

**UNIVERSITY OF IOWA  
COLLEGE OF PUBLIC HEALTH CURRICULUM VITAE**

**Thomas M. Peters, Ph.D.**

March 7, 2011

**I. EDUCATIONAL AND PROFESSIONAL HISTORY**

**A. Education**

<u>Institution</u>	<u>Dates Attended</u>	<u>Field of Study</u>	<u>Degree Obtained</u>	<u>Degree Date</u>
University of Florida Gainesville, Florida	1984-1990	Environmental Engineering	BS	1990
University of Florida Gainesville, Florida	1990-1992	Environmental Engineering	MS	1992
The University of North Carolina at Chapel Hill Chapel Hill, NC	2000-2004	Industrial Hygiene/Aerosol Physics	PhD	2004

**B. Professional and Academic Positions**

<u>Position Title</u>	<u>Dates of Service</u>	<u>Location/Institution</u>
Graduate Research Assistant	1990-1992	University of Florida Gainesville, FL
Research Aerosol Engineer/Scientist	1993-2000	RTI International, Research Triangle Park, NC
Graduate Research Assistant	2000-2004	The University of North Carolina at Chapel Hill, NC
Assistant Professor	2004- 2010	The University of Iowa Iowa City, IA
Associate Professor	2010- present	The University of Iowa Iowa City, IA

**C. Honors, Awards, Recognitions, Outstanding Achievements**

<u>Year</u>	<u>Title</u>
1989	Florida Consulting Engineers Scholarship
1990	EPA Air Pollution Control Scholarship
1991	Engineer-in-Training

2000	Department of Education Graduate Assistants in Areas of National Need Fellowship
2001	Department of Education Graduate Assistants in Areas of National Need Fellowship
2002	NIOSH Training Award
2003	NIOSH Training Award
2003	FY2001 EPA Scientific and Technology Achievement Award: Level 1
2003	Runner-up “Best Poster in Show Award” AIHce
2004	Bernard G. Greenberg Award for Excellence in Doctoral Research
2005	College of Public Health New Investigator Research Award
2008	“Best Aerosol Poster in Show Award” AIHce
2009	“Best Aerosol Poster in Show Award” AIHce “Best Poster in Session Award” AIHce – Graduate Student Session “Best Poster in Session Award” AIHce – Graduate Student Session
2010	David Swift Memorial Award for “Best Aerosols Paper Published in Journal of Occupational and Environmental Hygiene” Michigan Industrial Hygiene Society “Best Paper Award” “Best Poster in Show Award” AIHce “Best Poster in Session Award AIHce – Graduate Student Session

## II. TEACHING AT THE UNIVERSITY OF IOWA

### A. Teaching Assignments

<u>Semester Year</u>	<u>Course Title/ Number</u>	<u>Semester Hours</u>	<u>Number of Students</u>	<u>Role</u>	<u>Percent Responsible</u>
1990-1992	EPA short courses on Industrial Source sampling	N/A	30	Instructor	25%
1991	Atmospheric Dispersion Modeling	3	10	Lecturer	20%
1992	EPA Air Pollution Control	N/A	40	Co-Instructor	25%
2001-2002	Introduction to Aerosols	4	12	Lecturer	20%
2003	Air Pollution Control	3	5	Lecturer	10%
2004	Industrial Hygiene 1	3	4	Instructor	25%
Spring 2006	Air Pollution Control 052:235	3	3	Instructor	10%

	Aerosol Technology 175:221				
Fall 2005		3	13	Instructor	100%
Fall 2006		3	8	Instructor	100%
Fall 2007		3	8	Instructor	100%
Fall 2008		3	11	Instructor	100%
Fall 2009		3	15	Instructor	100%
	Occupational and Environmental Epidemiology 175:220				
Spring 2006		3	5	Instructor	50%
Spring 2007		3	13	Instructor	50%
Spring 2008		3	6	Instructor	10%
Spring 2009		3	3	Instructor	10%
	Occupational Health 175:230				
Fall 2007		3	20	Instructor	50%
Fall 2008		3	16	Instructor	50%
	Control of Occupational Hazards 175:233				
Spring 2010		3	10	Instructor	70%

## B. Students Advised

### Graduate Students

<u>Name</u>	<u>Degree Objective</u>	<u>Outcome</u>
Darrin Ott <i>"Passive sampling of ambient coarse particulate matter"</i> (Milford Barnes Award for Academic Excellence)	PhD	PhD Aug 2007
Adam Riss <i>"Design and evaluation of an inlet conditioner to dry particles for an aerodynamic particle sizer"</i> (2006 Clyde Berry Award Winner; 2006 Iowa Gov. Safety Conf. Award Winner)	MS	MS May 2007
Ajith Kumar Benede Ramakrishna	MPH	MPH Dec 2007
Ron Johnson <i>"Airborne particles in the manufacturing and handling of nano-structured lithium titanate"</i> (2010 David Swift Memorial Award for "Best Aerosols Paper Published in Journal of Occupational and Environmental Hygiene" Michigan Industrial Hygiene Society "Best Paper Award")	MS	MS Dec 2007

William Cyrs “Surface collection efficiency of polycarbonate membrane filters” (2009 Best Poster in Session at AIHce)	MS	MS May 2009
Lorenzo Cena “Methods for the industrial hygiene evaluation of carbon nanotubes” (2008 Clyde Berry Award Winner; 2008 Best Aerosol Poster in Show at AIHce; 2010 “Best Poster in Show Award” AIHce; “Best Poster in Session Award AIHce” – Graduate Student Session)	PhD	On-going
Donna Vosburgh “Personal exposure assessment of nanoparticles in workplace environments” (2009 Best Aerosol Poster in Show at AIHce; 2009 Best Poster in Session at AIHce)	PhD	PhD Dec 2010
Eric Sawvel “Passive sampling of ambient coarse particles in Cleveland, OH”	PhD	On-going
Sabah Saleh	MS	On-going
Barry Hill	MS	On-going

*Professional/Postdoctoral Students*

<u>Name</u>	<u>Degree Objective</u>	<u>Outcome</u>
Auromeet Saha “Passive sampling to identify spatial distribution of coarse particles in Cleveland and Chicago”	Post-doctoral	Complete
Dane Boysen “Nanoparticle generation with a nebulizer-impactor system”	Post-doctoral	Complete

