Longxiang Li

Assistant Professor
Gangarosa Department of Environmental Health
Rollins School of Public Health
Emory University
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Education

Harvard T.H. Chan School of Public Health, Boston, MA

Sc.D, Exposure, Epidemiology, and Risk (EER) 05/2020

Department of Environmental Health

Chinese Academy of Sciences, Beijing, China

M.S, Cartography and Remote Sensing 06/2014

Institute of Remote Sensing Applications

China University of Geosciences, Beijing, China

B.S ,Geography 06/2011

Academic Appointments

Rollins School of Public Health, Emory University, Atlanta, GA

Assistant Professor, Gangarosa Department of Environmental Health 07/2024-present

Harvard T.H. Chan School of Public Health, Boston, MA

Research Associate, Department of Environmental Health 07/2022-06/2024

Postdoctoral fellow, Department of Environmental Health 07/2020-07/2022

Boston Children's Hospital, Boston, MA

Data Analyst, Division of Adolescent Medicine 04/2016-06/2017

Grants & Funding

Active

National Institute of Environmental Health Sciences (K99ES034459) 2022-2027

Title: Estimating Acute Impacts of Unconventional oil and Gas Development on Cause-specific Hospitalization via Satellite-based Exposure Assessment 12 CM

Role: Principal Investigator

National Institute of Environmental Health Sciences (K23ES035459) 2023-2028

Title: Evaluation of Radon Progeny and Air Pollution Effects in Asthma 0 CM

Role: Co-Investigator (PI: Dr. Tina Banzon, Boston Children's Hospital)

American Lung Association (Innovation Award**)** 2023-2025

Title: Residential radon, socioeconomic opportunity, and respiratory outcomes in bronchopulmonary dysplasia 0CM

Role: Co-Investigator (PI: Jonathan Gaffin, Boston Children's Hospital)

Pending

National Institute of Environmental Health Sciences (R01)

Title: Pediatric Asthma Radon Intervention Study (PARIS)

Role: Co-Investigator (PI: Dr. Wanda Phipatanakul)

National Institute of Environmental Health Sciences (R01)

Title: A nationwide population-based study investigating the cardiovascular effects of exposure to particulate matter α-, β-, and γ-activities and individual radionuclides.

Role: Co-investigator (PI: Dr. Antonella Zanobetti)

Professional Services

Environmental Science and Technology (American Chemistry Society) 2023-2025

Role: Early-career Member of Editor Board

Harvard Business School, Boston, MA 2016-2017

Role: Admission Assistant

Honors & Awards

Honorable Mention Poster Competition of Harvard School of Public Health 2020

Outstanding Graduate Student Chinese Academy of Sciences 2014

Teaching and Training

Harvard T.H. Chan School of Public Health, Boston, MA

Guest Lecturer, Atmospheric Environment Seminar, Professor Petros Koutrakis 2018-2023

Teaching Assistant, Atmospheric Environment Seminar, Professor Petros Koutrakis 2016-2018

Teaching Assistant, Risk Assessment, Professor John Evans 2019 Fall

Publications

Articles in Peer-reviewed Journals

First authored articles:

1. **Longxiang Li**, Rebeca Ariel Stern, Eric Garshick, Carolina L. Zilli Vieira, Brent Coull, Petros Koutrakis. "Predicting Monthly Community-level Radon Concentrations with Spatial Random Forest in the Northeast and Midwest United States" *Environmental Science & Technology* (2023) 57(46) 18001-18012. DOI: 10.1021/acs.est.2c08840 [IF=12.2]

2. **Longxiang Li,** Brent Coull and Petros Koutrakis. "A national comparison between the collocated short- and long-term radon measurements in the United States" *Journal of Exposure Science and Environmental Epidemiology* (2023). DOI: 10.1038/s41370-023-00521-5 [IF=6.4]

