

Neil E. Klepeis, Ph.D.
Human Exposure and Environmental Health Scientist

Consulting Assistant Professor, Stanford University, Civil & Environmental Engineering
Adjunct Assistant Professor, San Diego State University, Graduate School of Public Health
Senior Research Affiliate, Education, Training & Research Associates
Contact: <http://Neil.Klepeis.Net/contact>

updated 12-Sept-2011

Research Interests

Secondhand Tobacco Smoke Exposure; Human Exposure Data Analysis; Human Activity Patterns; Exposure Modeling; Indoor Air Quality; Indoor Air Modeling; Particulate Matter Pollution; Real-Time Monitoring of Environmental Contaminants; Exposure Tracking; Quantitative Space-Time Characterization of Health-Related Social Behavior; Complexity and Agent-Based Simulation; Exposure Reduction Strategies; Secondhand Smoke Behavioral Interventions; Health Promotion; Preventive Health

Education

Ph.D., Environmental Health Sciences, University of California at Berkeley, 2004 (William W. Nazaroff, advisor in Civil and Environmental Engineering); Dissertation: "*Using Computer Simulation to Explore Multi-Compartment Effects and Mitigation Strategies for Exposure to Residential Secondhand Tobacco Smoke.*"

M.S., Chemistry, Stanford University, 1992 (Wesley D. Allen, advisor in Quantum Chemistry).

B.A., Chemistry, Colgate University, Magna Cum Laude, 1989 (Quang Shen, advisor in Physical Chemistry).

Research Positions

Consulting Assistant Professor; 2006-present; Stanford University, Stanford, CA, Department of Civil and Environmental Engineering; Projects: "Human Exposure Analysis for Pollutants from Secondhand Tobacco Smoke"; "Exposure to Secondhand Smoke: The Effects of Proximity"; and "Developing Methods for Measuring SHS in Multi-Unit Dwellings". Grants Awarded from: Flight Attendant Medical Research Institute (FAMRI) and Tobacco Related Disease Research Program (TRDRP); Co-investigators: Lynn Hildemann, Wayne Ott, and James Repace.

Adjunct Assistant Professor; 2007-present; San Diego State University, Graduate School of Public Health, Center for Behavioral Epidemiology and Community Health (C-BEACH); Project: "Real-Time Feedback as a Catalyst for Smoke-Free Homes"; Grants awarded from Tobacco Related Disease Research Program of California

(TRDRP) and U.S. National Institutes of Health (NIH) – R01 Grant; Co-Investigators: Suzanne Hughes and Melbourne Hovell.

Senior Research Affiliate; 2006-present; Education, Training, and Research Associates (ETR), Scotts Valley, CA, Department of Research; Project: “Computer Simulation as a Tool in Reducing Secondhand Smoke Exposure”; Grants Awarded From: Tobacco Related Disease Research Program (TRDRP) and National Institutes of Health (NIH), National Institute on Drug Abuse (NIDA); Co-investigators: Pamela Drake (ETR), Jonathan Winickoff (Harvard University), and Linda Alexander (University of KY).

Post-Doctoral Researcher; 2004-2006; Stanford University, Department of Statistics; Project: “Quantifying Human Exposure to Secondhand Smoke”; Grants Awarded from: California Department of Health Services Tobacco Control Section and Flight Attendant Medical Research Association (FAMRI); Paul Switzer, Principal Investigator; Wayne Ott, Co-investigator.

Graduate Researcher; 2003; Center for Exposure and Health Tracking, University of California at Berkeley, Center for Occupational and Environmental Health (COEH), School of Public Health.

Graduate Researcher; 1997-2002; Lawrence Berkeley National Laboratory, Indoor Environment Department, EPA University Partnership Project: “Multi-Domain Framework for Integrating Models and Measurements of Multimedia Environmental Contaminants”; Thomas McKone, Principal Investigator; Halûk Özkaynak, EPA Project Director.

Ph.D. Student; 1997-2004; University of California at Berkeley, School of Public Health, Environmental Health Sciences Division; William W. Nazaroff, advisor.

Independent Consultant; 1997-2001; Stanford University Award, Dept. of Statistics; Grant Awarded from: Tobacco Related Disease Research Program of California (TRDRP); Paul Switzer, Principal Investigator; Wayne Ott, Co-investigator.

Graduate Researcher; 1997-1998; Center for Occupational and Environmental Health, University of California at Berkeley; S. Katharine Hammond, Supervisor.

Senior Scientist; 1995-1997; Lockheed Martin, Las Vegas, NV; Technical and Research Support for EPA Activity Pattern and Exposure Modeling Projects, Steve Hern, EPA Project Director; William Engelmann, EPA Project Manager.

Project Manager; 1994-1995; Information Systems and Services, Inc., Las Vegas, NV; Technical and Research Support for EPA Activity Pattern and Exposure Modeling Projects, Niren Nagda, Project Director; Steve Hern, EPA Project Director; Joseph Behar, EPA Project Manager.

