

Jooyeon Hwang, PhD, CIH

Department of Environmental & Occupational Health Sciences
School of Public Health
University of Texas Health Science Center at Houston
1200 Pressler St. RAS E607, Houston, TX 77030
Email: Jooyeon.hwang@uth.tmc.edu
Phone: 713-500-9274

EDUCATION AND TRAINING

National Institutes of Health, National Cancer Institute, Bethesda, MD <i>Postdoctoral Fellow in Cancer Research Training</i>	2015
University of Minnesota, School of Public Health, Minneapolis, MN <i>Ph.D. Industrial Hygiene, Minor in Biostatistics</i>	2013
University of Minnesota, School of Public Health, Minneapolis, MN <i>M.S. Environmental Health Sciences</i>	2008
Seoul National University, College of Agriculture and Life Sciences, Seoul, Korea <i>M.S. Animal Environment</i>	2003
Konkuk University, College of Animal Husbandry, Seoul, Korea <i>B.S. Animal Nutritional Resources</i>	2001

CERTIFICATION

Certified Industrial Hygienist #CIH-CP 13193 <i>Board for Global EHS Credentialing</i>	2024- present
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PROFESSIONAL EXPERIENCES

Associate Professor University of Texas Health Science Center at Houston, School of Public Health, Department of Environmental & Occupational Health Sciences, Houston, Texas	2023- present
Adjunct Faculty University of Oklahoma Health Sciences Center, Hudson College of Public Health, Department of Occupational and Environmental Health, Oklahoma City, Oklahoma	2023- present
Program Director Industrial Hygiene and Exposure Sciences Program University of Texas Health Science Center at Houston, Houston, Texas	2024- present
Deputy Director Southwest Center for Occupational and Environmental Health, University of Texas Health Science Center at Houston, Houston, Texas	2023- 2025
Assistant Professor University of Oklahoma Health Sciences Center, Hudson College of Public Health, Department of Occupational and Environmental Health, Oklahoma City, Oklahoma	2018- 2022
Assistant Professor Western Kentucky University, College of Health and Human Services Department of Public Health, Environmental and Occupational Health Science, Bowling Green, Kentucky	2015- 2018

Postdoctoral Fellow	2013-
National Institutes of Health/National Cancer Institute (NIH/NCI), Division of Cancer Epidemiology & Genetics, Occupational and Environmental Epidemiology Branch, Rockville, Maryland	2015
Graduate Research Assistant	2008-
University of Minnesota, School of Public Health, Division of Environmental Health Science, Minneapolis, Minnesota	2013
Research Assistant	2009
American Industrial Hygiene Association - Exposure Assessment Strategies Committee, Minneapolis, Minnesota	
Graduate Research Assistant	2007-
University of Minnesota, School of Public Health, Division of Environmental Health Science, Lab of Industrial Hygiene, Minneapolis, Minnesota	2009
Graduate Research Assistant	2000-
Seoul National University, College of Agriculture and Life Science, Department of Animal Science, Lab of Animal Environment, Seoul, Korea	2003

PUBLICATIONS (*Corresponding author, + mentored trainee)

Wanting Zhang, **Jooyeon Hwang**, Beibei Lu and Xin Xu, Effects of high-intensity interval training on inflammatory biomarkers in patients with heart failure: a meta-analysis of randomized controlled trials, *Frontiers in Cardiovascular Medicine*, section Heart Failure and Transplantation, Volume 12 – 2025, doi: 10.3389/fcvm.2025.1641635

Jooyeon Hwang*, Jenny Gipson, Chao Xu, Timothy VanWagoner, Xin Xu, Robert J. Agnew, Willard M. Freeman, Comparison of MicroRNA Profiling in the Skin and Serum of Volunteer and Career Firefighters, *Environmental Research*, 2025, Volume 285, Part 1, 122348, DOI: <https://doi.org/10.1016/j.envres.2025.122348>

Mingze Zhu+, **Jooyeon Hwang***, Chao Xu*. Meta-analysis identifies key genes and pathways implicated in Benzo[a]pyrene exposure response, *Chemosphere*, 2024, Volume 364, September 2024, 143121, <https://doi.org/10.1016/j.chemosphere.2024.143121>

Mingze Zhu+, Robert J. Agnew, Chao Xu, Timothy VanWagoner, Xin Xu, **Jooyeon Hwang***. Residual Polycyclic Aromatic Hydrocarbons and Firefighters' Hematological Profile, *Frontiers in Environmental Health, Sec. Occupational Safety and Health Interventions*, 2024, Volume 3 – 2024, <https://doi.org/10.3389/fenvh.2024.1381159>

Jooyeon Hwang*, Zongkai Peng, Fares Z Najjar, Chao Xu, Robert J Agnew, Xin Xu, Zhibo Yang, Nagib Ahsan*, Urine proteome profile of firefighters with exposure to emergency fire-induced smoke: A pilot study to identify potential carcinogenic effects, *Science of the Total Environment*, 2024, 972, 172273, DOI: <https://doi.org/10.1016/j.scitotenv.2024.172273>

Jake Mitchell, **Jooyeon Hwang**, Preston Larson, Sumit Mandal, Robert J. Agnew. Preliminary analyses of accumulation of carcinogenic contaminants on retired firefighter ensembles, *Journal of Occupational and Environmental Hygiene*, 2024, 21:4, 213-219 PMID: 38416517 DOI: <https://doi.org/10.1080/15459624.2023.2296628>

Jooyeon Hwang*, Ngee-Sing Chong, Mengliang Zhang, Robert J. Agnew, Chao Xu, Zhuangjie Li, Xin Xu. Face-to-face with Scorching Wildfire: Potential Toxicant Exposure and the Health Risks of

Smoke for Wildland Firefighters at the Wildland-Urban Interface, *Lancet Reg Health Am.* 2023 Mar 26;21:100482. PMID: 37008196 PMCID: PMC10060103 DOI: 10.1016/j.lana.2023.100482.