*Dissertations/Thesis*

<u>Name</u>	<u>Degree Objective</u>	<u>Role</u>	<u>Outcome</u>
Yuthana Tanwongwa	MS in Environmental Engineering	Mentor	MSEE 2003
Lindsay Parker	MS in Occupational and Environmental Health	Committee Member	MS 2007
Ashish Patel	MS in Occupational and Environmental Health	Committee Member	MS 2007
Mow Yee Foo	PhD in Pharmacy	Committee Member	PhD 2007
Kainan Sun	PhD in Occupational and Environmental Health	Committee Member	PhD 2008
Piotr Lewandowski	PhD in Civil and Environmental Engineering	Committee Member	PhD 2009
Bhupesh Adhikary	PhD in Civil and Environmental Engineering	Committee Member	PhD 2008
Chao Wei	PhD in Civil and Environmental Engineering	Committee Member	PhD 2010

Min Huang	MS in Civil and Environmental Engineering	Committee Member	MS 2010
Carolyn Persoon	PhD in Civil and Environmental Engineering	Committee Member	PhD 2010
Michael Humann	PhD in Occupational and Environmental Health	Committee Member	On-going
Rania Hamed	PhD in Pharmacy	Committee Member	On-going
Amir Farnoud	PhD in Pharmacy	Committee Member	On-going
Min Huang	PhD in Civil and Environmental Engineering	Committee Member	On-going
Jong Kim	PhD in Occupational and Environmental Health	Committee Member	On-going

**C. Other Advising/Mentoring**

<u>Name</u>	<u>Position</u>	<u>Role</u>	<u>Outcome</u>
Miller Li (2004)	Summer Student	Lab Assistant	developed new standard operating procedure
Will Cyrs (2005-2007)	Staff	Lab Assistant	assisted on various projects; became MS student in Industrial Hygiene
Tyler Gunn (2005-)	Staff	Lab Assistant	developed image analysis routines for particle measurement; received Iowa Research Experience for Undergraduates Scholarship to support work

**D. Other Contributions to Institutional Programs**

*Institutional Conferences, Grand Rounds, Journal Club*

<u>Date</u>	<u>Title</u>	<u>Location</u>
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*Teaching Committees*

<u>Year</u>	<u>Committee Name</u>
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*National Education-Related Presentations*

<u>Year</u>	<u>Title</u>
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*Formal Study to Improve Teaching Abilities*

<u>Year</u>	<u>Institution</u>	<u>Course Title</u>
2002	The University of North Carolina at Chapel Hill	College Teaching full semester course
2005	The University of Iowa	Evaluation of video taped teaching by Center for Teaching and Learning.
2006	The University of Iowa	Summer Camp for Faculty Workshop

### Current Research Concerning Teaching

<u>Year</u>	<u>Title</u>
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### Local and Regional CME Talks

<u>Year</u>	<u>Title</u>	<u>Location</u>
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## E. Course Materials (syllabi, instructional web pages, computer lab materials)

<u>Year</u>	<u>Title / Activity</u>
Fall 2005	Developed new course entitled Aerosol Technology Prepared syllabus, course lessons, website, and lab materials.
Spring 2006	Developed exposure assessment portion of new course entitled Occupational and Environmental Epidemiology Prepared syllabus, course lessons, website, and problem sets.
Fall 2007	Revised Industrial Hygiene portion of Occupational Health course
Spring 2010	Revised Control of Occupational Contaminants course

## III. SCHOLARSHIP

### A. Publications or Creative Works

#### *Peer-Reviewed Papers*

1. **Peters, T.M.**, H.M. Chein, D.A. Lundgren, P.B. Keady (1993) Comparison and combination of aerosol size distributions measured with a low pressure impactor, differential mobility particle sizer, electrical aerosol analyzer, and aerodynamic particle sizer. *Aerosol Sci. Technol.* 19:396-405.
2. **Peters, T.M.**, H.M. Chein, D.A. Lundgren, J. Berntsen (1994) Sub-micron aerosol generator development for EPA's Human Exposure Laboratory. *Aerosol Sci. Technol.* 20:51-61.
3. Chein, H.M., **T.M. Peters**, D.A. Lundgren (1996) High-output generation of aerosol with narrow size distributions. *Inhalation Tox.* 8:709-722.
4. Heist, D.K., M.P. Tolocka, R.W. Vanderpool, **T.M. Peters**, F.L. Chen, R.W. Wiener (2001) Changes in operating procedures for achieving aerosol concentration uniformity for PM<sub>2.5</sub> and PM<sub>10</sub> samplers. *Aerosol Sci. Technol.* 34:430-432.
5. Noble, C.A., R.W. Vanderpool, **T.M. Peters**, F.F. McElroy, D.B. Gemmill, R.W. Wiener (2001) Federal reference and equivalent methods for measuring fine particulate matter. *Aerosol Sci. Technol.* 34:457-464.
6. **Peters, T.M.**, M. Boundy, D. Leith (2001) Influence of upstream flow characteristics on filter efficiency. *Filtration & Separation.* 2001. 38(10):40-47.
7. **Peters, T.M.**, R.A. Gussman, L.C. Kenny, R.W. Vanderpool (2001) Evaluation of PM<sub>2.5</sub> separators used in speciation samplers. *Aerosol Sci. Technol.* 34:422-429.
8. **Peters, T.M.**, G.A. Norris, R.W. Vanderpool, D.B. Gemmill, R.W. Wiener, R.W. Murdoch, F.F. McElroy, M. Pitchford (2001) Field performance of PM<sub>2.5</sub> reference method samplers. *Aerosol Sci. Technol.* 34:433-443.