Research Consultant; 1993-1994; Stanford University, Dept. of Statistics; Grant Awarded from: Tobacco Related Disease Research Program of California (TRDRP); Paul Switzer, Principal Investigator; Wayne Ott, Co-investigator.

Graduate Researcher; 1989-1991; Stanford University, Department of Chemistry.

Undergraduate Researcher, 1986-1989; Colgate University, Department of Chemistry.

Teaching and Speaking Experience

Supervision of SDSU MPH Student: *San Diego State University, Graduate School of Public Health*, September 2011-present, Mentoring and supervising student research in monitoring secondhand tobacco smoke in outdoor locations and in Multi-Unit Housing.

Supervision and Teaching of Stanford Graduate Students: *Stanford University*, July 2008 – present, Mentoring and practical education of Ph.D. and post-doctoral students in computer programming, manuscript preparation, data analysis, exposure assessment, experimental procedures, and experimental design.

Speaker: *Santa Monica City Council Meeting*; Santa Monica, CA City Hall; Gave slide presentation to mayor and city council showing measured secondhand smoke levels in several Multi-Unit Buildings in support of moving forward on secondhand smoke policies in housing. Item 8A. Result of meeting: Council voted to move forward, Tuesday, June 28, 2011.

See: http://santamonica.granicus.com/MediaPlayer.php?view_id=2&clip_id=2296

Note: In video, Dr. Klepeis' comments start at time = 2:48:48

Invited Speaker: *Television and Radio Broadcast Press Conference*; San Jose, CA City Hall, Hosted by Breathe California, shared platform with Santa Clara County Supervisor Ken Yeager, gave comments and presented data in support of raising awareness of issue of secondhand smoke transfer in Multi-Unit Housing, February 22, 2011.

See: <http://sanfrancisco.cbslocal.com/2011/02/23/group-seeks-to-expand-south-bay-smoking-bans/>

Speaker: *San Jose City Council Meeting*, San Jose, CA, Delivered public comments on proposal for moving forward with ordinances on outdoor smoking and smoking in Multi-Unit Housing. December 7, 2010.

Invited Lecturer: *Environmental Engineering Symposium*, Stanford University, "The Making of an Intervention for Residential Secondhand Smoke Exposure: From Environmental Engineering to Community Health and Preventive Health Care", November 30, 2010.

Invited Lecturer: *West Virginia Perinatal Summit*, Charleston, WV, CAMC Memorial Hospital, West Virginia Perinatal Partnership, March of Dimes, "Using Air Monitoring Devices as a Catalyst for Smoke-Free Homes in Pregnancy", November 11, 2010.

Invited Speaker: *Televised Press Conference*; Live Demonstration of Pollution from Smoking in Cars, Little Rock, Arkansas; In support of Arkansas state efforts to raise awareness of existing law protecting children from secondhand smoke in automobiles; May 6, 2010.

Speaker: *Menlo Park City Council Meeting*, Menlo Park, CA, Item on establishment of ordinances restricting smoking in outdoor places and multi-unit housing. Presented data and analysis of outdoor and multi-unit housing exposure to secondhand smoke, October 27, 2009.

Speaker: *County Board of Supervisors Meeting*, Kern County, Bakersfield, California, Item on establishment of ordinance restricting outdoor smoking in public places, Presented data and analysis of outdoor exposure to secondhand smoke, June, 2009.

Invited Lecturer: *Environmental Engineering Symposium*, Stanford University, "Applying Environmental Engineering Approaches in Behavior Change Research to Influence Personal and Public Policy: The Case of Secondhand Tobacco Smoke", January 16, 2009.

Invited Plenary Speaker: "Measuring and Communicating Secondhand Smoke Exposure in Key Environments: Cars, Multi-Unit Housing, Single-Family Homes, Casinos, and the Outdoors," December 2 – 4, 2008, *Smoke-Free California Conference*, Sponsored by the California Tobacco Control Program (CTCP), California Department of Public Health.

Invited Speaker: *Televised Press Conference*; Public Real-Time Demonstration of Pollution from Smoking in Cars, Salt Lake City, UT, May 30, 2008; In support of Utah state efforts to educate citizens about the dangers of smoking in cars with children present.

Invited Speaker: Lecture to PROJECT RIDE on dangers of smoking in automobiles, Oakland, CA, January 26, 2008, hosted by Stella Jun.

Invited Speaker: *Televised Press Conference*; Public Real-Time Demonstration of Pollution from Smoking in Cars, Hollywood, California; In support of new California law banning smoking in automobiles with minors present; January 3, 2008.

Training and Lecture: *California Tobacco Control Specialists*, Sacramento, CA, September 19, 2007; Presented data on outdoor tobacco air monitoring, car monitoring, and the role of air pollution messaging in tobacco control efforts.

