

# Brandon Emil Boor

Purdue University - Lyles School of Civil Engineering  
550 Stadium Mall Drive  
West Lafayette, Indiana 47907

e-mail: [bboor@purdue.edu](mailto:bboor@purdue.edu)  
phone: +1-765-496-0576  
web: [www.brandonboor.com](http://www.brandonboor.com)

## Current Position

---

**Purdue University** West Lafayette, Indiana (Aug. 2015-Present)  
Assistant Professor of Civil Engineering (Architectural Engineering area) and Environmental & Ecological Engineering (by courtesy)

**Research Aim:** to explore how people and building systems shape the physics and chemistry of indoor air.

**Research Areas & Interests:** aerosol science, indoor air physics and chemistry, HVAC filtration, human exposure assessment, nanoaerosols, bioaerosols (fungi, bacteria, pollen, allergens), new particle formation, combustion aerosols, particle adhesion & resuspension, aerosol measurement techniques, fate & transport of VOCs/SVOCs, air quality in occupational workplaces, early-life/infant exposures, urban air pollution, low-cost air quality monitoring, building ventilation, and health effects of air pollution.

## Education

---

**The University of Texas at Austin** Austin, Texas (2011-2015)

- Ph.D., Civil Engineering, August 2015
- Dissertation: *Studies on Particle Resuspension, Infant Exposure & the Sleep Microenvironment*
- Dissertation Advisors: Atila Novoselac & Ying Xu

**The University of Texas at Austin** Austin, Texas (2009-2010)

- M.S.E., Environmental & Water Resources Engineering, December 2010
- Thesis: *Monolayer & Multilayer Particle Resuspension from Indoor Surfaces: Literature Review & Experimental Methodology*

**York College of Pennsylvania** York, Pennsylvania (2005-2009)

- B.S., Mechanical Engineering, *Summa Cum Laude*, August 2009

## Awards, Honors & Recognitions

- 
- **Roy E. & Myrna G. Wansik Civil Engineering Research Leadership Award**, Purdue University (2019)
  - **National Science Foundation: Faculty Early Career Development (CAREER) Award** (2019-2024)
  - **Teaching for Tomorrow Junior Fellowship Award**, Purdue University (2018-2019)
  - **Outstanding Engineering Graduate Student Mentor Award:** Division of Environmental & Ecological Engineering, Purdue University (2018)
  - **Environmental Science & Technology Cover Article, Volume 52, Issue 1** (Wu et al. 2018)
  - **American Chemical Society (ACS) Editors' Choice for Environmental Science & Technology Letters Paper** (Boor et al. 2015)
  - **U.S. Environmental Protection Agency: Science to Achieve Results (STAR) Fellowship** (2014-2015)
  - **Best Student Paper Award** (one of top 5 among 250 papers) at the Indoor Air 2014 Conference for paper entitled: *Infant Crawling-Induced Resuspension of Settled Floor Dust*
  - **U.S. Department of State Fulbright Program: Fulbright-CIMO Doctoral Grant to Finland**, Co-Sponsored by the Centre for International Mobility (CIMO) (2013-2014)
  - **American-Scandinavian Foundation: Fellowship for Dissertation Research in Finland**, Supported by the Scandinavian Seminar & Finnish Funds (2013-2014)
  - **National Science Foundation: Nordic Research Opportunity Supplemental Grant to Finland**, Co-Sponsored by the Finnish Funding Agency for Technology & Innovation (Tekes) (2011)
  - **National Science Foundation: Graduate Research Fellowship** (2010-2013)

- **National Science Foundation:** Integrative Graduate Education & Research Traineeship (IGERT) in Indoor Environmental Science & Engineering (Trainee: 2010, Affiliate: 2010-2012)
- **American Society of Heating, Refrigerating & Air Conditioning Engineers:** Graduate Student Grant-In-Aid (2010-2011); Henry Adams Scholarship (2007-2008)
- **The University of Texas at Austin:** Graduate Dean's Prestigious Fellowship Supplement (2014-2015); Walter L. & Reta Mae Moore Graduate Fellowship in Civil Engineering (2013-2014); Kolodzey Travel Grant (2012); Thrust 2000 - Hagedorn Endowed Graduate Fellowship in Engineering (2009-2013); David Bruton, Jr. Graduate School Fellowship (2010-2013)
- **York College of Pennsylvania:** Sardari & Saroj Khanna Award in Physics (2009); 1st Place Honors in the 2009 York College Student Scholars Week Poster Competition for the Physical Sciences Department; Academic Senate Scholarship (2007-2008); Student Association Service Scholarship (2007-2008); Alpha Chi National College Honor Society (2007-2009); Outstanding Freshman Award (2006); Dean's Academic Scholarship (2005-2009)
- **Society of American Military Engineers:** Sundt Scholarship (2005-2009)

## Professional Appointments

---

### Academic & Research Affiliations at Purdue University

Ray W. Herrick Laboratories, School of Mechanical Engineering	(Aug. 2015-Present)
Center for High Performance Buildings (CHPB)	(Aug. 2015-Present)
Ecological Sciences & Engineering (ESE) Interdisciplinary Graduate Program	(Jan. 2016-Present)
Engineering Projects in Community Service (EPICS)	(Aug. 2016-Present)
Purdue Climate Change Research Center (PCCRC)	(Apr. 2017-Present)
Center for the Environment (C4E), Chemical Exposures Group	(Oct. 2018-Present)

### University of Helsinki Department of Physics & Finnish Institute of Occupational Health

*Visiting Researcher*, Division of Atmospheric Sciences Helsinki, Finland (Sept. 2013-Aug. 2015)

### The University of Texas at Austin

Austin, Texas (Aug. 2009-Aug. 2015)

*EPA STAR & NSF Graduate Research Fellow*, Building Energy & Environments Group (final 2 yrs in Finland)

### University of Jordan Department of Physics

Amman, Jordan (May-June 2014)

*Visiting Researcher*

### VTT Technical Research Centre of Finland

Espoo, Finland (Aug.-Dec. 2011)

*NSF Nordic Research Opportunity Fellow*, Indoor Spaces & Environments Group

### National Institute of Standards & Technology (NIST)

Gaithersburg, Maryland (Jan. 2008-Jan. 2009)

*Engineering Co-op Student*, Energy & Environment Division, Indoor Air Quality & Ventilation Group

### BAE Systems, Inc.

York, Pennsylvania (May-Aug. 2007)

*Engineering Co-op Student*, Ground Systems Division

### Johns Hopkins University Applied Physics Laboratory

Laurel, Maryland (Sept. 2004-May 2005)

*Engineering Intern*, Aerospace Research & Development

## Extramural Research Grants (Boor Share: \$1,167,087, Total: \$1,919,347)

---

- **National Science Foundation:** *RAPID: Chemical Air Emissions from Cured-in-Place-Pipe (CIPP) Pipe Repair Activity* (1624183), PI: Whelton, A.J., **Co-PI: Boor, B.E.**, \$49,999 (Boor Share: \$19,999), 03/15/2016 - 02/28/2017.
- **American Society of Heating, Refrigerating & Air Conditioning Engineers:** *Reproducing a Representative Urban Atmospheric Aerosol Distribution at High Concentration in the Laboratory for Air Filter Ageing to be used in ASHRAE GPC 35P for Determining the Energy Consumption Caused by Air Filters* (1734-TRP), **PI: Boor, B.E.**, \$155,346, 08/01/2017 - 07/31/2020.
- **Alfred P. Sloan Foundation:** *Measurements of Radical Chemistry and Aerosol Production in Indoor Environments*, PI: Stevens, P.S. (Indiana University), **Co-PI: Boor, B.E.**, \$749,259 (Boor Share: \$153,876, Awarded as a Sub-Contract from Indiana University), 07/01/2018 - 06/30/2021.
- **National Science Foundation:** *Adhesion and Resuspension of Biological Particulate Matter in Early-Childhood Indoor Microenvironments* (1805804), **PI: Boor, B.E.**, \$315,476, 09/01/2018 - 08/31/2021.
- **National Science Foundation:** *CAREER: Formation, Growth, and Phase State of Organic Nanoaerosols in Indoor Environments* (1847493), **PI: Boor, B.E.**, \$500,000, 09/01/2019 - 08/31/2024.
- **National Institute of Environmental Health Sciences:** *Assessment of Cured-In-Place Pipe Installation Emissions and Toxicity (R03 ES030783-01)*, PI: Shannahan, J.H., **Co-Is: Whelton, A.J. and Boor, B.E.**, \$149,267 (Boor Share: \$22,390), 07/01/2019 - 06/30/2021.

