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EDUCATION

HARVARD UNIVERSITY SCHOOL OF PUBLIC HEALTH - Boston, MA

Sc.D. 1986, *Major:* Environmental Health and Physiology (Industrial Hygiene), *Minors:* Biostatistics and Occupational Health, *Dissertation:* "The Capture Efficiency of Local Exhaust Hoods"

MS 1982, *Major:* Environmental Health Sciences (Industrial Hygiene)

CENTRAL CONNECTICUT STATE UNIVERSITY - New Britain, CT

BS 1979, *Major:* Biology, *Minor:* Chemistry

ACADEMIC EMPLOYMENT

PROFESSOR OF ENVIRONMENTAL SCIENCES AND ENGINEERING.
Department of Environmental Sciences and Engineering, University of North Carolina at Chapel Hill, (1999 –present). Retired (2103); rehired part time till present. Environmental Sciences Program Director for NIEHS sponsored traineeship in Biostatistics for Research in Environmental Health (2007 to 2009); Director of CDC/NIOSH sponsored Education & Research Center (1995-2001); and Director of Industrial Hygiene program (1994-2001).

ASSOCIATE PROFESSOR OF INDUSTRIAL HYGIENE.
University of North Carolina at Chapel Hill, Aug. 1993 – Aug. 1999.

ASSISTANT PROFESSOR OF INDUSTRIAL HYGIENE.
University of North Carolina at Chapel Hill, Aug. 1986 - Aug. 1993.

Courses Taught:

ENVR 433	Health Hazards of Industrial Operations, 3 hrs. Field trips and review of unit operations.
ENVR 750	Industrial Ventilation Design and Lab 3 hrs. Fundamentals and basic design procedures.
ENVR 750D	Industrial Ventilation Design Project, 1 hr.
ENVR 768	Micro-environmental Air Flow Modeling 3 hrs. Computational Fluid Dynamic techniques.
ENVR 771	Exposure Analysis 3hr.

Post-Doctoral supervision - Dr. Taehyeung Kim; Dr. Suman Sen.

Doctoral Students - Committee Chair

Taehyeung Kim	Graduated 1991
Dennis K. George	Graduated 1994
Gary N. Carlton	Graduated 1996
Cecilia Tan	Graduated 2001
Jennifer Richmond-Bryant	Graduated 2003
T. Renee Anthony	Graduated 2005
Matt Stiegel	Graduated 2014

Master's Students - Thesis Advisor to over 30 graduates

OTHER EMPLOYMENT

HARVARD UNIVERSITY - RESEARCH FELLOW-CONSULTANT
April 1986 to August 1986; Conducted studies on local exhaust hood performance. November and August 1985; conducted field evaluations of industrial ventilation systems.

TUFTS UNIVERSITY -- INSTRUCTOR
Spring 1984; taught course in Occupational Hygiene to Civil Engineering graduate students.

DIGITAL EQUIPMENT CO. -- INDUSTRIAL HYGIENIST
Summer 1983 and summer 1984; conducted evaluation of ventilation and scrubber system for R&D plant.

U.S. DEPT. OF LABOR/OSHA INDUSTRIAL HYGIENIST
Industrial Hygiene Compliance Officer for the Occupational Safety and Health Administration in Springfield, MA. 1979-1981, and summer of 1982.