Public Comments; Santa Monica City Council Meeting; In Support of an Ordinance to Ban Outdoor Smoking in all Dining Areas and Service Areas Within 20 feet of all Entrances and Windows to Buildings Open to the Public, at Farmers' Markets, and on the Third Street Promenade. Motion Passed with a vote of 5-to-1; July 25, 2006.

Invited Speaker: California Department of Health Services, Tobacco Control Section, Conference: *Smoke-Free California: Where We Live, Work, and Play*, "*Monitoring Airborne Levels of Outdoor and In-Vehicle Secondhand Tobacco Smoke*," May 16, 2006.

Invited Speaker; Ontario Tobacco Research Unit, University of Toronto in Collaboration with the Centre for Addiction and Mental Health; Workshop on Biological and Atmospheric Measurement of Tobacco Use and Exposure in Transdisciplinary Research; Dr. Roberta Ferrence, host; “*Comparing Methods for the Real-Time Measurement of Secondhand Tobacco Smoke Particles*,” May 19-20, 2005.

Invited Speaker; *Air Quality Group Seminar*, Department of Civil and Environmental Engineering, Stanford University; Lynn Hildemann, host; “*Measuring Proximate Exposure to Sources of Air Pollution in Outdoor Microenvironments*”; February 8, 2005.

Invited Speaker; *Environmental Energy Technologies Division Seminar*, Lawrence Berkeley National Laboratory, Berkeley, CA; Brett Singer, host; “*Using Mathematical Models in Public Health: The Case of Residential Exposure to Secondhand Tobacco Smoke*”; November 11, 2004.

Invited Lecturer; *Environmental Health Seminar ENVH 580*; L.-J. Sally Liu, Instructor; University of Washington, Department of Environmental Health; “*The Science of Exposure: Theory and Experiment*”; June 2004.

Invited Lecturer; “*Exposure Assessment*”; James Leckie, Instructor; Stanford University, Department of Civil and Environmental Engineering; Fall 2002.

Graduate Student Instructor; “*Introduction to Environmental Health Sciences*”; Kirk Smith, Instructor; University of California at Berkeley, School of Public Health; Fall 2000.

Invited Lecturer; “*Exposure Assessment*”; James Leckie, Instructor; Stanford University, Department of Civil and Environmental Engineering; Fall 1997.

Instructor; “*Introduction to the BASIC Computer Language*”; Las Vegas Community College; Fall 1996.

Graduate Student Instructor; “*Physical Chemistry*”; Wesley D. Allen, Instructor, Stanford University, Department of Chemistry, Fall 1990.

Graduate Student Instructor; “*Introduction to Chemistry*”; Stanford University, Department of Chemistry; Fall 1989.

Memberships, Distinctions, and Service

- American Public Health Association, 2010.
- International Society of Exposure Analysis, 1995.
- American Chemical Society, 1997.

- Haskell-Shiff Memorial Award (most promising in Physical Chemistry), Colgate University, 1986.
- Phi Beta Kappa, 1989.
- Reviewer for the US Environmental Protection Agency's *Exposure Factors Handbook*, 1995.
- Reviewer of US Surgeon General's Report *The Health Consequences of Involuntary Exposure to Tobacco Smoke*, 2004.
- Referee for professional journals, 1997-present:
 - ◆ *Journal of Exposure Science and Environmental Epidemiology*
 - ◆ *Environmental Health Perspectives*
 - ◆ *Atmospheric Environment*
 - ◆ *Risk Analysis*
 - ◆ *The Science of the Total Environment*
 - ◆ *Nicotine and Tobacco Research*
 - ◆ *Tobacco Control*
 - ◆ *Journal of the Air and Waste Management Association*
 - ◆ *Indoor Air*

Journal Articles and Book Chapters

Jiang RT, Cheng KC, Acevedo-Bolton V, **Klepeis NE**, Ott WR, Hildemann LA (2011). Effect of relative humidity on response of an aerosol monitor: Gravimetric scaling factors for secondhand smoke. *Aerosol Science and Technology*, Submitted.

Acevedo-Bolton V, Cheng KC, Jiang RT, Ott WR, **Klepeis NE**, Hildemann LM (2011). Measurement of the proximity effect for indoor air pollutant sources in two homes. *Journal of Environmental Monitoring*, Accepted.

Rosen LJ, Guttman N, Hovell MF, Noach MB, Winickoff JP, Tchernokovski S, Rosenblum JK, Rubenstein U, Seidmann V, Vardavas CI, **Klepeis NE**, and Zucker DM (2011). Development, design, and conceptual issues of project zero exposure: A program to protect young children from tobacco smoke exposure. *BMC Public Health*, 11:508, doi:10.1186/1471-2458-11-508.

