

Yang Wang

Assistant Professor

Department of Chemical, Environmental and Materials Engineering
University of Miami, Coral Gables, Florida
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EDUCATION

- 2012/08 – 2017/05 Ph.D. Washington University in St. Louis (Energy, Environmental, and Chemical Engineering), St. Louis, Missouri
Dissertation: “Sub-2 nm particle characterization in systems with aerosol formation and growth”
Advisor: Pratim Biswas
- 2008/09 – 2012/07 B.S. Tsinghua University (Thermal Engineering), Beijing, China
Dissertation: “Swirl flame synthesis of TiO₂ nanoparticles for fabrication of dye-sensitized solar cells”.
Advisor: Shuiqing Li

PROFESSIONAL APPOINTMENT

- 2022/05 – present Assistant Professor Department of Chemical, Environmental and Materials Engineering, University of Miami, Coral Gables, Florida
- 2019/08 – 2022/05 Assistant Professor Department of Civil Architectural and Environmental Engineering, Missouri University of Science and Technology, Rolla, Missouri
- 2020/12 – 2022/05 Assistant Professor (joint appointment) Department of Chemistry, Missouri University of Science and Technology, Rolla, Missouri
- 2018/10 – 2019/08 Postdoc Washington University in St. Louis, St. Louis, Missouri
Supervisor: Jian Wang
- 2017/06 – 2018/09 Research Associate Brookhaven National Laboratory, Upton, New York
Supervisor: Jian Wang
- 2012/08 – 2017/05 Graduate Student Washington University in St. Louis, St. Louis, Missouri

RESEARCH INTERESTS

- Aerosol and air quality
- Aerosol-cloud interaction
- Health effects of airborne particles
- Combustion synthesis of functional nanoparticles

RESEARCH

PEER REVIEWED JOURNAL PUBLICATIONS

*Corresponding author, supervised graduate student

52. Qian Xiao, Jiaoshi Zhang, **Yang Wang**, Luke D. Ziemba, Ewan Crosbie, Edward L. Winstead, Claire E. Robinson, Joshua P DiGangi, Glenn S Diskin, Jeffrey S Reid, K Sebastian Schmidt, Armin Sorooshian, Miguel Ricardo A Hilario, Sarah Woods, Paul Lawson, Snorre A Stamnes, Jian Wang (2023). “New Particle Formation in the Tropical Free Troposphere during CAMP 2 Ex: Statistics and Impact of Emission Sources, Convective activity, and Synoptic Condition.” *Atmos. Chem. Phys. Discuss.* (2023): 1-34.

