Chuanyang Shen

Postdoctoral Researcher,
Riverside, California

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Education & Awards

Ph.D.: Atmospheric Physics and Atmospheric Environment Peking University 2016-2021

- Awarded Merit Student, President's Scholarship Recipient, Academic Scholarship Recipient
- Relevant Coursework: Atmospheric Physics and Atmospheric Environment, Environmental Modeling, Atmospheric Chemistry

Exchange Ph.D. student Massachusetts Institute of Technology 2018-2019

Bachelor of Science: Atmospheric Sciences Peking University 2012-2016

- Awarded Excellent Thesis for Undergraduate Student, Awarded National Second Prize in the 2014 Contemporary Undergraduate Mathematical Contest in Modeling (CUMCM), Freshmen Scholarship Recipient
- Relevant Coursework: Data Structures and Algorithms, Advanced Mathematics, Linear Algebra, Mathematical Methods in Physics

Professional Experience

Postdoctoral Researcher at University of California, Riverside, CA 2021 to Present

- Authored 2 scientific papers and co-wrote 1 grant proposal.
- Designed and performed laboratory experiments to investigate chemical and physical processes during the aerosol oxidation processes.
- Performed environmental modelling for chamber experiments and field measurements.
- Presented research findings at conferences.

Research Assistant at Peking University, Beijing, China 2019-2021

- Co-authored more than 10 research papers and presented at 3 international conferences based on academic findings.
- Took part in 3 field campaigns and was responsible for scientific instrument setup and maintenances.
- Analyzed and interpreted lab and field measurement data.
- Mentored undergraduate students in the research project.

Research Assistant at Massachusetts Institute of Technology, Boston, MA 2018-2019

- Co-authored 3 peer-reviewed papers.
- Collaborated with a team of researchers in developing new instruments, conducting field measurements on mixed clouds, and writing research papers.
- Performed statistical, qualitative, and quantitative analysis of experimental and field measurement data to create representative graphs and charts for presentations.

Technical Skills

- Proficient in Python and MATLAB programming.
- Expert in Data Analysis & Visualization.
- Skilled in Scientific Writing and Presentations.
- Proficient in Environmental Modeling.
- Knowledgeable in the use of scientific instruments for field and lab research.

Conference Presentations

Oral Presentation at AAAR 2023 **October 2023**
Title: Observation-Constrained Molecular Understanding of Isoprene SOA Formation in the Atmosphere.
Oral Presentation at AAAR 2022 **October 2022**
Title: Phase State and Relative Humidity Regulate the Heterogeneous Oxidation Kinetics and Pathways of Organic-Inorganic Mixed Aerosols.
Poster Presentation at AMS 2021 **January 2021**
Title: Effects of Multi-Charge on Aerosol Hygroscopicity Measurement by HTDMA.
Oral Presentation at AGU 2017 **December 2017**
Title: A novel method to estimate supersaturation ratio in the ambient activation process using aerosol and droplet measurement data.

Selected Publications

1. **Shen, C.**, Zhang, H. (2024). Uncertainty Analysis for Kinetic Simulation of α-Pinene Ozonolysis SOA Formation based on Explored Chemical Processes. In preparation.
2. **Shen, C.**, Yang, X., Thornton, J., Shilling, J., Bi, C., Isaacman-VanWertz, G., and Zhang, H.: Observation-Constrained Kinetic Modelling of Isoprene SOA Formation in the Atmosphere, Atmospheric Chemistry and Physics, Accepted, https://doi.org/10.5194/egusphere-2024-97, 2024.
3. **Shen, C.**, Zhang, W., Choczynski, J., Davies, J. F., & Zhang, H. (2022). Phase State and Relative Humidity Regulate the Heterogeneous Oxidation Kinetics and Pathways of Organic-Inorganic Mixed Aerosols. Environmental Science & Technology, 56(22), 15398-15407.
4. **Shen, C.**, Zhao, C., Ma, N., Tao, J., Zhao, G., Yu, Y., & Kuang, Y. (2018). Method to Estimate Water Vapor Supersaturation in the Ambient Activation Process Using Aerosol and Droplet Measurement Data. Journal of Geophysical Research: Atmospheres, 123(18). doi:10.1029/2018jd028315
5. **Shen, C.**, Zhao, G., Zhao, W., Tian, P., & Zhao, C. (2021). Measurement report: aerosol hygroscopic properties extended to 600 nm in the urban environment. Atmos. Chem. Phys., 21(3), 1375-1388. doi:10.5194/acp-21-1375-2021
6. **Shen, C.**, Zhao, G., & Zhao, C. (2021). Effects of multi-charge on aerosol hygroscopicity measurement by a HTDMA. Atmos. Meas. Tech., 14(2), 1293-1301. doi:10.5194/amt-14-1293-2021
7. Zhang, W., Zhao, Z., **Shen, C.**, Zhang, H.* Unexpectedly efficient aging of organic aerosols mediated by autoxidation, Environ. Sci. Technol., 2023, 57, 6965 – 6974. DOI: 10.1021/acs.est.2c09773.
8. Koolik, L., Roesch, M., Dameto de Espana, C., Rapp, C. N., Franco Deloya, L. J., **Shen, C.**, ... & Cziczo, D. J. (2022). A phase separation inlet for droplets, ice residuals, and interstitial aerosol particles. Atmospheric Measurement Techniques, 15(10), 3213-3222.
9. Zhao, G., **Shen, C.**, & Zhao, C. (2020). Technical note: Mismeasurement of the core-shell structure of black carbon-containing ambient aerosols by SP2 measurements. Atmospheric Environment, 243, 117885. doi:https://doi.org/10.1016/j.atmosenv.2020.117885.
10. Wolf, M. J., Goodell, M., Dong, E., Dove, L. A., Zhang, C., Franco, L. J., **Shen, C.**, ... & Cziczo, D. J. (2020). A link between the ice nucleation activity and the biogeochemistry of seawater. Atmospheric Chemistry and Physics, 20(23), 15341-15356.
11. Su, T., Li, Z., Li, C., Li, J., Han, W., **Shen, C.**, Tan, W., Wei, J., Guo, J. (2020) The significant impact of aerosol vertical structure on lower atmosphere stability and its critical role in aerosol–planetary boundary layer (PBL) interactions. Atmos. Chem. Phys., 20(6), 3713-3724. doi:10.5194/acp-20-3713-2020.
12. Zhao, G., Tao, J., Kuang, Y., **Shen, C.**, Yu, Y., & Zhao, C. (2019). Role of black carbon mass size distribution in the direct aerosol radiative forcing. Atmospheric Chemistry and Physics, 19(20), 13175-13188. doi:10.5194/acp-19-13175-2019.