

基本信息

姓名	张秀辉	
职务		
职称	教授/博士生导师	
学术兼职		
联系电话	13810658646	
电子邮件	zhangxiuhui@bit.edu.cn	
系/研究所	化学系/理论与计算研究所	

教育背景

2004.09-2007.03	北京理工大学，应用化学专业，工学博士
2003.09-2004.09	北京理工大学，物理化学专业，理学硕士
1999.09-2003.07	河北师范大学，化学教育专业，理学学士

工作履历

2019.07-至今	北京理工大学化学与化工学院，教授
2015.11-2016.11	美国犹他大学化学系，访问学者
2010.07-2019.07	北京理工大学化学与化工学院，副教授
2007.04-2010.07	北京理工大学理学院，化学系，讲师

研究方向

1.	大气污染细颗粒物形成机制的理论研究
2.	气溶胶表界面反应机制的理论研究
3.	大气重要污染物形成机理的理论研究

荣誉奖励

1.	2013 年入选“北京市高等学校青年英才计划”
2.	2010 年度全国百篇优秀博士学位论文提名奖

3.	2006 年度教育部自然科学二等奖（第三完成人）
4	2006 年度国防科学技术奖二等奖（第三完成人）

承担项目

1.	大气复合污染下近海区域碘成核机制的理论研究,国家自然科学基金面上项目（21976015），2020.01-2023.12, 65 万，主持
2.	有机物协同参与气溶胶成核本质的研究，国家自然科学基金面上项目（21373025），2014.1-2017.12, 82 万，主持
3.	多核过渡金属氰化物的理论研究，国家自然科学基金主任基金（21243008），2013.1-2013.12, 10 万，主持
4.	双核过渡金属二茂夹心卤化物的理论研究（20903010），国家自然科学基金青年基金，2010.1-2012.12, 21 万，主持
5.	高能量密度材料过渡金属富氮化合物的理论研究（2132035），北京市自然科学基金，2013.1-2015.6, 14 万，主持
6.	分子模拟辅助开发高酸性油气田缓蚀剂（20121941001），中国科学院岩土力学研究所横向课题，2011.1-2012.12, 35 万，主持

研究成果

主持国家自然科学基金项目 4 项、北京市自然科学基金 1 项、教育部博士点新教师基金 1 项、承担横向合作项目 1 项。迄今发表 SCI 收录论文 70 余篇。

1.	提出了污染物氨自催化反应引发的气溶胶成核新机制，揭示了大气复合污染下新粒子形成事件频发的成因。工作发表在 <i>J. Am. Chem. Soc.</i> , 2018, 140, 11020, 并被国家自然科学基金委作为资助成果进行报道，指出该工作“提出高度污染地区气溶胶新粒子形成新机制，为我国复合大气污染条件下新粒子形成机制研究提供新的研究思路 and 理论指导”。同时，该研究工作也被近期科学出版社出版的《环境化学前沿》一书介绍。
2.	建立了同时考虑化学反应和团簇聚集的新粒子成核机制模拟研究方案，解决了当前涉及化学反应的气溶胶成核机制模拟的瓶颈问题。研究工作发表在 <i>J. Chem. Phys.</i> , 2018, 148, 214303 和 <i>Proc. Natl. Acad. Sci.</i>

	USA, 2019, 116, 24966
3.	国际首次提出污染物硝酸在大气新粒子形成中的增强作用机制, 发表在 <i>Phys. Chem. Chem. Phys.</i> , 2018, 20, 17406, 并被发表在 <i>Nature</i> , 2020, 581, 184 - 189 上的 CLOUD 实验工作所证实。
<u>代表性论文(2017-2020)</u>	
1.	Rong,Hui; Liu,jiarong; Zhang,Yujia; Du,Lin; Zhang,Xiuhui [*] ; Li,Zesheng; Nucleation mechanisms of iodic acid in clean and polluted coastal regions, <i>Chemosphere</i> , 2020, 253: 126743.
2.	Ning,An [#] ; Zhang,Haijie [#] ; Zhang,Xiuhui [*] ; Li,Zesheng [*] ; Zhang,Yunhong; Xu,Yisheng; Ge,Maofa; A molecular-scale study on the role of methanesulfonic acid in marine new particle formation, <i>Atmospheric Environment</i> , 2020,227: 11378.
3.	Lu, Yiqun [#] ; Liu, Ling [#] ; Ning, An; Yang, Gan; Liu, Yiliang; Kurtén, Theo; Vehkamäki, Hanna; Zhang, Xiuhui [*] ; Wang, Lin [*] ; Atmospheric Sulfuric Acid-Dimethylamine Nucleation Enhanced by Trifluoroacetic Acid, <i>Geophysical Research Letters</i> , 2020, 47(2): e2019GL085627
4.	Li,Hao; Ning,An; Zhong,Jie; Zhang,Haijie; Liu,Ling; Zhang,Yunling; Zhang,Xiuhui [*] ; Zeng Xiao Cheng [*] ; He,Hong; Influence of atmospheric conditions on sulfuric acid-dimethylamineammonia-based new particle formation, <i>Chemosphere</i> , 2020, 245: 125554.
5.	Rong, Hui; Liu, Ling; Liu, Jiarong; Zhang, Xiuhui [*] , Glyoxylic Sulfuric Anhydride from the Gas-Phase Reaction between Glyoxylic Acid and SO ₃ : A Potential Nucleation Precursor. <i>Journal of Physical Chemistry A</i> , 2020,124, 3261-3268.
6.	Zhong, Jie [#] ; Li, Hao [#] ; Kumar, Manoj; Liu, Jiarong; Liu, Ling; Zhang, Xiuhui [*] ; Zeng, Xiao Cheng [*] ; Francisco, Joseph S [*] ; Mechanistic insight into the reaction of organic acids with SO ₃ at the air-water interface, <i>Angewandte Chemie International Edition</i> , 2019, 58(25): 8351-8355.
7.	Liu, Ling [#] ; Zhong, Jie [#] ; Vehkamäki, Hanna; Kurtén, Theo; Du, Lin; Zhang, Xiuhui [*] ; Francisco, Joseph S. [*] ; Zeng, Xiao Cheng [*] ; Unexpected quenching effect on new particle formation from the atmospheric reaction of methanol with SO ₃ , <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2019,116(50): 24966-24971
8.	Li, Hao [#] ; Zhong, Jie [#] ; Vehkamäki, Hanna; Kurtén, Theo; Wang, Weigang; Ge, Maofa; Zhang, Shaowen; Li, Zesheng; Zhang, Xiuhui [*] ; Francisco, Joseph S. [*] ; Zeng, Xiao Cheng [*] ; Self-catalytic reaction of SO ₃ and NH ₃ to produce sulfamic acid and its implication to atmospheric particle formation, <i>Journal of the American Chemical Society</i> , 2018, 140: 11020-11028.
9.	Li, Hao; Zhang, Xiuhui [*] ; Zhong, Jie; Liu, Ling; Zhang, Haijie; Chen, Fei; Li, Zesheng; Li, Qianshu; Ge, Maofa; The role of hydroxymethanesulfonic