PRESENTATIONS

1. Lee EY, Flynn MR, Du G, Lewis MM…. Huang X. Distinguishable Spatial Patterns of R2* And Fractional Anisotropy In Asymptomatic Welders and Patients With Parkinson's Disease. Poster at Soc of Tox Baltimore MD, 2017
2. Manganese accumulation in the brain of asymptomatic welders and its functional consequences. Soc of Tox. San Antonio TX March 2013
3. Flynn MR and PL Susi Welding Exposures in Construction 30 Years of OSHA Data. AihCe Montreal, CN May 22, 2013.
4. Lee EY, Flynn MR, Du G, Lewis MM and Huang X. Manganese accumulation in the brain of asymptomatic welders and its functional consequences. Soc of Tox. San Antonio TX March 2013.
5. Suman Sen, Michael R. Flynn, Guangwei Du, Alexander Troster, Hongyu An, Qing Yang, and Xuemei Huang: *Increased manganese exposure corresponds to altered T1 relaxation rates in the human olfactory bulb*, American Neurological Association meeting, San Francisco Sept 13 2010.
6. Flynn MR and PL Susi: Construction Welding – *Exposure Estimates Derived from Three Large Data Sources and Mathematical Modeling* AIHCE Denver CO May 22-27 2010.
7. Susi P., Meeker, J. and Flynn, MR. *Reduction of Silica Exposure Among Bricklayers with use of Engineering Controls for Cutting and Grinding*. AIHCE, Philadelphia PA June 4-7, 2007.
8. Meeker, J. Susi P., and Flynn, MR. *Effectiveness of a Portable Local Exhaust Ventilation Unit to Reduce Manganese and Welding Fume Exposure in Construction*. AIHCE, Philadelphia PA June 4-7, 2007.
9. Flynn, MR. *Some Exposure Problems in the Construction Industry* Invited seminar, RTP Local IH section at USEPA RTP, NC Jan 11, 2007
10. Anthony, T.R., and Flynn, M.R., *CFD Investigation of Particle Inhalability Studies*, AAAR, Austin, TX Oct. 2005.
11. Flynn, M.R. *Exposure Modeling with Computational Fluid Dynamics*, PDC Short Course Lecture, AIHCE, Anaheim CA May 2005.
12. Anthony, T.R., and Flynn, M.R., *Development of a CFD Model for Particle Inhalability Studies*, Platform session - AIHCE, Anaheim, CA, May 2005.
13. K. Pickett, M. Flynn, Y. Koto, and T. R. Anthony, *Particle Investigation in the Near-wake of an Elliptical Cylinder to Predict Exposure*, Poster, AIHCE, Anaheim, CA, May 2005.
14. Anthony, T.R, and Flynn, M.R., *Effects of Facial Features on Velocity Field for Inhaling Mannequins,* AIHACE, Atlanta GA, May 10 2004.
15. Flynn, M.R., *The Stopping Distance of Particles Under the Influence of Local Exhaust Hoods*, AAAR Conference, Charlotte, NC Oct., 2002.
16. Richmond-Bryant, J., Anthony, T.R., and Flynn, M.R., *A Comparative Study of Various CFD Models for the Assessment of Breathing Zone Size*, AIHCE, Paper #99 San Diego, CA June 3, 2002.
17. Richmond-Bryant, J., and Flynn, M.R., *Numerical Investigation of Breathing Zone Exposure to a Remote Particulate Source*, AIHCE, Paper #176 New Orleans, June 6, 2001.

18. Flynn, M.R., *Evaluating Uncertainties in Computational Fluid Dynamic Simulations of Human Exposure to Paint-Spray Aerosols*, 6th International Symposium on Ventilation for Contaminant Control," Helsinki, Finland, June 7, 2000.
19. Richmond-Bryant, J., and Flynn, M.R., *Predicting Breathing Zone Concentrations of Aerosols Dispersed in a Time-Dependent Flow Using Vortex Methods*, 6th International Symposium on Ventilation for Contaminant Control," Helsinki, Finland, June 7, 2000.
20. Tan Y. and Flynn, M.R., *Experimental Evaluation of a Mathematical Model for Predicting Transfer Efficiency of an HVLP Air Spray Gun*, AIHCE, Orlando, FL May 22, 2000.
21. Richmond-Bryant, J. and Flynn, M.R., *Development of a Computational Fluid Dynamics Model of Worker Exposure to Particulate Matter Dispersed in a Time-Dependent Airflow*, AIHCE, Orlando, FL, May 24, 2000.
22. Flynn, M., and Sills, E., *Numerical Simulation of Worker Exposure during Spray Painting Tasks*, AIHCE Conference Toronto, CN June 5-11, 1999.
23. Flynn, M., *Computational Fluid Dynamics and Controlling Human Exposures to Airborne Contaminants*, Invited Seminar, NIOSH Cincinnati, OH March 25, 1999.
24. Flynn, M., and Carlton G, *Exposure Models for Contaminant Control Decisions Involving Ventilation*, Vent '97, Ottawa, Canada Sept 15, 1997.
25. Gatano, B., Flynn, M., and McKernan, J. *Determining the Transfer Efficiency of an HVLP Spray Gun*, AIHCE Conf., Dallas, TX May 20, 1997.
26. McKernan, J., Flynn, M., and Gatano, B., *Effect of Position and Motion on Personal Exposure in an HVLP Spray Painting Operation*, AIHACE Conf., Dallas TX, May 21, 1997.
27. Thomas, J., Flynn, M., Royster L., and Watson J., *The Application of Audiometric Database Analysis to Selected Air Force Bases*, AIHACE Conf., Dallas TX, May 21, 1997.
28. Flynn, M.R., *New Tools for Controlling Worker Exposure through Industrial Ventilation*, Knight Memorial Lecture (Invited) NC State University, April 25, 1997.
29. Flynn, M.R., *Computational Fluid Dynamics as a tool in the evaluation and design of local exhaust ventilation systems*, Invited Seminar at NIOSH Engineering Lab in Cincinnati OH, Feb 12, 1997.
30. Flynn, M.R., *Mathematical Models for Prediction and Control of Human Exposure to Airborne Contaminants: An Illustration: Spray Painting*, Invited Seminar NIOSH Health Effects Lab, Morgantown WV, Dec 6, 1996.
31. Flynn, M.R., *Numerical Simulation of the Effects of Work Practices on Exposures in Booth-Type Hoods*, AIHCE, Kansas City, MO. 1995.
32. Flynn, M.R., *Modeling Worker Exposures*, Invited seminar at NIOH Solna, Sweden and research roundtable in Helsinki, Finland. Aug 11-20 1995.