Jooyeon Hwang*, Chao Xu, Paul Grunsted, Robert J. Agnew, Tara R. Malone, Shari Clifton, Krista Thompson, Xin Xu. Urinary Metabolites of Polycyclic Aromatic Hydrocarbon in Firefighters: A Systematic Review and Meta-Analysis, *Int. J. Environ. Res. Public Health*, 2022, 19(14):8475, PMID: 35886320 PMCID: PMC9318785 DOI: 10.3390/ijerph19148475

Wei-Jen Chen, Candace Robledo, Erin M. Davis, Jean R. Goodman, Chao Xu, **Jooyeon Hwang**, Amanda E. Janitz, Tabitha Garwe, Antonia M. Calafat, Jennifer D. Peck. Assessing urinary phenol and paraben mixtures in pregnant women with and without gestational diabetes mellitus: a case-control study, *Environmental Research*, 2022, 214 (2), 113897, PMID: 35839910 DOI: <https://doi.org/10.1016/j.envres.2022.113897>.

Evan Floyd, Toluwanimi Oni, Changjie Cai, Bilal Rehman, **Jooyeon Hwang**, Tyler Watson. Validation of A High Flow Rate Puff Topography System Designed for Measurement of Sub-Ohm, Third Generation Electronic Nicotine Delivery Systems, *Int. J. Environ. Res. Public Health*, 2022, 19(13), 7989; PMID: 35805644 PMCID: PMC9265855 DOI: 10.3390/ijerph19137989

Ting Zhu, Jingbin Zhou, **Jooyeon Hwang**, Xin Xu. The Effects of Platelet-Rich Plasma on the Clinical Outcomes of Anterior Cruciate Ligament Reconstruction: A Systematic Review and Meta-analysis, *Orthopaedic Journal of Sports Medicine*, 2022, Jan. 31;10(1), PMID: 35127959 PMCID: PMC8811441, DOI: 10.1177/23259671211061535

Ritchie Taylor, Gretchen Macy, **Jooyeon Hwang**, Vijay Golla, Charles Cann, Edrisa Sanyang, Using Collaborative Partnerships to Engage Firefighters in Rural Communities. *Int. J. Environ. Res. Public Health*, 2022, 19(4):2009. PMID: 35206197 PMCID: PMC8871703 DOI: <https://doi.org/10.3390/ijerph19042009>

Ting Zhu, Yuxiang Hu, **Jooyeon Hwang**, Dan Zhao, Libin Huang, Liang Qiao, Ankui Wei, Xin Xu. Urinary Proteomics of Simulated Firefighting Tasks and its Relation to Fitness Parameters, *Int. J. Environ. Res. Public Health*, 2021, Oct 11;18(20), 10618, PMID: 34682364 PMCID: PMC8536002. DOI: <https://doi.org/10.3390/ijerph182010618>

Yuan Shao, **Jooyeon Hwang**, Richard MacLehose, Bruce Alexander, Jeff Mandel, Gurumurthy Ramachandran. Reconstructing Historical Exposures to Respirable Dust and Respirable Silica in the Taconite Mining Industry for 1955-2010, *Annals of Work Exposures and Health*, 2021, PMID: 34864842 DOI: 10.1093/annweh/wxab099

Jooyeon Hwang*, Chao Xu, Robert J. Agnew, Shari Clifton, Tara R. Malone. Health Risk of Structural Firefighters from Exposure to Polycyclic Aromatic Hydrocarbons: A Systematic Review and Meta-Analysis, *International Journal of Environmental Research and Public Health*, 2021, 18(8), 4209, PMID: 33921138, PMCID: PMC8071552 DOI: <https://doi.org/10.3390/ijerph18084209>

Changjie Cai, Tomoki Nishimura, **Jooyeon Hwang**, Xiao-Ming Hu, Akio Kuroda. Asbestos Detection with Fluorescence Microscopy Images and Deep Learning, *Sensors*, 2021, Jul. 4;21(13), 4582; PMID: 34283157 PMCID: PMC8272007 DOI: <https://doi.org/10.3390/s21134582>

Melissa C. Friesen, Hyoyoung Choo-Wosoba, Philippe Sarazin, **Jooyeon Hwang**, Pamela Dopart, Daniel E. Russ, Nicole C. Deziel, Jérôme Lavoué, Paul S. Albert, Bin Zhu, Simultaneous modeling of detection rate and exposure concentration using semi-continuous models to identify exposure determinants when left-censored data may be a true zero, *Journal of Exposure Science and Environmental Epidemiology*, 2021, PMID: 34006962 DOI: <https://doi.org/10.1038/s41370-021-00331-7>

Wei-Jen Chen, Erin M. Davis, Julie A. Stoner, Candace Robledo, Jean R. Goodman, Tabitha Garwe, Amanda Janitz, Chao Xu, **Jooyeon Hwang**, Jennifer D. Peck, Urinary total arsenic and arsenic methylation capacity in pregnancy and gestational diabetes mellitus: A case-control study, *Chemosphere*, 2021, May;271:129828 PMID: 33736216 DOI: 10.1016/j.chemosphere.2021. 129828

Yuan Shao, Richard MacLehose, Lifeng Lin, **Jooyeon Hwang**, Bruce Alexander, Jeff Mandel, Gurumurthy Ramachandran. A Bayesian Approach for Determining the Relationship between Various Elongate Mineral Particles (EMPs) Definitions, *Annals of Work Exposures and Health* 2020, Nov 16;64(9):993-1006, PMID: 33196824, DOI: 10.1093/annweh/wxaa074