51. Amoah, Nana A., Guang Xu, Ashish Ranjan Kumar, and **Yang Wang** (2023). “Calibration of low-cost particulate matter sensors for coal dust monitoring.” *Sci. Total Environ.* 859: 160336.
50. Patrick Brooks, Christopher Lupfer, **Wang Yang**, Weixing Hao, and Kashala Fabrice Kapiamba. “The effect of hypochlorous acid on the filtration performance and bacterial decontamination of N95 filtering facemask respirators.” *AJIC*. doi: 10.1016/j.ajic.2022.07.013
49. Jiaoshi Zhang, **Yang Wang**, Steven Spielman, Susanne Hering, and Jian Wang (2022) “Regularized inversion of aerosol hygroscopic growth factor probability density function: application to humidity-controlled fast integrated mobility spectrometer measurements.” *Atmos. Meas. Tech.* 15(8): 2579-2590.
48. Weixing Hao, Kashala Fabrice Kapiamba, Varuni Abhayaratne, Shoaib Usman, Yue-Wern Huang, **Yang Wang*** (2022) “A filter-based system mimicking the particle deposition and penetration in human respiratory system for secondhand smoke generation and characterization.” *Inhal. Toxicol.* 34(7): 189-199.
47. Kashala Fabrice Kapiamba, Weixing Hao, Stephen Adom, Wenyan Liu, Yue-Wern Huang, **Yang Wang*** (2022) “Examining the metal contents in primary and secondhand aerosols released by electronic cigarettes.” *Chem. Res Toxicol.* 35(6): 954-962.
46. Steven Cheng, Weixing Hao, **Yang Wang**, and Shu Yang (2022) “Commercial Janus fabrics as reusable facemask materials: a balance of water repellency, filtration efficiency, breathability, and reusability.” *ACS Appl. Mat. Interfaces* 14(28): 32579–32589.
45. Nana Amoako Amoah, Guang Xu, **Yang Wang**, Jiayu Li, Yongming Zou, and Baisheng Nie (2021). “The application of low-cost particulate matter sensors for air quality monitoring and exposure assessment in underground mines - A review” *Int. J. Miner. Metall. Mater.* 29 (8), 1475-1490.
44. Jian Wang, Rob Wood, Michael P Jensen, J Christine Chiu, Yangang Liu, Katia Lamer, Neel Desai, Scott E Giangrande, Daniel A Knopf, Pavlos Kollias, Alexander Laskin, Xiaohong Liu, Chunsong Lu, David Mechem, Fan Mei, Mariusz Starzec, Jason Tomlinson, **Yang Wang**, Seong Soo Yum, Guangjie Zheng, Allison C Aiken, Eduardo B Azevedo, Yann Blanchard, Swarup China, Xiquan Dong, Francesca Gallo, Sinan Gao, Virendra P Ghate, Susanne Glienke, Lexie Goldberger, Joseph C Hardin, Chongai Kuang, Edward P Luke, Alyssa A Matthews, Mark A Miller, Ryan Moffet, Mikhail Pekour, Beat Schmid, Arthur J Sedlacek, Raymond A Shaw, John E Shilling, Amy Sullivan, Kaitlyn Suski, Daniel P Veghte, Rodney Weber, Matt Wyant, Jaemin Yeom, Maria Zawadowicz, Zhibo Zhang (2021). “Aerosol and Cloud Experiments in the Eastern North Atlantic (ACE-ENA).” *Bull. Am. Meteorol. Soc.* 103(2), E619-E641.
43. Gonzalez, Andrew, Hamada A. Aboubakr, John Brockgreitens, Weixing Hao, **Yang Wang**, Sagar M. Goyal, and Abdennour Abbas (2021). “Durable nanocomposite face masks with high particulate filtration and rapid inactivation of coronaviruses.” *Sci. Rep.* 11(1): 1-11.
42. Jay M. Tomlin, Kevin A. Jankowski, Daniel P. Veghte, Swarup China, Peiwen Wang, Matthew Fraund, Johannes Weis, Guangjie Zheng, **Yang Wang**, Felipe Rivera-Adorno, Shira Raveh-Rubin, Daniel A. Knopf, Jian Wang, Mary K. Gilles, Ryan C. Moffet, and Alexander Laskin (2021). “Impact of dry intrusion events on the composition and mixing state of particles during the winter Aerosol and Cloud Experiment in the Eastern North Atlantic (ACE-ENA)” *Atmos. Chem. Phys.* 21(24), 18123–18146.
41. Weixing Hao, Mark Stolzenburg, Michel Attoui, and **Yang Wang*** (2021). “Optimizing the activation efficiency of sub-3 nm particles in a laminar flow condensation particle counter: Model simulation” *J. Aerosol Sci.* 158, 105841.
40. Guangjie Zheng¹, **Yang Wang**¹, Robert Wood, Michael P. Jensen, Chongai Kuang, Isabel L. McCoy, Alyssa Matthews, Fan Mei, Jason M. Tomlinson, John E. Shilling, Maria A. Zawadowicz, Ewan Crosbie, Richard Moore, Luke Ziemba, Meinrat O. Andreae, and Jian Wang (2021). “New particle formation in the remote marine boundary layer.” *Nat. Commun.* 12(1): 1-10. (¹equal contribution)
39. Jiaoshi Zhang, Steven Spielman, **Yang Wang**, Guangjie Zheng, Xianda Gong, Susanne Hering, Jian Wang. “Rapid measurement of RH-dependent aerosol hygroscopic growth using a humidity-controlled fast integrated mobility spectrometer (HFIMS).” *Atmos. Meas. Tech.* 14(8), 5625–5635.