9. **Peters, T.M.**, R.W. Vanderpool, R.W. Wiener (2001) Design and calibration of the WINS impactor. *Aerosol Sci. Technol.* 34:389-397.
10. **Peters, T.M.**, R.W. Vanderpool, R.W. Wiener (2001) Methodology for measuring PM<sub>2.5</sub> separator characteristics using an Aerosizer. *Aerosol Sci. Technol.* 34:398-406.
11. Tolocka, M.P., **T.M. Peters**, R.W. Vanderpool, F.L. Chen, R.W. Wiener (2001) On the modification of the low flow-rate PM<sub>10</sub> dichotomous sampler inlet. *Aerosol Sci. Technol.* 34:407-415.
12. Vanderpool, R.W., **T.M. Peters**, S. Natarajan, D.B. Gemmill (2001) Evaluation of the loading characteristics of the EPA WINS PM<sub>2.5</sub> separator. *Aerosol Sci. Technol.* 34:444-456.
13. Vanderpool, R.W., **T.M. Peters**, S. Natarajan, M.P. Tolocka, D.B. Gemmill, R.W. Wiener (2001) Sensitivity analysis of the USEPA WINS PM<sub>2.5</sub> separator. *Aerosol Sci. Technol.* 34:465-476.
14. Rosati, J.A., J.S. Brown, **T.M. Peters**, D. Leith, C.S. Kim (2002) A polydisperse aerosol inhalation system designed for human studies. *J. Aerosol Sci.* 33(10):1433-1446.
15. **Peters, T.M.**, D. Leith (2003) Concentration measurement and counting efficiency of the aerodynamic particle sizer 3321. *J. Aerosol Sci.* 34(5):627-634.
16. **Peters, T.M.**, J.C. Volkwein (2003) Analysis of sampling line bias on respirable mass measurement. *Applied Occup. Environ. Hyg.* 18(6):458-465.
17. **Peters, T.M.**, D. Leith (2004) Measurement of particle deposition in industrial ducts. *J. Aerosol Sci.* 35(4):529-540.
18. **Peters, T.M.**, D. Leith (2004) Particle deposition in industrial duct bends. *Ann. Occup. Hyg.* 48(5):483-490.
19. **Peters, T.M.**, D. Leith (2004) Modeling large-particle deposition in bends of exhaust ventilation systems. *Aerosol Sci. Technol.* 38:1171-1177.
20. Volckens, J.A.E., **T.M. Peters** (2005) Counting and particle transmission efficiency of the Aerodynamic Particle Sizer (APS 3321). *J. Aerosol Sci.* 36(12):1400-1408.
21. **Peters, T.M.**, W.A. Heitbrink, D.E. Evans, T.J. Slavin, A.D. Maynard (2006) The mapping of fine and ultrafine particle concentrations in engine machining and assembly plant. *Ann. Occup. Hyg.* 50:249-257.
22. **Peters T.M.** (2006) Use of the aerodynamic particle sizer to measure ambient PM<sub>10-2.5</sub>: the coarse fraction of PM<sub>10</sub>. *J. Air Waste Manag. Assoc.* 56(4):411-6.
23. **Peters, T.M.**, D. Ott, P.T. O'Shaughnessy (2006) Performance of the Grimm 1.108 and 1.109 portable aerosol spectrometer to the TSI 3321 Aerodynamic Particle Sizer for dry particles. *Ann. Occup. Hyg.* 50(8):843-850.
24. Vanderpool, R.W., L.A. Byrd, R.W. Wiener, E.T. Hunikey, M. Labickas, A.R. Leston, M.P. Tolocka, F.F. McElroy, R.W. Murdoch, S. Natarajan, C.A. Noble, **T.M. Peters** (2007) Laboratory and field evaluation of crystallized Dow 704 oil on the performance of the WINS fine particulate matter fractionator. *J. Air Waste Manag. Assoc.* 57(1):14-30.
25. Heitbrink, W.A., D.E. Evans, **T.M. Peters**, T.J. Slavin (2007) Characterization and mapping of very fine particle in an engine machining and assembly facility. *J. Occup. Envir. Hyg.* 4(5):341-351.
26. Reid, J., **T.M. Peters** (2007) Update to "Reconciliation of coarse mode sea-salt aerosol particle size measurements and parameterizations at a sub-tropical ocean receptor site" regarding the

use of Aerodynamic Particle Sizers in marine environments. *J. Geophysical Research-Atmospheres*. 112 (D4).

27. Evans, D.E., W.A. Heitbrink, T.J. Slavin, **T.M. Peters** (2008) Ultrafine and respirable particles in an automotive grey iron foundry. *Ann. Occup. Hyg.* 52(1):9-21.
28. Ott, D.K., N. Kumar, **T.M. Peters** (2008) Passive sampling to capture spatial variability of PM<sub>10-2.5</sub>. *Atmospheric Environ.* 42(4):746-756.
29. Ott, D.K., W. Cyrs, **T.M. Peters** (2008). Passive measurement of coarse particulate matter, PM<sub>10-2.5</sub>. *J. Aerosol Sci.* 39(2):156-167.
30. **Peters, T.M.**, A.L. Riss, R.L. Holm, M. Singh, R.W. Vanderpool (2008) Design and evaluation of an inlet conditioner to dry particles for real-time particle sizers. *J. Env. Monitoring*. 10(4):541.
31. Ott, D.K. and **T.M. Peters** (2008) A Shelter to Protect a Passive Sampler for Coarse Particulate Matter, PM<sub>10-2.5</sub>. *Aerosol Sci. Technol.* 42(4):299-309.
32. Heitbrink, W.A., D.E. Evans, B.K. Ku, A.D. Maynard, T.J. Slavin, **T.M. Peters** (2009) Relationships among particle number, surface area, and respirable mass concentrations in automotive engine manufacturing. *J. Occup. Envir. Hyg.* 6(1):19-31.
33. **Peters, T.M.**, S. Elzey, R. Johnson, H. Park, V. Grassian, T. Maher, P. O'Shaughnessy (2009) Airborne monitoring to distinguish engineered nanomaterials from incidental particles for environmental health and safety. *J. Occup. Envir. Hyg.* 6(2):73-81. DOI: 10.1080/15459620802590058.
34. Klosener, J., **T.M. Peters**, A.A.-Dodd, P.S. Thorne, L.W. Robertson, G. Luthe (2009) Innovative application of fluoro-tagging to trace airborne particulate and gas-phase polybrominated diphenyl ether exposures. *Chem. Research Toxicology*. 22(1):179-186. Jan 2009.
35. Kumar, N., V. Nixon, K. Sinha, J. Xiaosen, S. Ziegenhorn, **T.M. Peters** (2009) An optimal spatial configuration of sampling sites for air pollution monitoring. *J. Air Waste Management Assoc.* 59:1308-1316.
36. Sheehan, M., **T.M. Peters**, L. Cena, P.T. O'Shaughnessy, R.A. Gussman (2009) Enhanced nanoparticle production with a nebulizer-cyclone aerosol generator. *Aerosol Sci. Technol.* 43:1091-1098.
37. O'Shaughnessy, P.T., K. Kelley, K. Donham, **T.M. Peters** (2010) Task-based variability of dust in swine barns. *J. Occup. Envir. Hygiene*. 7:7-13.
38. Persoon, C., **T.M. Peters**, N. Kumar, K. Hornbuckle (2010) The spatial variability of PCBs and PBDEs in the Chicago and Cleveland airsheds. *Envir. Sci. and Technol.* DOI: 10.1021/es901691s.
39. Boysen, D., **T.M. Peters** (2010) Impactor designed to increase mass output rate of nanoparticles from a pneumatic nebulizer. *J. Aerosol Sci.* 41(2):170-179. DOI: 10.1016/j.jaerosci.2009.11.001.
40. Cyrs, W.D., D.A. Boysen, G. Casuccio, T. Lersch, **T.M. Peters** (2010) Nanoparticle collection efficiency to the surface of capillary pore membrane filters. *J. Aerosol Sci.* 41:655-664. DOI:10.1016/j.jaerosci.2010.04.007.
41. Schmoll, L.H., **T.M. Peters**, P.T. O'Shaughnessy (2010) Use of a condensation particle counter and an optical particle counter to assess the number concentration of engineered nanoparticles. *J. Occup. Envir. Hyg.* 7:535-545. DOI: 10.1080/15459624.2010.496072.