Jiang RT, Cheng KC, Acevedo-Bolton V, **Klepeis NE**, Ott WR, Hildemann LA (2011). Determination of response of the real-time Sidepak AM510 monitor to secondhand smoke, other common indoor aerosols, and outdoor aerosol. *Journal of Environmental Monitoring*, doi: 10.1039/c0em00732c.

Cheng KC, Jiang RT, Acevedo-Bolton V, **Klepeis NE**, Ott WR, Hildemann LA (2011). Modeling exposure close to air pollution sources in naturally-ventilated residences:

Association of turbulent diffusion coefficient with air change rate. *Environmental Science and Technology*, 45, 4016–4022, doi: /10.1021/es103080p.

Repace JL, Cheng KC, Jiang RT, Acevedo-Bolton V, **Klepeis NE**, Ott WR, Hildemann LA (2011) Fine particle and secondhand smoke air pollution exposures and risks inside 66 US casinos, *Environment International*, 111:473–484, doi: 10.1016/j.envres.2011.02.007.

Kaufman P, Zhang B, Bondy SJ, **Klepeis NE**, Ferrence R (2011) Not just ‘a few wisps’: real-time measurement of tobacco smoke at entrances to office buildings, *Tobacco Control*, doi:10.1136/tc.2010.041277.

Cheng KC, Jiang RT, Acevedo-Bolton V, Ott WR, **Klepeis NE**, Hildemann LA (2010) Model-based reconstruction of the time response of electrochemical air pollutant monitors to rapidly varying concentrations. *Journal of Environmental Monitoring*. doi: 10.1039/b921806h.

Jiang RT, Cheng KC, Acevedo-Bolton V, **Klepeis NE**, Repace JL, Ott WR, Hildemann LA (2010). Measurement of fine particle concentrations and smoking activity in a statewide survey of 36 California Indian casinos. *Journal of Exposure Science and Environmental Epidemiology*. doi: 10.1038/jes.2009.75.

Klepeis NE, Gabel EB, Ott WR, Switzer P (2009) Outdoor air pollution in close proximity to a continuous point source. *Atmospheric Environment*, 43(20): 3155-3167.

Ferro AR, **Klepeis NE**, Ott WR, Nazaroff WW, Hildemann LM, Switzer P (2009). Effect of interior door position on room-to-room differences in residential pollutant concentrations after short-term releases. *Atmospheric Environment*, 43(3): 706-714.

Ott WR, **Klepeis NE**, Switzer P (2008) Air change rates of motor vehicles and in-vehicle pollutant concentrations from secondhand smoke. *Journal of Exposure Science and Environmental Epidemiology*. 18:312–325.

Klepeis NE, Ott WR, and Switzer P (2007) Real-time measurement of outdoor tobacco smoke particles. *Journal of the Air and Waste Management Association*. 57:522-534.

Klepeis NE and Nazaroff WW (2006) Modeling residential exposure to secondhand tobacco smoke. *Atmospheric Environment* 40(23):4393-4407.

Klepeis NE and Nazaroff WW (2006) Mitigating residential exposure to secondhand tobacco smoke. *Atmospheric Environment* 40(23):4408-4422.

Klepeis NE "Modeling Human Exposure to Air Pollution," In: *Human Exposure Analysis*, edited by Wayne R. Ott, Lance A. Wallace, and Anne Steinemann, CRC Press, 2006.

Ott WR, **Klepeis NE**, Switzer P (2003) Analytical solutions to compartmental indoor air quality models with application to environmental tobacco smoke concentrations measured in a house. *Journal of the Air and Waste Management Association* 53:918-936.

Klepeis NE, Apte MG, Gundel LA, Sextro RG, Nazaroff WW (2003) Determining size-specific emission factors for environmental tobacco smoke particles. *Aerosol Science & Technology* 37(10): 780-790.

Nazaroff WW and **Klepeis NE** "Environmental Tobacco Smoke Particles," In: *Indoor Environment: Airborne Particles and Settled Dust*, edited by Lidia Morawska and Tunga Salthammer, Wiley-VCH, Weinheim, October 2003.

Klepeis NE, Nelson WC, Ott WR, Robinson J, Tsang AM, Switzer P, Behar JV, Hern S, and Engelmann W (2001). The National Human Activity Pattern Survey (NHAPS): A resource for assessing exposure to environmental pollutants. *Journal of Exposure Analysis and Environmental Epidemiology* 11(3):231-252.

Klepeis NE, Ott WR, and Repace JL (1999) The effect of cigar smoking on indoor levels of carbon monoxide and particles. *Journal of Exposure Analysis and Environmental Epidemiology* 9(6): 622-635.

Klepeis NE (1999) Validity of the uniform mixing assumption: Determining human exposure to environmental tobacco smoke. *Environmental Health Perspectives* 107(Supp2): 357-363.

Klepeis NE (1999) An introduction to the indirect exposure assessment approach: Modeling human exposure using microenvironmental measurements and the recent national human activity pattern survey. *Environmental Health Perspectives* 107(Supp2): 365-374.