3. **Longxiang Li**, Francesca Dominici, Annelise J. Blomberg, Joel D. Schwartz, Brent A. Coull, John D. Spengler, Yaguang Wei, Joy Lawrence and Petros Koutrakis. " Exposure to Unconventional Oil and Gas Development and All-cause Mortality in Medicare Beneficiaries" *Nature Energy* 7, 177-185 (2022). DOI: 10.1038/s41560-021-00970-y [IF=72.5]

4. **Longxiang Li**, Rebecca A. Stern, Annelise J. Blomberg, Choong-Min Kang, Yaguang Wei, Man Liu, Adjani A. Peralta, Carolina L. Z. Vieira and Petros Koutrakis. "Spatiotemporal Pattern of the Ratio Between Domestic Radon Concentrations in Upstairs and Basement: A Study in Northeastern and Midwestern United States." *Environmental Science and Technology Letters* 9(2), 191–197 (2022). DOI: 10.1021/acs.estlett.1c00989 [IF=12.0]

5. **Longxiang Li**, Annelise J. Blomberg, Rebecca A. Stern, Choong-Min Kang, Stefania Papatheodorou, Yaguang Wei, Man Liu, Adjani A. Peralta, Carolina L. Z. Vieira and Petros Koutrakis. "Predicting Monthly Community-level Domestic Radon Concentrations in Greater Boston Area with an Ensemble Learning Model." *Environmental Science and Technology* 55(10), 7157–7166 (2021). DOI: 10.1021/acs.est.0c08792 [IF=12.2]

6. **Longxiang Li**, Annelise J. Blomberg, Joy Lawrence, Weeberb J. Réquia, Yaguang Wei, Man Liu, Adjani A. Peralta and Petros Koutrakis. "A Spatiotemporal Ensemble Model to Predict Gross Beta Particulate Radioactivity Across the Contiguous United States." *Environment International* 156, 106643 (2021). DOI: 10.1016/j.envint.2021.106643 [IF=13.2]

7. **Longxiang Li**, Annelise J. Blomberg, John D. Spengler, Brent A. Coull, Joel D. Schwartz, and Petros Koutrakis. "Unconventional oil and gas development and ambient particle radioactivity." *Nature Communications* 11, 5002 (2020). DOI: 10.1038/s41467-020-18226-w [IF=17.8]

8. **Longxiang Li**, Jianhua Gong, and Jieping Zhou. "Spatial Interpolation of Fine Particulate Matter Concentrations Using the Shortest Wind-Field Path Distance." *PloS ONE* 9(5), e96111 (2014). DOI: 10.1371/journal.pone.0096111 [IF=3.8]

Co-authored articles:

9. Tina Banzon, Jessica Liu, Kimberly Greco, **Longxiang Li**, Petros Koutrakis, Jonathan Gaffin, Wanda Phipatanakul. "Biomarkers of Oxidative Stress Associated with Radon Exposure in the School Inner-City Asthma Study (SICAS)" Journal of Allergy and Clinical Immunology 153 AB256 (2024) DOI: 10.1016/j.jaci.2023.11.821 [IF=14.3]

10. Matthew Shupler, Krista Huybrechts, Michael Leung, Yaguang Wei, Joel Schwartz, **Longxiang Li**, Petros Koutrakis, Sonia Hernández-Díaz, Stefania Papatheodorou. "Short-Term Increases in NO2 and O3 Concentrations during Pregnancy and Stillbirth Risk in the U.S.: A Time-Stratified Case-Crossover Study" Environmental Science & Technology 58 1097-1108 (2024). DOI: 10.1021/acs.est.3c05580 [IF=11.6]

11. Anderson Paulo Rudke, Jorge Alberto Martins, Leila Droprinchinski Martins, Carolina Letícia Zilli Vieira, **Longxiang Li**, Carlos Fabricio Assunção da Silva, Alex Mota dos Santos, Petros Koutrakis, Taciana Toledo de Almeida Albuquerque. "Evaluation and comparison of MODIS aerosol optical depth retrieval algorithms over Brazil" Atmospheric Environment 314 120-130 (2023). DOI: 10.1016/j.atmosenv.2023.120130 [IF=5.8]