38. **Yang Wang**, Guangjie Zheng, Michael Jensen, Daniel Knopf, Alexander Laskin, Alyssa Matthews, David Mechem, Fan Mei, Ryan Moffet, Arthur Sedlacek, John Shilling, Stephen Springston, Amy Sullivan, Jason Tomlinson, Daniel Veghte, Rodney Weber, Robert Wood, Maria Zawadowicz, Jian Wang. “Vertical profiles of trace gas and aerosol properties over the Eastern North Atlantic: Variations with season and synoptic condition.” *Atmos. Chem. Phys.* 21(14), 11079-11098.
37. Miguel Ricardo A. Hilario, Ewan Crosbie, Michael Shook, Jeffrey S. Reid, Maria Obiminda L. Cambaliza, James Bernard B. Simpas, Luke Ziemba, Joshua P. DiGangi, Glenn S. Diskin, Phu Nguyen, Joseph Turk, Edward Winstead, Claire E. Robinson, Jian Wang, Jiaoshi Zhang, **Yang Wang**, Subin Yoon, James Flynn, Sergio L. Alvarez, Ali Behrangi, and Armin Sorooshian (2021). “Long-range transport patterns into the tropical northwest Pacific during the CAMP2Ex aircraft campaign: chemical composition, size distributions, and the impact of convection.” *Atmos. Chem. Phys.* 21(5), 3777-3802.
36. Anna L Hodshire, Emily Ramnarine, Ali Akherati, Matthew L Alvarado, Delphine K Farmer, Shantanu H Jathar, Sonia M Kreidenweis, Chantelle R Lonsdale, Timothy B Onasch, Stephen R Springston, Jian Wang, **Yang Wang**, Lawrence I Kleinman, Arthur J Sedlacek III, Jeffrey R Pierce (2021). “Dilution impacts on smoke aging: evidence in Biomass Burning Observation Project (BBOP) data”, *Atmos. Chem. Phys.* 21: 6839–6855.
35. Yanxiao Li, Zhekun Peng, Natalie J. Holl, Md. Rifat Hassan, John M. Pappas, Congjie Wei, Omid Hoseini Izadi, **Yang Wang**, Xiangyang Dong, Cheng Wang, Yue-Wern Huang, Donghyun Kim, and Chenglin Wu (2021). “MXene-Graphene field-effect transistor sensing of influenza virus and SARS-CoV-2.” *ACS Omega.* 6(10), 6643-6653
34. Zawadowicz, Maria A., Kaitlyn Suski, Jiumeng Liu, Mikhail Pekour, Jerome Fast, Fan Mei, Arthur J. Sedlacek, Stephen Springston, **Yang Wang**, Rahul A. Zaveri, Robert Wood, Jian Wang, and John Shilling. “Aircraft measurements of aerosol and trace gas chemistry in the eastern North Atlantic.” *Atmos. Chem. Phys.* 21(10): 7983-8002.
33. Weixing Hao, Guang Xu, and **Yang Wang*** (2021). “Factors Influencing the Filtration Performance of Homemade Face Masks.” *J. Occup. Environ. Health.* 18(3): 128-138.
32. Huang Zhang, Hao Zhou, **Yang Wang**, Shuiqing Li, Pratim Biswas (2020). “A mini review on gas-phase synthesis for energy nanomaterials.” *Energy Fuels.* 35(1): 63-85.
31. **Yang Wang***, Guang Xu, Yue-Wern Huang (2020). “Modeling the load of SARS-CoV-2 virus in human expelled particles during coughing and speaking.” *PLOS One.* 15(10): e0241539
30. Weixing Hao, Andrew Parasch, Stephen Williams, Jiayu Li, Hongyan Ma, Joel Burken, **Yang Wang*** (2020). “Filtration performances of non-medical materials as candidates for manufacturing facemasks and respirators.” *Int. J. Hyg. Environ. Health.* 229: 113582
29. Miguel Vazquez-Pufleau*, **Yang Wang**, Pratim Biswas, Elijah Thimsen (2020). “Measurement of sub-2 nm stable clusters during silane pyrolysis in a furnace aerosol reactor.” *J. Chem. Phys.* 152: 024304 (*equal contribution)
28. **Yang Wang**, Guangjie Zheng, Steven R. Spielman, Tamara Pinterich, Susanne Hering, and Jian Wang (2019). “Retrieval of high time resolution growth factor probability density function from a humidity-controlled fast integrated mobility spectrometer.” *Aerosol Sci. Technol.* 53(9):1092-1106.
27. Girish Sharma, **Yang Wang**, Rajan Chakrabarty, and Pratim Biswas (2019). “Modeling simultaneous coagulation and charging of nanoparticles at high temperatures using the method of moments.” *J. Aerosol Sci.* 132: 70-82.
26. Huang Zhang, Girish Sharma, **Yang Wang**, Shuiqing Li, and Pratim Biswas (2019). “Numerical modeling of the performance of high flow DMAs to classify sub-2 nm particles.” *Aerosol Sci. Technol.* 53(1): 106-118.
25. Christopher Oxford, Charles Rapp, **Yang Wang**, Purushottam Kumar, Daniel Watson, Julianna Portelli, Eric Sussman, Steven Dhawan, Jingkun Jiang, and Brent Williams (2019). “Development and qualification of a VH-TDMA for the study of atmospheric aerosols.” *Aerosol Sci. Technol.* 53(2): 120-132.