33. Flynn, M.R., *Modeling Exposure as an Index of Contaminant Control System Performance*, Invited Lecture at R3 Nordic Conference, Malmo, Sweden, April 27-29, 1993
34. Flynn, M.R., *Three-Dimensional Finite Element Simulation of a Turbulent Push-Pull Ventilation System.* AIHACE 1992, New Orleans, LA.
35. Flynn, M.R., *On the Use of Computational Fluid Dynamics for the Simulation of Contaminant Control System Performance - Ventilation '91* 3rd International Symposium on Ventilation for Contaminant Control, Cincinnati OH, Sept 16-20, 1991.
36. Flynn, M.R., *A Revised Model to Predict the Average Concentration in the Reverse Flow Region Downstream of a Worker in a Uniform Freestream* - Ventilation '91 3rd International Symposium on Ventilation for Contaminant Control, Cincinnati OH, Sept 16, 1991.
37. Flynn, M.R., *Air Flow Pattern Around a Worker in a Uniform Freestream* - AIHCE; Salt Lake City, UT May 18-24, 1991
38. Flynn, M.R., *Discrete Vortex Methods for the Simulation of Boundary Layer Separation Effects on Worker Exposure*, AIHCE Conference, Orlando FL, May 1990.
39. Flynn, M.R., *The Relationship between Capture Efficiency and Breathing Zone Concentration*, AIHCE, Orlando FL, May 1990
40. Flynn, M.R., *The Boundary Integral Equation Method (BIEM) for Exhaust Hood Flow Fields*, AIHCE, St. Louis MO, June 1989.
41. Flynn, M.R., *Impact of Boundary Layer Separation on Worker Exposure, AIHA Conference*, St. Louis MO. June 1989.
42. Flynn, M.R., The Simulation of Local Exhaust Ventilation Problems. 2nd International Symposium on Ventilation for Contaminant Control, London, England, Oct 1988.
43. Flynn, M.R., *Computer Modeling of Contaminant Jet Flow Into Local Exhaust Hoods*, AIHCE, San Francisco CA, 1988.
44. Flynn, M.R., *Comparison of Three-Dimensional Velocity Models for Flanged Rectangular Hoods*, AIHCE, San Francisco CA, 1988.
45. Flynn, M.R., *A Computer Simulated Design for Welding Hoods*, AIHCE, San Francisco CA, 1988.
46. Flynn, M.R., *Research in Local Exhaust Ventilation*, South East Occupational Health Conference, Raleigh NC, Aug. 1987.
47. Flynn, M.R., *The Capture Efficiency of Local Exhaust Hoods*, 1st International Symposium on Ventilation for Contaminant Control, Toronto, Oct 1985.