12. Cristina Su Liu, Yaguang Wei, Mahdieh Danesh Yazdi, Xinye Qiu, Edgar Castro, Qiao Zhu, **Longxiang Li**, Petros Koutrakis, Christine C Ekenga, Liuhua Shi, Joel D Schwartz. "Long-term association of air pollution and

incidence of lung cancer among older Americans: A national study in the Medicare cohort" Environment International 181 (2023) DOI: 10.1016/j.envint.2023.108266 [IF=13.4]

13. Rebecca A Stern, Joy Lawrence, Jack M Wolfson, **Longxiang Li,** Petros Koutrakis. "Radon Sampling Methodologies: A case for accurate, accessible measurements using household instruments." Journal of the Air & Waste Management Association 7, 72(2023). DOI: 10.1080/10962247.2023.2223149 [IF= 2.6]

14. Vasileios N Matthaios, Jack M Wolfson, **Longxiang Li**, Joy Lawrence, Petros Koutrakis. "Temporal trends of particle gross β-activity and PM2.5 mass concentrations in the USA during 2001–2017" *Air Qual Atmosphere & Health (2023)*. DOI: 10.1007/s11869-023-01377-2 [IF=5.8]

15. Tina M Banzon, Kimberly F Greco, **Longxiang Li**, Lana Mukharesh, Carolina L Zilli Vieira, M Kathryn Steiner, Marissa Hauptman, Thanaporn Ratchataswan, Petros Koutrakis, Wanda Phipatanakul, Jonathan M Gaffin. "Effect of radon exposure on asthma morbidity in the School Inner-City Asthma study" *Pediatric Pulmonology*. 58: 2042- 2049 (2023). DOI: 10.1002/ppul.26143 [IF=3.1]

16. Veronica A Wang, Petros Koutrakis, **Longxiang Li**, Man Liu, Carolina LZ Vieira, Brent A Coull, Edward F Maher, Choong-Min Kang, Eric Garshick. "Particle Radioactivity from Radon Decay Products and Reduced Pulmonary Function among Chronic Obstructive Pulmonary Disease Patients" *Environmental Research* 216, 114492 (2023). DOI: 10.1016/j.envres.2022.114492 [IF=8.4]

17. Veronica A Wang, Michael Leung, **Longxiang Li**, Anna M Modest, Joel Schwartz, Brent A Coull, Michele R Hacker, Blair J Wylie, Petros Koutrakis, Stefania Papatheodorou. "Prenatal exposure to ambient particle radioactivity and fetal growth in Eastern Massachusetts" *Air Quality, Atmosphere & Health* (2023) DOI: 10.1007/s11869-023-01311-6 [IF=5.8]

18. Alexandra J White, Allyson M Gregoire, Jared A Fisher, Danielle N Medgyesi, **Longxiang Li**, Petros Koutrakis, Dale P Sandler, Rena R Jones. "Exposure to Particle Radioactivity and Breast Cancer Risk in the Sister Study: A US-Wide Prospective Cohort" *Environmental Health Perspectives* 130(4), 047701 (2022). DOI: 10.1289/EHP10288 [IF=11.0]

19. Yaguang Wei, Xinye Qiu, Matthew Benjamin Sabath, Mahdieh Danesh Yazdi, Kanhua Yin, **Longxiang Li**, Adjani A Peralta, Cuicui Wang, Petros Koutrakis, Antonella Zanobetti, Francesca Dominici, Joel D Schwartz. "Air Pollutants and Asthma Hospitalization in the Medicaid Population" *American Journal of Respiratory and Critical Care Medicine* 205(9), 1075-1083 (2022). DOI: 10.1164/rccm.202107-1596OC [IF=24.2]