## Intramural Research Grants (Boor Share: \$187,571, Total: \$266,987)

---

- **Innovation for International Development Lab (I<sup>2</sup>D Lab) Seed Grant Program:** *The Nandi Clean Kitchen Study*, **PI: Boor, B.E.**, Co-PIs: Wells, E.M., Lagat, D.K., \$42,108 (Boor Share: \$42,108), 05/01/2016 - 04/31/2017 [renewed for a second year, 05/01/2017 - 04/31/2018 - \$24,110 (Boor Share: \$24,110)].
- **Study Abroad and International Learning (SAIL) Grant and Intercultural Pedagogy Grant (IPG):** *Global Air Quality Trekkers - Nandi Clean Kitchen Study*, **PI: Boor, B.E.**, \$10,000, Winter Break 2016-2017.
- **Instructional Innovation Program:** *Purdue AirSense: A Student-Centered Teaching Platform for Air Pollution Sensing and Data Analytics*, **PIs: Boor, B.E. and Michalski, G.**, \$100,000 (Boor Share: \$50,000), 01/01/2017 - 12/31/2018.
- **OEVPRP Laboratory & University Core Facility Research Equipment Program:** *Acquisition of a MARS6 Microwave Digestion System*, \$29,416, PI: Dydak, U., **Co-PIs: Wells, E.M., Boor, B.E., Park, J.H.** (Boor Share: N/A), 2017.
- **Kresge Challenge Grant:** *Laboratory Fume Hood Installation*, **PI: Boor, B.E.**, \$4,160, 2017.
- **Purdue Research Foundation (PRF) Grant:** *The Impact of Aerosol Size Distributions and Physiochemical Properties on the Filtration Efficiency and Loading Kinetics of HVAC Filter Media*, **PI: Boor, B.E.**, \$29,526, 2017-2018.
- **Purdue Climate Change Research Center (PCCRC) Seed Grant:** *Investigating the First Steps of Hydroxyl Radical-Driven Atmospheric New Particle Formation and Growth in a Forested Environment*, **PI: Boor, B.E.**, Co-PI: Stevens, P.S. (Indiana University), \$5,000 (Boor Share: \$5,000), 01/01/2019 - 12/31/2019.
- **Study Abroad and International Learning (SAIL) Grant:** *Global Air Quality Trekkers: Kenya*, **PI: Boor, B.E.**, \$2,667, Summer 2019.
- **Center for High Performance Buildings (CHPB) Seed Grant:** *How do People Shape the Chemical Composition of Office Air? (CHPB-61-2020)*, **PI: Boor, B.E.**, \$20,000, 01/01/2020 - 05/31/2020.

## Publications Submitted for Peer Review

---

26. Wu, T.\* and Boor, B.E. Characterization of a Thermal Aerosol Generator for HVAC Filtration Experiments (RP-1734). *Science & Technology for the Built Environment*, In Review.

## Peer-Reviewed Journal Publications

---

25. Hussein, T., Alameer, A., Jaghbeir, O., Albeitshaweesh, K., Malkawi, M., Boor, B.E., Koivisto, A.J., Löndahl, J., Alrifai, O., and Al-Hunaiti, A. (2020). Indoor Particle Concentrations, Size Distributions, and Exposures in Middle Eastern Microenvironments. *Atmosphere*, 11(1):41 [open access].
24. Haines, S.R., Adams, R.I., Boor, B.E., Bruton, T., Downey, J., Ferro, A.R., Gall, E., Green, B.J., Hegarty, B., Horner, E., Jacobs, D., Lemieux, P., Misztal, P.K., Morrison, G., Perzanowski, M., Reponen, T., Rush, R., Virgo, T., Alkhayri, C., Bope, A., Cochran, S., Cox, J., Donohue, A., May, A.A., Nastasi, N., Nishioka, M., Renninger, N., Tian, Y., Uebel-Niemeier, C., Wilkinson, D., Wu, T.\*, Zambrana, J., and Dannemiller, K.C. (2020). Ten Questions Concerning the Implications of Carpet on Indoor Chemistry and Microbiology. *Building & Environment*, In Press, DOI:10.1016/j.buildenv.2019.106589 [open access].
23. Zheng, G., Boor, B.E., Schreder, E., and Salamova, A. (2020). Indoor Exposure to Per- and Polyfluoroalkyl Substances (PFAS) in the Childcare Environment. *Environmental Pollution*, In Press, DOI:10.1016/j.envpol.2019.113714.
22. Zheng, G., Boor, B.E., Schreder, E., and Salamova, A. (2020). Exposure to Melamine and Its Derivatives in Childcare Facilities. *Chemosphere*, 244:125505.
21. Zaidan, M.A., Wraith, D., Boor, B.E., and Hussein, T. (2019). Bayesian Proxy Modelling for Estimating Black Carbon Concentrations using White-Box and Black-Box Models. *Applied Sciences*, 9(22):4976 [open access].
20. Hussein, T., Saleh, S., dos Santos, V.N., Boor, B.E., Koivisto, A.J., and Löndahl, J. (2019). Regional Inhaled Deposited Dose of Urban Aerosols in an Eastern Mediterranean City. *Atmosphere*, 10(9):530 [open access].
19. Kobos, L.M., Sendesi, S.M.T., Whelton, A.J., Boor, B.E., Howarter, J.A., and Shannahan, J.H. (2019). *In Vitro* Toxicity Assessment of Emitted Materials Collected during the Manufacture of Water Pipe Plastic Linings. *Inhalation Toxicology*, 31(4):131-146.
18. Hussein, T., Saleh, S., dos Santos, V.N., Abdullah, H., and Boor, B.E. (2019). Black Carbon and Particulate Matter Concentrations in Eastern Mediterranean Urban Conditions – An Assessment Based on Integrated Stationary and Mobile Observations. *Atmosphere*, 10(6):323 [open access].
17. Slade, J.H., Ault, A.P., Bui, A.T., Ditto, J.C., Lei, Z., Bondy, A.L., Olson, N.E., Cook, R.D., Desrochers, S.J., Harvey, R.M., Erickson, M.H., Wallace, H.W., Alvarez, S.L., Flynn, J.H., Boor, B.E., Petrucci, G.A., Gentner, D.R., Griffin, R.J., and Shepson, P.B. (2019). Bouncer Particles at Night: Biogenic Secondary Organic Aerosol Chemistry and Sulfate Drive Diel Variations in the Aerosol Phase in a Mixed Forest. *Environmental Science & Technology*, 53(9):4977-4987.
16. Ra, K., Sendesi, S.M.T., Nuruddin, M., Zyakayina, N.N., Conkling, E.N., Boor, B.E., Jafvert, C.T., Howarter, J.A., Youngblood, J.P., and Whelton, A.J. (2019). Considerations for Emission Monitoring and Liner Analysis of Thermally Manufactured Sewer Cured-in-Place-Pipes (CIPP). *Journal of Hazardous Materials*, 371:540-549 [open access].
15. Koivisto, A.J., Kling, K.I., Hänninen, O., Jayjock, M., Löndahl, J., Wierzbicka, A., Fonseca, A.S., Uhrbrand, K., Boor, B.E., Jiménez, A.S., Hämeri, K., Dal Maso, M., Arnold, S.F., Jensen, K.A., Viana, M., Morawska, L., and Hussein, T. (2019). Source Specific Exposure and Risk Assessment for Indoor Aerosols. *Science of the Total Environment*, 668:13-24 [open access].
14. Hyytiäinen, H., Jayaprakash, B., Kirjavainen, P., Saari, S.E., Holopainen, R., Keskinen, J., Hämeri, K., Hyvärinen, A., Boor, B.E., and Täubel, M. (2018). Crawling-Induced Floor Dust Resuspension Affects the Microbiota of the Infant Breathing Zone. *Microbiome*, 6:25 [open access].