42. Vosburgh D., D.A. Boysen, J.J. Oleson, **T.M. Peters** (in press) Airborne nanoparticle concentrations in the manufacturing of polytetrafluoroethylene (PTFE) apparel. *J. Occup. Envir. Hyg.*
43. Cena, L., **T.M. Peters** (2011) Characterization and control of airborne particles emitted during production of epoxy/carbon nanotube nanocomposites. *J. Occup. Envir. Hyg.* 8:86-92. DOI: 10.1080/15459624.2011.545943.
44. Kumar, N., A.D. Chu, **T.M. Peters**, R. Willis (in press) Satellite remote sensing for developing time-space resolved estimates of ambient particulate in Cleveland, OH. *Aerosol Sci. Technol.*

*Non-Peer-Reviewed Papers (reports, proceedings, etc.)*

*Chapters*

1. **Peters, T.M.**, J.A.E. Volckens, S. Hering (2009) Impactors, Cyclones, and Other Inertial and Gravitational Collectors. In: D. Leong (Editor), *Air Sampling Instruments for Evaluation of Atmospheric Contaminants*. American Conference of Governmental Industrial Hygienists, Inc., Cincinnati, OH.
2. **Peters, T.M.**, V.H. Grassian (2011) Engineered Nanomaterials. In: V. Rose; B. Cohrssen (Editors), *Patty's Industrial Hygiene*, 6<sup>th</sup> Edition. J. Wiley, New York, NY. pp. 373-403.
3. P.A. Baron, **T.M. Peters**, M.K. Mazumder, Y.-S. Cheng (in press) Direct-reading techniques using particle motion and optical detection. In: P. Baron (Editor), *Aerosol Measurement*. J. Wiley, New York, NY.

*Abstracts*

1. **Peters, T.M.**, H. Chein, D.A. Lundgren. Combining data from an APS and an EAA or a DMPS (DMA) to obtain aerosol mass distribution (1992) Proc. 11th Annual Meeting of the American Association of Aerosol Researchers. San Francisco, CA.
2. **Peters, T.M.**, H.M. Chein, D.A. Lundgren (1992) Submicron aerosol generator development for EPA's human exposure laboratory. Proc. 11th annual meeting of the American Association of Aerosol Researchers. San Francisco, CA.
3. **Peters, T.M.**, A.B. Lindstrom, R.W. Wiener (1994) Development of a standardized airborne dust mite antigen collection method. Proc. 4th International Aerosol Conference: sponsored by the American Association of Aerosol Researchers. Los Angeles, CA.
4. Burton, R., **T.M. Peters**, J. Lawrence, G. Allen, P. Koutrakis (1995) Characteristics of Washington, D.C. ambient aerosol as measured by a real-time particle sizing system, a micro orifice impactor, and integrated PM<sub>2.5</sub> and PM<sub>10</sub> samples. Proc. 14th Annual Meeting of the American Association of Aerosol Researchers. Pittsburgh, PA.
5. Chein, H.M., **T.M. Peters**, D.A. Lundgren (1995) High-output generation of aerosol with narrow size distributions. Proc. 14th Annual Meeting of the American Association of Aerosol Researchers. Pittsburgh, PA.

6. **Peters, T.M.**, R.W. Vanderpool, J. Lawrence, E. Abt, P. Koutrakis (1996) Combination of aerodynamic particle sizer and scanning mobility particle sizer data in measuring ambient aerosols. Proc. 14th Annual Meeting of the American Association of Aerosol Researchers. Pittsburgh, PA.
7. Rodes, C.E., P.A. Lawless, **T.M. Peters** (1996) Biases in personal aerosol air exposure sampling. Proc. A&WMA Conference Measurement of Toxic and Related Air Pollutants, Session 15 - Human Exposure. Research Triangle Park, NC.
8. Rodes, C.E., **T.M. Peters**, P.A. Lawless, L. Wallace (1996) Aerosol sampling biases in personal exposure measurements. Proc. Joint SRA/ISEA Conference, Session K3 - Exposure to Particulate Matter, paper K3.03. New Orleans, LA.
9. Tolocka, M.P., F.L. Chen, **T.M. Peters**, R.W. Vanderpool, R.W. Wiener (1999) Comparison of the standard and modified inlets for low flow rate samplers. Proc. Air and Waste Management Association Meeting, paper 441. St. Louis, MO.
10. **Peters, T.M.**, R.A. Gussman, L.C. Kenny, R.W. Vanderpool (2000) Performance of size selectors used in PM<sub>2.5</sub> speciation samplers. Proc. Air and Waste Management Association Special Conference: PM2000. Charleston, SC.
11. **Peters, T.M.**, R.W. Vanderpool, R.W. Wiener (2000) Incorporation of real-time methods into US EPA laboratory procedures for evaluation of size selective samplers. Proc. European Aerosol Conference. Dublin, Ireland.
12. Vanderpool, R.W., **T.M. Peters**, S. Natarajan, D.B. Gemmill, R.W. Wiener (2000) Performance and sensitivity analysis of the US EPA WINS fractionator for PM<sub>2.5</sub> federal reference method. Proc. Air and Waste Management Association Special Conference: PM2000. Charleston, SC.
13. Vette, A.F., **T.M. Peters**, L. Sheldon (2000) Comparisons of dual SMPS-APS systems to measure indoor-outdoor particle size distributions. Proc. 10th Annual Conference of the International Society of Exposure Analysis. 2000. Monterey, CA.
14. **Peters, T.M.**, D. Leith (2002) Aerosol collection in industrial ductwork bends. Proc. 21st Annual American Association of Aerosol Researchers. Charlotte, NC.
15. **Peters, T.M.**, D. Leith (2002) A rapid measurement technique for determining particle penetration of industrial ductwork. Proc. American Industrial Hygiene Association Meeting. San Diego, CA.
16. **Peters, T.M.**, J.C. Volkwein (2002) Analysis of sampling line bias on respirable mass measurement. Proc. 21st Annual American Association of Aerosol Researchers Conference. Charlotte, NC.
17. Tanwongwan, Y., **T.M. Peters**, D. Leith (2002) The effect of turbulence on filter efficiency. Proc. 21st Annual American Association of Aerosol Researchers Conference. Charlotte, NC.
18. **Peters, T.M.** (2003) Ventilation engineers may have all their ducts in a row, but can they account for all the feathers? In Environmental Sciences and Engineering Department Seminar. UNC, Chapel Hill, NC.