Repace JL, Ott WR, and **Klepeis NE** "Indoor Air Pollution from Cigar Smoke," In: *Cigars: Health Effects and Trends*, Smoking and Tobacco Control Monograph No. 9, edited by Donald R. Shopland, National Cancer Institute, National Institutes of Health, February 1998.

Klepeis NE, Ott WR, and Switzer P (1996) A multiple-smoker model for predicting indoor air quality in public lounges. *Environmental Science and Technology*, 30(9): 2813-2820.

Klepeis NE, East ALL, Csaszar AG, Allen WD, Lee TJ, and Schwenke DW (1993) The [FHCI]- molecular anion - structural aspects, global surface, and vibrational eigenspectrum. *Journal of Chemical Physics* 99(5):3865-3897.

Technical Reports

Singer BC, Lobscheid AB, **Klepeis NE**. (Lawrence Berkeley National Laboratory). "Simulation-Based Estimates of Indoor Exposures to Pollutants from Natural Gas Cooking Burners," *California Energy Commission*. Publication number: TBA, Draft Technical Report, July 2011.

Klepeis NE "Multi-Day Measurement of Airborne Particle Concentrations in a High-Rise Luxury Condominium Building in Downtown San Jose California," December 13, 2010.

Klepeis NE, Ott WR, Switzer P "Real-Time Monitoring of Outdoor Environmental Tobacco Smoke Concentrations: A Pilot Study," Technical Report, Department of Statistics, Stanford University, Stanford, CA, Contract No. 3317SC, University of California at San Francisco, Prepared for the State of California, Tobacco Control Section, Sacramento, CA, March 2004.

Klepeis NE, Switzer P, and Ott WR "Estimating Potential Exposure to Environmental Tobacco Smoke Particles Using 24-Hour Recall Diaries from Three Human Activity Pattern Surveys Conducted on California Populations," Tobacco-Related Disease Research Program of the State of California (University of California), Grant No. 6RT-0118, Department of Statistics, Stanford University, Stanford, CA, 2001.

Klepeis NE, Ott WR, Switzer P "Determining Parameters of a Two-Compartment Indoor Air Quality Model From Experimental Data: Computer Optimization Using a Grid Search Method," Tobacco-Related Disease Research Program of the State of California (University of California), Grant No. 6RT-0118, Department of Statistics, Stanford University, Stanford, CA, 2001.

Tsang AM and **Klepeis NE** "Three Telephone Surveys of Human Activity Patterns in California: The 1992-94 National Human Activity Pattern Survey; the 1987-88 California Activity Pattern Survey of Adults and Youth; and the 1989-90 California Activity Pattern Survey of Children," Draft Technical Report, US EPA, Washington D. C., 1998.

Klepeis NE, Tsang AM, and Behar JV "Analysis of the National Human Activity Pattern Survey (NHAPS) Responses from a Standpoint of Exposure Assessment." Technical Report, EPA/600/R-96/074, US EPA, Washington D. C., 1996.

Tsang AM and **Klepeis NE** "A Detailed Analysis of the National Human Activity Pattern Survey (NHAPS) Respondents." Technical Report, EPA/600/R-96/148, US EPA, Washington D. C., 1996.

Klepeis NE "User's and Programmer's Manual for the Total Human Exposure Model (THEM), Version 1.0.," Technical Report, Stanford University, 1994.

Conference Presentations and Proceedings

Klepeis NE, Acevedo-Bolton V, Jiang RT, Cheng KC, Ott WR, Repace JL, Hildeman LM, "Worker And Patron PM_{2.5} Exposures in a California Casino With Smoking," Platform Presentation at the *12th International Conference on Indoor Air Quality & Climate* (Indoor Air 2011) , Austin, TX, June 5-10, 2011.

Lobscheid AB, **Klepeis NE**, Singer BC. "Modeling Population Exposures to Pollutants Emitted from Natural Gas Cooking Burners," Platform Presentation at the *12th International Conference on Indoor Air Quality & Climate* (Indoor Air 2011), Austin, TX, June 5-10, 2011.

Cheng KC, Acevedo-Bolton V, Jiang RT, **Klepeis NE**, Ott WR, Hildemann LM. "Association of Turbulent Diffusion Coefficient with Air Change Rate in Naturally Ventilated Residences" Presented at the *12th international conference on Indoor Air Quality and Climate*, Austin, TX, June 5-10, 2011.

Dacunto PJ, Jiang RT, Acevedo-Bolton V, Cheng KC, **Klepeis NE**, Repace JL, Ott WR, Hildemann LM, "Calibration Factors for Measuring PM_{2.5} Concentrations from Multiple Indoor Sources with a Real-Time Particle Monitor," Platform Presentation at the *12th International Conference on Indoor Air Quality & Climate (Indoor Air 2011)*, Austin, TX, June 5-10, 2011.