13. Wu, T.<sup>\*</sup>, Täubel, M., Holopainen, R., Viitanen, A.K., Vainiotalo, S., Tuomi, T., Keskinen, J., Hyvärinen, A., Hämeri, K., Saari, S.E., and **Boor, B.E.** (2018). Infant and Adult Inhalation Exposure to Resuspended Biological Particulate Matter. *Environmental Science & Technology*, 52(1):237-247 (**Cover Article**).
12. **Boor, B.E.**, Spilak, M.P., Laverge, J., Novoselac, A., and Xu, Y. (2017). Human Exposure to Indoor Air Pollutants in Sleep Microenvironments: A Literature Review. *Building & Environment*, 125:528-555.
11. Sendesi, S.M.T., Ra, K., Conkling, E.N., **Boor, B.E.**, Nuruddin, M., Howarter, J.A., Youngblood, J.P., Kobos, L.M., Shannahan, J.H., Jafvert, C.T., and Whelton, A.J. (2017). Worksite Chemical Air Emissions and Worker Exposure during Sanitary Sewer and Stormwater Pipe Rehabilitation using Cured-in-Place-Pipe (CIPP). *Environmental Science & Technology Letters*, 4(8):325-333 [open access].
10. Hussein, T., **Boor, B.E.**, dos Santos, V.N., Kangasluoma, J., Petäjä, T., and Lihavainen, H. (2017). Mobile Aerosol Measurement in the Eastern Mediterranean: A Utilization of Portable Instruments. *Aerosol & Air Quality Research*, 17:1775-1786 [open access].
9. Cao, G., Liu, S., **Boor, B.E.**, and Novoselac, A. (2017). Dynamic Interaction of a Downward Plane Jet and a Cough Jet With Respect to Particle Transmission: An Analytical and Experimental Study. *Journal of Occupational & Environmental Hygiene*, 14(8):620-633.
8. Cao, G., Liu, S., **Boor, B.E.**, and Novoselac, A. (2015). Characterizing the Dynamic Interactions and Exposure Implications of a Particle-Laden Cough Jet with Different Room Airflow Regimes Produced by Low and High Momentum Jets. *Aerosol & Air Quality Research*, 15:1955-1966 [open access].
7. **Boor, B.E.**, Liang, Y., Crain, N.E., Järnström, H., Novoselac, A., and Xu, Y. (2015). Identification of Phthalate and Alternative Plasticizers, Flame Retardants, and Unreacted Isocyanates in Infant Crib Mattress Covers and Foam. *Environmental Science & Technology Letters*, 2(4):89-94 (**ACS Editors' Choice**) [open access].
6. Mølgaard, B., Viitanen, A.K., Kangas, A., Huhtiniemi, M., Larsen, S.T., Vanhala, E., Hussein, T., **Boor, B.E.**, Hämeri, K., and Koivisto, A.J. (2015). Exposure to Airborne Particles and Volatile Organic Compounds from Polyurethane Molding, Spray Painting, Lacquering, and Gluing in a Workshop. *International Journal of Environmental Research & Public Health*, 12(4):3756-3773 [open access].
5. **Boor, B.E.**, Spilak, M.P., Corsi, R.L., and Novoselac, A. (2015). Characterizing Particle Resuspension from Mattresses: Chamber Study. *Indoor Air*, 25(4):441-456.
4. **Boor, B.E.**, Järnström, H., Novoselac, A., and Xu, Y. (2014). Infant Exposure to Emissions of Volatile Organic Compounds from Crib Mattresses. *Environmental Science & Technology*, 48(6):3541-3549.
3. Spilak, M.P., **Boor, B.E.**, Novoselac, A., and Corsi, R.L. (2014). Impact of Bedding Arrangements, Pillows, and Blankets on Particle Resuspension in the Sleep Microenvironment. *Building & Environment*, 81:60-68.
2. **Boor, B.E.**, Siegel, J.A., and Novoselac, A. (2013). Wind Tunnel Study on Aerodynamic Particle Resuspension from Monolayer and Multilayer Deposits on Linoleum Flooring and Galvanized Sheet Metal. *Aerosol Science & Technology*, 47(8):848-857 [open access].
1. **Boor, B.E.**, Siegel, J.A., and Novoselac, A. (2013). Monolayer and Multilayer Particle Deposits on Hard Surfaces: Literature Review and Implications for Particle Resuspension in the Indoor Environment. *Aerosol Science & Technology*, 47(8):831-847 [open access].

<sup>\*</sup>designates graduate student advisee

## Invited Lectures

- 
23. **Boor, B.E.** (2020). How do People Shape the Chemical Composition of Indoor Air? *Association of Environmental Engineering & Science Professors (AEESP) Symposium at Purdue University, West Lafayette, Indiana*, Scheduled for February 2020.
  22. **Boor, B.E.** (2020). Office Polluters: People as a Source of Volatile Organic Compounds in Open-Plan Office Environments. *National Aeronautics and Space Administration (NASA) Indoor Environmental Quality Working Group Webinar*, Scheduled for February 2020.



21. **Boor, B.E.** (2019). Exposure to Resuspended Dust from Carpets. *Alfred P. Sloan Foundation Workshop on Implications of Carpets on Indoor Chemistry and Microbiology: Moving Towards Recommendations*, The Ohio State University, Columbus, Ohio, July 2019.
20. **Boor, B.E.** (2019). What's in the (Indoor) Air? *Road Scholar Seminar at Purdue University*, West Lafayette, Indiana, June 2019.
19. **Boor, B.E.** (2019). Dynamics of Volatile Organic Compounds, Ozone, and Aerosols in a Living Laboratory Office & HVAC System. *Virginia Tech Civil and Environmental Engineering Seminar Series*, Blacksburg, Virginia, April 2019.
18. **Boor, B.E.** (2019). Indoor Aerosol Dynamics in Residential Buildings. *2019 National Air Filtration Association (NAFA) Technical Seminar*, Irving, Texas, April 2019.
17. **Boor, B.E.** (2019). Infant Air Quality: Crawling-Induced Resuspension of Biological Particulate Matter. *Northwestern University Environmental Engineering and Sciences Seminar Series*, Evanston, Illinois, February 2019.
16. **Boor, B.E.** (2018). Exploring Indoor Nanoaerosol Dynamics in Kenyan Kitchens and a Net-Zero Energy House. *National Institute of Standards and Technology (NIST), Energy and Environment Division Seminar*, Gaithersburg, Maryland, November 2018.
15. **Boor, B.E.** (2018). Particle Resuspension Dynamics in Infant Near-Floor Microenvironments. *U.S. Environmental Protection Agency (EPA), Indoor Environments Division Seminar*, Washington, D.C., November 2018 (also telecast online as a webinar to over 140 viewers).
14. **Boor, B.E.** (2018). Building Science 101. *2018 Sloan Chemistry of Indoor Environments Science Meeting*, University of Colorado Boulder, Boulder, Colorado, October 2018.
13. **Boor, B.E.** (2018). Single Digit Nanoaerosols in Indoor Environments: Sources & HVAC Filtration. *Airmodus 1 nm Workshop at Indoor Air 2018: 15th International Conference of the International Society of Indoor Air Quality & Climate (ISIAQ)*, Philadelphia, Pennsylvania, July 2018.
12. **Boor, B.E.** (2018). Nanoaerosol Transformations in Buildings and Hybrid Lab-Field Studies. *Alfred P. Sloan Foundation Workshop on NanoChemistry of Indoor Environments (NanoCIE)*, The City University of New York, New York, New York, July 2018.
11. **Boor, B.E.** (2018). Early-Childhood Exposures to Resuspended Microbes and Dust. *University of Notre Dame: Lead Innovation Team Seminar*, Notre Dame, Indiana, June 2018.
10. **Boor, B.E.** (2018). Particle Size Distributions Around the World: Implications for HVAC Filtration. *Taiwan Filtration and Separations Society, International Advanced Filtration Technology Congress*, National Taiwan University, Taipei, Taiwan, May 2018.
9. **Boor, B.E.** (2018). Stirring Up Microbes & Dust while Crawling. *Indiana University Bloomington School of Public & Environmental Affairs, Environmental Science Speaker Series*, Bloomington, Indiana, January 2018.
8. **Boor, B.E.** (2017). Nandi Clean Kitchen Study: Evaluating Indoor Air Pollution and Natural Ventilation of Traditional and Community-Developed Modified Kitchens in Nandi, Kenya. *Purdue Center for Global Food Security (CGFS)-I<sup>2</sup>D Lab Seed Grant Seminar*, West Lafayette, Indiana, April 2017.
7. **Boor, B.E.** (2017). The Infant Pig-Pen Effect: Characterizing Early-Life Exposure to Microbes in Resuspended Dust. *Purdue University, School of Health Sciences Seminar*, West Lafayette, Indiana, February 2017.
6. Whelton, A.J., **Boor, B.E.**, and Howarter, J. (2017). Understanding Chemical Exposure Risks from Cured-in-Place-Pipe (CIPP) Technology Used for Water Pipe Rehabilitation. *National Institute of Occupational Safety and Health (NIOSH) Seminar*, Morgantown, West Virginia, February 2017.
5. **Boor, B.E.** (2016). Surrounded by a Cloud of Dust: Particle Resuspension in Indoor Environments. *The National Academies of Sciences, Engineering, and Medicine, Workshop on the Health Risks of Indoor Exposure to Particulate Matter*, Washington, D.C., February 2016 (telecast to over 400 viewers). Video available on YouTube: <https://www.youtube.com/watch?v=e15YQzkYR9A>.