24. Zhichao Li, **Yang Wang**, Yongqi Lu, and Pratim Biswas (2019). "Investigation of aerosol and gas emissions from a coal-fired power plant under various operating conditions." *J. Air Waste Manage. Assoc.* 69(1): 34-46.
23. Guangjie Zheng, **Yang Wang**, Allison Aiken, Francesca Gallo, Mike Jensen, Pavlos Kollias, Chongai Kuang, Edward Luke, Stephen Springston, Janek Uin, Robert Wood, and Jian Wang (2018). "Marine boundary layer aerosol in Eastern North Atlantic: seasonal variations and key controlling processes." *Atmos. Chem. Phys.* 18(23): 17615-17635.
22. **Yang Wang**, Tamara Pinterich, and Jian Wang (2018). "Rapid measurement of sub-micrometer aerosol size distribution using a fast integrated mobility spectrometer." *J. Aerosol Sci.* 121:12-20.
21. Pratim Biswas, **Yang Wang**, and Michel Attoui (2018). "Sub-2 nm particle measurement in high-temperature aerosol reactors: a review." *Curr. Opin. Chem. Eng.* 21: 60-66.
20. Wenge Li, Yanjie Hu, Hao Jiang, Yi Jiang, **Yang Wang**, Su Huang, and Pratim Biswas, and Chunzhong Li (2017). "Fluxing template-assisted synthesis of sponge-like Fe₂O₃ microspheres toward efficient catalysis for CO oxidation." *Appl. Surf. Sci.* 444: 763-771.
19. Li Lu, Yanjie Hu, Hao Jiang, **Yang Wang**, Yi Jiang, Su Huang, Xiaofeng Niu, Pratim Biswas, and Chunzhong Li (2017). "Multi-shelled LiMn_{1.95}Co_{0.05}O₄ Cages with Tunable Mn Oxidation State for Ultra-High Lithium Storage." *New J. Chem.* 42(5): 3953-3960.
18. **Yang Wang**¹, Girish Sharma¹, Clement Koh, Vivek Kumar, Rajan Chakrabarty, and Pratim Biswas (2017). "Influence of Flame-Generated Ions on the Simultaneous Charging and Coagulation of Nanoparticles during Combustion." *Aerosol Sci. Technol.* 51 (7): 833-844. (¹equal contribution)
17. Tamara Pinterich, Steven Spielman, **Yang Wang**, Susanne Hering, and Jian Wang (2017). "A Humidity-controlled Fast Integrated Mobility Spectrometer (HFIMS) for rapid measurements of particle hygroscopic growth." *Atmos. Meas. Tech.* 10: 4915-4925.
16. Jiayi Fang¹, **Yang Wang**¹, Juha Kangasluoma, Michel Attoui, Heikki Junninen, Markku Kulmala, Tuukka Petäjä, and Pratim Biswas (2017). "The Initial Stages of Multicomponent Particle Formation during the Combustion Synthesis of Mixed SiO₂/TiO₂." *Aerosol Sci. Technol.* 52(3): 277-286. (¹equal contribution) (Editor's selection of notable 2018 papers in *Aerosol Sci. Technol.*)
15. Jiayu Li, Anna Leavey, **Yang Wang**, Caroline O'Neil, Meghan A. Wallace, Carey-Ann D. Burnham, Adrianus CM Boon, Hilary Babcock, and Pratim Biswas (2018). "Comparing the Performance of 3 Airborne Virus Samplers for Influenza Virus." *J. Aerosol Sci.* 155: 133-145.
14. Jiayi Fang¹, **Yang Wang**¹, Juha Kangasluoma, Michel Attoui, Heikki Junninen, Markku Kulmala, Tuukka Petäjä, and Pratim Biswas (2017). "Cluster Formation Mechanisms of Metal Oxides during Combustion Synthesis." *Aerosol Sci. Technol.* 51(9): 1071-1081. (¹equal contribution)
13. **Yang Wang**, Juha Kangasluoma, Michel Attoui, Jiayi Fang, Heikki Junninen, Markku Kulmala, Tuukka Petäjä, and Pratim Biswas (2017). "Observation of Incipient Particle Formation during Flame Synthesis by Tandem Differential Mobility Analysis-Mass Spectrometry (DMA-MS)." *Proc. Combust. Inst.* 36(1), 745-752.
12. Yao Nie, **Yang Wang**, and Pratim Biswas (2017). "Mobility and Bipolar Diffusion Charging Characteristics of Crumpled Reduced Graphene Oxide Nanoparticles Synthesized in a Furnace Aerosol Reactor." *J. Phys. Chem. C.* 121(19): 10529-10537.
11. Jiayu Li, Haoran Li, Yehan Ma, **Yang Wang**, Chenyang Lu, and Pratim Biswas (2017). "Spatiotemporal 3D Measurements of Particle Mass Concentrations with a Distributed Sensor Network Platform." *Build. Environ.* 27: 138-147.
10. **Yang Wang**, Juha Kangasluoma, Michel Attoui, Jiayi Fang, Heikki Junninen, Markku Kulmala, Tuukka Petäjä, and Pratim Biswas (2017). "The High Charge Fraction of Flame-generated Particles in the Size Range below 3 nm Measured by Enhanced Particle Detectors." *Combust. Flame.* 176: 72-80.
9. Yanjie Hu¹, **Yang Wang**¹, Hao Jiang, Yunfeng Li, Theodore Cohen, Yi Jiang, Binqi Wang, Ling Zhang, Pratim Biswas, and Chunzhong Li (2017). "Engineering the Outermost Layers of TiO₂ Nanoparticles Using in situ Mg Doping in a Flame Aerosol Reactor." *AIChE J.*, 63 (3) 870-880. (¹equal contribution)