Ott WR, Acevedo-Bolton V, Wallace LA, Cheng KC, Jiang RT, **Klepeis NE**, Dacunto PJ, Repace JL, Hildeman LM. "Simultaneous Measurement of Ultrafine Particles (UFP) and Fine Particle Mass Concentration (PM-2.5) Indoors in Two Large Gaming Casinos with Smoking," Platform Presentation at the *12th International Conference on Indoor Air Quality & Climate (Indoor Air 2011)*, Austin, TX, June 5-10, 2011.

Repace JL, Jiang RT, Acevedo-Bolton V, Cheng K-C, **Klepeis NE**, Ott WR, and Hildemann LM. "PM_{2.5} and Secondhand Smoke in 94 casinos." Platform Presentation at the *12th International Society for Indoor Air Quality and Climate (Indoor Air 2011)*, Austin, TX, June 5-10, 2011.

Acevedo-Bolton V, Ott WR, Cheng KC, Jiang RT, **Klepeis NE**, Hildeman LM. "Indoor Exposure to PM_{2.5} in Close Proximity to a Smoker," Platform Presentation at the *12th International Conference on Indoor Air Quality & Climate (Indoor Air 2011)*, Austin, TX, June 5-10, 2011.

Ott WR, Acevedo-Bolton V, Cheng KC, Jiang RT, **Klepeis NE**, Hildemann LM. "Outdoor Fine and Ultrafine Particle Exposures Measured on the Sidewalks of Arterial Highways Compared with Exposures Caused by a Nearby Smoker," Platform Presentation at the International Society of Exposure Science (ISES) 2011 Annual Meeting, Symposium: *Recent Advances in the Science of Measuring Exposure to Secondhand Smoke*, Baltimore, MD, October 23-27, 2011.

Hildemann LM, Acevedo-Bolton V, Jiang RT, Cheng K-C, **Klepeis NE**, Repace JL, and Ott WR. "Measuring Human Exposure to Pollutants from Secondhand Smoke", Poster Presentation at the *9th Scientific Symposium of Flight Attendant Medical Research Institute (FAMRI)*, Miami FL, May 3-5, 2010.

Jiang RT, Cheng KC, Acevedo-Bolton V, **Klepeis NE**, Repace JL, Ott WR, Hildemann LM. "Measurement of fine particles and smoking activity in a statewide survey of 36 California Indian Casinos," Presented at *Joint Conference of International Society of*

Exposure Science & International Society for Environmental Epidemiology (ISES-ISEE), Seoul, Korea, 2010.

Ott WR, Acevedo-Bolton V, Cheng KC, Jiang RT, **Klepeis NE**, Hildemann LM. "Experiments Measuring the Exposure to Fine Particles in Everyday Locations in Close Proximity to Sources," No. 15, SQ3.T3.250, Poster Presentation at the AAAR 2010 Specialty Conference, *Air Pollution and Health: Bridging the Gap from Sources to Health Outcomes*, San Diego, CA, March 22-26, 2010

Klepeis NE, "Using Air Monitoring Devices as a Catalyst for Smoke-Free Homes in Pregnancy", Platform Presentation at the *West Virginia Perinatal Summit*, Charleston, WV, November 11, 2010.

Klepeis NE, Drake P, Alexander L, Baker C "Using computer simulation to reduce secondhand smoke exposure in children of low-income families," Platform Presentation at the *138th Annual Meeting of the American Public Health Association (APHA)*, Denver, CO, November 10, 2010.

Hildemann LM, Acevedo-Bolton V, Jiang RT, Cheng KC, **Klepeis NE**, Repace JL, Ott WR. "Measuring Human Exposure to Pollutants from Secondhand Smoke," Presented Poster at the *8th Scientific Symposium of the Flight Attendant Medical Research Institute (FAMRI)*, Boston, MA, May 11-13, 2009.

Acevedo-Bolton V, Ott WR, Cheng KC, Jiang RT, **Klepeis NE**, and Hildemann LM, "Personal Exposure to Fine Particles from Secondhand Smoke", Presented at the *American Association of Aerosol Research Conference*, Minneapolis, MN, 2009.

Jiang RT, Acevedo-Bolton V, Cheng KC, **Klepeis NE**, Ott WR, Hildemann LM. "Calibration Methodology for Real-Time PM Monitor: Effects of Combustion Sources and Relative Humidity," Presented at *American Association of Aerosol Research Conference*, Minneapolis, MN, USA, 2009.

Jiang R, Acevedo-Bolton V, Cheng KC, Ott W, **Klepeis NE**, and Hildemann L, "Monitoring of Indoor Fine Particulate Pollution from Secondhand Smoke in California Indian Casinos", Presented at the *American Association for Aerosol Research Annual Conference*, Minneapolis, MN, 2009.