SERVICE

1. Member of Departmental student admissions committee Sept 08-09
2. Member SPH Academic Promotions and Tenure Committee 8/08-8/11
3. Member ENVR Academic Programs Committee, 9/07-9/09
4. Consultant to Center to Protect Workers Rights, 2001-present
5. Member of International Advisory Board for the Annals of Occupational Hygiene Journal Jan 2003 to present

6. NIOSH – NORA Team Member - Control Technology and PPE Group 1996-2006, DHHS (NIOSH) Pub # 2006-121
7. Member UNC School of Public Health Academic Programs Committee, Sept, 2000-2002
8. Member of Howard Hughes Medical Institute Workshop on Laboratory Chemical Hoods; June 8-10, 1998 Chevy Chase, MD.
9. Consultant to NIH on Computational Fluid Dynamics in the design of Laboratory Ventilation Systems, Bethesda, MD, Nov. 1995
10. Chaired School of Public Health Committee on Information Technology Infrastructure April 1995 - Feb1996
11. Chair of Departmental Committee on Teaching Jan. 1994
12. Reviewer of articles for Applied Industrial Hygiene; Annals of Occupational Hygiene; Aerosol Science and Technology, and the American Industrial Hygiene Association Journal.
13. Consultant to Semiconductor Industry.
14. Member of Departmental Safety & Ph.D. Committees.
15. Member of the American Conference of Governmental Industrial Hygienists Industrial Ventilation Committee. May 1989-March 1996
16. Invited Seminars, August 16, 1989 & Dec. 1993 NIOSH Use of Modeling in Ventilation Research, Cincinnati OH.
17. National Institutes of Health - Study Section: served as reviewer for NIOSH R01 grant applications. Apr. 1-2, 1990.

MEMBERSHIPS & AWARDS

American Conference of Governmental Industrial Hygienists
Award: Departmental Newton-Underhill Teaching Award 1994 & 2011
Award: Best Engineering Paper at AIHACE 1998

PUBLICATIONS (PEER-REVIEWED, REVERSE-CHRONOLOGIC)

1. Eun-Young Lee, Michael R. Flynn, ….., Richard B. Mailman, Xuemei Huang. *Higher hippocampal mean diffusivity values in asymptomatic welders.***Tox Sci.** In Press (12/27/2018).
2. Eun-Young Lee, Michael R. Flynn, Mechelle M. Lewis, Richard B. Mailman, Xuemei Huang. *Welding-related and brain functional changes in welders with chronic and low-level exposures*. **Neurotox** 64:50-59 (2018).
3. Eun-Young Lee, Paul Eslinger, Michael R. Flynn et al. *Association of neurobehavioral performance with R2* in the caudate nucleus of asymptomatic welders.* **Neurotox** 58:66-74 (2017).
4. Mechelle M. Lewis, Michael R. Flynn, Eun-Young Lee, Scott Van Buren, Eric Van Buren, Guangwei Du, Rebecca C. Fry, Amy H. Herring, Lan Kong, Richard B. Mailman, Xuemei Huang. *Longitudinal T1 relaxation rate (R1) captures changes in estimated short-term Mn exposure in welders*. **Neurotox** 57:39-44(2016).
5. Mechelle M. Lewis, Eun-Young Lee, Hang Jin Jo, Jaebum Park, Michael R. Flynn, Lan Kong, Mark L. Latash, and Xuemei Huang *Synergy as a new and sensitive marker of basal ganglia dysfunction: A study of asymptomatic welders*. **Neurotox** 56:76-85(2016).
6. Eun-Young Lee, Michael R. Flynn, Guangwei Du, Mechelle M. Lewis, Amy H. Herring, Eric Van Buren, Scott Van Buren, Lan Kong, Richard B. Mailman, Xuemei Huang. *Lower fractional anisotropy in the globus*

