Zhongju (Hugh) Li

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CURRENT POSITION

National Energy Technology Laboratory — Pittsburgh, PA
Postdoctoral Research Associate — July 2018 - present

EDUCATION

Carnegie Mellon University — Pittsburgh, PA
Postdoctoral Research Associate — Feb. 2018 - June 2018
Advisor: Prof. Albert A. Presto

Carnegie Mellon University — Pittsburgh, PA
Doctor of Philosophy in Mechanical Engineering — Jan. 2018
Advisor: Prof. Albert A. Presto
Thesis: Urban Aerosol: Spatiotemporal Variation & Source Characterization
GPA: 3.8/4.0
Selected Coursework: Combustion and Air Pollution Control, Air Quality Engineering, Climate Science & Policy, Aerosol Measurement Technology, Advanced Thermodynamics, Advanced Heat Transfer, Numerical Methods in Engineering

Wuhan University of Technology — Wuhan, China
Bachelor of Engineering in Automotive Engineering — May 2013
GPA: 3.7/4.0
Selected Coursework: Automotive Emission and Noise Control, Automotive Electrical & Electronic Systems, Principle of Engine, Automotive & Engine Manufacturing Technology, Theory of Automobile, Automobile Design, Automotive Quality Inspection & Performance Test

PEER-REVIEWED JOURNAL ARTICLES

Gu P, Dallmann TR, **Li HZ**, Tan Y, Presto AA. "Quantifying Urban Spatial Variations of VOC Concentrations and Source Contributions with a Mobile Sampling Platform." *Int. J. Environ. Res. Public Health* **2019**, Submitted.

Ye Q*, **Li HZ***, Gu P, Robinson ES, Apte JS, Sullivan RC, Robinson AL, Donahue NM, Presto AA. "Moving Beyond Fine Particle Mass: High-spatial Resolution Exposure to Source-resolved Atmospheric Particle Number and Chemical Mixing State." *Environ. Health Perspect.* **2019**, Submitted
*equal contribution

Saha P, **Li HZ**, Apte JS, Robinson AL, Presto AA. "Urban Ultrafine Particle Exposure Assessement with Land-Use Regression: Influence of Sampling Strategy." *Environ. Sci. Technol.* **2019**, Under Review

Li HZ, Gu P, Ye Q, Zimmerman N, Robinson ES, Subramanian R, Apte JS, Robinson AL, Presto AA. "Spatially Dense Air Pollutant Sampling: Implications of Spatial Variability on the Representativeness of Stationary Air Pollutant Monitors." *Atmos. Environ.* **2019**, https://doi.org/10.1016/j.aeaoa.2019.100012

Saha P, Zimmerman N, Malings C, Hauryliuk A, **Li HZ**, Snell L, Subramanian R, Lipsky E, Apte JS, Robinson AL, Presto AA. "Quantifying High-resolution Spatial Variations and Local Source Impacts of Urban Ultrafine Particle Concentration." *Sci. Total Environ.* **2019**, https://doi.org/10.1016/j.scitotenv.2018.11.197

Zimmerman N, **Li HZ**, Ellis AA, Hauryliuk A, Robinson ES, Gu P, Shah R, Ye Q, Snell L, Subramanian R, Robinson AL, Apte JS, Presto AA. "Integrating Spatiotemporal Variability and Modifiable Factors into Air Pollution Estimates: The Center for Air, Climate, and Energy Solutions Air Quality Observatory." *Atmos. Environ.* **2018**, Under Review

Gu P, **Li HZ**, Ye Q, Robinson ES, Apte JS, Robinson AL, Presto AA. "Intracity Variability of Particulate Matter Exposure Is Driven by Carbonaceous Sources and Correlated with Land-Use Variables." *Environ. Sci. Technol.* **2018**, https://doi.org/10.1021/acs.est.8b03833

Robinson ES, Gu P, Ye Q, **Li HZ**, Shah RU, Apte JS, Robinson AL, Presto AA. "Restaurant Impacts on Outdoor Air Quality: Elevated Organic Aerosol Mass from Restaurant Cooking with Neighborhood-scale Plume Extents." *Environ. Sci. Technol.* **2018**, https://doi.org/10.1021/acs.est.8b02654

Ye Q, Gu P, **Li HZ**, Robinson ES, Lipsky E, Kaltsonoudis C, Lee A, Apte JS, Robinson AL, Sullivan RC, Presto AA, Donahue NM. "Characterization of Spatial Variability of Sources and Mixing State of Single Particles in a Metropolitan Area." *Environ. Sci. Technol.* **2018**, https://doi.org/10.1021/acs.est.8b01011