8. Caroline O'Neil, Jiayu Li, Anna Leavey, **Wang Yang**, Matthew Hink, Meghan Wallace, Pratim Biswas, Carey-Ann Burnham, and Hilary Babcock (2017). "Aerosol Generation during Patient Care Activities." *Clin. Infect. Dis.* 65(8), 1342-1348.
7. **Yang Wang**, Jiayu Li, Anna Leavey, Hilary Babcock, and Pratim Biswas (2016). "Comparative Study on the Size Distributions and Respiratory Deposition of Particles Generated from Commonly Used Medical Nebulizers." *J. Aerosol Med. Pulm. Drug Deliv.* 30 (2): 132-140.
6. Kelsey Haddad, Ahmed Abokifa, Shalinee Kavadiya, Tandeep S. Chadha, **Yang Wang**, John Fortner, Pratim Biswas (2016). "Growth of Oriented, Single Crystal SnO₂ Nanocolumn Arrays by Aerosol Chemical Vapor Deposition (ACVD)." *CrystEngComm.* 18(39): 7544-7553.
5. Liu, Pai, Ian Arnold, **Yang Wang**, Yang Yu, Jiayi Fang, Pratim Biswas, and Rajan K. Chakrabarty (2015). "Synthesis of Titanium Dioxide Aerosol Gels in a Buoyancy-opposed Flame Reactor." *Aerosol Sci. Technol.*, 49(12), 1232-1241.
4. **Yang Wang**, Jiayu Li, He Jing, Qiang Zhang, Jingkun Jiang, and Pratim Biswas (2015). "Laboratory Evaluation of Three Low-Cost Particle Sensors for Particulate Matter Measurement." *Aerosol Sci. Technol.* 49(11), 1063-1077. (**Editor's selection of notable 2015 papers in Aerosol Sci. Technol.** Featured in AAAR 2015 Winter Newsletter)
3. **Yang Wang**, Pai Liu, Jiayi Fang, Wei-Ning Wang, and Pratim Biswas (2015). "Kinetics of Sub 2 nm TiO₂ Particle Formation in an Aerosol Reactor during Thermal Decomposition of Titanium Tetraisopropoxide." *J. Nanopart. Res.* 17 (3): 1-13.
2. Fang, Jiayi, **Yang Wang**, Michel Attoui, Tandeep S. Chadha, Jessica R. Ray, Wei-Ning Wang, Young-Shin Jun, and Pratim Biswas (2014). "Measurement of Sub-2 nm Clusters of Pristine and Composite Metal Oxides during Nanomaterial Synthesis in Flame Aerosol Reactors." *Anal. Chem.* 86 (15): 7523-7529.
1. **Yang Wang**, Jiayi Fang, Michel Attoui, Tandeep S. Chadha, Wei-Ning Wang, and Pratim Biswas (2014). "Application of Half Mini DMA for Sub 2nm Particle Size Distribution Measurement in an Electro Spray and a Flame Aerosol Reactor." *J. Aerosol Sci.* 71: 52-64.

BOOK PUBLICATIONS

2. **Yang Wang**. "Chapter 2: Early Stages of Particle Formation in Aerosol Reactors: Measurement and Theory" of "Aerosols: Science and Engineering" edited by Pratim Biswas and Gregory Yablonsky, ISBN 978-3-11-073096-8. <https://doi.org/10.1515/9783110729481>
1. Pratim Biswas and **Yang Wang**. "The Wonder World of Aerosol Science and Engineering: Problem Sets with Solutions", ISBN-13: 978-1533264954; ISBN-10: 1533264953

TECHNICAL PRESENTATIONS

- 2023 "Influence of Electronic Cigarette Operating Conditions on Induced Primary and Secondhand Aerosol Toxicity: Cell Viability and Membrane Integrity". Nashville, Tennessee, 62nd Annual Meeting & ToxExpo
- 2022 "Ions Generated from a Premixed Methane-air Flame: Mobility Size Distributions and Charging Characteristics". Raleigh, North Carolina, AAAR 40th Annual Conference
- 2022 "Examining the Oxidation State of the Metals in the Aerosols and Vape Liquid of Electronic Cigarettes". Raleigh, North Carolina, AAAR 40th Annual Conference
- 2022 "Examining the vertical heterogeneity of aerosol properties over the Southern Great Plains". Virtual. Department of Energy Atmospheric System Research PI Meeting
- 2021 "Examining the metal contents in primary and secondhand aerosols released by electronic cigarettes". Albuquerque, New Mexico. AAAR 39th Annual Conference.
- 2021 "Optimizing the activation efficiency of sub-3 nm particles in a laminar flow condensation particle counter: Model simulation". Albuquerque, Oregon. AAAR 39th Annual Conference.
- 2020 "Lessons and Perspectives: Respiratory aerosols and effectiveness of PPE." Association of Environmental Engineering and Science Professors (AEESP) virtual workshop (online).

