From personal exposure tracks to community exposure maps: Integration of GPS and real-time exposure assessment." Oral presentation, American Association for Aerosol Research Conference, Austin, TX, October 2005.
19. "Radiocarbon in particulate emissions from gasohol combustion in small engines." Poster presentation, American Association for Aerosol Research Conference, Austin, TX, October 2005.

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**Presentations**

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20. "Health effects of inhaled nanoparticles in the workplace" Invited Speaker. American Industrial Hygiene Association, Web Seminar. April 2005.
21. "Aerosol Innovation at AIHCe 2005," Invited Editorial for *The Synergist* magazine, June 2005.
22. "Air Pollution Scientists Need to Get Their Heads Out of Their Assessments and Take a Dose of Reality," EH 102 Department Seminar, Fort Collins, CO, February 2005.
23. "High Volume Injection for GCMS Analysis of Particulate Organic Species in Ambient Air." Co-author, oral presentation. AAAR Particulate Matter Supersites Program Conference, Atlanta, GA, February 2005.
24. Invited Speaker. "Semivolatile air pollution: Icky, Sticky, and Altogether Tricky," Colorado State Environmental Research Colloquium, Ft. Collins, CO, November 2004.
25. Invited Speaker. "Sampling Issues Related to Organic Speciation of PM and SVOC." International State of the Science Workshop on Organic Speciation in Atmospheric Aerosols Research, Las Vegas, NV, April 2004.
26. "Particle Speciation and Emission Profiles for Small, 2-Stroke Engines," poster presentation, American Association for Aerosol Research Conference, Anaheim, CA, October 2003.
27. "Semivolatile Air Pollution." HEASD Work In Progress Seminar, U.S. EPA, Research Triangle Park, NC, June 2003.
28. "Sampling Recommendations for Semivolatile Aerosols," oral presentation, American Association for Aerosol Research Conference, Charlotte, NC, October 2002.
29. "Equilibrium Partitioning Theory Applied to Respiratory Dose of Semivolatile Aerosols," poster presentation, American Industrial Hygiene Conference and Exposition, San Diego, CA, June 2002.
30. "Semivolatile Air Pollution: Icky, Sticky, and Altogether Tricky." ENVR 103 Departmental Seminar, UNC Chapel Hill, March 2002.
31. "Development of an Electrostatic Precipitator as a Sampler for Semivolatile Aerosols," oral presentation, American Association for Aerosol Research Conference, Portland OR, October 2001.
32. "Investigation of a Personal Electrostatic Precipitator as a Sampler for Semivolatile Aerosols: Chemical Artifacts," oral presentation, American Association for Aerosol Research Conference, Portland OR, October 2001.
33. "Testing an Electrostatic Precipitator For Collection of Semivolatile Particles: Comparison to Conventional Methods," poster presentation, American Association for Aerosol Research Conference, St. Louis MO, November 2000.
34. "Oil Mist Concentration: An Evaluation of Sampling Methods," oral presentation, Quadrangle Environmental Engineering Conference, Virginia Tech WV, February 1999.
35. "Mist Concentration Measurements," oral presentation, Metalworking Fluids Symposium II, American Automobile Manufacturers Association, Detroit MI, September 1997.