20. Lana Mukharesh, Kimberly F Greco, Tina Banzon, Petros Koutrakis, **Longxiang Li**, Marissa Hauptman, Wanda Phipatanakul, Jonathan M Gaffin. "Environmental Radon and Childhood Asthma" *Pediatric Pulmonology* 57(12), 3165-3168 (2022). DOI: 10.1002/ppul.26143 [IF=3.1]

21. Tina Banzon, Jonathan Gaffin, Kimberly Greco, **Longxiang Li**, Thanaporn Ratchataswan, Petros Koutrakis, Wanda Phipatanakul. "Seasonal Effect of Radon Exposure on Fractional Exhaled Nitric Oxide" *Journal of Allergy and Clinical Immunology* 149(2), AB67 (2022). DOI: 10.1016/j.jaci.2021.12.248 [IF=19.7]

22. Shuxin Dong, Petros Koutrakis, **Longxiang Li**, Brent A Coull, Joel Schwartz, Anna Kosheleva, Antonella Zanobetti. "Synergistic Effects of Particle Radioactivity (Gross β Activity) and Particulate Matter ≤ 2.5 μm Aerodynamic Diameter on Cardiovascular Disease Mortality" *Journal of the American Heart Association* 11(20), e025470 (2022). DOI: 10.1161/JAHA.121.025470 [IF=6.1]

23. Weeberb J Requia, **Longxiang Li**, Heresh Amini, Henrique L Roig, Peter James, Petros Koutrakis. "Nationwide Assessment of Green Spaces Around 186,080 Schools in Brazil" *Cities* 121, 103435 (2022). DOI: 10.1016/j.cities.2021.103435 [IF=6.1]

24. Aleshka Carrion-Matta, Joy Lawrence, Choong-Min Kang, Jack M Wolfson, **Longxiang Li**, Carolina L Zilli Vieira, Joel Schwartz, Philip Demokritou, Petros Koutrakis. "Predictors of Indoor Radon Levels in the Midwest

United States" *Journal of the Air & Waste Management Association* 71(12), 1515-1528 (2021). DOI: 10.1080/10962247.2021.1950074 [IF=3.4]

25. Yaguang Wei, Abhiyant Suresh Tiwari, **Longxiang Li**, Bhavin Solanki, Jayanta Sarkar, Dileep Mavalankar, Joel Schwartz. "Assessing Mortality Risk Attributable to High Ambient Temperatures in Ahmedabad, 1987 to 2017." *Environmental Research* 198, 111232 (2021). DOI: 10.1016/j.envres.2021.111232 [IF=8.4]

26. Stefania Papatheodorou, Weiyu Yao, Carolina L.Z. Vieira, **Longxiang Li**, Blair J. Wylie, Joel Schwartz, Petros Koutrakis. "Residential Radon Exposure and Hypertensive Disorders of Pregnancy in Massachusetts, USA: A Cohort Study." *Environment International* 146, 106285 (2021). DOI: 10.1016/j.envint.2020.106285 [IF=13.2]

27. Yaguang Wei, Brent Coull, Petros Koutrakis, Jiabei Yang, **Longxiang Li**, Antonella Zanobetti, Joel Schwartz. "Assessing Additive Effects of Air Pollutants on Mortality Rate in Massachusetts" *Environmental Health* 20(1), 1-10 (2021). DOI: 10.1186/s12940-021-00704-3 [IF=7.9]

28. Vasileios N. Matthaios, Man Liu, **Longxiang Li**, Choong-Min Kang, Carolina L.Z. Vieira, Diane R. Gold, Petros Koutrakis. "Sources of indoor PM2.5 gross α and β activities measured in 340 homes." *Environmental Research* 197, 111114 (2021). DOI: 10.1016/j.envres.2021.111114 [IF=8.4]