Yuan Shao, **Jooyeon Hwang**, Richard MacLehose, Bruce Alexander, Jeff Mandel, Gurumurthy Ramachandran. Reconstructing Historical Exposures to Elongate Mineral Particles (EMPs) in the Taconite Mining Industry for 1955–2010, *Journal of Occupational and Environmental Hygiene*, 2019, 16(12): 817-826, PMID: 31647751, DOI: doi: 10.1080/15459624.2019.1676431

Gretchen Macy, **Jooyeon Hwang**, Ritchie Taylor, Vijay Golla, Charles Cann, Brittney Gates, Examining Behaviors Related to Retirement, Cleaning, and Storage of Turnout Gear Among Rural Firefighters, *Workplace Health and Safety*, 2019, 68 (3):129-138, PMID: 31735131 DOI: <https://doi.org/10.1177/2165079919882951>

Jooyeon Hwang*, Vijay Golla, Nervana Metwali, Peter S. Thorne, Inhalable and Respirable Particulate and Endotoxin Exposures in Kentucky Equine Farms, *Journal of Agromedicine*, 2019, Aug 20: 1-11, PMCID: PMC7031016 DOI: 10.1080/1059924X.2019.1656128

Jooyeon Hwang*, Ritchie Taylor, Gretchen Macy, Charles Cann, Vijay Golla. Comparison of Use, Storage, and Cleaning Practices for Personal Protective Equipment Between Career and Volunteer Firefighters in Northwestern Kentucky in the U.S, *Journal of Environmental Health*, 2019, 82(5), 8-15

Jooyeon Hwang*, Ritchie Taylor, Charles Cann, Vijay Golla, Weylin Gilbert. Assessment of ambient air diesel particulates in fire departments using different exposure metrics: Pilot study, *Fire Safety Journal*, 2019, 106: 155-162, DOI: <https://doi.org/10.1016/j.firesaf.2019.04.005>

Jooyeon Hwang*, Ritchie Taylor, Charles Cann, Pauline Norris, Vijay Golla. Evaluation of accumulated polycyclic aromatic hydrocarbons and asbestiform fibers on firefighter vehicles: Pilot Study, *Fire Technology*, 2019, 55(6): 2195-2213, DOI <https://doi.org/10.1007/s10694-019-00851-7>

Tran Huynh, Gurumurthy Ramachandran, Harrison Quick, **Jooyeon Hwang**, Peter Raynor, Bruce Alexander, Jeff Mandel. Ambient Fine Aerosol Concentrations in Multiple Metrics in Taconite Mining Operations. *Annals of Work Exposures and Health*, 2019, 7; 63(1): 77-90, PMID: 30351393, <https://doi.org/10.1093/annweh/wxy086>

Jooyeon Hwang, Gurumurthy Ramachandran, Peter Raynor, Bruce Alexander, Jeff Mandel. A Comprehensive Assessment of Exposures to Respirable Dust and Silica in the Taconite Mining Industry. *Journal of Occupational and Environmental Hygiene*, 2017, 14:5, 377-388, PMID: 28388309

Gurumurthy Ramachandran, **Jooyeon Hwang**, Peter Raynor, Bruce Alexander, Jeff Mandel, Response to Letter to the Editor by Weill et al. In reference to Hwang et al. “The Relationship Between Various Exposure Metrics for Elongate Mineral Particles (EMP) in the Taconite Mining and Processing Industry” *Journal of Occupational and Environmental Hygiene*, 2015, 12(6):D88-D89, PMID: 25616980

Jooyeon Hwang, Gurumurthy Ramachandran, Peter Raynor. The relationship between various exposure metrics for elongated mineral particles (EMP) in the taconite mining and processing industry. *Journal of Occupational and Environmental Hygiene*, 2014, 11(9): 613-24, PMID: 24512074

Jooyeon Hwang, Gurumurthy Ramachandran, Peter Raynor, Bruce Alexander, Jeff Mandel. A comprehensive assessment of exposures to elongated mineral particles (EMP) in the taconite mining industry. *Annals of Occupational Hygiene*, 2013, Oct;57(8):966-78, PMID: 23792972

John Adgate, Sudipto Banerjee, Mei Wang, Lisa McKenzie, **Jooyeon Hwang**, Sook Ja Cho, Gurumurthy Ramachandran. Performance of dust allergen carpet samplers in controlled laboratory studies. *Journal of exposure science and environmental epidemiology*, 2012, Jul; 23(4):385-91, PMID: 23281430

GRANTS

Texas Firefighter Cancer Study, 89th Texas Legislature, Texas Senate Bill 1, E.3.3 Firefighter Cancer Research appropriation, **Principal Investigator**, \$5,000,000, 09/01/2025-08/31/2027 2025

Unveiling the Impact of Fire Smoke Neurotoxicants on Firefighters' Mental Health using Whole Shotgun Metagenomics, Gulf Coast Center for Precision Environmental Health (GC-CPEH), **Principal Investigator**, \$60,160, 09/01/2024-08/31/2025 2024

Automation of the Healthcare Professional Circle Diagramming technique for use in interprofessional clinical learning experiences, 2022-2023 Wisdom Family Foundation Interprofessional Educators and Practitioners Association (IEPA) Seed Grant, Co-I (PI: V. Dennis), \$3,990, 06/10/2022-05/31/2023 2022

Cultivating Child Well-Being, University of Oklahoma Office of the Vice President for Research and Partnerships, Co-PI (PI: S. Castle), \$139,604, 01/01/2021-12/31/2022 2020