pallidus of asymptomatic welders, a marker for long-term welding exposure. **Tox Sci** 153(1):165-173(2016).
7. Eun-Young Lee, Michael R. Flynn, Guangwei Du, Yunqing Li, Mechelle M. Lewis, Amy H. Herring, Eric Van Buren, Scott Van Buren, Lan Kong, Rebecca C. Fry, Amanda M., Snyder, James R. Connor, Qing X. Yang, Richard B. Mailman, Xuemei Huang. *Increased R2* in the caudate nucleus of asymptomatic welders* 150(2):369-377, **Tox Sci** (2016).
8. Eun-Young Lee, Michael R. Flynn, Guangwei Du, Mechelle M. Lewis, Rebecca Fry, Amy H. Herring, Eric Van Buren, Scott Van Buren, Lisa Smeester, Lan Kong, Qing Yang, Richard B. Mailman, and Xuemei Huang. *T1 relaxation rate (R1) indicates non-linear Mn accumulation in brain tissue of welders with low-level exposure.* 146(2):281-289, **Tox Sci.** (2015).
9. Flynn, M.R. and Susi, P. *Local Exhaust Ventilation for the Control of Welding Fumes in the Construction Industry – literature review*. **Ann. Occup. Hyg.** 56(7):764-776, (2012).
10. Suman Sen, Michael R. Flynn, Guangwei Du, Alexander Troster, Hongyu An, and Xuemei Huang: *Manganese accumulation in the olfactory bulbs and other brain regions of "asymptomatic" welders*. **Tox. Sci.** 121(1):160-167, (2011).
11. Meeker, J., Susi, P., and Flynn, M.R. *Hexavalent Chromium Exposure and Control in Welding Tasks* **J. Occup. Env. Hyg** 7:607-615 (2010).
12. Flynn, M.R. *Constrained Maximization of the Shapiro Wilk W statistic to estimate parameters of the Johnson Sb distribution.* **Commun. Stat. Theory Mthds.** 39(20):3635-3644 (2010).
13. Flynn, M.R. and Susi, P. *Manganese, Iron and total particulate exposures to welders.* **J. Occup Env. Hyg.** 7:115-126, (2010).
14. Flynn, M.R. and Susi, P. *Modeling mixed exposures – an application to welding fumes in the construction industry* **Stoc. Env. Res. Risk Assessment.** 24:377-388, (2010).
15. Flynn, M.R. *Analysis of censored exposure data by constrained maximization of the Shapiro-Wilk W statistic.* **Ann. Occup hyg**. 54(3):263-271 (2010).
16. Flynn, M.R. and Susi, P. *Neurological Risks associated with manganese exposure from welding operations – literature review*. **Int. J. Hyg. Env. Hlth.** 212:459-469 (2009).
17. Meeker, J., Susi, P., and Flynn, M.R. *Manganese and Welding Fume Exposure and Control in Construction* **J. Occup. Env. Hyg** 4(12):943-951 (2007).
18. Flynn, M.R. *Analysis of Exposure-Biomarker Relationships with the Johnson SBB Distribution.* **Ann. Occup. Hyg.** 51: 533-541 (2007).
19. Flynn, M.R., Y. Koto, K. Fent, and L.A. Nylander-French: *Modeling Dermal Exposure – an Illustration for Spray Painting Applications*, **J. Occup. Env. Hyg.** 3:475-480, (2006).
20. Anthony, T.R., and Flynn, M.R. *CFD Investigation of Particle Inhalability* **J. Aerosol Sci.** 37:750-765, (2006).
21. Anthony, T.R., and Flynn, M.R. *CFD Model for a 3-D Inhaling Mannequin: Verification and Validation.* **Ann. Occup. Hyg.** 50:149-156, (2006).
22. Richmond-Bryant, J. Eisner, A.D., and Flynn, M.R. *Considerations for modeling particle entrainment into the wake of a circular cylinder*, **Aerosol Sci Tech**. 40:17-26, (2006).