19. **Peters, T.M.**, D. Leith (2003) Particle deposition in industrial ducts. Proc. American Industrial Hygiene Association Meeting. Dallas, TX.
20. **Peters, T.M.** , D. Leith (2003) Particle deposition in industrial duct bends. Proc. 22nd Annual American Association of Aerosol Researchers Conference. Anaheim, CA.
21. **Peters, T.M.** , D. Leith (2003) Counting efficiency of the model 3321 aerodynamic particle sizer. Proc. 22nd Annual American Association of Aerosol Researchers Conference. Anaheim, CA.
22. **Peters, T.M.** , D. Leith (2004) Particle deposition in industrial duct bends. Proc. American Industrial Hygiene Association Meeting. Atlanta, GA.
23. **Peters, T.M.**, D. Leith, S. Rappaport (2004) Developing a passive sampler for ultrafine particles. Proc. 23rd Annual American Association of Aerosol Researchers Conference. Atlanta, GA.
24. Volckens, J.A.E., **T.M. Peters** (2004) Counting and particle transmission efficiency of the aerodynamic particle sizer (APS 3321). Proc. 23rd Annual American Association of Aerosol Researchers Conference. Atlanta, GA.
25. **Peters, T. M.**, R.W. Vanderpool, S. Natarajan (2005) Use of the Aerodynamic Particle Sizer to measure atmospheric coarse particulate matter. Proc. Particulate Matter Supersites Program and Related Studies, Atlanta, GA.
26. **Peters, T. M.** (2005) The practical aspects of nanoparticle measurement. Proc. American Industrial Hygiene Association Meeting, Anaheim, CA.
27. **Peters, T. M.**, D. Ott, P. O'Shaughnessy (2005) Comparison of the Grimm Optical Particle Counter to the TSI Aerodynamic Particle Sizer. Proc. American Industrial Hygiene Association Meeting, Anaheim, CA.
28. Evans, D., W. Heitbrink, **T.M. Peters**, A. Maynard (2005) Nanoparticles in the workplace: lessons from the automotive industry. Proc. 2nd International Symposium on Nanotechnology and Occupational Health, St. Paul, MN.
29. **Peters, T.M.**, W. Heitbrink, D. Evans, A. Maynard, T. Slavin (2005) Particle concentration mapping in a diesel engine machining and assembly center, Proc. 2nd International Symposium on Nanoparticles and Occupational Health, St. Paul, MN, 2005; St. Paul, MN.
30. **Peters, T.M.**, A. Riss, M. Singh (2005) Use of the aerodynamic particle sizer (APS 3321) to measure ambient coarse particles, PM<sub>10-2.5</sub>. Proc. 23rd Annual American Association of Aerosol Researchers, Austin, TX.
31. Heitbrink, W., **T.M. Peters**, D. Evans (2006) Characterization of fine and ultrafine particles in an engine machining and assembly center. Proc. American Industrial Hygiene Association Meeting, Chicago, IL.
32. Ott, D., **T.M. Peters** (2006) A passive sampler to measure coarse ambient particles, PM<sub>10-2.5</sub>. Proc. American Industrial Hygiene Association Meeting, Chicago, IL.
33. Riss, A., **T.M. Peters**, M. Singh, R. Holm (2006) An inlet conditioner for the Model 3321 Aerodynamic Particle Sizer. Proc. American Industrial Hygiene Association Meeting, Chicago, IL.

34. Johnson, R.L., P. O'Shaughnessy, T. Maher, **T.M. Peters** (2007) Airborne particles in the manufacturing and handling of nano-structured lithium titanate. Proc. American Industrial Hygiene Association Meeting. Philadelphia, PA.
35. **Peters, T.M.**, A.K.B. Ramakrishna, J. Watt, B. Olshansky, J. Kline (2007) Cardiopulmonary effects from exposure to diesel exhaust. Presented at the J. and Lucille A. Carver College of Medicine and the College of Public Health Research Week.
36. **Peters, T.M.**, A.K.B. Ramakrishna, J. Watt, B. Olshansky, J. Kline (2007) Cardiopulmonary effects from exposure to diesel exhaust. Proc. 26th Annual American Association of Aerosol Researchers, Reno, NV.
37. Ott, D., N. Kumar, **T.M. Peters** (2007) Passive sampling to capture spatial variability of PM<sub>10-2.5</sub>. Proc. 26th Annual American Association of Aerosol Researchers, Reno, NV.
38. Ott, D., N. Kumar, **T.M. Peters** (2008) Passive sampling to capture spatial variability of PM<sub>10-2.5</sub>. Proc. 17th Annual Conference of the International Society of Exposure Analysis. Research Triangle Park, NC.
39. Cena, L., W. Cyrs, **T.M. Peters** (2008) Selecting a substrate suitable for detecting nanoparticles by transmission electron microscopy. Proc. American Industrial Hygiene Association Meeting. Minnesota, MA. Awarded 'best aerosol poster in show'.
40. Cyrs, W., L. Cena, **T.M. Peters** (2008). Efficiency of Polycarbonate Filters for Nanoparticle Collection. Proc. American Industrial Hygiene Association Meeting, Minnesota, MA.
41. **Peters, T.M.**, A.B. Ramakrishna, J. Watt, B. Olshansky, J. Kline (2008). Noise or diesel exhaust exposure? It's all the same to heart rate variability. Proc. American Thoracic Society. Toronto, ON.
42. Willis, R. W., R.W. Vanderpool, R. Murdoch, R. Long, B. Grover, **T.M. Peters** (2008) Characterization of Ambient Coarse Particulate Matter in Birmingham, AL Using a Network of Passive Samplers. Proc. American Geophysical Union, San Francisco, CA.
43. Kim, J.S., G. Luthé, S. Flor, J. Klösener, **T.M. Peters**, L.W. Robertson, P.S. Thorne, G. Ludewig (2008) In vitro Study of the Air Delivery of Particle-bound PBDEs to Lung Cells. Proc. Central States Society of Toxicology Annual Meeting, Kansas City, KS.
44. Kim J.S., G. Luthé, S. Flor, J. Klösener, **T.M. Peters**, L.W. Robertson, P.S. Thorne, G. Ludewig. In Vitro Study of the Air Delivery of Particle-bound PBDEs to Lung Cells. Presented at the 48<sup>th</sup> Annual Meeting of the Society of Toxicology, Baltimore, Maryland, March 15-19, 2009, Abstract # 2016. Awarded Third Place Student Award in the *In Vitro* and Alternative Methods Specialty Section.
45. **Peters, T.M.**, S. Elzey, R. Johnson, H. Park, V. Grassian, T. Maher, P. O'Shaughnessy (2009) Airborne Monitoring to Distinguish Engineered Nanomaterials from Incidental Particles for Environmental Health and Safety. Presented at the College of Engineering Research Open House, University of Iowa, April 16.
46. O'Shaughnessy P, **T. Peters**, K. Donham, R. Altmaier, C. Taylor, K. Kelly. A Task-Specific Assessment of Swine Worker Exposure to Airborne Dust. (Abstract 84) American Industrial Hygiene Conference & Exposition, Toronto, Canada, May 30-June 4, 2009.

