基本信息

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系/研究所	化学物理研究所	

教育背景

2013.08-2019.12	圣路易斯华盛顿大学（美国），能源环境与化学工程，博士
2009.09-2013.06	大连理工大学，能源与环境系统工程，学士

工作履历

2021.01-至今	北京理工大学，化学与化工学院，预聘助理教授
2020.01-2020.08	圣路易斯华盛顿大学（美国），Center for Aerosol Science and Engineering，博士后

研究方向

1.	气溶胶与大气复杂系统建模
2.	大气痕量气体与气溶胶非均相反应动力学
3.	气溶胶单液滴物理化学性质的原位测量

荣誉奖励

1.	Forrest and Patricia McGrath Graduate Fellowship, Washington University in St. Louis, 2014

承担项目

1.	北京理工大学青年教师学术启动计划（2021-2023），主持

研究成果

长期从事非平衡条件下气溶胶系统动力学研究，包括扩散限制条件下气溶胶微粒集团凝聚生长和凝胶化过程的数值模拟、气溶胶分形团簇的物理性质在不同长度量级下的自相似性、凝胶超级团簇在非预混火焰中的形成机制、以及采用深度学习方法对气溶胶复杂传递过程的数值模拟等。

研究成果

迄今在 J. Colloid Interface Sci., Sci. Total Environ., Chaos, Aerosol Sci. Technol., 等学术刊物上发表学术论文 12 篇，其中 SCI 收录 12 篇。

代表性论文

1.	Rajan K Chakrabarty[#]*, Payton Beeler[#], **Pai Liu**[#], Spondita Goswami, Richard D Harvey, Shamsh Pervez, Aaron van Donkelaar, Randall V Martin, Ambient PM2.5 exposure and rapid spread of COVID-19 in the United States. **Science of the Total Environment.** 2021, 760, 143391.
2.	Chenchong Zhang, William R. Heinson, **Pai Liu**, Payton Beeler, Qing Li, Jingkun Jiang, Rajan K. Chakrabarty*, Three-dimensional tomography reveals distinct morphological and optical properties of soot aggregates from coal-fired residential stoves in China. **Journal of Quantitative Spectroscopy and Radiative Transfer.** 2020, 254, 107184.
3.	**Pai Liu**[#], Payton Beeler[#], Rajan K Chakrabarty*, Dynamic interplay between social distancing duration and intensity in reducing COVID-19 US hospitalizations: A “law of diminishing returns”. **Chaos.** 2020, 30, 071102.
4.	Jingwei Gan[#], **Pai Liu**[#], Rajan K. Chakrabarty*, Deep learning enabled Lagrangian particle trajectory simulation. **Journal of Aerosol Science**. 2020, 139, 105468. ***Cover article***
5.	**Pai Liu**[#], William R. Heinson[#], Christopher M. Sorensen, Rajan K. Chakrabarty*, Kinetics of sol-to-gel transition in irreversible particulate systems. **Journal of Colloid and Interface Science.** 2019, 550, 57-63
6.	William R. Heinson, Yuli W. Heinson, **Pai Liu**, Rajan K. Chakrabarty*, Breakdown of fractal dimension invariance in high monomer-volume-fraction aerosol gels. **Aerosol Science and Technology.** 2018, 52, 953-956.
7.	**Pai Liu**, William R. Heinson, Benjamin J. Sumlin, Kuan-Yu Shen, Rajan K. Chakrabarty*, Establishing the kinetics of ballistic-to-diffusive transition using directional statistics. **Physical Review E.** 2018, 97, 042102.
8.	**Pai Liu**[#], William R. Heinson[#], Rajan K. Chakrabarty*, Fractal scaling of soot packing density across five size decades. **Aerosol Science and Technology**, 2017, 51, 879-886.
9.	William R. Heinson, **Pai Liu**, Rajan K. Chakrabarty*, Fractal scaling of coated soot aggregates. **Aerosol Science and Technology**, 2017, 51, 12-19.

代表性论文	
10.	**Pai Liu**, Rajan K. Chakrabarty*, Sensitivity analysis of aggregate morphology on mass-mobility relationship and improved parameterizations. **Aerosol Science and Technology**, 2016, 50, 63-70.
11.	**Pai Liu**, Ian J. Arnold, Yang Wang, Yang Yu, Jiaxi Fang, Pratim Biswas, Rajan K. Chakrabarty*, Synthesis of titanium dioxide aerosol gels in a buoyancy-opposed flame reactor. **Aerosol Science and Technology**, 2015, 49, 1232-1241.
12.	Yang Wang, **Pai Liu**, Jiaxi Fang, Wei-Ning Wang, Pratim Biswas*, Kinetics of sub-2 nm TiO_2 particle formation in an aerosol reactor during thermal decomposition of titanium tetraisopropoxide. **Journal of Nanoparticle Research**. 2015, 17, 1-13.

欢迎对**气溶胶科学**、**大气物理化学**、**复杂系统动力学建模**、以及**数据驱动模型**感兴趣的同学报考硕士研究生