4. **Boor, B.E.** (2015). A Breath of Indoor Air: New Directions on Infant Exposure and Particle Resuspension. *Purdue University, Lyles School of Civil Engineering Seminar*, West Lafayette, Indiana, March 2015.
3. **Boor, B.E.** (2015). Particle Resuspension in Indoor Environments: Overview and New Insights. *University of Helsinki, Division of Atmospheric Sciences Seminar*, Helsinki, Finland, February 2015.
2. **Boor, B.E.** (2014). From Sleeping to Crawling: Studies on Human Exposure. *National Institute for Health & Welfare, Department of Environmental Health Research Seminar*, Kuopio, Finland, October 2014.
1. **Boor, B.E.** (2014). Exposure to Indoor Air Pollutants while Sleeping. *Aalto University, Department of Energy Technology Research Seminar*, Espoo, Finland, May 2014.

## Refereed Conference Proceedings & Presentations

---

44. Noh, Y., Troy, C.D., Jafvert, C.T., **Boor, B.E.**, and Whelton, A.J. (2020). Modeling for Predicting VOC Entry into Residential Buildings Due to Nearby Cured-In-Place-Pipe (CIPP) Plastic Manufacture Operations. *2020 American Work Works Association (AWWA) Annual Conference & Exposition*, Orlando, FL, June 2020 (Presentation).
43. Jiang, J.<sup>\*</sup>, Wu, T.<sup>\*</sup>, Wagner, D.N.<sup>\*</sup>, Stevens, P.S., Huber, H., Tasoglou, A., and **Boor, B.E.** (2020). Investigating How Occupancy and Ventilation Mode Influence the Dynamics of Indoor Air Pollutants in an Office Environment. *2020 American Society of Heating, Refrigerating & Air Conditioning Engineers (ASHRAE) Winter Conference*, Orlando, FL, February 2020 (Paper).
42. Sundar Patra, S.<sup>\*\*</sup>, Ramsisaria, R.<sup>\*\*</sup>, Du, R.<sup>\*\*</sup>, Wu, T.<sup>\*</sup>, and **Boor, B.E.** (2019). Improving the Performance of Low-Cost Optical Particle Counters with Machine Learning: Applications for Indoor Aerosol Measurements. *American Association for Aerosol Research (AAAR) 37th Annual Conference*, Portland, OR, October 2019 (Presentation).
41. Jiang, J.<sup>\*</sup>, Wu, T.<sup>\*</sup>, and **Boor, B.E.** (2019). In-Situ Time- and Size-Resolved Particle Removal Efficiency of a HVAC Filter Bank in an Office Building. *American Association for Aerosol Research (AAAR) 37th Annual Conference*, Portland, OR, October 2019 (Presentation).
40. Wu, T.<sup>\*</sup>, Wagner, D.N.<sup>\*</sup>, Jiang, J.<sup>\*</sup>, Stevens, P.S., Huber, H., Tasoglou, A., and **Boor, B.E.** (2019). Dynamics of Volatile Organic Compounds in a Living Laboratory Office and HVAC System. *American Association for Aerosol Research (AAAR) 37th Annual Conference*, Portland, OR, October 2019 (Presentation).
39. Wu, T.<sup>\*</sup>, Stevens, P.S., Huber, H., Tasoglou, A., and **Boor, B.E.** (2019). Indoor Measurements of Nanocluster Aerosols and New Particle Formation. *American Association for Aerosol Research (AAAR) 37th Annual Conference*, Portland, OR, October 2019 (Presentation).
38. Wagner, D.N.<sup>\*</sup> and **Boor, B.E.** (2019). Spatiotemporal Mapping of Ultrafine Particles in Buildings with Low-Cost Sensing Networks. *American Association for Aerosol Research (AAAR) 37th Annual Conference*, Portland, OR, October 2019 (Presentation).
37. Jiang, J.<sup>\*</sup>, Wu, T.<sup>\*</sup>, Wagner, D.N.<sup>\*</sup>, Stevens, P.S., Huber, H., Tasoglou, A., and **Boor, B.E.** (2019). Spatiotemporal Trends in Concentrations of Ozone and Ozone-Skin Oil Oxidation Products in an Occupied Office and HVAC System. *American Association for Aerosol Research (AAAR) 37th Annual Conference*, Portland, OR, October 2019 (Presentation).
36. Wu, T.<sup>\*</sup> and **Boor, B.E.** (2019). Size Distributions and Emissions of Fluorescent Biological Aerosol Particles in an Office. *American Association for Aerosol Research (AAAR) 37th Annual Conference*, Portland, OR, October 2019 (Presentation).
35. Wagner, D.N.<sup>\*</sup>, Mathur, A.<sup>\*\*</sup>, and **Boor, B.E.** (2019). Occupancy Sensing with Chair-Embedded Thermocouples: Applications for Evaluating Human-Associated Bioaerosol and VOC Emission Factors. *American Association for Aerosol Research (AAAR) 37th Annual Conference*, Portland, OR, October 2019 (Presentation).

34. Jiang, J.\* and **Boor, B.E.** (2019). Ultrafine Particle Dynamics in a Net-Zero Energy House: Application of a Building Energy Management System for Evaluating Source and Loss Processes. *American Association for Aerosol Research (AAAR) 37th Annual Conference*, Portland, OR, October 2019 (Presentation).
33. Wu, T.\* and **Boor, B.E.** (2019). Urban Atmospheric Aerosol Size Distributions: A Global Perspective. *American Association for Aerosol Research (AAAR) 37th Annual Conference*, Portland, OR, October 2019 (Presentation).
32. Noh, Y., Troy, C.D., Jafvert, C.T., **Boor, B.E.**, and Whelton, A.J. (2019). Indoor Air Contamination: The Entry of Cured-In-Place-Pipe (CIPP) Contaminants into Buildings Through Plumbing Trap Blowback and Other Pathways. *2019 Association of Environmental Engineering and Science Professors (AEESP) Research & Education Conference*, Tempe, AZ, May 2019 (Presentation).
31. Wagner, D.N.\*, Odhiambo, S.R.\*, Lagat, D.K., and **Boor, B.E.** (2018). Dynamics of Fine and Ultrafine Particulate Matter in Biomass Burning Kitchens in Western Kenya. *Indoor Air 2018: 15th International Conference of the International Society of Indoor Air Quality & Climate (ISIAQ)*, Philadelphia, PA, July 2018 (Paper).
30. Simon, T.R., Jae Lee, W., Spurgeon, B.E., **Boor, B.E.**, and Zhao, F. (2018). An Experimental Study on the Energy Consumption and Emission Profile of Fused Deposition Modeling Process. *46th SME North American Manufacturing Research Conference (NAMRC)*, College Station, TX, June 2018 (Paper).
29. Wu, T.\* and **Boor, B.E.** (2018). Real-Time Monitoring of Microbes and Mold in Buildings. *Indoor Air Quality Association (IAQA) 21st Annual Meeting*, Chicago, IL, January 2018 (Paper).
28. Slade, J.H., Bui, A., Cook, R., Bondy, A., Desrochers, S.J., Harvey, R.M., Ditto, J., Gentner, D., Pratt, K., Ault, A., Griffin, R., **Boor, B.E.**, Petrucci, G., and Shepson, P.B. (2017). Diel Variations in the Phase State of Atmospheric Aerosol in a Mixed Forest: The Role of Molecular Composition and Liquid Water. *American Association for Aerosol Research (AAAR) 36th Annual Conference*, Raleigh, NC, October 2017 (Presentation).
27. Hyytiäinen, H., Jayaprakash, B., Holopainen, R., Viitanen, A.K., Vainiotalo, S., Hämeri, K., Hyvärinen, A., **Boor, B.E.**, and Täubel, M. (2017). Crawling-Induced Floor Dust Resuspension Affects Infant Microbial Exposure. *29th Conference of the International Society for Environmental Epidemiology (ISEE)*, Sydney, Australia, September 2017 (Presentation).
26. Täubel, M., Hyytiäinen, H., Saari, S., Jayaprakash, B., Hyvärinen, A., Holopainen, R., Viitanen, A.K., Vainiotalo, S., Tuomi, T., Keskinen, J., Hämeri, K., and **Boor, B.E.** (2017). Resuspension of Microbes from Carpet Flooring and Implications for Human Exposure. *American Society for Microbiology (ASM) Microbe 2017 Conference*, New Orleans, LA, June 2017 (Presentation).
25. Sendesi, S.M.T., Ra, K., Conkling, E.N., **Boor, B.E.**, Nuruddin, M., Howarter, J.A., Youngblood, J.P., Kobos, L.M., Shannahan, J.H., Jafvert, C.T., and Whelton, A.J. (2017). Water Pipe Repair Can Cause Toxic Air. *2017 Association of Environmental Engineering and Science Professors (AEESP) Research & Education Conference*, Ann Arbor, MI, June 2017 (Presentation).
24. Sendesi, S.M.T., Conkling, E.N., Ra, K., Zyaykina, N., **Boor, B.E.**, Howarter, J.A., and Whelton, A.J. (2017). Cured in Place Pipe: Results from a RAPID Response Study to Investigate Chemical Emissions into the Workspace and Environment. *109th Indiana Section American Water Works Association (AWWA) Annual Conference*, Indianapolis, Indiana, January 2017 (Presentation).
23. Slade, J.H., Shepson, P.B., Desrochers, S.J., Harvey, R.M., Wallace, W., Griffin, R.J., Bui, A., Kavassalis, S., Shi, Q., Murphy, J.G., Cook, R., Connor, M., Ault, A.P., Pratt, K., Alwe, H.D., Millet, D.B., Bertman, S.B., Stevens, P.S., Wennberg, P.O., **Boor, B.E.**, and Petrucci, G. (2016). The Influence of Monoterpene and Isoprene Nitrates on the Chemistry and Phase State of Secondary Organic Aerosol in a Low-NO<sub>x</sub> Mixed Deciduous/Coniferous Forest. *American Geophysical Union (AGU) 2016 Fall Meeting*, San Francisco, CA, December 2016 (Presentation).
22. Wu, T.\* and **Boor, B.E.** (2016). Real-Time Measurements of Fluorescent Biological Aerosol Particles in the Infant Near-Floor Microenvironment in a Child Development Laboratory School. *American*