46. Sawvel, E.J., D.A. Boysen, N. Kumar, R.D. Willis, **T.M. Peters** (2009) Spatial variability of coarse particulate matter (PM<sub>10-2.5</sub>) in Cleveland, OH. Proc. American Industrial Hygiene Association Meeting. Toronto, ON.
47. Vosburgh, D., D.A. Boysen, **T.M. Peters** (2009) Exposure assessment of fume released during seam sealing of polytetrafluorethylene fabric. Proc. American Industrial Hygiene Association Meeting. Toronto, ON. Awarded 'best poster in session' and 'best student aerosol poster'.
48. Cyrs, W.D., D.A. Boysen, **T.M. Peters** (2009) Nanoparticle collection efficiency to the surface of capillary pore membrane filters. Proc. American Industrial Hygiene Association Meeting. Toronto, ON. Awarded 'best poster in graduate student session'.
49. Cena, L.G., **T.M. Peters** (2009) Characterization of coarse particulate matter using passive samplers. Proc. National Ambient Air Monitoring Conference. Nashville, TN.
50. Cena, L.G., **T.M. Peters** (2009) Characterization and control of airborne particles emitted during production of epoxy reinforced with carbon nanotubes. Proc. Annual American Association of Aerosol Researchers, Minneapolis, MN.
51. Cyrs, W.D., D.A. Boysen, **T.M. Peters** (2009) Nanoparticle collection efficiency to the surface of capillary pore membrane filters. Proc. Annual American Association of Aerosol Researchers, Minneapolis, MN.
52. Cena, L.G., **T.M. Peters** (2010) Evaluation of nylon net screens as diffusion media for nanoparticles. Proc. American Industrial Hygiene Association Meeting. Denver, CO. Awarded 'best poster in show' and 'best poster in graduate student session'.
53. Vosburgh, D., T. Klein, M. Sheehan, P. O'Shaughnessy, **T.M. Peters** (2010) Evaluation of a personal diffusion battery. Proc. American Industrial Hygiene Association Meeting. Denver, CO.
54. Sawvel, E.J., **T.M. Peters**, N. Kumar, R.D. Willis (2010) Passive sampling to characterize spatial and compositional variability in coarse particulate matter. Proc. American Industrial Hygiene Association Meeting. Denver, CO.
55. Thorne P.S., J.S. Kim, A. Adamcakova-Dodd, T.M. Peters, P.T. O'Shaughnessy. In vitro Dynamic Exposure Model (IVDEM) for Air Delivery of Nanomaterials to Lung Cells, American Thoracic Society 2010 International Conference, New Orleans, LA, May 14-19, 2010.
56. Kim J.S., A. Adamcakova-Dodd, T.M. Peters, P.T. O'Shaughnessy, P.S. Thorne. In vitro Dynamic Exposure Model (IVDEM) for Air Delivery of Nanomaterials to Cells, Health Sciences Research Week, The University of Iowa, Iowa City, IA, April 13-15, 2010. Student award for best graduate and medical student poster.

## **B. Areas of Research Interest/Current Projects**

1. Mechanics of aerosols: sampling and transport, instrumentation, and filter design
2. Industrial ventilation: capture and control of workplace pollutants
3. Engineered nanomaterials and ultrafine particles: exposure assessment and health effects

### C. Grants Received

Title Source PI	% Effort % Salary Support	Direct Funds Period of Funding
<b>Completed</b>		
Ultrafine Particles in Heavy Vehicle Assembly and Components Manufacturing Plants International Truck & Engine Corporation and United Auto Workers (Heitbrink, PI)	20% 20%	\$68,533 10/15/04–11/30/05
Passive Sampling of Ambient Air Particulate Matter Center for Health Effects of Environmental Contamination (University of Iowa) (Peters, PI)	20% 0%	\$25,000 1/1/05–12/31/05
Airway and Immune Response to Inhaled Endotoxin and Diesel Exhaust Particles in Humans NIRA, University of Iowa, College of Public Health (Peters, PI)	10% 0%	\$10,000 2/1/05–2/28/06
Airways response to mixed exposure of endotoxin and diesel exhaust particles using exhaled breath condensate methodology Heartland Center for Occupational Health & Safety CDC/NIOSH (Peters, PI)	10% 0%	\$14,760 6/30/05–6/30/06
Modification and Evaluation of the APS3321 for Ambient Air Monitoring TSI, Incorporated, Shoreview MN (Peters, PI)	4% 4%	\$40,000 4/1/05–1/31/07
Relating Cardiac Function to Diesel Exhaust Inhalation Exposure EHSRC – Environmental Health and Science Resource Center (Peters, PI)	5% 0%	\$8,500 6/1/06–3/30/07
Development of a Passive Sampler for Assessing Airborne Nanoparticles BSFP – Biological Science Funding Program (University of Iowa) (Peters, PI)	20% 0%	\$30,000 2/1/06–1/31/07

Real-time, Personal Sampling for Airborne Nanoparticles CGRER – Center for Global and Regional Environmental Research (Peters, PI)	5% 0%	\$30,000 6/1/06–5/31/08
Development and Field Assessment of a Shelter for a Passive Aerosol Sampler EPA (Peters, PI)	4% 4%	\$20,887 1/3/07–10/1/07
Predicting Indoor and Outdoor Air Quality by Indirect Methods, Center for Health Effects of Environmental Contaminants, University of Iowa (Kumar, PI)	4% 0%	\$30,000 9/1/07–8/31/08
Assessment Methods for Nanoparticles in the Workplace EPA/NIOSH/NSF (O’Shaughnessy, PI)	2.5% 2.5%	\$399,906 7/1/05–6/30/08
Passive Sampling to Assess the Spatial Variability of PM10-2.5 in Cleveland, OH, USEPA EP08D000289&am1 Amendment 1 (Peters, PI)	0% 0%	\$27,000 4/7/08–6/30/09
Burn-off Emissions in Vehicle Final Assembly Areas UAW-GM Center for Human Resources (Heitbrink, PI)	1% 1%	\$418,039 2/1/07–5/30/09
NORA Research Program Industrial Hygiene Training Program CDC/NIOSH (Zwerling, Program Director)	5% 5%	\$1,200,000 7/1/00–6/30/08
US PHS/NIH: Environmental Health Sciences Research Center (Thorne, Center Director) NIEHS: 5 P30 ES05605-19 Career Development(Asst. Professor)	10% 10%	\$980,427 04/01/07–03/31/10
Personal Exposure to Engineered Nanoparticles 1K01OH009255-03 NIOSH (Peters, PI)	50% 50%	\$300,000 9/1/07–8/31/10
EPA09D000166 US Environmental Protection Agency Passive Sample Analysis and Data Interpretation Results Report (Peters, PI)	5% 0%	\$32,000 2/1/09–1/31/2010