29. Li, Jing, Garshick Eric, Jaime E. Hart, **Longxiang Li**, Liuhua Shi, Ali Al-Hemoud, Shaodan Huang, and Petros Koutrakis. "Estimation of Ambient PM2.5 in Iraq and Kuwait from 2001 to 2018 Using Machine Learning and Remote Sensing." *Environment International* 151, 106445 (2021). DOI: 10.1016/j.envint.2021.106445 [IF=13.2]

30. Annelise J. Blomberg, **Longxiang Li,** Joel D. Schwartz, Brent A. Coull, and Petros Koutrakis. "Exposure to Particle Beta Radiation in Greater Massachusetts and Factors Influencing Its Spatial and Temporal Variability." *Environmental Science & Technology* 54(11), 6575-6583 (2020). DOI: 10.1021/acs.est.0c00454 [IF=12.2]

31. Liu, Man, Choong-Min Kang, J. Mikhail Wolfson, **Longxiang Li,** Brent Coull, Joel Schwartz, and Petros Koutrakis. "Measurements of Gross α-and β-Activities of Archived PM2. 5 and PM10 Teflon Filter Samples." *Environmental Science & Technology* 54(19), 11780-11788 (2020). DOI: 10.1021/acs.est.0c02284 [IF=12.2]

32. Yaguang Wei, Yan Wang, Cheng-Kuan Lin, Kanhua Yin, Jiabei Yang, Liuhua Shi, **Longxiang Li**, Antonella Zanobetti, Joel D Schwartz. "Associations Between Seasonal Temperature and Dementia-associated Hospitalizations in New England" *Environment International* 126, 228-233 (2019). DOI: 10.1016/j.envint.2018.12.054 [IF=13.2]

33. Dongping Ming, Tianyu Ci, Hongyue Cai, **Longxiang Li**, Cheng Qiao, Jinyang Du. "Semivariogram-Based Spatial Bandwidth Selection for Remote Sensing Image Segmentation with Mean-Shift Algorithm" *IEEE Geoscience and Remote Sensing Letters* 9(5), 813-817 (2012). DOI: 10.1109/LGRS.2011.2182604 [IF=4.0]

34. Dongping Ming, Jianyu Yang, **Longxiang Li**, Zhuoqin Song. "Modified ALV for Selecting the Optimal Spatial Resolution and Its Scale Effect on Image Classification Accuracy" *Mathematical and Computer Modelling* 54(3-4), 1061-1068 (2011). DOI: 10.1016/j.mcm.2010.11.036 [IF=2.4]

Articles Under Review

Longxiang Li, Francesca Dominici, Annelise J. Blomberg, Joel D. Schwartz, Brent A. Coull, John D. Spengler, Yaguang Wei, Carolina L.Z. Vieira, Adjani A. Peralta and Petros Koutrakis. "Estimating Causal Effects of Residential Radon Exposure on All-cause Mortality of Medicare Beneficiaries in New England" *Environmental Health Perspectives*

Longxiang Li, Rebecca A. Stern, Veronica Wang, Jack M. Wolfson, Joy Lawrence, Carolina L. Z. Vieira, Petros Koutrakis. "The Ratios Between Radon Concentrations Under Normal-life and Closed-building Conditions: a study in the Northeastern and Midwestern United States" *Journal of the Air & Waste Management Association*

Invited Lectures & Colloquia

"Quantifying Radon Exposure: A Nationwide Community-Level Assessment in the U.S." Arnold Arboretum of Harvard University, Boston, MA Summer retreat of Harvard-NIEHS center June 2nd, 2023.

"Estimating Residential Exposure to Radon Based on the Field Data", Yale University, New Haven, CT, March 14th, 2023.

"Remote Sensing-based Methods to Assess Short-term Exposure of Unconventional Oil and Gas Development", Boston, MA NIEHS-Harvard Chan Center Chalk Talk Series, February 22nd, 2023.

"Unconventional Oil and Gas Development and Mortality in Medicare Beneficiaries", Online, Tenth Annual Shale & Public Health Conference by League of Women Voters of Pennsylvania, November 16th, 2022.