23. Flynn, M.R. *Fitting Human Exposure Data with the Johnson Sb Distribution* **J. Exposure. Science. Env. Epid**. 16:56-62 (2006).
24. Flynn, M.R. *On the moments of the 4-parameter lognormal distribution*. **Commun. Stats. Theory & Mthds.** 34(4):745-751 (2005).
25. Anthony, T.R., Flynn, M.R., and Eisner, A*. Evaluation of Facial Features on Particle Inhalation* **Ann. Occup. Hyg**. 49(2):179-193 (2005).
26. Richmond-Bryant, J. and Flynn, M.R. *Applying the discrete vortex method in environmental fluid mechanics: a study of the time-averaged near wake behind a circular cylinder.* **Env. Fluid Mech**. 4:455-468, (2004).
27. Flynn, M.R. *The beta distribution – a physically consistent model for human exposure to airborne contaminants.* **Stoch. Env. Res. Risk. Assess**. 18(5):306-308, (2004).
28. Flynn, M.R. *The 4 parameter lognormal (Sb) model of Human exposure.* **Ann. Occup. Hyg**. 48(7):617-622, (2004).
29. Flynn, M.R. and Susi, P. *A Review* of *Engineering Control Technology for Exposures Generated during Abrasive Blasting Operations*. **J. Occup. Env. Hyg.** 1(10):680-687, (2004).
30. Flynn, M.R. *A stochastic differential equation for exposure yields a beta distribution.* **Ann. Occup. Hyg**. 48(5):491-497, (2004).
31. Flynn M.R. and Eisner, A.D. *Verification and Validation Studies of the Time Averaged Velocity Field in the Very Near Wake of a Finite Elliptical Cylinder.* **Fluid Dyn. Res**. 34(4):273-288. (2004).
32. Yasui, S., McClean, M., Susi, P., Flynn, M., and R.F. Herrick. *Assessment of Silica Exposure and Engineering Controls during Tuckpointing.* **Appl. Occup. Env. Hyg.** 18:977-984, (2003).
33. Rappaport, S.M. and M. Flynn. *Two Seminal Contributions of S.A. Roach to the Evaluation and Control of Hazardous Substances in Air.* **Ann. Occup. Hyg**. 47(5):343-348, (2003).
34. DiBerardinis, L.J,…..Flynn, M.R……Barkley, W.E., *Report of the Howard Hughes Medical Institute's Workshop on the Performance of Laboratory Chemical Hoods*. **Am. Ind. Hyg. Assoc. J.,** 64:228-237, (2003).
35. Flynn, M.R. and Susi, P. *Engineering Controls for Selected Silica and Dust Exposures in the Construction Industry – A Review*. **Appl. Occup. and Env. Hyg.** 18(4):268-277, (2003).
36. Flynn, M.R. *On the Inertial Range of Particles Under the Influence of Local Exhaust Hoods.* **Ann. Occup. Hyg**. 47:151-156, (2003).
37. Jetter, J. Guo, Z., McBrian, J., Flynn, MR., and Leith D. *Characterization of Emissions from Burning Incense*. **The Science of the Total Environment,** 295:51-67, (2002).
38. Tan, Y and Flynn, M.R. *A Field Evaluation of the Impact of Transfer Efficiency on Worker Exposure During Spray Painting*. **Ann. Occup. Hyg.** 46(1):103-112, (2002).
39. Tan, Y and Flynn, M.R. *Experimental Evaluation of a Mathematical Model for Predicting Transfer Efficiency of a High Volume – Low Pressure Air Spray Gun*. **Appl. Occup. Env. Hyg**. 15(10):785-793, (2000).
40. Flynn, M.R., and Sills, E. *Numerical simulation of human exposure to aerosols generated during compressed air spray-painting in cross-flow ventilated booths*. **J. Fluids Engineering**. 123(1):64-70, (2001).
41. Tan, Y and Flynn, M.R. *Experimental Evaluation of a Mathematical Model for Predicting Transfer Efficiency of a High Volume – Low*

Pressure Air Spray Gun. **Appl. Occup. Env. Hyg**. 15(10):785-793, (2000).
42. Flynn, M.R., and Sills, E. *On the use of computational fluid dynamics in the prediction and control of exposure to airborne contaminants – an illustration using spray painting*. **Ann. Occup. hyg**. 44(3)191-202, (2000).
43. Flynn, M.R., Gatano, B., McKernan, J., Dunn, K. Balzicko, B., and Carlton G.N. *Modeling breathing zone concentrations of airborne contaminants generated during compressed air spray painting*. **Ann. Occup. hyg**. 43(1):67-76, (1999).
44. Altemose, B., Flynn, M.R. and Sprankle J. *Application of a Tracer Gas* Challenge *with a human subject to investigate factors affecting the performance of laboratory fume hoods*. **Am. Ind. Hyg. Assoc. J.** 59:321-327, (1998).
45. Carlton, G. and Flynn, M.R. *The Influence of Spray Painting Parameters on Breathing Zone Particle Size Distributions*. **Appl. Occup. Env. Hyg**. 12(11):744-750, (1997).
46. Carlton, G. and Flynn, M.R. *Field Evaluation of an Empirical-Conceptual Exposure Model*. **Appl. Occup. Env. Hyg**. 12(8):555-561, (1997).
47. Carlton, G. and Flynn, M.R. *A model to Estimate Worker Exposure to Spray Paint Mists*. **Appl. Occup. Env. Hyg**. 12(5):375-382, (1997).
48. Susi, P.; Flynn, M.R., and Curran, P. *Methanol Exposure Among School Workers during Spirit Duplicator Use*. **Appl. Occup. Env. Hyg**. 11(11):1340-1345 (1996).
49. Flynn, M.R., and George, D. *A Field Evaluation of a Mathematical Model to Predict Worker Exposure to Solvent Vapors*. **Appl. Occup**. **Env. Hygiene**. 11(10):1212-1216, (1996).
50. Flynn, M.R., Lackey, B.D., and Muthedath P. *Experimental and Numerical Studies on the Impact of Work Practices used to Control Exposures Occurring in Booth-Type Hoods*. **Am. Ind. Hyg. Assoc. J**. 57:469-475 (1996).
51. George, D.K.; Flynn, M.R. and Harris, R.H. *Autocorrelation of interday exposures at an automobile assembly plant*. **Am. Ind**. **Hyg. Assoc. J.** 56:1187-1194 (1995).
52. Flynn, M.R. K. Ahn and C.T. Miller. *Three-Dimensional Finite Element Simulation of a Turbulent Push-Pull Ventilation System*. **Ann. occup. Hyg.** 59(5):573-589, (1995).
53. Kim, T. and Flynn, M.R. *Numerical Simulation of Airflow Around Multiple Objects Using the Discrete Vortex Method* **J. Wind Engnr. Ind**. **Aerodynamics,** 56(2, 3): 213-234, (1995).
54. Flynn, M.R.; Chen, M., Kim, T. and P. Muthedath. *Computational Simulation of Worker Exposure Using a Particle Trajectory Method*. **Ann. occup. Hyg.** 39(3), 277-289, (1995).
55. Flynn, M.R. and Ljungqvist B. *A Review of Wake Effects on Worker Exposure*. **Ann. occup. Hyg**. 39(2), 211-221, (1995).
56. Smith, T.C.; Flynn, M.R. and Dement, J.M. *A Design and Performance Analysis of Laboratory Fume Hoods*. **Appl**. **Occup. Env. Hyg**.9 (2)117-124, (1994).
57. Symons, M.J.; Chen, C.C. and M.R., Flynn. *Bayesian Nonparametrics for Compliance to Exposure Standards*. **J. Amer. Stat. Assoc**. 88(424):1237-1241, (1993).