*Association for Aerosol Research (AAAR) 35th Annual Conference, Portland, OR, October 2016 (Presentation).*

21. Täubel, M., Saari, S., Hyvärinen, A., Holopainen, R., Viitanen, A.K., Vainiotalo, S., Tuomi, T., Keskinen, J., Hämeri, K., and **Boor, B.E.** (2016). Microbiota of Floor Dust and Human Exposure Implications of Resuspension Scenarios. *ISME 16: 16th International Symposium on Microbial Ecology*, Montreal, Canada, August 2016 (Presentation).
20. Alraddadi, O., Leuner, H., **Boor, B.E.**, Hutzler, W., and Dana, M. (2016). Air Cleaning Performance of a Biowall for Residential Applications. *The 4th High Performance Buildings Conference at Purdue*, West Lafayette, IN, July 2016 (Paper).
19. **Boor, B.E.**, Täubel, M., Holopainen, R., Viitanen, A.K., Vainiotalo, S., Tuomi, T., Keskinen, J., Hyvärinen, A., Hämeri, K., and Saari, S. (2016). Resuspension of Fluorescent Biological Aerosol Particles from Carpeted Flooring. *Indoor Air 2016: 14th International Conference on Indoor Air Quality and Climate*, Ghent, Belgium, July 2016 (Paper).
18. **Boor, B.E.**, Holopainen, R., Täubel, M., Viitanen, A.K., Koivisto, A.J., Vainiotalo, S., Salmi, K., Tuomi, T., Hyvärinen, A., Hämeri, K., Novoselac, A., and Xu, Y. (2016). Infant Crawling-Induced Particle Resuspension: Size-Resolved Resuspension Rates Derived from a Three-Zone Model. *Indoor Air 2016: 14th International Conference on Indoor Air Quality and Climate*, Ghent, Belgium, July 2016 (Paper).
17. Täubel, M., Saari, S., Hyvärinen, A., Holopainen, R., Viitanen, A.K., Vainiotalo, S., Tuomi, T., Keskinen, J., Hämeri, K., and **Boor, B.E.** (2016). Resuspension of Microbes in Floor Dust and Implications for Human Exposure. *Indoor Air 2016: 14th International Conference on Indoor Air Quality and Climate*, Ghent, Belgium, July 2016 (Paper).
16. Tian, Y., Ferro, A.R., and **Boor, B.E.** (2016). Stirring Up House Dust: A Review of Recent Experimental Studies on Human-Induced Particle Resuspension from Flooring, Clothing, and Upholstery. *DUST 2016: 2nd International Conference on Atmospheric Dust*, Taranto, Italy, June 2016 (Presentation).
15. **Boor, B.E.**, Nogueira dos Santos, V., Abdullah, H., and Hussein, T. (2015). Mobile Measurements of 10 nm to 10  $\mu$ m Particles and Black Carbon in Amman, Jordan. *American Association for Aerosol Research (AAAR) 34th Annual Conference*, Minneapolis, MN, October 2015 (Presentation).
14. Kangas, A., Viitanen, A.-K., Huhtiniemi, M., Koivisto, A.J., Vanhala, E., Fonseca, A.S., Mølgaard, B., **Boor, B.E.**, Hussein, T., and Hämeri, K. (2015). Comparison of Nanosized Particles and Gaseous Compounds in Different Work Environments. *SENN 2015 - International Congress on Safety of Engineered Nanoparticles and Nanotechnologies*, Helsinki, Finland, April 2015 (Paper).
13. Hussein, T., Nogueira dos Santos, V., and **Boor, B.E.** (2015). Particle Number Size Distributions in Jordan Derived from Portable Instruments in a Mobile Setup. *Physics Days 2015 - The 49th Annual Meeting of the Finnish Physical Society*, Helsinki, Finland, March 2015 (Presentation).
12. **Boor, B.E.**, Holopainen, R., Viitanen, A.K., Koivisto, A.J., Täubel, M., Vainiotalo, S., Salmi, K., Tuomi, T., Hyvärinen, A., Hämeri, K., Novoselac, A., and Xu, Y. (2015). Infant Exposure to Resuspended Particles from Carpeted Flooring: Experimental Chamber Study with a Simplified Mechanical Crawling Infant. *Sisäilmastoseminaari 2015 - Finnish Indoor Climate Conference*, Helsinki, Finland, March 2015 (Paper).
11. Viitanen, A.-K., Kangas, A., Huhtiniemi, M., Vanhala, E., Fonseca, A.S., Mølgaard, B., **Boor, B.E.**, Hussein, T., Hämeri, K., and Koivisto, A.J. (2015). Ultrafine Particles and Gaseous Compounds in Various Work Environments. *Sisäilmastoseminaari 2015 - Finnish Indoor Climate Conference*, Helsinki, Finland, March 2015 (Paper).
10. Viitanen, A.-K., Kangas, A., Huhtiniemi, M., Peräkylä, O., Lehtipalo, K., **Boor, B.E.**, Maragkidou, A., Hämeri, K., and Koivisto, A.J. (2014). Measurement of Particles from 1 nm in a Naturally Ventilated Shop. *2014 International Aerosol Conference*, Bexco, Busan, Korea, August 2014 (Presentation).
9. **Boor, B.E.**, Koivisto, A.J., Hämeri, K., Novoselac, A., and Xu, Y. (2014). Infant Crawling-Induced Resuspension of Settled Floor Dust. *Indoor Air 2014: 13th International Conference on Indoor Air Quality and Climate*, Hong Kong, July 2014 (Paper).