- 2019 “Vertical Profiles of Trace Gas and Aerosol Properties over the Eastern North Atlantic”. Portland, Oregon. AAAR 37th Annual Conference.
- 2018 “Particle formation in combustion environments: importance of charge distributions on evolution of aerosol size distributions.” St. Louis, Missouri. 10th International Aerosol Conference.
- 2018 “Evolution of the sub-micrometer aerosol size distributions measured in the Amazon rain forest during the wet season.” Washington DC. DOE ASR Science Team Meeting.
- 2017 “Rapid measurements of aerosol size distribution and hygroscopic growth with a fast integrated mobility spectrometer (FIMS).” New Orleans, Louisiana. AGU Fall Meeting.
- 2015 “Observation of Incipient Particle Formation during Flame Synthesis by Tandem Differential Mobility Analysis-Mass Spectrometry (DMA-MS).” Seoul, Korea. 36th International Symposium on Combustion.
- 2015 “Studying the Charging Characteristics of Flame Generated Particles below 3 nm with Enhanced Condensation Particle Counters.” Minneapolis, Minnesota. AAAR 34th Annual Conference.
- 2015 “Laboratory Evaluation of Three Low-cost Particle Sensors for Particulate Matter Measurement.” Minneapolis, Minnesota. AAAR 34th Annual Conference.
- 2014 “Kinetics of sub 3 nm Titanium Dioxide Particle Formation in an Aerosol Reactor during the Thermal Decomposition of Titanium Isopropoxide (TTIP).” Orlando, Florida. AAAR 33rd Annual Conference.
- 2013 “Sub 2 nm Particle Size Distribution Measurements in Aerosol Reactors: Bridging the Gap between Chemical Reactions and Particle Formation.” Busan, Korea. International Aerosol Conference.
- 2013 “Application of Half Mini DMA for Sub 2 nm Particle Size Distribution Measurement in an Electrospray and a Flame Aerosol Reactor.” Portland, Oregon. AAAR 32nd Annual Conference.

INVITED TALKS

8. “Novel Aerosol Measurement Techniques for Energy and Environmental Applications”, at Missouri University of Science and Technology, Department of Chemical Engineering, Rolla, Missouri, 2022
7. “Novel Aerosol Measurement Techniques for Energy and Environmental Applications”, at University of Missouri, Columbia, Department of Civil and Environmental Engineering, Columbia, Missouri, 2022
6. “What information to share on mask making materials?” AEESP Converging COVID-19 Conference, 2021.
5. “Respiratory aerosols and effectiveness of PPE”, at Missouri University of Science and Technology, Intersection Lecture Series, Rolla, Missouri, 2020
4. “Rapid Measurements of Aerosol Size Distribution with a Fast Integrated Mobility Spectrometer (FIMS)”, at University of Florida, Department of Civil and Environmental Engineering, Gainesville, Florida, 2020.
3. “Aerosol research in COVID-19”, at Missouri University of Science and Technology, We Dig Research, Rolla, Missouri, 2020
2. “Rapid Measurements of Aerosol Size Distribution and Hygroscopic Growth with a Fast Integrated Mobility Spectrometer (FIMS)”, at Missouri University of Science and Technology, Department of Chemistry, Rolla, Missouri, 2020
1. “Rapid Measurement of Sub-micrometer Aerosol Size Distributions”, at Missouri University of Science and Technology, Center for Research on Energy and Environment, Rolla, Missouri, 2019

FUNDED RESEARCH

Title	Project Date	Award	Credit (%)	Agency
Understanding the physiochemical properties of thirdhand smoke generated from Electronic Nicotine Delivery Systems	2023/04 - 2023/05	\$5,000	\$5,000 (100%), PI	UM