Effects of residual PAH exposure from firefighters' turnout gear on plasma microRNA expression, CDC/NIOSH K01, **Principal Investigator**, \$323,843, 09/01/2020-08/31/2023 2020

Interaction of ambient ammonia and endotoxins with airborne and human nasal microbiome diversity in communities near large-scale poultry feeding operations, NIH/NIEHS R21, Co-Investigator (Original **Principal Investigator**: relinquished PI role to M. Phillips to devote 75% effort to CDC/NIOSH K01), \$398,464, 06/03/2020-05/31/2022 2020

A cancer-related microRNA profile: the critical role of firefighter protective equipment practices, American Cancer Society – Institutional Research Grant, Stephenson Cancer Center, **Principal Investigator**, \$48,306, 04/01/2020-05/31/2022 2020

Assessment of Exposure to Residual PAH from Turnout Gear in Oklahoma Firefighters, Oklahoma Shared Clinical and Translational Resources, Clinical and Translational Research Pilot (CTRP), **Principal Investigator**, \$72,500, 07/01/2020-06/30/2022 2019

Epigenetic Studies of Household Air Pollution-Associated Essential Hypertension in Rural Kenya, Western Kentucky University Research & Creative Activities Program (RCAP), Co-PI (PI: N. Rice), \$16,000, 05/15/2018-12/15/2019 2018

Firefighters' exposure to smoke contaminants in live fire training, Western Kentucky University College of Health and Human Services Quick Turn Around Grants (QTAG), **Principal Investigator**, \$2,000, 4/11/2018-06/30/2018 2018

Assessment of diesel particulates in fire departments using different exposure metrics, CDC/NIOSH Pilot Research Project Training Program of the University of Cincinnati Education and Research Center, Principal Investigator , \$6,950, 7/01/2017-6/30/2018	2017
Biomarkers of exposure and stress in firefighters in northwestern Kentucky, CDC/NIOSH Pilot Research Project Training Program of the University of Cincinnati Education and Research Center, Co-I (PI: J. Yadav), \$8,000, 7/01/2017-6/30/2018	2017
Center for Environmental and Workplace Health (CEWH), College of Health and Human Services (CHHS), Western Kentucky University, Core Research Faculty (Director: R. Taylor), \$269,510, 08/15/2017-06/30/2019	2017
Environmental Health Science Undergraduate Program, Occupational Safety and Health Training Project Grants (T03), CDC/NIOSH, Co-I (PI: V. Golla), \$250,000, 07/01/2016-06/30/2021	2016
Evaluation of accumulated contaminants on firefighter vehicles, Western Kentucky University Research & Creative Activities Program (RCAP), Principal Investigator , \$16,000, 5/15/2016-12/31/2017	2016
Qualitative approach to assessing exposure to fire smoke and occupational air contaminants for firefighters, Western Kentucky University College of Health and Human Services Quick Turn Around Grants (QTAG), Principal Investigator , \$2,650, 4/11/2016-11/30/2016	2016
Occupational Exposure to Endotoxins in Airborne Particles in Kentucky's Equine Industry, CDC/NIOSH Extramural Research and Training Program – South Center for Agricultural Health and Injury Prevention, Principal Investigator , \$12,000, 10/15/2015-9/29/2016	2016
Measurement of Airborne Endotoxins in Poultry Industry in Kentucky, Accepted Preproposal: U.S. Poultry & Egg Association, Principal Investigator , \$80,000, 7/01/2016-6/30/2017, <i>No submission for full proposal</i>	2015

JOURNAL PEER REVIEW

Science of the Total Environment
 Sleep
 Current women's health reviews
 Frontiers in Public Health
 Annals of Work Exposures and Health
 Sustainability
 JMIR Research Protocols
 Toxics
 Atmosphere
 Occupational and Environmental Medicine
 Journal of Medical Internet Research
 International Journal of Environmental Research and Public Health
 Archives of Environmental and Occupational Health
 Inhalation Toxicology
 Atmospheric Pollution Research
 Fire Technology
 Aerosol Science & Technology
 Safety and Health at Work
 Toxicology and Industrial Health