Acevedo-Bolton V, Cheng K, Jiang J, Ott W, **Klepeis NE**, and Hildemann LM, "The Effects of Proximity on Exposure: Examining the Uniform Mixing Assumption for a Point Source", poster #2009-A-351-ISES presented at the *International Society of Exposure Science Annual Meeting*, Minneapolis, MN, 2009.

Acevedo-Bolton V, **Klepeis NE**, Jiang R, Cheng K, Ott WR, and Hildemann LM, "Employee and Patron Exposure to Pollutants in a Northern California Casino", poster #2009-A-493-ISES, presented at the *International Society of Exposure Science Annual Meeting*, Minneapolis, MN 2009.

- Jiang RT, Cheng KC, Acevedo-Bolton V, **Klepeis NE**, Ott WR, Hildemann LM. "Personal Exposure to Fine Particulate Matter Pollution from Secondhand Smoke in California Casinos," Presented at the *International Society of Exposure Science (ISES) Conference*, Minneapolis, MN, USA, 2009.
- Jiang RT, Acevedo-Bolton V, Cheng KC, Ott WR, **Klepeis NE**, Hildemann LM. "Evaluation and Calibration of Continuous Real-Time Particle Monitors for Fine Particle Exposure Analysis," Presented at *Joint Conference of International Society of Environmental Epidemiology & International Society of Exposure Analysis (ISEE-ISEA)*. Pasadena, CA, October, 2008.
- Klepeis NE**, Acevedo-Bolton V, Jiang R, Cheng KC, Ott WR, Hildemann L "Measuring and Modeling the Residential Proximity Effect: Investigating Localized Dispersion of Indoor Air Pollutants", Presentation at the *18th International Society of Exposure Analysis (ISEA) Annual Conference*, Pasadena, CA, October, 2008.
- Hildemann LM, **Klepeis NE**, Ott WR, Repace JL. Poster on "Exposure Measurements Can Reduce Tobacco Smoke Exposure Around the World," *7th Annual Flight Attendant Medical Research Institute (FAMRI) Scientific Symposium*, Boston, MA, May 2008.
- Klepeis NE**, Ott WR, Wallace LA, Repace JL, Switzer P. Poster Presentation: "Interrelating and Evaluating Real-Time Airborne Particle Monitors", Joint Meeting of the *International Society of Exposure Analysis (ISEA) and the International Society of Environmental Epidemiology (ISEE)*; Paris, France; September 2006.
- Switzer P, **Klepeis NE**, Ott WR. Oral Presentation and First Prize in Poster Contest: "Quantifying Human Exposure to Secondhand Tobacco Smoke," *5th Annual Flight Attendant Medical Research Institute (FAMRI) Scientific Symposium*, Cambridge, MA, May 2006.
- Ott WR, **Klepeis NE**, Switzer P. "Measuring and Modeling Exposure to Secondhand Smoke In Vehicles," Presentation at the *15th International Society of Exposure Analysis (ISEA) Annual Conference*, Tuscon, AZ, October 30 – November 3, 2005.
- Switzer P, Ott WR, **Klepeis, NE**. Poster Presentation: "Quantifying Human Exposure to Secondhand Tobacco Smoke," *4th Annual Flight Attendant Medical Research Institute (FAMRI) Scientific Symposium*, Miami, FL, May 2005.
- Klepeis NE**, Ott WR, and Switzer P "Human Exposure to Outdoor Secondhand Tobacco Smoke," Poster presentation at the *14th International Society of Exposure Analysis (ISEA) Annual Conference*, Philadelphia, PA, October 17-21, 2004.
- Ott WR, **Klepeis NE**, Rozenberg D, and Switzer P "Continuous Measurements of Indoor-Outdoor Particular Polycyclic Aromatic Hydrocarbon (PPAH) Concentrations in Seven Homes with Application to Indoor Mass-Balance Model Parameters and Prediction Error," Platform presentation at the *14th International Society of Exposure Analysis (ISEA) Annual Conference*, Philadelphia, PA, October 17-21, 2004.

Klepeis NE, Switzer P, Ott WR "Development of Averaging Time Models for Particulate Air Pollutants," Poster Presentation at *ISEA/ISEE Joint Conference*, Vancouver, BC, August 11-15 2002.

Klepeis NE and Nazaroff WW "Characterizing Size-Specific Environmental Tobacco Smoke Particle Emissions," Poster Presentation at the *9th Annual Conference on Indoor Air Quality and Climate*, Indoor Air 2002, Monterey, CA, June 30-July 5, 2002.

Klepeis NE and W. W. Nazaroff. "Determining Size-Resolved Particle Emission Profiles for Sources of Environmental Tobacco Smoke," Poster Presentation at the *PM-2000: Particulate Matter and Health, The Scientific Basis for Regulatory Decision-Making Specialty Conference and Exhibition*. Charleston, SC, January 24, 2000.