8. Liu, S., Cao, G., **Boor, B.E.**, and Novoselac, A. (2014). A Protected Occupied Zone Ventilation System to Prevent the Transmission of Coughed Particles. *Indoor Air 2014: 13th International Conference on Indoor Air Quality and Climate*, Hong Kong, July 2014 (Paper).
7. **Boor, B.E.**, Liang, Y., Crain, N.E., Järnström, H., Novoselac, A., and Xu, Y. (2014). New and Used Crib Mattresses as a Source of Volatile Organic Compounds, Phthalate and Alternative Plasticizers, and Other Chemical Species in the Infant Sleep Microenvironment. *Indoor Air 2014: 13th International Conference on Indoor Air Quality and Climate*, Hong Kong, July 2014 (Paper).
6. **Boor, B.E.**, Spilak, M.P., Corsi, R.L., and Novoselac, A. (2012). Inhalation Exposure to Resuspended Particles in the Sleeping Microenvironment: Chamber Study. *International Society of Exposure Science (ISES) 22nd Annual Conference*, Seattle, WA, October 2012 (Presentation).
5. **Boor, B.E.**, Järnström, H., Xu, Y., and Novoselac, A. (2012). Infant Sleeping Microenvironment: Infant Thermal Plume and Inhalation Exposure to Volatile Organic Compounds Originating in a Crib Mattress. *International Society of Exposure Science (ISES) 22nd Annual Conference*, Seattle, WA, October 2012 (Presentation).
4. **Boor, B.E.**, Järnström, H., Xu, Y., and Novoselac, A. (2012). Identification of VOCs, Phthalates, and Isocyanates in Crib Mattresses. *Healthy Buildings 2012*, Brisbane, Australia, July 2012 (Paper).
3. **Boor, B.E.**, Novoselac, A., and Corsi, R.L. (2011). Inhalation Exposure to Brominated Flame Retardants in the Sleeping Microenvironment: Preliminary Modeling and Results. *Indoor Air 2011: 12th International Conference on Indoor Air Quality and Climate*, Austin, TX, June 2011 (Paper).
2. **Boor, B.E.**, Siegel, J.A., and Novoselac, A. (2011). Development of an Experimental Methodology to Determine Monolayer and Multilayer Particle Resuspension from Indoor Surfaces. *2011 American Society of Heating, Refrigerating & Air Conditioning Engineers (ASHRAE) Winter Conference*, Las Vegas, NV, February 2011 (Paper - *ASHRAE Transactions*, 117(1):434-441).
1. **Boor, B.E.**, Siegel, J.A., and Novoselac, A. (2010). Experimental Methodology to Determine Absolute Particle Resuspension Fractions for Indoor Surfaces. *American Association for Aerosol Research (AAAR) 29th Annual Conference*, Portland, OR, October 2010 (Presentation).

\*designates graduate student advisee; \*\*designates undergraduate student advisee

## Co-Organized Conference Workshops & Special Sessions

6. Tian, Y., Adams, R.I., Täubel, M., Weschler, C.J., Ferro, A.R., and **Boor, B.E.** (2018). Life as Pig-Pen: Immersed in a Cloud of Particles and Microbes. Special Session at *Indoor Air 2018: 15th International Conference of the International Society of Indoor Air Quality & Climate (ISIAQ)*, Philadelphia, PA, July 2018.
5. Siegel, J.A. and **Boor, B.E.** (2018). How (and Why) Does Filter Efficiency Change over Time? Special Session at *Indoor Air 2018: 15th International Conference of the International Society of Indoor Air Quality & Climate (ISIAQ)*, Philadelphia, PA, July 2018.
4. Laverge, J., Corsi, R.L., Lian, Z., **Boor, B.E.**, and Wargocki, P. (2018). Measurement and Experimental Challenges in Sleep Related IAQ Studies. Special Session at *Indoor Air 2018: 15th International Conference of the International Society of Indoor Air Quality & Climate (ISIAQ)*, Philadelphia, PA, July 2018.
3. Laverge, J., **Boor, B.E.**, Wargocki, P., Lian, Z., Novoselac, A., and Canha, N. (2018). Translating Sleep IEQ Research into New Residential Ventilation Standards. Special Session at *Indoor Air 2018: 15th International Conference of the International Society of Indoor Air Quality & Climate (ISIAQ)*, Philadelphia, PA, July 2018.
2. **Boor, B.E.**, Tovey, E., Täubel, M., Spilak, M.P., Laverge, J., and Corsi, R.L. (2014). Sleep Microenvironments for Infants and Adults: Pollutant Exposure. Workshop at *Indoor Air 2014: 13th International Conference on Indoor Air Quality and Climate*, Hong Kong, July 2014.
1. **Boor, B.E.**, Laverge, J., Spilak, M.P., Bornehag, C.-G., and Corsi, R.L. (2012). Inhaling while Dreaming: Human Exposure to Pollutants while Sleeping. Workshop at *Healthy Buildings 2012*, Brisbane, Australia, July 2012.

## Editorials & Other Publications

---

5. **Boor, B.E.** (2019). There's Something in the Air...Us. *Purdue Engineering Review - Medium*, December 2019.
4. **Boor, B.E.** (2019). Clouds of Dust. *National Air Filtration Association (NAFA) Air Media Magazine*, Winter 2019 Issue (**Cover Article**).
3. **Boor, B.E.** (2018). Real-Time Monitoring of Microbes and Pollen in Buildings. *In the Air: Quarterly Newsletter of the Indoor Air Quality Association (IAQA)*, Fall 2018 Issue.
2. Rudin, P.<sup>\*\*</sup>, Gordon, D.<sup>\*\*</sup>, Maginot, C.<sup>\*\*</sup>, and Webb, E.<sup>\*\*</sup> (2018). Clear as Mud: Analyzing Soil Composition for Use as a Building Material in Kenya. *Journal of Purdue Undergraduate Research*, 8:79. (Research Advisor: **Boor, B.E.**).
1. Whelton, A.J., Shannahan, J., **Boor, B.E.**, Howarter, J.A., Youngblood, J.P., and Jafvert, C.T. (2017). Cured-in-Place-Pipe (CIPP): Inhalation and Dermal Exposure Risks Associated with Sanitary Sewer, Storm Sewer, and Drinking Water Pipe Repairs. *National Institute of Occupational Safety and Health (NIOSH) Science Blog Post*, September 2017.

<sup>\*\*</sup>designates undergraduate student advisee

## Teaching

---

- CE 211 / CE 299: Thermal & Energy Sciences for Civil Engineers: Spring 2020 (126 students), Fall 2019 (92 students), Spring 2019 (47 students, co-taught w/ W.T. Horton), Fall 2018 (31 students, co-taught w/ W.T. Horton)
- CE 597 / EEE 595: Indoor Air Quality: Spring 2019 (14 students), Spring 2018 (11 students), Spring 2017 (10 students), Spring 2016 (22 students)
- CE 311: Architectural Engineering: Fall 2017 (24 students), Fall 2016 (31 students)
- EPICS 052/065: Engineering Projects in Community Service, Global Air Quality Trekkers: Spring 2020 (13 students), Fall 2019 (18 students), Spring 2019 (16 students), Fall 2018 (18 students), Spring 2018 (18 students), Fall 2017 (17 students), Spring 2017 (12 students), Fall 2016 (14 students)
- Study Abroad, Nandi Clean Kitchen Study - Eldoret, Kenya: Summer 2019 (10 students), Winter Break 2016-2017 (4 students)

## Post-Doctoral Researcher Mentoring

---

- **Mentor - Post-Doctoral International Visiting Scholars:** Dr. Su-En Wu, Supported by the *Taiwan Ministry of Science & Technology* (Sept. 2018-June 2019)

## Graduate Student Mentoring

---

- **Primary Advisor - Ph.D. Students:** Jinglin Jiang (CE, Jan. 2019-Present), Danielle N. Wagner (CE, May 2018-Present), Tianren Wu (CE, Aug. 2016-Present)
- **Primary Advisor - M.S. Thesis Students:** Neeraja Balasubrahmaniam (CE, Fall 2019-Present), Jinglin Jiang (CE, Jan.-Dec. 2018, Graduated in Dec. 2018), Danielle N. Wagner (EEE, Aug. 2016-May 2018, Graduated in May 2018)
- **Mentor - International Visiting Scholars:** Samuel Ray Odhiambo (Moi University, Kenya, Aug.-Sept. 2017)
- **Mentor - M.S. Independent Studies:** Chunxu Huang (CE, Fall 2019), Neeraja Balasubrahmaniam (CE, Fall 2018), Sungwoo Kim (CE, Fall 2017), Moshan Chen (CE, Fall 2017), Jinglin Jiang (CE, Fall 2017), Bara Abdullatif Alarfaj (CE, Fall 2016 & Spring 2017), Pei Cong (CE, Fall 2016), Ting-yu Chang (CE, Fall 2016)
- **Additional Mentoring of M.S. Students:** Mahmoud Nour (Health Science, May-Dec. 2016), Giovanny Aguilera (ME, Sept. 2016-July 2016), Osama S. Alraddadi (Purdue Polytechnic Institute, Sept. 2015-April 2016)