PROFESSIONAL PRESENTATIONS

Nasal Cavity Microbial Makeup and the Influence on Psychiatric Symptoms Following Acute Fire Exposure in Firefighters, American Society of Human Genetics, Boston, MA (Principal Investigator, Poster presenter: Paul Grunsted)	2025
Occupational Risk Factors for Mental Health Outcomes in Firefighters, GET PHIT Summit, Laredo, TX (Thesis advisor, Poster presenter: Kevin Dang)	2025
Effectiveness of Dermal Wipes in Removing PAHs From Urban Firefighters, UTHHealth-CPRIT 2025 Summer Undergraduate Innovation in Cancer Prevention Research Program, Houston, TX (Faculty mentor, Poster presenter: Isabella Smetana)	2025
The role of decontamination wipes on polycyclic aromatic hydrocarbons (PAHs) removal and microbiome shifts in firefighter skin, AIHA Connect 2025 Student poster, Kansas City, MO (Principal Investigator, Poster presenter: Catherine Turlington)	2025
Fire Smoke Neurotoxicants: Occupational Exposure and Mental Health Implications for Firefighters, 2025 International Fire Service Cancer Symposium, Firefighter Cancer Initiative, Miami, FL (Poster presenter)	2025
Efficacy Study on Firefighter Skin Wipes for Polycyclic Aromatic Hydrocarbon (PAH) Removal, Texas Public Health Association, Brownsville, Texas (Principal Investigator, Oral presenter: Shelley Forse)	2025
Impact of Exposure to Fire Smoke on miRNA Expression in Firefighters' Blood and Skin Samples, American Society of Human Genetics 2024 Annual Meeting, Denver, Colorado (Principal Investigator, Poster presenter: Paul Grunsted)	2024
Firefighter Omics Profile Reveals Health Effects of Emergency Fire-Induced Smoke Exposure, Translational Research Seminar Series (TRSS), UTHHealth at Houston School of Public Health Brownsville Campus, Brownsville, Texas (Invited speaker)	2023
Research Progress – Oklahoma Firefighter Health Study, Metro Chiefs & Green Country Chiefs Joint Meeting, Stillwater/Drumright, Oklahoma (Invited speaker)	2023
Multi-Omics Profiling for Evaluating Carcinogenic Exposure and Health Effects in Firefighters During Emergency Fires, 36th annual US-Korea Conference (UKC 2023), Technical Group Symposium, Medical Science, Pharmaceutical Science, Veterinary Medicine, Physical Education (MPS), Dallas, Texas (Invited speaker)	2023
The Effects of Residual Polycyclic Aromatic Hydrocarbons on the Hematological Profile of Firefighters, American Industrial Hygiene Conference & Expo, Phoenix, AZ (Academic advisor, Student Poster presenter: Mingze Zhu)	2023
Assessment of Firefighters' Health Risks in the Work Environment, Golf Coast American Society of Safety Professionals (ASSP) chapter meeting, Deer Park, Texas (Invited speaker)	2023
The Impact of Climate Change on Firefighters' Health, Annual student-led conference Global Issues Summit, Global Studies Academy, Travis High School, Richmond, Texas (Invited speaker)	2023
Evaluation of Toxicant Exposures at the Wildland Urban Interface for Firefighters, National Fire Protection Association (NFPA) Conference & Expo, Boston, Massachusetts (Invited co-speaker)	2022

Incremental Conversion of Healthcare Professionals Circle Diagramming Technique from Manual to Digital, 2 nd Interdisciplinary Collaboration Symposium, Interdisciplinary Programs Office of the Vice Provost for Academic Affairs & Faculty Development, Oklahoma City, Oklahoma (Poster co-presenter)	2022
Using Collaborative Partnerships to Engage Firefighters in Rural Communities, 3 rd International Symposium to Advance Total Worker Health, Bethesda, Maryland (Poster co-presenter)	2022
Health risks to firefighters of smoke from climate change, Bridges to Access (B2A): Health and Climate, University of Oklahoma Community Health Alliance, Oklahoma City, OK (Invited speaker)	2022
Effects of environmental exposure on genetic factors affecting firefighters' health, Department of Biostatistics and Epidemiology Seminar, University of Oklahoma Health Sciences Center, Virtual (Oral co-presenter)	2021
Assessment of Exposure to Residual PAH from Turnout Gear in Oklahoma Firefighters, Oklahoma Shared Clinical & Translation Resources External Advisory Committee meeting, Virtual (Oral presenter)	2020
Preliminary Analyses of Accumulation of Carcinogenic Contaminants in Retired Turnout Gear, ReIGNITE conference Fire-Rescue International Research Symposium, Virtual (Oral co-presenter)	2020
Determination of Changes in Fire Properties and Toxicity of Combustion in Single Family Dwellings from the 1950s to Projected 2020 Era Construction, Society of Open Innovation: Technology, Market, and Complexity, Virtual (Oral co-presenter)	2020
Occupational exposure assessment in firefighters working environments, CDC/NIOSH Training Project Grants Seminar, Western Kentucky University, Bowling Green, KY (Invited speaker)	2019
Effects of residual PAH exposure from firefighters' turnout gear on plasma microRNA expression, Translating Practice into Research Program University of Oklahoma Shared Clinical and Translational Resources 2018-2019, Oklahoma City, OK (Oral presenter)	2019
Assessment of Diesel Particulates in Fire Departments Using Different Exposure Metrics: Pilot Study, American Industrial Hygiene Conference & Expo, Minneapolis, MN (Poster presenter)	2019
Assessment of Diesel Particulates in Fire Departments Using Different Exposure Metrics: Pilot Study, 2018 Pilot Research Project Symposium University of Cincinnati NIOSH Education and Research Center (Oral presenter)	2018
Evaluation of accumulated polycyclic aromatic hydrocarbons on firefighter vehicles: Pilot Study, American Industrial Hygiene Conference & Expo, Philadelphia, PA (Poster presenter)	2018
A Mixed-Methods Approach to Assessing Exposure to Fire Smoke and Occupational Air Contaminants of Firefighters in Kentucky, 6th Annual Southeastern States Occupational Network (SouthON) Meeting, Council of State and Territorial Epidemiologists, Nashville, TN (Oral presenter)	2017
Occupational Exposure to Airborne Size-Based Endotoxins in Kentucky's Equine Industry Deep South Center for Occupational Health and Safety, National Institute for Occupational Safety and Health Education and Research Center, The University of Alabama at Birmingham & Auburn University, Opelika, AL (Oral presenter)	2017

