ABI LAWAL

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I. Degrees

- Ph.D. in ***Environmental Engineering***, with a minor in ***City Planning***, Georgia Institute of Technology, Atlanta, GA. Dissertation tittle: **Quantifying the Impacts of Anthropogenic Emissions and Specific Infrastructures on Urban Air Quality.** Fall 2021
- M.S. in Environmental Engineering, Georgia Institute of Technology, Atlanta, GA.
- M.S. in Chemical Engineering, Auburn University, Auburn, AL.
- B.S. in Chemical Engineering, University of Minnesota-Twin Cities, Minneapolis, MN.

II. Summary of interests

- Exploring impact of policy, infrastructure, built environment and social demographics on health outcomes, environmental disparities, air quality, climate, and energy demand. Currently utilize atmospheric transport, chemical kinetics, air quality models, machine learning, digital imaging, observations (i.e., satellite retrievals), and environmental assessment tools (i.e., BenMAP) to evaluate how current and future technologies can transform urban centers into sustainable smart, healthy cities. Technological evaluation also includes LCA analysis, urban systems analysis, policy efficacy, and engineering design.

III. Employment History

- Assistant Professor, Dept of Civil and Environmental Engineering, University of Connecticut, Storrs, CT. *Aug 2023 - Present*
- eFellows Engineering Postdoctoral Scholar (ASEE-NSF). Civil and Environmental Engineering, Department, University of California, Berkeley. Berkeley, CA. *2021 – 2023.*
- Graduate Research Assistant, School of Civil and Environmental Engineering, Georgia Institute of Technology, Atlanta, GA. 2016-2021.
- Environmental Scientist Intern, Eastern Research Group/Center for Disease Control (CDC), Atlanta, GA. Summer 2016.
- Project Engineer, Miller Coors, Albany, GA. 2011-2012.
- Process & Project Engineer for Central Engineering, SABIC Innovative Plastics, Burkville, AL, 2008-2009.
- Process Engineer, Arizona Chemical, Panama City, FL. 2004-2008.

IV. Research Grants, Honors, Awards or Scholarships

- Accepted to NextProf 2022. Hosted at the University of California, Berkeley.
- Accepted to the Research University Alliance 2022 Conference, held at the California Institute of Technology.
- Awarded a research National Science Foundation grant, administered by the American Society for Engineering Education (ASEE) for the eFellows Postdoctoral Fellowship Program.
- Graduate Student RISE scholarship, Center for Engineering Education and Diversity, Georgia Institute of Technology, Atlanta, GA. Spring/Summer 2018.
- 1st Place Poster presentation prize. School of Civil and Environmental Engineering Department Poster competition, spring 2017. Title: "Numerical modeling of hydrogen sulfide absorption in spherical droplets, using theoretical equilibrium concentrations"**.** Georgia Institute of Technology, Atlanta, GA.

V. Academic and Research Activities

A. Published/Accepted/Drafted Journal Articles (* indicates first author)

11*. **The Impact of Errors in Modeled NO:NO_2 Ratios on the Interpretation of TROPOMI Retrievals.** Abiola S. Lawal, T. Nash Skipper, Cesunica E. Ivey, Daniel Goldberg, Jennifer Kaiser, and Armistead G. Russell. (Under Review: **Environmental Science & Technology, 2022**).

10. **Air Quality Impacts of Electric Vehicle Adoption in California.** T. Nash Skipper, Abiola S. Lawal, Yongtao Hu, Armistead G. Russell. **Atmospheric Environment, 2022**. DOI: 10.1016/j.atmosenv.2022.119492.

9*. **The Impact of Vehicle Electrification and Autonomous Vehicles on 2050 Air Quality in the United States.** Abiola S. Lawal, Jooyong Lee, T. Nash Skipper, Huizhong Shen, Yilin Chen, Cesunica E. Ivey, Anu Ramaswami, Kara M. Kockelman, Armistead G. Russell. (In prep for 2022 **Nature Submission**).

8. **To Share or Not to Share? Academic Incentives May Hamper Public Good.** Cesunica E. Ivey, A. Kofi Amegah, Collins Gameli Hodoli, Kerry E. Kelly, Abiola S. Lawal, Pallavi Pant, Saumya Singh, R Subramanian, Ivette Torres, Daniel M. Westervelt, Haofei Yu. **Environmental Science & Technology, 2022**. DOI: 10.1021/acs.est.2c05721.