## Undergraduate Student Mentoring

---

- **Advisor**, EPICS Service-Learning Engineering Design Program, Global Air Quality Trekkers (GAQT): Aug. 2016-Present
- **Mentor - Undergraduate Research Programs:** Nhi Khuu (Summer Undergraduate Research Fellowship Program 2019), Rishabh Ramsisaria (Purdue AirSense, Summer Undergraduate Research Fellowship Program 2018), Rachel Wetterlin (Nandi Clean Kitchen Study, C4E Research Internship, Summer 2017), Stephane Nouafo Wanko (Purdue AirSense, Summer Undergraduate Research Fellowship Program 2017), Ruihang Du (Purdue AirSense, Summer Undergraduate Research Fellowship Program 2017), Manjie Fu (Summer Undergraduate Research Fellowship Program 2016)
- **Mentor - International Visiting Scholars:** Geordi Jose (Indian Institute of Technology (IIT) Bombay, Purdue Undergraduate Research Experience (PURE) Fellow, May-July 2019), Satya Sundar Patra (Indian Institute of Technology (IIT) Madras, Purdue Undergraduate Research Experience (PURE) Fellow, May-July 2018, and Visiting Undergraduate Student, May-July 2019), Jin Pan (Tsinghua University, China, Top Open Program Scholar, Aug.-Sept. 2016)
- **Mentor - Undergraduate Independent Studies:** Hanwen Zhang (Statistics, Fall 2019), Aayush Mathur (ME, Summer & Fall 2019), Xinrui Zhang (Purdue AirSense, ECE, Spring 2019), Jihang Liu (Purdue AirSense, ME, Summer 2018), Briana McDaniel (Purdue AirSense, EEE, Fall 2017), Shadi T. Azouz (Purdue AirSense, ME, Summer 2017), Manjie Fu (BME, Fall 2016 & Spring 2017)
- **Advisor**, Study Abroad, Nandi Clean Kitchen Study - Eldoret, Kenya: Summer 2019 (10 students), Winter Break 2016-2017 (4 students)

## Graduate Student Committee Service

---

- **Ph.D. Dissertation Committee Member:** Kevin Jankowski (Chemistry), Yu-Wei Hung (Civil Engineering), Zhu Shi (Mechanical Engineering), Timothy R. Simon (Mechanical Engineering), Seungjae Lee (Civil Engineering, Graduated in December 2019)
- **M.S. Thesis/Report Committee Member:** Kelsey M. Hall (Health Science, Graduated in May 2017), Mahmoud Nour (Health Science, Graduated in Dec. 2016), Osama S. Alraddadi (Purdue Polytechnic Institute, Graduated in May 2016)
- **External M.S. Thesis/Report Reviewer:** Karoline Veum Solberg, Norwegian University of Science & Technology (Advisor: Guangyu Cao, Graduated in Fall 2016)

## Mentored Student Awards & Honors

---

- **Purdue Climate Change Research Center (PCCRC) Graduate Student Travel Grant**, awarded to Jinglin Jiang\*, \$300, Fall 2019.
- **Purdue Graduate Student Government Travel Grant**, awarded to Tianren Wu\*, \$750, Fall 2019.
- **Purdue Graduate Student Government Travel Grant**, awarded to Jinglin Jiang\*, \$250, Fall 2019.
- **Purdue Student Service Learning Grant**, awarded to EPICS Global Air Quality Trekkers (GAQT) undergraduate team\*\*, \$1,500, Fall 2019.
- **John R. Blandford Graduate Student Award**, awarded to Tianren Wu\*, \$500, 2019-2020.
- **American Society of Heating, Refrigerating & Air Conditioning Engineers:** Graduate Student Grant-In-Aid, awarded to Danielle N. Wagner\*, \$10,000, 2019-2020.
- **Purdue Student Service Learning Grant**, awarded to EPICS Global Air Quality Trekkers (GAQT) undergraduate team\*\*, \$1,500, Spring 2019.
- **Marc D. and Carol W. Gill Endowment Fund Fellowship in Civil Engineering**, awarded to Tianren Wu\*, \$800, Spring 2019.
- **Purdue Student Service Learning Grant**, awarded to EPICS Global Air Quality Trekkers (GAQT) undergraduate team\*\*, \$1,500, Fall 2018.
- **Purdue SURF Research Symposium Outstanding Research Poster Award (Top 10)**, awarded to Rishabh Ramsisaria\*\*, Summer 2018.



- **American Society of Heating, Refrigerating & Air Conditioning Engineers:** Graduate Student Grant-In-Aid, awarded to Tianren Wu\*, \$10,000, 2018-2019.
- **U.S. Department of State Fulbright Program to Kenya, Alternate,** Danielle N. Wagner\*, 2018-2019.
- **Purdue Doctoral Fellowship,** awarded to Danielle Wagner\*, 2018-2022.
- **Purdue Graduate Student Government Travel Grant,** awarded to Danielle N. Wagner\*, \$500, Summer 2018.
- **Pai Tao Yeh Fellowship,** awarded to Tianren Wu\*, \$1,100, Spring 2018.
- **Purdue Student Service Learning Grant,** awarded to EPICS Global Air Quality Trekkers (GAQT) undergraduate team\*\*, \$500, Spring 2018.
- **Purdue Climate Change Research Center (PCCRC) Graduate Student Travel Grant,** awarded to Danielle N. Wagner\*, \$600, Summer 2017.
- **Center for the Environment (C4E) Undergraduate Student Summer Research Internship Award,** awarded to Rachel Wetterlin\*\*, *Evaluation of the Indoor and Outdoor Air Quality Implications of Community-Developed Modified Kitchens in Nandi, Kenya*, \$2,400, Summer 2017.
- **Purdue Undergraduate Research and Poster Symposium Best Poster Abstract Award, Physical Sciences,** awarded to Manjie Fu\*\*, Spring 2017.
- **Purdue Student Service Learning Grant,** awarded to EPICS Global Air Quality Trekkers (GAQT) undergraduate team\*\*, \$1,500, Fall 2016.
- **Purdue Graduate Student Government Travel Grant,** awarded to Tianren Wu\*, Fall 2016.

\*designates graduate student advisee, \*\*designates undergraduate student advisee

## Professional Society Affiliations

---

- American Society of Heating, Refrigerating & Air Conditioning Engineers (ASHRAE) (Student: 2008-2014, Associate: 2016-Present)
- International Society of Indoor Air Quality & Climate (ISIAQ) (2010-Present)
- American Association for Aerosol Research (AAAR) (2010-Present)
- International Society of Exposure Science (ISES) (2012-2016)
- Aerosol Association in the Middle East and North Africa (AAMENA) (2016-Present)
- Association of Environmental Engineering & Science Professors (AEESP) (2016-Present)

## Professional Service

---

- **Journal Paper Peer-Review:** *Indoor Air* (2019: 1 mspt., 2018: 1 mspt., 2017: 2 mspts., 2016: 2 mspts., 2015: 1 mspt., 2014: 1 mspt., 2013: 1 mspt.), *Building & Environment* (2019: 1 mspt., 2018: 4 mspts., 2017: 5 mspts., 2015: 1 mspt.), *Environmental Science & Technology* (2019: 1 mspt., 2018: 1 mspt.), *Environmental Science & Technology Letters* (2019: 1 mspt.), *Aerosol Science & Technology* (2019: 1 mspt., 2018: 1 mspt., 2017: 2 mspts., 2016: 1 mspt., 2015: 1 mspt.), *Journal of Aerosol Science* (2018: 1 mspt., 2017: 1 mspt.), *Journal of Exposure Science & Environmental Epidemiology* (2019: 1 mspt.), *Environmental Science: Processes & Impacts* (2019: 1 mspt.), *Energy & Buildings* (2019: 2 mspts., 2017: 1 mspt.), *Industrial & Engineering Chemistry Research* (2018: 1 mspt.), *Journal of Hazardous Materials* (2018: 1 mspt., 2017: 1 mspt.), *Aerosol & Air Quality Research* (2017: 1 mspt.), *American Journal of Infection Control* (2017: 1 mspt.), *Science of the Total Environment* (2016: 1 mspt.), *Indoor & Built Environment* (2016: 1 mspt.), *Journal of Occupational & Environmental Hygiene* (2015: 1 mspt.), *Sustainable Cities & Society* (2014: 1 mspt.), *Atmospheric Environment* (2013: 1 mspt.), *Building Simulation* (2012: 1 mspt.)
- **Conference Paper Peer-Review:** *Indoor Air 2020*, *IAQ 2020*, *Indoor Air 2018*, *Indoor Air 2016*, 2016 ASHRAE Annual Conference, 2016 International Conference on Advances on Clean Energy Research
- **Proposal Peer-Review:** *National Science Foundation (CBET-2017, CBET-2019)*, *Science Foundation Ireland (SFI) (2016)*, *Environment & Health Fund (EHF) of Israel (2015)*
- **Chair,** ISIAQ Scientific and Technical Committee (STC) 12: Source, Monitoring, and Evaluation: Aerosols (July 2018-Present)