Firefighters, Occupational Exposures, and Lessons Learned in Northwestern Kentucky, Works in Progress, Western Kentucky University, Bowling Green, KY (Oral presenter)	2017
Southeast Center for Agricultural Health & Injury Prevention (SCAHIP) and Central Appalachian Regional Education and Research Center (CARERC), University of Kentucky, Lexington, KY (Oral presenter)	2016
Absent vs. present but not quantified: Can a job exposure matrix be used to predict samples where lead exposure is likely absent in U.S. OSHA inspection measurements? American Industrial Hygiene Conference & Expo, Salt Lake City, UT (Oral presenter, withdrawal)	2015
Reconstructing exposures (1973-2011) to elongated mineral particles (EMPs) on Minnesota's Iron Range based on different size-based definitions, American Industrial Hygiene Conference & Expo, Indianapolis, IN (Oral presenter)	2012
Methodological Issues in Taconite Elongated Mineral Particles (EMPs) on Minnesota's Iron Range Based on Different Size-based Definitions, 3M Graduate Fellowship Program Poster Session, St. Paul, MN (Poster presenter)	2011
Method to Convert Fiber Counts Asbestos and Non-asbestos Based on NIOSH 7400/7402 into Counts Based on Other Fiber Definitions, American Industrial Hygiene Conference & Expo, Portland, OR (Poster presenter)	2011
Methodological issues in taconite dust exposure assessment, American Industrial Hygiene Conference & Expo, Denver, CO (Oral Presenter)	2010
Historical and Exposure Reconstruction in the Taconite Mining Industry– Study Design, American Industrial Hygiene Conference & Expo, Toronto, Canada (Oral Presenter)	2009
Historical and Exposure Reconstruction in the Taconite Mining Industry– Study Design 12th World Congress on Public Health, Istanbul, Turkey (Poster Presenter)	2009
Evaluating PM 10 in Rural Areas and in Hanoi and Ho Chi Minh City in Vietnam, 136 th American Public Health Association conference, San Diego, CA (Poster Presenter)	2008
Evaluating PM 10 in Rural Areas and in Hanoi and Ho Chi Minh City in Vietnam, American Industrial Hygiene Conference & Expo, Minneapolis, MN (Poster Presenter)	2008

PROFESSIONAL AFFILIATIONS

National Fire Protection Association	2018-present
Korean-American Scientists and Engineers Association	2015-present
American Conference of Governmental Industrial Hygiene	2008-present
American Industrial Hygiene Association	2008-present

AWARDS & FELLOWSHIPS

<i>1st Place</i> Scientific Poster Award, Fire Smoke Neurotoxins: Occupational Exposure and Mental Health Implications for Firefighters, 2025 International Fire Service Cancer Symposium, Firefighter Cancer Initiative, Miami, FL	2025
Southwest Center for Occupational and Environmental Health, Pilot Projects Research Training (PPRT) Program as a mentor (Student: Juan Alvarez), Characterizing firefighter	2025

exposure to endocrine-disrupting chemical mixtures by biomonitoring, Houston, TX	
2023 Future Leaders' Conference, <i>Selected participant</i> , Overseas Koreans Agency (OKA), S. Korea	2023
<i>1st Place</i> Student Poster Awards as an academic advisor (Student: Mingze Zhu), AIHA Protective Clothing and Equipment Committee, Phoenix, AZ	2023
<i>1st Place</i> Student Poster Awards as an academic advisor (Student: Mingze Zhu), AIHA Biological Monitoring Committee, Phoenix, AZ	2023
GMaP Region 3 Technical Training Summit Travel Award, <i>Selected participant</i> , University of New Mexico Comprehensive Cancer Center, NM	2023
UTHealth 2023 Grants 102 Course, <i>Selected participant</i> , University of Texas Health Science Center at Houston, TX	2023
Provost's Research Award for Clinical/Translational Junior Faculty, University of Oklahoma Health Sciences Center, OK	2022
Early-Career Investigator Scholarship, SHARP (Skills for Health and Research Professionals) Program, Columbia University, NY	2020
Oklahoma Shared Clinical and Translational Resources Translating Practice into Research (TPIR) Program 2018-2019, <i>Selected faculty</i> , University of Oklahoma Health Sciences Center, OK	2018
Western Kentucky University Student Research Conference Graduate Posters Winner as a mentor (Student: Nandini Bezawada), Health and Human Services Session 51, Western Kentucky University, KY	2017
Early Investigators Award, Office of Research & Creative Activity, Western Kentucky University, KY	2016
Selected Faculty Award, Kentucky Biomedical Research Infrastructure Network (KBRIN), University of Louisville, KY	2015
Selected participant, Zuheir Sofia Endowed International Faculty Seminar (ZSEIFS) to South Korea, Western Kentucky University, KY	2015
Volunteer Group Service Award, AIHA Exposure Assessment Strategies Committee, San Antonio, TX	2014
Editor's Choice Award, A comprehensive assessment of exposures to elongated mineral particles (EMP) in the taconite mining industry. <i>Annals of Occupational Hygiene</i> . Oct;57(8):966-78, PMID: 23792972	2014
Cancer Research Training Award (CRTA), Postdoctoral Fellowship, National Institutes of Health, National Cancer Institute, Bethesda, MD	2013-2015
<i>Outstanding Poster</i> Award by Faculty Choice, School of Public Health Research Day, University of Minnesota, MN	2013

American Industrial Hygiene Association's Future Leaders Institute Program, MD	2011
Selected Participant, Boreas Environmental Leadership Program, Institute on Environment, MN	2011
American Industrial Hygiene Foundation, TSI/ Arthur J. Abrams Memorial Scholarship, VA	2010
James L. Craig Fellowship in Public Health, University of Minnesota, MN	2009
Graduate and Professional Student Assembly Scholarly Travel Grants, University of Minnesota, MN	2009, 2011
International Students' Meeting on Public Health at the World Congress on Public Health, <i>Selected student</i> , Istanbul, Turkey	2009
Cross-cultural Leadership Retreat, International Student and Scholar Services, University of Minnesota, MN	2009
3M Science and Technology Fellowship in Environmental Health, Minneapolis, MN	2008-2012
Finnegan-Mosberger Family Fellowship, School of Public Health, University of Minnesota, MN	2008-2009
Roberta Craig Fellowship in International Public Health, School of Public Health, University of Minnesota, MN	2008-2009
The National Association of Graduate-Professional Students Conference Travel Grants, University of Minnesota, MN	2008
Sponsored Student, American Industrial Hygiene Association Conference, MN	2008
<i>Outstanding Poster</i> Award by Faculty and Alumni Choice, School of Public Health Research day, University of Minnesota, MN	2008
Environmental Section Scholarship Award, American Public Health Association, Washington D.C.	2007
Konkuk University Alumni Association Scholarship, Seoul, Korea	2007
Summit of Sages Scholarship, University of Minnesota School of Nursing, MN	2007
Korean-American Graduate Student Association Fellowship, Washington D.C.	2007
Research Grant for Field Experience in Vietnam, School of Public Health <i>Dean's Scholarship</i> for Academic Excellence, University of Minnesota, MN	2006
<i>Brain Korea 21</i> Research Fellowship, Ministry of Education, Seoul, Korea	2001-2003
Sponsored Graduate Student, Research Grants, Seoul, Korea - Ministry of Agriculture and Forestry - College of Agriculture and Life Sciences, Seoul National University - Water Resources Corporation - Environzyne Corporation	2000-2004