Li HZ, Dallmann TR, Li X, Gu P, Presto AA. "Urban Organic Aerosol Exposure: Spatial Variations in Composition and Source Impacts." *Environ. Sci. Technol.* **2017**, https://doi.org/10.1021/acs.est.7b03674

Li HZ, Dallmann TR, Gu P, Presto AA. "Application of Mobile Sampling to Investigate Spatial Variation in Fine Particle Composition." *Atmos. Environ.* **2016**, 142, 71–82. https://doi.org/10.1016/j.atmosenv.2016.07.042

BOOK CHAPTERS

Donahue NM, Posner LN, Westervelt DM, **Li HZ**, Shrivastava M, Presto AA, Sullivan RC, Adams PJ, Pandis SN, Robinson AL. "Where Did This Particle Come From? Sources of Particle Number and Mass for Human Exposure Estimates, in: *Airborne Particulate Matter: Sources, Atmospheric Processes and Health*." The Royal Society of Chemistry, **2016**, pp 35–71. http://dx.doi.org/10.1039/9781782626589-00035

CONFERENCES

Li HZ, Reeder MD, Litten J, Pekney NJ. "Identifying Under-characterized Atmospheric Methane Emission Sources in Western Maryland." Poster presentation at 100th American Geophysical Union Conference. Dec. 10-14, 2018, Washington, DC

Qing Ye, **Li HZ**, Gu P, Robinson ES, Sullivan RC, Apte JS, Robinson AL, Presto AA, Donahue NM. "Using an Advanced Single Particle Mass Spectrometer on a Mobile Platform to Study Spatial Variability of Population Exposure to Traffic and Cooking Particulate Matter in Pittsburgh, PA." Platform presentation at 100th American Geophysical Union Conference. Dec. 10-14, 2018, Washington, DC

Li HZ, Gu P, Ye Q, Zimmerman N, Subramanian R, Robinson ES, Apte JS, Robinson AL, Presto AA. "Spatially Dense Air Pollutants Sampling: Implications of Spatial Variability on the Representativeness of Stationary Air Pollutant Monitors." Platform presentation at 10th International Aerosol Conference. Sep. 2-7, 2018, Saint Louis, MO

Gu P, **Li HZ**, Ye Q, Robinson ES, Apte JS, Robinson AL, Presto AA. "Spatially-Resolved Comparison of Traffic and Cooking-Related PM_1 Emission in Urban Area and Their Threat to Public Health." Poster presentation at 10th International Aerosol Conference. Sep. 2-7, 2018, Saint Louis, MO

Presto AA, Robinson RS, Shah RU, Gu P, **Li HZ**, Apte JS, Robinson AL. "Long-Term Exposure to Ambient Air Pollution and Cognitive Function in Older U.S. Adults: The Multi-Ethnic Study of Atherosclerosis and Air Pollution." Poster Presentation at the Joint Annual Meeting of the International Society of Exposure Science and the International Society for Environmental Epidemiology (ISES-ISEE 2018). Aug. 26-30, Ottawa, Canada

Zimmerman N, **Li HZ**, Ellis A, Hauryliuk A, Robinson RS, Gu P, Snell L, Subramanian R, Robinson AL, Apte JS, Presto AA. "Integrating Spatiotemporal Variability and Modifiable Factors into Air Pollution Estimates." Poster presentation at the Joint Annual Meeting of the International Society of Exposure Science and the International Society for Environmental Epidemiology (ISES-ISEE 2018). Aug. 26-30, Ottawa, Canada

Presto AA, **Li HZ**, Robinson ES, Gu P, Saha P, Shah RU, Apte JS, Robinson AL. "Spatial Patterns of Exposures to Nontraditional Pollutants: Source Resolved Organic Aerosol and Ultrafine Particles." Platform presentation at the Joint Annual Meeting of the International Society of Exposure Science and the International Society for Environmental Epidemiology (ISES-ISEE 2018). Aug. 26-30, Ottawa, Canada

Li HZ, Gu P, Ye Q, Zimmerman N, Subramanian R, Robinson ES, Apte JS, Robinson AL, Presto AA. "Quantify Spatial and Temporal Variation of Airborne Pollutants in Different Scales Using Mobile and Distributed Sampling." Poster presentation at annual meeting of American Association for Aerosol Research. Oct. 16-20, 2017, Raleigh, NC

Ye Q, Gu P, **Li HZ**, Robinson ES, Apte JS, Robinson AL, Presto AA, Sullivan RC, Donahue NM. "High Spatial Resolution of Sources, Mixing State and Exposure of Particulate Matter Using Single Particle Mass Spectrometry." Oral presentation at annual meeting of American Association for Aerosol Research. Oct. 16-20, 2017, Raleigh, NC