7*. **Assessment of Current and Future Airport-Related Emissions and their Impact on Air Quality in Atlanta, GA using CMAQ and TROPOMI**. Abiola S Lawal, Armistead G. Russell, Jennifer Kaiser**. Environmental Science & Technology, 2022** *56* (1), 98-108 DOI: 10.1021/acs.est.1c03388.

6**. A Data Framework for Assessing Social Inequality and Inequity in Multi-Sector Social Ecological Infrastructural Urban Systems (SEIUS): Focus on Fine-Spatial Scales**. Lara Clark, Samuel Tabory, Kangkang Tong, Joe Servadio, Kelsey Kappler, Corey Kewei Xu, Abiola S. Lawal, Peter Wiringa, Len Kne, Richard Feiock, Julian Marshall, Armistead Russell, Anu Ramaswami. **Ind Ecol, 2022**; 26: 145**-**163. DOI: 10.1111/jiec.13222.

5***. Orthogonalization and Machine Learning Methods for Residential Energy Estimation with Social and Economic indicators.** Abiola S. Lawal, Joseph L. Servadio, Tate Davis, Anu Ramaswami, Nisha Botchwey, Armistead G. Russell. **Applied Energy**, Volume 283, **2021**,116114, ISSN 0306-2619. DOI: 10.1016/j.apenergy.2020.116114.

4. **Relaxing Energy Policies Coupled with Climate Change Will Significantly Undermine Efforts to Attain US Ozone Standards.** Huizhong Shen, Yilin Chen, Yufei Li, Armistead G. Russell, Yongtao Hu, Lucas R.F. Henneman, Mehmet Talat Odman, Jhih-Shyang Shih, Dallas Burtraw, Shuai Shao, Haofei Yu, Momei Qin, Zhihong Chen, Abiola S. Lawal, Gertrude K. Pavur, Marilyn A.B rown, Charles T. Driscoll. **One Earth**, Volume 1, Issue 2, 25 October **2019,** Pages 229-239, https://doi.org/10.1016/j.oneear.2019.09.006.

3. **Demographic Inequities in Health Outcomes and Air Pollution Exposure in the Atlanta Area an its Relationship to Urban Infrastructure.** Joseph L. Servadio, Abiola S. Lawal, Tate Davis, Josephine Bates, Armistead G. Russell, Anu Ramaswami, Matteo Convertino and Nisha Botchwey. **Journal of Urban Health. 2018.** https://doi.org/10.1007/s11524-018-0318-7.

2. **Impacts of Regulations on Air Quality and Emergency Department visits in the Atlanta metropolitan area, 1999–2013.** Russell, A. G.; Tolbert, P. E.; Henneman, L. R. F.; Abrams, J.; Liu, C.; Klein, M.; Mulholland, J. A.; Sarnat, S.; Hu, Y.; Chang, H.; Odman, T.; Strickland, M.; Shen, H.; Lawal, A.S. Research Report 195. The Health Effects Institute, Boston, MA.

1*. **Linked Response of Aerosol Acidity and Ammonia to SO_2 and NOx Emissions Reductions in the United States.** Abiola S. Lawal, Xinbei Guan, Cong Liu, Lucas R.F. Henneman, Petros Vasilakos, Vasudha Bhogineni, Rodney J. Weber, Athanasios Nenes, and Armistead G. Russell. **Environmental Science & Technology, 2018** 52 (17), 9861-9873. DOI: 10.1021/acs.est.8b00711.

B. Teaching Activities

University of California at Berkeley (Postdoctoral Scholar: Course material preparation)

- CE 218C *Air Pollution Modeling.* Spring 2022: Assisted professor in getting course materials: setting up modules and programs needed for lab and projects.
- E93 *Energy Engineering Seminar Fall* 2022: Guest lecturer – one class session.

Georgia Institute of Technology (Graduate Research Assistant: Grader and Tutor)

Assisted professor in the following courses. Primary duties: grading and record keeping and compiling detailed solutions in LaTeX.

- CEE 6790 *Air Pollution Physics and Chemistry* Fall 2019/2020.
- CEE 6794 *Atmospheric Chemical Modeling* Spring 2021.
- CEE 4330 *Air Pollution Engineering* Fall 2017.

C. Research Mentoring (Undergraduate and Graduate)

University of California at Berkeley (Postdoctoral Scholar)

- Mentoring and assisting graduate students with projects and troubleshooting in AQMEL research group.