Klepeis NE and W. W. Nazaroff. "Simulating Indoor Concentrations of Size-Resolved Particles: Emission Factors and Deposition Rates for ETS," *10th Annual Conference of the International Society of Exposure Analysis*. October 24, 2000.

Repace JL, Ott WR, and **Klepeis NE**. "Mathematical Models for Predicting Indoor Environmental Tobacco Smoke (ETS) Concentrations: A Review." *10th Annual Conference of the International Society of Exposure Analysis*. October 24, 2000.

Ott WR, Switzer P, and **Klepeis NE** "Determining Particle Emission Source Strengths for Common Residential Indoor Sources Using Real-Time Measurements and Piecewise Continuous Solutions to the Mass Balance Equation." *10th Annual Conference of the International Society of Exposure Analysis*. October 24, 2000.

Ott WR, Switzer P, and **Klepeis NE** "Relationship Between Observed Fireplace Plume Activity in Residential Neighborhoods and Indoor-Outdoor Real-Time Particulate Aromatic Hydrocarbon (PPAH) Concentrations." *10th Annual Conference of the International Society of Exposure Analysis*. October 24, 2000.

Ott WR, Wallace LA, **Klepeis NE**, Switzer P, Mage D, and Liroy P "Research Directions in Predicting Personal Exposure Distributions to Particles (PM-10) Using a Random Component Superposition (RCS) Model." *10th Annual Conference of the International Society of Exposure Analysis*. October, 24, 2000.

Klepeis NE, Apte MG, Gundel LA, Nazaroff WW, and Sextro RG "Characterizing ETS Emissions From Cigars: Chamber Measurements of Nicotine, Particle Mass, and Particle Size." Proceeding of the *8th International Conference on Indoor Air Quality and Climate -- Indoor Air '99*, 1999.

Klepeis NE, Ott WR, Switzer P, Zelenka M, Huber A, and Nelson W "Air Pollutant Time Series Analysis: Outdoor Sources of Carbon Monoxide and Polycyclic Aromatic Hydrocarbons." Joint Meeting of the *Society for Risk Analysis and the International Society of Exposure Analysis*. New Orleans, August 12, 1996.

Klepeis NE, Ott WR, Switzer P, Zelenka M, Huber A, and Nelson W "Optimization of a Real-Time Indoor-Outdoor Air Quality Model of Carbon Monoxide and Polycyclic

Aromatic Hydrocarbons.” Joint Meeting of the *Society for Risk Analysis and the International Society of Exposure Analysis*. New Orleans, August 12, 1996.

Klepeis NE, Ott WR, and Switzer P “Total Human Exposure Model (THEM) for Respirable Suspended Particles (RSP).” Paper Presented at the *87th Annual Meeting of the Air and Waste Management Association*, Cincinnati, OH, June 19, 1994.

Ott WR., Wilson N, **Klepeis NE** and Switzer P “Real-time Monitoring of Polycyclic Aromatic Hydrocarbons and Respirable Suspended Particles from Environmental Tobacco Smoke in a Home.” Paper Presented at the *Air and Waste Management Symposium on Measurement of Toxic and Related Air Pollutants*, Durham, NC, May 2-6, 1994.

Theses

Doctoral Dissertation: “Using Computer Simulation to Explore Multi-Compartment Effects and Mitigation Strategies for Residential Exposure to Secondhand Tobacco Smoke,” University of California at Berkeley, 2004.

Masters Thesis: “The Potential Energy Surface and Vibrational Eigenspectrum of the F₂Cl⁻ Molecular Anion,” Stanford University, 1992.

Undergraduate Thesis, with High Honors: “Using Computers to Aid in the Elucidation of Molecular Structure and Conformation Through the Phenomenon of Electron Diffraction,” Colgate University, 1989.

Scientific Software

“LBL LNG”, an exposure and indoor air quality simulation model written in R for determining the impact on residential pollution and human exposures associated with liquid natural gas (LNG) usage in California, 2010 to present.

“Port Buddy”, a Perl script server for reading, processing, and transmitting real-time data streams from any environmental monitor via a generic computer serial port connection (e.g., RS232, USB, Bluetooth, Zigbee, etc.); 2009 to present.

“Process.Monitors”, a sophisticated R script for processing large quantities of real-time data contained in any number of individual files with arbitrary formats; 2008 to present.

“Sidepak Buddy”, a Perl script for presenting real-time airborne particle levels from a Sidepak aerosol monitor on a computer screen. Used by Dr. Klepeis in live televised demonstrations of secondhand smoke concentrations inside vehicles in Hollywood (California), Salt Lake City (Utah), and Little Rock (Arkansas); 2007 to present.

“heR (Human Exposure Research)”, a sophisticated R software package for human exposure research containing routines for exposure simulation, time-activity analysis, indoor air quality, and a variety of statistical and plotting functions; 2002 to present.

“THEM (Total Human Exposure Model)”, a BASIC program for simulating total human exposure to airborne particles for populations; 1994.