	acid in the initial stage of new particle formation, <i>Atmospheric Environment</i> , 2018, 189: 244-251.
10.	Liu, Ling; Kupiainen, Maatta Oona; Zhang, Haijie; Li, Hao; Zhong, Jie; Kurten, Theo; Vehkamaki, Hanna; Zhang, Shaowen; Zhang, Yunhong; Ge, Maofa; Zhang, Xiuhui *; Li, Zesheng*; Clustering mechanism of oxocarboxylic acids involving hydration reaction: Implications for the atmospheric models, <i>Journal of Chemical Physics</i> , 2018,148: 214303.
11.	Liu,Ling; Li,Hao; Zhang,Haijie; Zhong,Jie; Bai,Yang; Ge,Maofa; Li,Zesheng; Chen,Yu*; Zhang, Xiuhui *; The role of nitric acid in atmospheric new particle formation, <i>Physical Chemistry Chemical Physics</i> , 2018, 20(25): 17406-17414
12.	Zhang, Haijie; Chen, Shilu; Zhong, Jie; Zhang, Shaowen; Zhang, Yunhong; Zhang, Xiuhui *; Li, Zesheng*; Zeng, Xiao Cheng; Formation of aqueous-phase sulfate during the haze period in China: Kinetics and atmospheric implications, <i>Atmospheric Environment</i> , 2018, 177: 93-99.
13.	Zhang,Haijie; Wang, Wei; Pi, Shuangqi; Liu, Ling; Li, Hao; Chen, Yu; Zhang, Yunhong; Zhang, Xiuhui *; Li, Zesheng*; Gas phase transformation from organic acid to organic sulfuric anhydride: Possibility and atmospheric fate in the initial new particle formation, <i>Chemosphere</i> , 2018, 212: 504-512.
14.	Zhang, Yujia [#] ; Liu, Jiarong [#] ; Liu, Ling; Zhang, Xiuhui *; Li, Qianshu; King, R Bruce*; Binuclear vanadium dimethylphosphino carbonyls: vanadium-vanadium multiple bonds and four-electron donor carbonyl groups as structural features in unsaturated systems, <i>Inorganica Chimica Acta</i> , 2018, 476: 61-67.
15.	Kumar, Manoj [#] ; Li, Hao [#] ; Zhang, Xiuhui ; Zeng, Xiao Cheng*; Francisco, Joseph S.*; Nitric Acid - Amine Chemistry in the Gas Phase and at the Air - Water Interface, <i>Journal of the American Chemical Society</i> , 2018,140(20): 6456-6466.
16.	Liu, Ling; Zhang, Xiuhui *; Li, Zesheng*; Zhang, Yunhong; Ge, Maofa; Gas-phase hydration of glyoxylic acid: Kinetics and atmospheric implications, <i>Chemosphere</i> , 2017, 186: 430-437.
17.	Zhang, Haijie; Kupiainen-Maatta, Oona; Zhang, Xiuhui *; Molinero, Valeria; Zhang, Yunhong; Li, Zesheng*;The enhancement mechanism of glycolic acid on the formation of atmospheric sulfuric acid - ammonia molecular clusters, <i>Journal of Chemical Physics</i> , 2017, 146(184308): 1-11.
18.	Li, Hao; Kupiainen-Maatta, Oona; Zhang, Haijie; Zhang, Xiuhui *; Ge, Maofa*; A molecular-scale study on the role of lactic acid in new particle formation: Influence of relative humidity and temperature, <i>Atmospheric Environment</i> , 2017, 166: 479-487.
19.	Zhang, Yujia; Miao, Huijuan; Liu, Ling; Zhang, Xiuhui *; King, R. Bruce*; Binuclear chromium carbonyl complexes of the highly basic small bite bidentate diphosphine bis(dimethylphosphino)methane, <i>Polyhedron</i> , 2017,138: 194-205.

- | | |
|-----|--|
| 20. | Miao, Huijuan; Zhang, Xiuhui [*] ; Bai, Yang; Li, Qianshu; King, R. Bruce [*] ; Binuclear chromium carbonyl complexes of methylaminobis (difluorophosphine): metal – metal bonds versus four-electron donor bridging carbonyl groups, <i>New Journal of Chemistry</i> , 2017, 41(7): 2625-2635. |
|-----|--|