Georgia Institute of Technology (Graduate Research Assistant)

- CEE 4699 *Undergraduate Research.* Fall 2018: assisted professor in mentoring student.
- Reviewer for President's Undergraduate Research Awards (PURA) Fall 2016/Spring 2017.

D. Requested Reviews (2022)

Journals

- International Journal of Environmental Research and Public Health (IJERPH).
- Environmental Science and Technology (ES&T).
- Journal of the Air & Waste Management Association (J&AWMA)
- Sustainability.

Grants Reviews and Competition Participations

- NOAA's Atmospheric Chemistry, Carbon Cycle, and Climate (AC4) Program competition.
- Bridging Transport Researchers Conference (BTR4).
- The International Network for Traditional Building, Architecture & Urbanism (INTBAU) 2022 Architecture Challenge: Advancing local traditions for global sustainability.

E. Conference, Talks, and Seminar Presentations

- Quantifying the Compounded Effects of Anthropogenic Emissions and Specific Infrastructures on Urban Air Quality. ***Berkeley Institute for Transportation Studies.*** University of California at Berkeley. October 21st, 2022. Seminar Presentation.
- Potential impact of future climate on wintertime particulate matter in the western U.S. ***21st CMAS Conference***. Chapel Hill, NC. October 17-19th 2022. Accepted abstract for oral presentation.
- Performance of an electrified U.S. passenger car fleet in 2050 under future climate scenarios. ***21st CMAS Conference***. Chapel Hill, NC. October 17-19th 2022. Accepted abstract for oral presentation.

- Energy transitions and the built environment/urban infrastructure. ***Women & Inclusivity in Sustainable Energy Research (WISER) Symposium on New Developments in Energy Modelling and Data.*** Virtual panelist participant. September 15th, 2022.
- Quantifying the Compounded Effects of Anthropogenic Emissions and Specific Infrastructures on Urban Air Quality. ***National Science Foundation's Alliances for Graduate Education and the Professoriate (AGEP) Research University Alliance Conference***. California Institute of Technology. September 12th, 2022. Accepted abstract for lightning talk.
- Assessment of Current and Future Airport-Related Emissions and their Impact on Air Quality in Atlanta, GA using CMAQ and TROPOMI. ***38th International Technical Meeting on Air Pollution Modelling and its Application***. Barcelona, Spain. October 18-22, 2021. Accepted abstract for oral presentation.
- Quantifying the impact of airport related emissions on NOx Enhancements and air quality in Atlanta, Georgia using CMAQ and TROPOMI. ***Graduate Student Symposium, School of Earth and Atmospheric Sciences*****,** Georgia Institute of Technology. Spring 2021.
- Impacts of passenger car automation and electrification on 2050 Air quality in the United States. July 2020. ***Automated Vehicles Symposium.*** Virtual Presentation.
- Impacts of passenger car automation and electrification on 2050 Air quality in the United States. ***18th CMAS Conference***. Chapel Hill, NC. October 23rd, 2019.
- Demographic inequities in health outcomes and air pollution exposure in the Atlanta metropolitan area and its relationship to urban infrastructure. ***9th Atlanta Studies Symposium***. Atlanta GA. April 9th, 2019.
- Predicting Residential energy use in metro Atlanta. The use of orthogonalization, machine learning and variable selection methodologies for residential energy estimation with social and economic indicators. ***9th Atlanta Studies Symposium***. Atlanta GA. April 9th, 2019.
- Linked Response of Aerosol Acidity and Ammonia to SO_2 and NO_x Emissions Reductions in the U. ***International aerosol conference (IAC)*** Saint Louis, Missouri. September 2-7, 2018.

VI. Community Outreach and Mentoring Activities

- OMED Educational Services (Minority Education & Development)
  Georgia Institute of Technology. Spring 2017, Fall 2017, Spring 2018 and Summer 2018.

VII. Other: Acquired Industry Skills

- **Process Engineering/Industry:** Process engineering improvement, design and management – specifically in distillation, bio-refining, acidulation, reaction, polymerization processes, pumps, boilers, and heat exchangers. Familiarity with HYSYS and analytical instrumentation like GC, HPLC and Karl Fischer. Six Sigma and DOE experience, as well as MOC and environmental compliance research and implementation for wastewater and air streams.