"Call for Collaboration: Estimating Population Radon Exposure with Field Measurements", Bellevue, WA, 2022 International Radon and Vapor Intrusion Symposium, October 25th, 2022.

"Estimating the Mortality Influence of Exposure to Unconventional Oil and Gas Development", Boston, MA, Molecular and Integrative Physiological Sciences Seminars at Harvard Chan, October 18th, 2022.

"Estimating Residential Exposure to Radon Based on the Field Data", Portsmouth, NH, Annual Conference of New England Chapter of American Association of Radon Scientists and Technologists, June 16th, 2022.

"Unconventional Oil and Gas Development and Mortality in Medicare Beneficiaries", Pennsylvania State University, Shale Network Workshop, May 12th, 2022.

"Residential Exposure to Indoor and Outdoor Radon-sourced Radiation", Virtual, Air, Climate and Energy (ACE) Center Meeting by Environmental Protection Agency, May 6th, 2021.

"Unconventional Oil and Gas Development and Ambient Particle Radioactivity", Virtual, Eighth Annual Shale & Public Health Conference by League of Women Voters of Pennsylvania, November 17th, 2020.

Conference Presentations

"Quantifying Radon Exposure: A Nationwide Community-Level Assessment in the U.S", Corvallis OR, Annual meeting of International Society of Environmental Epidemiology, June 19th, 2023.

"Estimate the Construction Timelines of Unconventional Oil and Gas Development via Satellite Images" Corvallis OR, Annual meeting of International Society of Environmental Epidemiology, June 19th, 2023.

"Unconventional Oil and Gas Development and Mortality in Medicare Beneficiaries", Online, 33rd Annual Conference of International Society of Environmental Epidemiology, August 23rd, 2022.

"Detecting the Primary Emission Activity of PM2. 5 with Satellite-based AOD in Greater Boston Area", Washington D.C, Fall Meeting of American Geophysical Union, December 10th, 2018.

Journal Reviewer

Nature Communications, Nature Energy, Environmental Science and Technology, Journal of Exposure Science and Environmental Epidemiology, Journal of the Air & Waste Management Association, Atmospheric Pollution Research, GeoHealth, Sustainability, Remote Sensing, Environmental Pollution, International Journal of Environmental Research and Public Health, Air Quality, Atmosphere and Health, Open Medicine, Medicine

Academic Affiliations

International Society of Environmental Epidemiology (**ISEE**)
International Society of Exposure Assessment (**ISES**)
American Geophysical Union

Media Coverage

Harvard Magazine "Fracking's Deadly Toll"
https://www.harvardmagazine.com/2022/07/right-now-fracking-deadly-toll

NPR "Study finds elderly near fracking sites at higher risk of dying prematurely" https://stateimpact.npr.org/pennsylvania/2022/02/01/study-finds-elderly-near-fracking-sites-at-higher-risk-of-dying-prematurely/

The Guardian "Living near fracking sites raises risk of premature death for elderly, US study finds" https://www.theguardian.com/environment/2022/jan/27/people-living-closer-us-oil-and-gas-wells-higher-risk-dying-prematurely-study

Reuters "Researchers find elevated radiation near U.S. fracking sites" https://www.reuters.com/article/us-usa-fracking-radiation/researchers-find-elevated-radiation-near-u-s-fracking-sites-idUSKBN26Y29U/

The Guardian "Airborne radioactivity increases downwind of fracking, study finds" https://www.theguardian.com/environment/2020/oct/13/airborne-radioactivity-increases-downwind-of-fracking-study-finds

The Hill "Elderly people living near fracking sites at higher risk of early death, study says" https://thehill.com/changing-america/well-being/longevity/592132-elderly-people-living-near-fracking-sites-at-higher/

AP "Study: Redlining tied to more oil, gas wells in urban areas" https://apnews.com/article/science-health-business-race-and-ethnicity-racial-injustice-faabdeef95785f5c72568f9e24550a39