Characterizing the physical, chemical, and toxicological properties of secondhand aerosols generated from electronic nicotine delivery systems in indoor environments	2022/08 - 2026/07	\$420,000	\$260,000 (65%), PI	NSF
Boundary layer new particle formation at ARM sites – dependence and impact on clouds systems	2022/01 - 2022/07	\$24,335	\$24,335 (100%), PI	MST
Therapeutic efficacy of antioxidants in treating oxidative damage induced by electronic cigarette aerosols	2021/06 - 2022/06	\$10,000	\$6,000 (60%), PI	MST
Ultrafine inorganic particle formation in plasma-assisted combustion	2021/09 - 2025/08	\$329,999	\$214,499 (65%), PI	NSF
Understanding the vertical transport and removal of aerosols during deep convective events	2020/09 - 2024/08	\$260,485	\$260,485 (100%), PI	DOE
Understanding the evolution and transport of indoor bioaerosols	2020/08 - 2024/07	\$329,907	\$214,499 (65%), PI	NSF
A novel detector for mitigating the covid-19 pandemic based on phase interrogated ultra-sensitive microwave resonance	2020/06 - 2022/05	\$200,000	\$40,000 (20%), Co-PI	NSF
Filtration performance testing of face masks	2020/04 - 2020/12	\$2,005	\$2,005 (100%), PI	Benni
Total		\$1,576,731	\$1,021,823	

NSF: National Science Foundation

DOE: Department of Energy

MST: Missouri University of Science and Technology

Benni: Benni Corp

TEACHING

COURSES TAUGHT

- Assistant Professor, CET 340 Introduction to Environmental Engineering (Fall 2022), University of Miami, Coral Gables, Florida
- Assistant Professor, CE/EnvE 2601 Fundamentals of Environmental Engineering and Sciences (Spring 2020, Spring 2021, Spring 2022), Missouri University of Science and Technology, Rolla, Missouri
- Assistant Professor, EnvE 5662 Air Pollution Control Methods (Fall 2019, Fall 2020, Fall 2021), Missouri University of Science and Technology, Rolla, Missouri
- Teaching Assistant, EECE 504, Aerosol Science and Technology, Session Instructor and Grader, Washington University in St. Louis, St. Louis, Missouri
- Teaching Assistant, EECE 368, Transport Phenomena, Session Instructor and Grader, Washington University in St. Louis, St. Louis, Missouri

GRADUATE STUDENT ADVISED

(IP) in progress

Ph.D.

2021 – (IP)	Marcus Vinicius Batista Oliveira	TBD
2020 – (IP)	Chanakya Bagya Ramesh	Ultrafine inorganic particle formation in plasma-assisted combustion
2020 – (IP)	Kapiamba Kashala Fabrice	Characterizing the physical, chemical, and toxicological properties of secondhand electronic cigarette aerosols

2019 – (IP)	Weixing Hao	Understanding the evolution and transport of indoor bioaerosols
Master		
2021 – (IP)	Varuni Abhayaratne	Air quality sensor network data analysis and environmental justice
2020 – (IP)	Abdulrahman Bani	Particulate matter sensor development and deployment in underground mines
2020 – (IP)	Ahmet Tolga Odabasi	Predicting the transport of airborne particles using the Hysplit model
2019 – 2021	Doaa Rjoub	Early wildfire detection by air quality sensors on unmanned aerial vehicles: optimization and feasibility

GRADUATE STUDENT DISSERTATION/THESIS COMMITTEE SERVED

2022 – 2025 Nana Amoah (Ph.D.), Department of Mining Engineering, Missouri University of Science and Technology, Dissertation Title “Monitoring and Controlling coal dust exposure using low-cost PM sensors and CFD methods”

UNDERGRADUATE STUDENTS ADVISED

2022	Jad Makuch	UM	Analyzing the aerosols measured from CACTI campaign
2022	Gabriel Georgakopoulos	UM	Examining the thirdhand aerosols from e-cigarettes
2022	Grace Duong	MST	Characterization of VOCs generated from e-cigarettes
2022	KeYu Wang	MST	Aerosols generated from new generations of e-cigarettes
2022	Rosalia Meusch	MST	Characterization of VOCs generated from e-cigarettes
2021	Elysia Sparks	MST	Air quality sensor network data analysis
2021	Abigail Cain	MST	Air quality sensor network data analysis
2021	Chase Rowland	MST	Characterization of e-cigarette aerosols
2020	Brandon Christian	MST	Performance of face shields in blocking aerosols
2020	Clayton Resz	MST	Filtration efficiency of common household materials
2020	Maan Mahroos	MST	Sensor deployment in underground mines
2020	Baylee Hutchinson	MST	Analysis of aerosols from electronic cigarettes
2020	Scott Major	MST	Sensor platform development for air quality monitoring