Pilot: A personal real-time ultrafine particle monitor Heartland Center for Occupational Health & Safety CDC/NIOSH (Vosburgh, co-PI, Peters, co-PI)	5% 0%	\$15,000 2/1/09–7/31/2010
(EPA) Passive Sampling Assessment of Spatial Variability of PM10-2.5 Cleveland Multiple Air Pollutant Study(CMAPS) PI, Peters	0% 0%	\$47,856 6/1/09–5/30/10
<b>Ongoing</b>		
1 R21 OH009920-01 US DHHS/CDC/NIOSH Methods to Assess Personal Exposures to Airborne Metallic Nanoparticles (Peters, PI)	40% 40%	\$183,888 9/1/2010–8/31/2012
FA8650-10-2-6136 US Department of Defense, Air Force Evaluation of Methods and Control Exposure to Nanoparticles (Peters, PI)	10% 10%	\$136,923 6/15/2010-6/14/2011
EP10D000322 Laboratory Determination of Deposition Velocity and Coagulation for Nano-CeO2 Fuel Additive (Peters, PI)	10% 10%	53,917 4/8/10–4/12/11
5U50OH007548-10 Great Plains Center for Agricultural Health US DHHS/CDC/NIOSH (Gerr, Center Director) Project Title: Exposure assessment of workers in swine confinement buildings (O'Shaughnessy, PI, Peters, CI)	10% 10%	\$856,146/yr 10/1/07–9/30/12
5R01OH009290-03 US DHHS/CDC/NIOSH CDF Investigation of Particle Inhalability in Low Wind Speeds (Anthony, PI, Peters, CI)	10% 10%	125,718 6/1/08–5/31/13
An optimal spatial sampling design for the U.S. General Social Survey (Kumar, PI, Peters, CI)	2% 2%	\$780,000 1/1/09–12/31/12
5T42OH008491-6 Heartland Environmental Research Center (O'Shaughnessy, PI) IH Program Faculty	10% 10%	\$208,728 7/1/00–6/30/13

Pilot: A Personal Sampler for Engineered Nanoparticles Heartland Center for Occupational Health & Safety CDC/NIOSH (Cena, co-PI, Peters, co-PI)	5% 0%	\$15,000 7/1/10–6/30/11
Applied Nanotech Holding, Inc. Method to evaluate release of engineered nanomaterial from commercial products PI, Peters	1.2 %10	46,250 7/1/10-6/30/11

**D. Invited Presentations**

<u>Year</u>	<u>Title</u>	<u>Organization</u>
2004	Aerosol short course: physics, measurement, and sampling	Boeing Corporation, Everett, WA
2003	Ventilation engineers may have all their ducts in a row, but can they account for all the feathers?	Environmental Sciences and Engineering Department Seminar, UNC, Chapel Hill, NC.
2005	The FUN of aerosols: fine, ultrafine, and nano particles	WORKSAFE Iowa Occupational Health Symposium, Iowa City, IA.
2005	The FUN of aerosols: fine, ultrafine, and nano particles	WORKSAFE Iowa Occupational Medicine Associate Annual Meeting, Des Moines, IA.
2005	Ultrafine particles in an engine machining and assembly center	Annual Health and Safety Conference of International Truck and Engine Corporation and United Auto Workers, Chicago, IL.
2007	Environmental exposures and asthma	Moving Asthma from Theory to Therapy, University of Iowa Carver College of Medicine, Continuing Medical Education Division
2007	Cardiopulmonary effects from exposure to diesel exhaust	College of Medicine / College of Public Health New Investigator Award presentation. Iowa City, IA
2007	The FUN of Aerosols: Assessing Fine Ultrafine and Nano Particles in Workplace Atmospheres	Molecular Foundry, Lawrence Berkeley National Laboratory, Berkeley CA
2009	Occupational Exposures to Engineered Nanomaterials: The Frontier of Industrial Hygiene	Human Toxicology Seminar, University of Iowa
2009	The Science of Sampling for Particulate Matter	Quest Technologies Global Dealers Meeting at the American Industrial Hygiene Conference and Exhibition

2009	Physicochemical Characteristics of Nanoparticles in the Workplace and Implications for Occupational Exposure Limits	Roundtable Session at the American Industrial Hygiene Conference and Exhibition
2009	Air Quality in American Subway Systems	Subway Air Quality Workshop, Seoul, South Korea
2009	Airborne Monitoring to Distinguish Engineered Nanomaterials from Incidental Particles	Air Force Workshop on Engineered Nanomaterials, Dayton, OH
2009	Airborne Monitoring to Distinguish Engineered Nanomaterials from Incidental Particles	Nanomaterials Applications Center Colloquium, Austin, TX
2011	Workplace Safety for Engineered Nanomaterials	Russia-US Bilateral Presidential Commission for Nanotechnologies, Moscow, Russia

**E. Pending Information** (grant proposals, book contracts, submitted publications etc.)

*Grant Proposals*

Title	Source	Calendar Support	Direct Funds
P.I.		% Salary Support	Period of Funding
(R01) Single-Particle Methodologies Adapted to Personal Exposure for Engineered Nanomaterials USDHHS/NIOSH <b>PI, Peters;</b> co-I Grassian; co-I Anthony Goal is to couple single-particle electron microscopy techniques with filter-based sampling as a practical tool for assessing personal exposure to engineered nanomaterials. Score anticipated end June 2009.		4.8 %40	\$1,985,000 01/2010-12/2014
Evaluating cardiac health and air pollution exposures Subcontract with Metro-Health Subcontract with Metro-health, The University of Iowa will work with Metro-Health to provide air pollution estimates.		1.68 14%	20,244 1/1/2011-12/31/13
Analysis of Cleveland Multiple Air Pollutant Study(CMAPS) Samples EPA Role: PI		1.2 10%	43,511 9/1/2010- 8/31/2011

Ergonomic and welding fume exposures during stud welding 1.08 calendar 131,081  
7/1/11-6/30/12  
Center to Protect Workers' Rights/CDC  
PI-N. Fethke  
Role: Co-Investigator

Great Plains Center for Agricultural Health & Safety \$1,300,000  
CDC 2/29/90-2/28/16  
P.I: Fredric Gerr

Role: Co-Investigator – Prevention/Intervention A 1.44 calendar \$161,994  
Co-Investigator - Prevention/Intervention B 1.2 calendar \$154,066

To conduct multidisciplinary research; to develop and evaluate novel disease and injury prevention models and outreach intervention programs in Federal Region VII; to train health professionals; to provide technical assistance and consultation to Federal Region VII; and to maintain and strengthen linkages with agricultural health and safety professions in the state, the region, nationally, and internationally.