58. Boyle, K.M.; Kim, T.; Flynn, M.R.; and R. Wiener. *Numerical Calculation of Inertial Aspiration Efficiency of Aerosols into Thin-Walled Sampling Inlets*. **Aerosol. Sci. Tech.** 19:227-242, (1993).
59. Kim, T and M.R. Flynn. *The Effect of Contaminant Source Momentum on a Worker's Breathing Zone Concentration in a Uniform Freestream*. **Am. Ind. Hyg. Assoc. J.** 53(12):757-766, (1992).
60. Kim, T. and M.R. Flynn. *Modeling a Worker's Exposure from a Hand-held Source in a Uniform Freestream*. **Am. Ind. Hyg. Assoc. J**. 52(11):458-463, (1991).
61. Kim, T. and M.R. Flynn. *Air Flow Patterns Around a Worker in a Uniform Freestream*. **Am. Ind. Hyg. Assoc. J**. 52(7):287-296, (1991).
62. Flynn, M.R. and C.T. Miller. *Discrete Vortex Methods for the Simulation of Near-Wake Effects on Worker Exposure*. **Ann. Occup. Hyg**. 35(1):35-50, (1991).
63. Flynn, M.R., West S., Chen C., Loomis, D., Kaune, W.A., and D., Savitz. *Validation of Expert Judgment in Assessing Exposure to Magnetic Fields in the Utility Industry*. **Appl. Occup. Env. Hyg**. 6(2):141-145, (1991).
64. Flynn, M.R. and D. George. *Aerodynamics and Exposure Variability*. **Appl. Occup. Env. Hyg**. 6(1):36-39, (1991).
65. Flynn, M.R. and W. Shelton. *Factors affecting the design of LEV for hand-held contaminant sources*. **Appl. Occup. Env. Hyg**. 5(10):707-714, (1990).
66. George, D., M.R. Flynn, and R. Goodman. *The Impact of Boundary Layer Separation on Worker Exposure*. **Appl. Occup. Env. Hyg.** 5(8):501-509, (1990).
67. Tum Suden, K.D., M.R. Flynn, and R. Goodman. *Computer Simulation in the Design of Local Exhaust Hoods for Shielded Metal Arc Welding*. **Am. Ind. Hyg. Assoc. J**. 51(3):115-126 (1990).
68. Flynn, M.R. and M.L. Fitzgerald. *A Comparison of Three-Dimensional Velocity Models for Flanged Rectangular Hoods*. **Appl. Ind. Hyg.** 4(8):210-216 (1989).
69. Flynn, M.R. and C.T. Miller. *The Boundary Integral Equation Method (BIEM) for Modeling Local Exhaust Hood Flow Fields*. **Am. Ind. Hyg. Assoc. J**. 50(5):281-288 (1989).
70. Flynn, M.R. and C.T. Miller. *Comparison of Models for Flow into Flanged and Plain Circular Hoods.* **Ann. Occup**. **Hyg**. 32(3):373-384, (1988).
71. Conroy, L., M.J. Ellenbecker, and M.R. Flynn. *Prediction and Measurement of Air Flow into a Flanged Slot Hood.* **Am. Ind. Hyg. Assoc. J**. 49(5):226-234, (1988).
72. Flynn, M.R. and M.J. Ellenbecker. *Empirical Validation of Theoretical Velocity Fields into Flanged Circular Hoods*. **Am. Ind. Hyg**. **Assoc. J**. 48(4):380-389, (1987).
73. Flynn, M.R. and M.J. Ellenbecker. *Capture Efficiency of Flanged Circular Local Exhaust Hoods*. **Ann. Occup. Hyg**. 30(4):497-513, (1986).
74. Flynn, M.R. and M.J. Ellenbecker. *The Potential Flow Solution for Air Flow into a Flanged Circular Hood*. **Am. Ind. Hyg. Assoc. J**. 46(6):318-322, (1985).