SCIENTIFIC PEER-REVIEW ACTIVITIES

Objective reviewer, NIEHS Research Opportunity Announcement (ROA) OTA-25-007: “Limited Competition: The East Palestine, Ohio Train Derailment Study (OT2)	2025
Reviewer, The Institution of Occupational Safety and Health (IOSH), Topic: Firefighters’ exposure to toxic chemicals: Barriers and facilitators to adopting decontamination practices, Leicestershire, UK	2025
Special Awarding Judge for AIHA Gulf Coast Section, Science & Engineering Fair of Houston, Fort Bend County Epicenter, Rosenberg, TX	2025
Ad hoc external reviewer, Intramural research project proposal, Respiratory Health Division, National Institute for Occupational Safety and Health (NIOSH), Morgantown, WV	2023
Ad hoc reviewer, NIOSH Safety and Occupational Health Study Section, Washington D.C.	2023
Reviewer, Southwest Center for Occupational and Environmental Health (SWCOEH) NIOSH Education and Research Center (ERC), Pilot Projects Research (PRP) Training Program, University of Texas Health Science Center at Houston, School of Public Health, Houston, TX	2023-present
Programmatic Panel Member, Toxic Exposure Research Program (TERP), Congressionally Directed Medical Research Programs (CDMRP), Department of Defense, Washington D.C.	2022-present
Reviewer, NY/NJ NIOSH Education and Research Center (ERC), Pilot Projects Research (PRP) Training Program, Icahn School of Medicine at Mount Sinai, New York, NY	2022
Ad hoc reviewer as an Early Career Reviewer (ECR), NIH Center for Scientific Review (CSR) Behavioral Genetics and Epidemiology Study Section (BGES), Washington D.C.	2021
Reviewer, PRP, NIOSH ERC, University of Cincinnati, Cincinnati, OH	2017-present

LEADERSHIP & PROFESSIONAL COMMUNITY SERVICE ACTIVITIES

Research consultant, Medical surveillance protocol and optional screening using multi-omics approach for workers at waste-to-energy (WTE) plant fire	2025
Fire research partner, Houston Fire Department Strategic Plan, Houston, TX	2024-present
Academic advocate, the community-based challenges and solutions around advancing sustainability and environmental protection in Houston, Axios Expert Voices roundtable discussion, Houston, TX	2023
Ad hoc scientific advisor, Addressing a health concern of a permanent rock crushing facility next to a regional hospital, Harris Health System, Virtual	2023
Ad hoc external expert, NFPA 1989 Standard on Breathing Air Quality for Emergency Services Respiratory Protection Subcommittee (Task Group 4 & 6), Virtual	2023
CBRNE Safety Working Group of the City of Houston, Houston Health Department,	2023-

Houston, TX	present
Invited stakeholder, TERP, CDMRP, Department of Defense, Washington D.C.	2022
Editorial Board Member, Environmental Science and Engineering Section, International Journal of Environmental Research and Public Health, Basel, Switzerland	2020-2022
Co-chair, Regional firefighter research advisory group, Comanche County, OK	2019-2022
Co-facilitator, Community meeting for assessing air quality near poultry feeding operations, Kansas, OK	2019-2022
Member, Oklahoma firefighter health and safety research committee, Stillwater, OK	2018-2022
Steering Committee Member, PRP, NIOSH ERC, University of Cincinnati, Cincinnati, OH	2016-2018
Co-chair, Firefighter Exposure Research Steering Committee, Green River Firefighter Association, Owensboro, KY	2015-2018
Reviewer, Guideline on Occupational Exposure Reconstruction (2008), Chapter 7: Develop Exposure Estimates, Fairfax, VA	2014
Translator, AIHA Exposure Assessment Strategies Committee, translate <i>IH MOD</i> (modeling and statistical analysis in exposure assessment) from English to Korean, Minneapolis, MN	2013
Co-arranger, 3M manufacturing facility visit for University of Minnesota Industrial Hygiene Student Group, Eagan, MN	2012
Translator, AIHA Exposure Assessment Strategies Committee, translate <i>IH Stat</i> (statistical package for industrial hygienist) from English to Korean, Minneapolis, MN	2012
Member, APHA Environment Section: Student Involvement Committee, Washington D.C.	2009
Campus Liaison, APHA Student Assembly, Washington D.C.	2008
Web Contents Developer, American Public Health Association Environment Section, Community Committee: Webpage, University of South Carolina, Columbia, SC	2008
Student Ambassador, School of Public Health, University of Minnesota, Minneapolis, MN	2008-2009
Member, School of Public Health Committee, Academic Health Center Multicultural Society Leadership, University of Minnesota, Minneapolis, MN	2007-2008
Major Representative, Division of Environmental Health Science, School of Public Health Student Senate, School of Public Health, University of Minnesota, Minneapolis, MN	2006-2008
Administrative Leader, Commissioner's Taskforce on HIV/AIDS Prevention, Seoul, Korea	2006