- **Chair**, AAAR Bylaws Committee (October 2018-October 2019, Member: October 2016-October 2019)
- **Voting Member**, U.S. Technical Advisory Committee (TAG) to ISO/TC 142 - Cleaning Equipment for Air and Other Gases (Jan. 2016-Present)
- **Voting Member**, ASHRAE Technical Committee 2.4: Particulate Air Contaminants and Particulate Contaminant Removal Equipment (Feb. 2018-Present)
- **Project Subcommittee Voting Member (General)**, Research Subcommittee, ASHRAE SSPC 52.2: Method of Testing General Ventilation Air Cleaning Devices for Removal Efficiency by Particle Size (Sept. 2018-Present)
- **Handbook Subcommittee Vice-Chair**, ASHRAE Technical Committee 2.4: Particulate Air Contaminants and Particulate Contaminant Removal Equipment (Feb. 2018-Present)
- **Non-Voting Member**, ASHRAE Guideline Project Committee 35: Method for Determining the Energy Consumption Caused by Air-Cleaning and Filtration Devices (June 2018-Present)
- **Vice-Chair**, 2018 and 2020 International High Performance Buildings Conferences of the Herrick Conferences at Purdue University (2018-Present)
- **Finnish Fulbright Welcome Network** (2016-Present)
- **Session Chair or Co-Chair**: AAAR 2019, Indoor Air 2018, 2018 Purdue Herrick Conference, AAAR 2016, Indoor Air 2016, 2016 Purdue Herrick Conference, Healthy Buildings 2012, Indoor Air 2011

### Academic Service at Purdue University

---

- **Recruitment Committee**, Lyles School of Civil Engineering (Sept. 2017-Present)
- **Safety Committee**, Lyles School of Civil Engineering (Sept. 2017-Present)
- **Study Abroad Committee**, Lyles School of Civil Engineering (Feb. 2016-Present)
- **Graduate Student Committee**, Lyles School of Civil Engineering (Aug.-Dec. 2016)
- **Student Fellowship & Scholarship Peer-Review**: *Industrial Roundtable Scholarship* (2018, 2019), *Borlaug Fellows Program at Purdue* (2016, 2017, 2018), *Ludwig Kruhe Doctoral Fellowship* (2018), *ESE Outstanding Graduate in Research Award* (2018)
- **Panel Member**: Graduate Student Workshop - Faculty Positions (March 2016), Faculty Hiring Panel for Post-Docs (April 2016), 2016 Office of Interdisciplinary Graduate Program (OIGP) Spring Reception Poster Competition (May 2016)
- **ENGR 131 Presentations to FYE Students**: September 2016 (2 presentations)
- **IAQ Demonstrations for Minorities in Engineering Summer Program (MIEP)**: June 2016

### Selected Media Coverage

---

- "Office Workers May Be Breathing Potentially Harmful Compounds in Cosmetics," *Scientific American*, November 2019.
- "Tackling Indoor Air Pollution: The Story of Nandi Improved Kitchen Designs," *AMPATH Kenya News*, November 2019.
- "Office Polluters," *National Science Foundation 4 Awesome Discoveries You Probably Didn't Hear About - Episode 35*, October 2019.
- "How People Pollute The Workplace," Interview on *NPR Science Friday*, October 2019.
- "Office Space: What Pollutes the Air You Breathe at Work," *Sky News*, October 2019.
- "How Much Are You Polluting Your Office Just By Existing," *Purdue University News*, October 2019.
- "Boor Receives NSF CAREER Award," *Purdue Civil Engineering Impact Magazine*, Fall 2019.
- "2018's Top 10 Research News Stories from Purdue," *Purdue University News*, December 2018.
- "Robotic Baby Kicks Up Dust - For Science," *Purdue Civil Engineering Impact Magazine*, Fall 2018.
- "Creepy, Crawly Robot Baby Shows Just How Much Bio-Gunk Babies Inhale," *MathWorks MATLAB Behind the Headlines*, February 2018.

- "Lattialla Ryöimivät Vauvat Altistuvat Mikrobeille Aikuisia Enemmän, Selvisi Robottivauvan Möyrittä Helsingin Sanomien Likaisilla Matoilla – Ja Se Voi Olla Hyvä Asia," *Helsingin Sanomat*, February 2018.
- "This Odd-Looking Robot Is Behind Some Groundbreaking Research About Infants," *HuffPost*, January 2018.
- "Robot Baby Shows How Crawling On Carpet Creates Cloud Of Filth," *Forbes*, January 2018.
- "Crawling Robot Baby Bravely Explores Carpet Gunk," *Discover Magazine*, January 2018.
- "Ce Bébé Robot Permet D'étudier la Quantité De Bactéries Que Respirant les Enfants," *Le Monde*, January 2018.
- "Bebisars Krypande Drar Upp Mängder Av Damm Och Partiklar," *SVT Sweden*, January 2018.
- "Bubs Crawl in Clouds of 'Biogunk,'" *New Zealand Herald*, January 2018.
- "Crawling Babies 'Kick Up' a Dust Storm of Dirt, Skin Cells, and Fungal Spores," *UK Daily Mail*, January 2018.
- "Scientists Made a Baby Covered in Aluminum Foil to Show How Filthy Crawling Is," *Newsweek*, January 2018.
- "See a Creepy Robot Baby Crawl on Dirty Carpet for Science," *cnet*, January 2018.
- "Purdue Researcher's Study Shows Babies Kick Up A Lot of Dust," *Journal & Courier*, January 2018.
- "Babies Stir Up Clouds of Bio-Gunk when the Crawl," *Purdue University News*, January 2018.
- "Baby's Crib Mattress: Breathing Safe" and "What to Look for When Buying a Crib Mattress," 2-Part Scientific Review Article and Interview, *Environmental Working Group*, December 2017.
- "Human Exposure to Indoor Air Pollutants in Sleep Microenvironments: A Literature Review," 1-hour Interview on *IAQ Radio: Ep. 478*, September 2017.
- "The Best Crib Mattresses," *The Wirecutter* (part of the New York Times Company), September 2017.
- "Cooking Up a Fix for Unsafe Stoves in Kenya," *Purdue Civil Engineering Impact Magazine*, Spring 2017.
- "Purdue Students Assess Indoor Air Pollution in Kenya," *Purdue Exponent*, January 2017.
- "Indoor Air Quality in Traditional Kenyan Kitchens, Childcare Facilities, and Beds," *University of Helsinki Division of Atmospheric Sciences Newsletter*, Nr. 36, December 2016.
- "Clean Kitchen Study to Reduce Household Air Pollution," *AMPATH Kenya Gazeti*, Autumn 2016 .
- "How Your Bed May be Making You Sick," *CNN Health Video* (filmed at Herrick Labs), July 2016.
- "Indoor Air Quality Research Helps Build Safer Buildings," *Purdue Exponent*, April 2016.
- "Air Quality in Bed Is a Nightmare," *Scientific American*, March 2015.
- "Bringing Research to Practitioners," 1-hour Interview on *IAQ Radio: Ep. 343*, October 2014.
- "Toxic Dreams: Crib Mattresses May Release Risky Fumes," *Environmental Working Group*, April 2014.
- "Crib Mattress Dangers," *National Science Foundation Discoveries & Science Now: Episode 22*, April 2014.
- "UT Study Finds Crib Mattresses Emit Volatile Organic Compounds," *Austin American-Statesmen*, April 2014.
- "UT Engineers Caution Parents About Chemicals in Crib Mattresses," *Alcalde*, April 2014.
- "Crib Mattresses Release Potentially Harmful Chemicals, Study Finds," *Fox News*, April 2014.
- "Crib Mattresses Emit High Rates of Potentially Harmful Chemicals, Cockrell School Engineers Find," *UT News*, April 2014.
- "Is Your Baby's Mattress Poisoning Them as They Sleep?," *UK Daily Mail*, April 2014.
- "Crib Mattresses Expose Infants To Elevated Levels of Volatile Organic Compounds," *Chemical & Engineering News of the American Chemical Society*, February 2014.
- "Les Matelas, Source Méconnue de Pollution," *Le Figaro Santé*, January 2013.