PUBLICATIONS (BOOK CHAPTERS)

George, D.K., and M.R. Flynn, Chapter 51 in *Industrial Hygiene Education, Training and Information Exchange*, Patty's Industrial Hygiene, 5th ed., vol. 3, R. Harris ed., pp. 2343-2374, J. Wiley & Sons, NY, (2000).

Flynn, M.R. *Application of Computational Fluid Dynamics to Ventilation System Design*. Chapter 14 in Ventilation for Control of the Work Environment, by Burgess, Ellenbecker and Treitman, 2nd ed., John Wiley & Sons, New York. (2004).

GRANTS (currently active grants highlighted in red)

Principal Investigator:

1. Numerical Modeling of Size Specific Aerosol Concentration NIOSH #1R01OH07363-01, Total Award: $556,640, 9/30/01 –9/29/05.
2. "A Study of Aerosol Transport Using Vortex Methods" CDC# 1R03 OH03902-01, Total Annual Award: $35,164. 9/30/99 – 9/29/00.
3. "Occupational Safety and Health Educational Resource Center" T42/CCT410423-03, Total Annual Award: $738,205. 7/1/95 - 6/30/01.
4. "Computational Methods in Industrial Ventilation"; CDC# 1 R01 OH02858-01-06, Total Award $483,000: 7-01-91 to 9-30-98.
5. "Computer Simulation of Push-Pull Ventilation Systems"; CDC# 1 R01 OH02710-02, Total Award: $186,000; 9-1-90 to 8-31-92
6. "Computer aided Ventilation Design"; Shell Young Investigator Award - Shell Oil Co. Foundation. Total $45,000, 9-1-88 to 8-30-91.
7. "Impact of Separation on Exposure and Hood Capture"; NIOSH grant 5-R01OH02392, Total Award $113,206, 9-29-87 to 9-29-89.

Co-Investigator

1. "Regional Brain Manganese Accumulation and Functional Consequences in Welders" NIEHS R01ES019672-01A1 Dr. Xuemei Huang PI (Penn State) 08/16/2011 until 04/30/2015, 2.5 million total costs.
2. "Dermal Exposure to 1,6-Hexamethylene Diisocyanate" CDC/NIOSH R01 OH07598 L.A. Nylander-French (PI) 8/1/03 - 7/31/07
3. "Characterization of Manufacturing Processes by Variability of Workers' Exposures"; R. Harris P.I., GM-UAW. 9-1-88 to 9-31-92, Total $531,080.
4. "Epidemiological Study of Utility Workers", David Savitz P.I., EPRI Grant RP799-28, 7-1-87 to 12-31-88, Total $333,567.
5. "Numerical Modeling of Sampler Efficiencies for Aerosols"; sub part of EPA Indoor and Outdoor Aerosols - Characterization Studies"; (Rich Kamens, P.I.); $332,580; 3-1-90 to 2-29-91.
6. "Statistical Issues for Compliance to Exposure Standards" Dr. M.J. Symons PI NIOSH 1 R18 OH03073-01 Total $143,000 9-1-93 to 8-31-95.