Environmental health Science Research .84 calendar \$1,100,00  
NIH 4/1/12-3/31/17  
P.I: Thorne

Role: Aerosol Measurement Specialist- Pulmonary  
Tox Facility and Environmental Modeling &  
Exposure Assessment Facility

The Center vision is to be the primary resource for improving the health of rural residents by stimulating and translating innovative environmental health sciences research. This is accomplished by gaining new insights into rural exposures; pathways of host defense, lung injury and repair; population health; and the toxicity of nanoscale materials; and then translating these insights to clinical medicine, public health practice and regulatory policy.

Heartland Occupational and Health Education \$1,635,775  
Research Center 7/1/00-6/30/13  
CDC  
P.I. O'Shaughnessy  
Role: Director- Industrial Hygiene Program 1.56 calendar \$258,505

***Publications (submitted articles)***

1. Kim, K.J., G. Luthe, J. Klösener, S. Flor, **T.M. Peters**, L.W. Robertson, P.S. Thorne, G. Ludewig, G. (in prep.) An impactor for direct in vitro exposure to coarse particular matter, studying ROS by airborne PBDEs. Chem. Research Toxicology.
2. Vosburgh D., B.K. Ku, **T.M. Peters** (submitted) Evaluation of a diffusion charger for its effectiveness in measuring workplace aerosols. J. Occup. Envir. Hyg.
3. Vosburgh D., T. Klein, M. Sheehan, **T.M. Peters** (in prep) Design and evaluation of a personal diffusion battery. J. Occup. Envir. Hyg.
4. Cena L, B.K. Ku, **T.M. Peters** (in prep) Evaluation of nylon mesh screens as diffusion media for nanoparticles. J. Aerosol Sci.
5. Cena L, **T.M. Peters** (in prep) A personal sampler for nanoparticles. J. Occup. Envir. Hyg.
6. Sawvel, E.J., N. Kumar, R. Willis, D. Hammond, G. Norris, T.M. Peters (in prep) Spatial variability of compositional components of PM10-2.5 in Cleveland, OH. Environ. Sci. Tech.

#### IV. SERVICE

##### A. Offices/Appointments Held in Professional Organizations

###### *Editorships*

<u>Year</u>	<u>Publication</u>
2000-present	Review of articles for: Journal of Air and Waste Management Association Aerosol Science and Technology Annals of Occupational Hygiene Environmental Science and Technology

###### *Review Panels*

<u>Year</u>	<u>Title</u>
2004	Reviewed pre-proposals submitted by the various NIOSH intramural research laboratories, NORA Peer Review – Washington, DC
2004	Reviewed proposals submitted by several NIOSH intramural research laboratories, NORA Peer Review – Washington, DC
2008	Reviewed proposals submitted by several NIOSH intramural research laboratories, NORA Peer Review – Washington, DC
2008	Served as expert panelist for session entitled “Thoracic Coarse Particle Components and Potential Public Health Impacts” in US EPA “Ambient Air Quality Monitoring and Health Research: Workshop to Discuss Key Issues” – Research Triangle Park, NC
2009	Special emphasis panel for research conference grants NIEHS 2009/10 ZES1 LKB-J (R7) 1

###### *Departmental, Collegiate or University Service Positions*

<u>Year</u>	<u>Position</u>
2001- 2003	Ph.D. Student Representative to Faculty: Participated in department search for five tenure-track faculty members. Solicited and compiled student feedback on department seminar, resulting in course restructuring.
2007–2008	Mentor in Iowa Research Experience for Undergraduates Program
2009–2010	Member of the Education subgroup for the review of the College of Public Health’s Strategic Plan
2009–2011	Organized and participate in junior faculty group within Department
2006– present	Member of the Nanoscience and Nanotechnology Institute (NNI@UI) Executive Committee.
2007 – present	Member of the Committee to Hire a New Faculty Member in the Industrial Hygiene Program
2008– present	Organized and participate in student journal club meeting to review articles related to the field of Industrial Hygiene
2011– present	Taskforce member to investigate BS/MS combined degree program

###### *Professional Organization (state and/or national)*

<u>Year</u>	<u>Organization</u>	<u>Position</u>
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1992-present	Tau Beta Pi	
2001-present	American Industrial Hygiene Association	Member of aerosol technology working committee.
2001	American Association for Aerosol Research	Organized special issue of Aerosol Science and Technology (PM2.5 Federal Reference Method Sampler, Volume 34, Number 5).
2003	American Association for Aerosol Research	Chair of membership committee
2003	American Association for Aerosol Research	Chair of aerosol physics working group.
2007-present	American Association for Aerosol Research	Member of the aerosol physics working group
2007-present	Linn Co. Ambient Air Quality Group	Member of the Advisory Board for Ambient Air Quality Standards
2008-present	American Industrial Hygiene Association	Chair of the Nanotechnology Working Group
2011	U.S. Department of State	Member U.S. delegation to Moscow, Russia for Bilateral Presidential Commission on EHS for Nanotechnology

## B. Other Professional Service

### *Departmental, Collegiate or University Committees (other than teaching)*

<u>Year</u>	<u>Title</u>
2005-	Accreditation Board for Engineering and Technology (ABET) reaccreditation of Industrial Hygiene program.
2005	Taught at WORKSAFE Iowa Occupational Health Symposium, Iowa City, IA.
2005	Taught at WORKSAFE Iowa Occupational Medicine Associate Annual Meeting, Des Moines, IA.

### *State or National Committees*

<u>Year</u>	<u>Title</u>
2005	Taught American Industrial Hygiene Professional Development Course entitled, "The FUN of aerosols: fine, ultrafine, and nano particles"
2006	Taught American Industrial Hygiene Professional Development Course entitled, "The FUN of aerosols: fine, ultrafine, and nano particles"
2007	Taught American Industrial Hygiene Professional Development Course entitled, "The FUN of aerosols: fine, ultrafine, and nano particles"
2010	Taught American Industrial Hygiene Professional Development Course entitled, "The FUN of aerosols: fine, ultrafine, and nano particles"
2010	Taught Heartland Center Professional Development Course entitled, "Ventilation to control occupational contaminants"

### *Professional Consulting*

<u>Year</u>	<u>Organization</u>	<u>Role</u>
1998 – 2004	BGI, Inc.	Designed, implemented, and maintained software for serial communications with flow measurement devices and PM2.5 federal reference method samplers.
2001- 2002	Center for Disease Control, NIOSH	Modeled aerosol transport to a new personal respirable monitor
2008	Superprotonic, Inc.	Designed impactor to remove large droplets from nebulized aerosol