COURSES TAUGHT

Occupational Health Field Trips, PH 2260 (3 credits) for required course in MPH in Industrial Hygiene, University of Texas Health Science Center at Houston (Co-Instructor)	2025-present
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Public Health Ecology & the Human Environment, PHWM2110L (3 credits) for required course in MPH in School of Public Health, University of Texas Health Science Center at Houston (Sole Instructor)	2024
Environmental Sampling & Analysis, PHM/PHD 2155 (4 credits) for required course in PhD & for elective in MPH in Environmental Science, University of Texas Health Science Center at Houston (Sole Instructor)	2024-present
EOHS Research Seminar Series, PHD 2105 EOHS Doctoral Seminar, University of Texas Health Science Center at Houston (Guest Speaker)	2023
Principles of Safety, OEH 5702 for required course in MS in Industrial Hygiene & Environmental Health Sciences, Department of Occupational and Environmental Health, University of Oklahoma Health Sciences Center (Sole Instructor)	2019-2022
Public Health Biology and Sanitation, OEH 5023 for required course in MPH in Environmental Health, Department of Occupational and Environmental Health, University of Oklahoma Health Sciences Center (Sole Instructor)	2019-2022
Air Quality Management, PH 571 for elective course in MS Environmental and Occupational Health Sciences, Department of Public Health, Western Kentucky University (Sole Instructor)	2016-2018
Environmental Sciences, ENV 280 for Colonnade Program's requirements for the Natural and Physical Sciences subcategory of the Explorations Category, Department of Public Health, Western Kentucky University (Sole Instructor)	2015-2018
Created NEW course of Industrial Hygiene, EOHS 570 for required course in MS Environmental and Occupational Health Sciences, Department of Public Health, Western Kentucky University (Sole Instructor)	2015-2018
Fundamental of Industrial Hygiene, ENV 321 for required course in BS Environmental Health Sciences, Department of Public Health, Western Kentucky University (Sole Instructor)	2015-2018
Environmental Management and Risk Assessment, PH 560 for elective course in MS Environmental and Occupational Health Sciences, Department of Public Health, Western Kentucky University (Sole Instructor)	2015-2018
Occupational and Environmental Exposure Assessment Studies, Summer session, College of Animal Bioscience & Technology and the Graduate School of Agriculture & Animal Science at Konkuk University in Seoul, Korea (Sole Instructor)	2014-2016

CAMPUS SERVICE ACTIVITIES

Program Interviewer, Occupational and Environmental Medicine, UTHealth Houston	2024
Admissions committee, Department of Environmental & Occupational Health Sciences, School of Public Health, UTHealth Houston	2024-present
Curriculum committee, Department of Environmental & Occupational Health Sciences, School of Public Health, UTHealth Houston	2024-present
Faculty search committee, Department of Environmental & Occupational Health	2024-2025

Sciences, School of Public Health, UTHealth Houston

Department of Environmental & Occupational Health Sciences (EOHS) representatives, 2023-2025
Faculty Council, School of Public Health, UTHealth Houston

Judge, School of Public Health Student Association (SPHSA)'s Virtual Research Day 2023, 2025
Poster Presentation, UTHealth Houston

Standing Committee, Chemical Safety Committee, Safety, Health, Environment & Risk 2023-
Management, UTHealth Houston present

Program Evaluation Committee, Graduate College of the University of Oklahoma 2019-2022
Health Sciences Center

Research Committee, Interprofessional Educators and Practitioners Association (IEPA), 2019-2022
University of Oklahoma Health Sciences Center

College Awards Committee, Hudson College of Public Health, University of Oklahoma 2019-2021
Health Sciences Center

Judge, Graduate Research Education and Technology (GREAT) Symposium, Poster 2022,
presentation, University of Oklahoma Health Sciences Center 2019-2020

Faculty member, Industrial Hygiene Constituent Committee, Department of 2018-2022
Occupational and Environmental Health, Hudson College of Public Health, University
of Oklahoma Health Sciences Center

Academic Appeals Board – Provisional Positions, Hudson College of Public Health, 2018-2021
University of Oklahoma Health Sciences Center

Reviewer, Zuheir Sofia Endowed International Faculty Seminar (ZSEIFS) Project 2017-2018
continuation grant (PCG), Curriculum Development/International Program Grant
(CDIP), International Activities Grant (IAG), Office of International Programs, Western
Kentucky University

Reviewer, Faculty-Undergraduate Student Engagement (FUSE) Grant, Western 2017-2018
Kentucky University

46th – 48th Annual WKU Student Research Conference, Session Moderator, Western 2016-2018
Kentucky University

Search committee member, Assistant professor position, Environmental and 2016-2017
Occupational Health and Sciences Programs, Department of Public Health, College of
Health and Human Services, Western Kentucky University

Board member, Center for Asian Studies, Western Kentucky University 2016-2017

Guest speaker, International Year of South Korea, Western Kentucky University 2016

MPH/PH Program committee, College of Health and Human Services, Western 2015-2018
Kentucky University

Appointed committee member, Environmental and Occupational Health and Sciences 2015-2018
Programs, Department of Public Health, College of Health and Human Services,

Western Kentucky University

Committee member, MPH curriculum, Department of Public Health, College of Health and Human Services, Western Kentucky University 2015-2018

Faculty committee member, MPH/BSPH program, Department of Public Health, College of Health and Human Services, Western Kentucky University 2015-2018