Gu P, **Li HZ**, Ye Q, Robinson ES, Robinson AL, Presto AA. "Classification, Variation and Spatial Patterns of Mass Spectra Extracted from Plume Events Observed from Mobile Measurement by Aerodyne Aerosol Mass Spectrometer and Comparison with PMF Results." Oral presentation at annual meeting of American Association for Aerosol Research. Oct. 16-20, 2017, Raleigh, NC

Gu P, **Li HZ**, Ye Q, Robinson ES, Shah R, Shi J, Robinson AL, Presto AA. "Investigating Spatial Variation in Organic Aerosol Concentrations and Source Impact in a Metropolitan Area by Mobile Sampling with Aerodyne Aerosol Mass Spectrometer." Oral presentation at annual meeting of American Association for Aerosol Research. Oct. 16-20, 2017, Raleigh, NC

Zimmerman N, Ellis A, Schurman MI, Gu P, **Li HZ**, Snell L, Gu J, Subramanian R, Robinson AL, Apte JS, Presto AA. "Characterizing Intra-Urban Air Quality Gradients with a Spatially-Distributed Network." Poster presentation at annual meeting of American Geophysical Union. Dec. 12-16, 2016, San Francisco, CA

Li HZ, Dallmann TR, Gu P, Li X, Presto AA. "Spatial Variation of Organic Aerosol and Source Identification of Temperature-resolved Carbon Fractions." Oral presentation at annual meeting of American Association for Aerosol Research. Oct. 18-21, 2016, Portland, OR

Li HZ, Gu P, Ye Q, Zimmerman N, Subramanian R, Robinson ES, Apte JS, Robinson AL, Presto AA. "A Hybrid Sampling Network to Investigate Intracity Spatiotemporal Variation of Multiple Pollutants." Poster presentation at annual meeting of American Association for Aerosol Research. Oct. 18-21, 2016, Portland, OR

Presto AA, Zimmerman N, **Li HZ**, Gu P, Subramanian R, Robinson AL, Apte JS. "Intra-urban Spatial and Temporal Variations in Fine Particle Number, Mass Concentration, and Size Distributions." Oral presentation at annual meeting of American Association for Aerosol Research. Oct. 18-21, 2016, Portland, OR

Li HZ, Dallmann TR, Presto AA. "Spatial Variation of $PM_{2.5}$ Components with Mobile Sampling Strategy in Pittsburgh." Poster presentation at annual meeting of American Association for Aerosol Research. Oct. 12-16, 2015, Minneapolis, MN

TEACHING EXPERIENCE

Fundamentals of Atmospheric Aerosols, Carnegie Mellon University — Pittsburgh, PA
Teaching Assistant — 2018

Thermal Fluids and Experimentation, Carnegie Mellon University — Pittsburgh, PA
Teaching Assistant — 2016

Thermal Fluids and Experimentation, Carnegie Mellon University — Pittsburgh, PA
Teaching Assistant — 2015

SKILLS

Programming Languages: R, MATLAB, Igor, Python, SQL, C
Data Visualization: ArcMap, ArcGIS Pro, QGIS, Igor
Computer Skills: MS Office, Adobe InDesign
Instrumentation: Low-cost air quality sensors, Scanning mobility particle sizer, Fast mobility particle sizer, Aethalometer, Condensation particle counter, Aerosol mass spectrometry, Sunset OC/EC analyzer, Gas monitor
Languages: English (Proficient), Mandarin (Native Speaker), German (Basic)

LEADERSHIP

American Association for Aerosol Research Student Chapter — Pittsburgh, PA
President — 2016

AWARDS and HONORS

Oak Ridge Institute for Science and Education (ORISE)
Postdoctoral Fellowship, National Energy Technology Laboratory — 2018

Graduate Student Assembly Travel Fund, Carnegie Mellon University 2015 - 2017
Outstanding Graduate, Wuhan University of Technology 2013
Outstanding Student Scholarship, Wuhan University of Technology 2009 - 2012

MEDIA COVERAGE

"Why the EPA wants data from Pittsburgh Rooftops," *NPR*, Feb. 2017
"What does Pittsburgh's love of fireworks mean for air quality," *The Incline*, Dec. 2016

PROFESSIONAL SOCIETY MEMBERSHIPS

American Association for Aerosol Research (AAAR), American Geophysical Union (AGU)

PROFESSIONAL SERVICES

Peer reviewer for the following journals: *Environmental Science & Technology*
Student poster judge: AGU national meeting (2018)

Updated: 03/27/2019