AWARDS

2022	American Academy of Environmental Engineers and Scientists 40 Under 40 Recognition
2022	Outstanding Reviewer of Aerosol Science and Technology
2020	NASA Group Achievement Award for CAMP ² Ex airborne Earth Science Mission
2019	GAeF Ph.D. Award, European Aerosol Conference (1-2 awardees globally each year)
2019	Editor’s selection of notable 2018 papers in Aerosol Sci. Technol.
2018	Ph. D. Dissertation Award (top 5%), Washington University in St. Louis
2017	Chinese government award for outstanding self-financed students abroad (500 globally)
2016	Student Travel Award for the 36th International Symposium on Combustion, Seoul, Korea
2016	Editor’s selection of notable 2015 papers in Aerosol Sci. Technol.
2015	Outstanding and Recognized Reviewer of J. Aerosol Sci.
2014	Doctoral Student Teaching Assistant Award, Washington University in St. Louis (top 5%)
2012	The Otis, Dorothy and Bryce Sproul Family Fellowship
2012	Excellent Undergraduate Thesis Award of Tsinghua University (top 5%)
2012	Outstanding Graduates of Tsinghua University (top 5 %)
2009	National Comprehensive Scholarship, Tsinghua University

2011 National Comprehensive Scholarship, Tsinghua University

STUDENT AWARDS

2022 Kapiamba Fabrice NOBCCChE Advancing Science Grant
2022 Kapiamba Fabrice Annual Meeting of AAAR Student Travel Award
2021 Kapiamba Fabrice Best presentation at the Mid-America Environmental Engineering Conference

SERVICE

EXTERNAL SERVICE:

JOURNAL REVIEWER

ACS Nano, Aerosol Science and Technology, Aerosol and Air Quality Research, Atmospheric Chemistry and Physics, Atmospheric Environment, Advanced Materials Technologies, Atmospheric Measurement Techniques, Combustion and Flame, Energy and Fuels, Environmental Pollution, Environmental Science: Atmosphere, Environmental Science and Technology Letters, Hygiene and Environmental Health Advances, Journal of Hazardous Materials, Journal of Geophysical Research: Atmosphere, Journal of Aerosol Science, Journal of the Air and Waste Management Association, Nature Communication, Nature Scientific Report, PloS One, Proceedings of the Combustion Institute, Sensors

JOURNAL EDITOR

2022 to 2023 Guest Editor for Nanotechnology: Airborne Pathogen Transmission and Mitigation: Perspectives from Aerosol Science and Nanotechnology.
2022 to 2023 Topic Editor for Frontiers in Energy Research: The Formation Mechanism, Emission Control and Hazard Assessment of Combustion Pollutants.

PROPOSAL PANELIST AND AD HOC REVIEWER

- National Science Foundation
- Department of Energy
- National Institutes of Health
 - Study Section ZRG1 ICN-E (56)
- Natural Sciences and Engineering Research Council of Canada

PROFESSIONAL ORGANIZATION AND CONFERENCE COMMITTEE

2023 Early Career Committee of the American Association for Aerosol Research
2022 Co-convenor of AEESP workshop “Aerosol Science and Engineering and Public Health: Focus on COVID-19”.
2022 Session Chair: AEESP Research and Education Conference
2022 Chair of Working Group (Combustion and Material Synthesis) at American Association for Aerosol Research (AAAR).
2021 Convened the AEESP virtual workshop “Aerosol Science and Engineering and Public Health: Focus on COVID-19”.
2021 Vice Chair of Working Group (Combustion and Material Synthesis) at AAAR.
2019 Session Chair: AAAR Annual Conference.
2018 Session Chair: AAAR Annual Conference.
2017 Session Chair: AAAR Annual Conference.
2017 AGU OSPA judge: American Geophysical Union 2017 fall meeting.

- 2016 Session Chair: AAAR Annual Conference.
- 2015 Session Chair: AAAR Annual Conference.
- 2015 Visiting scholar at the Division of Atmospheric Science, University of Helsinki.
- 2014 Princeton-Combustion Institute Summer School

MEDIA REPORTS

- 2020 Research during COVID-19 reported by mainstream media: New York Times, BBC News, NPR News, U.S. News, C&EN, Today, Newsy, St. Louis Public Radio, etc.

PROFESSIONAL AFFILIATIONS

American Association for Aerosol Research, American Geophysical Union, Society of Toxicology, Combustion Institute, Association of Environmental Engineering and Science Professors

INTERNAL SERVICE:

- 2023 Meeting with the Academic Review Committee (ARC) for the College of Engineering
- 2023 Organizing the 1st Miami Workshop on Aerosol Science and Technology (1/17 to 1/18)
- 2023 Engineering Day at Frost Science
- 2023 Host of Future 'Cane Day - Fall 23 Admitted Undergraduate Students and Parents Open House Department of Chemical Environmental and Materials Engineering Breakout
- 2022 to 2023 Energy and Environment Search Committee (interviewing 10+ candidates)
- 2022 to 2023 Health Engineering Search Committee (interviewing 10+ candidates)