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教育与工作经历

- 2016/12-至今 中山大学，环境科学与工程学院，副研究员
- 2014/12-2016/12 华东理工大学，资源与环境工程学院、环保部“国家环境保护化工过程环境风险评价与控制重点实验室”，博士后
- 2009/09-2014/11 华东理工大学化工学院，化学工程，博士
论文题目：高效氨分解非贵金属催化剂的研制及构-效关系研究
导师：周兴贵教授
- 2005/09-2009/06 湘潭大学化工学院，化学工程与工艺，学士

研究方向

以催化反应工程为主要研究方向，涉及工业催化（氨气分解制氢、费托合成）、环境催化（室温催化去除空气污染物，如臭氧和甲醛等）、能源催化（氨硼烷/硼氢化钠水解制氢），重点研究纳米催化材料的理性设计及结构与性能调控。目前，已主持或参加国家自然科学基金、广东省自然科学基金、博士后科学基金、国家自然科学基金（重大培育）等共 8 项，在 *Applied Catalysis B: Environmental*、*Industrial & Engineering Chemistry Research*、*Chemical Engineering Journal*、*Catalysis Science Technology*、*Journal of the American Chemical Society*、*Journal of Materials Chemistry A* 等杂志上发表 SCI 论文 36 篇，被引 800 余次，H 因子 15，（谷歌学术数据），公开发明专利 6 项；其中第一/通讯作者 SCI 论文 14 篇。多次在国内外会议上做口头报告，担任 The 10th International Conference on Environmental Catalysis & The 3rd International Symposium on Catalytic Science and Technology in Sustainable Energy and Environment (ICEC&EECAT 2018) “Catalysis in Indoor Air Cleaning” 分会场主席。目前为国家自然科学基金项目评审专家；*Appl. Catal. B: Environ.*、*Catal. Sci. Technol.*、*Environ. Sci. Technol.*、*Catal. Today* 等期刊审稿人。

主持或参与的科研项目

- [1] 氨分解 Fe 催化剂氮化机理及助剂设计的密度泛函理论与实验研究，国家自然科学基金青年基金，21 万，2016/01-2018/12，主持
- [2] 室温高效催化共去除甲醛与臭氧分级结构二氧化锰的制备及机理研究，广东省自然科学基金，10 万，2020 年起，主持（已通知入库，暂未公示）

- [3] Fe 氨分解纳米催化剂的结构调控及其构-效关系研究, 中国博士后科学基金面上资助, 5 万, 2016/09-2018/09, 主持
- [4] 含水氨分解体系催化剂及反应机理研究, 中央高校基本科研业务费, 16 万, 2015/01-2016/12, 主持
- [5] 粤港空气污染控制研究中心, 广东省科技计划项目/前沿与关键技术创新/粤港联合创新领域, 150 万, 2017/09-2019/08, 主要参与 (2017B050504001)
- [6] Mn 基催化剂臭氧协助下高效分解低浓度工业有机废气机制研究, 中山大学重大项目培育和新兴交叉学科培育计划项目, 30 万, 2017/06-2019/05, 主要参与 (17lgjc17)
- [7] 时空数据驱动的室内燃烧源致 PM2.5-ROS 甄别、演化及暴露组学研究, 国家自然科学基金 (重大培育), 88.4 万元, 2016/01-2018/12, 主要参与
- [8] 特定结构和形貌的 Fe-C 合金催化剂的可控制备及其催化氨分解反应行为, 国家自然科学基金青年基金, 25 万, 2014/01-2016/12, 主要参与

论文发表情况

- [1] **Jian Ji***, Xiaolong Lu, Cheng Chen, Miao He, Haibao Huang*, Potassium-modulated δ -MnO₂ as robust catalysts for formaldehyde oxidation at room temperature, *Applied Catalysis B: Environmental*, 2020, 260, 118210. (IF=14.229, 中科院 1 区)
- [2] Yi Yu, Shuilian Liu, **Jian Ji***, Haibao Huang*, Amorphous MnO₂ surviving calcination: An efficient catalyst for ozone decomposition, *Catalysis Science Technology*, 2019, 9, 5090-5099. (IF=5.726, 中科院 2 区)
- [3] **Jian Ji***, Yang Fang, Linsong He, Haibao Huang*, Efficient catalytic removal of airborne ozone at ambient condition over manganese oxides immobilized on carbon nanotubes, *Catalysis Science Technology*, 2019, 9, 4036-4046. (IF=5.726, 中科院 2 区)
- [4] Yi Yu, **Jian Ji***, Kai Li, Haibao Huang*, Rajendra P. Shrestha, Nguyen Thi Kim Oanh, Ekbordin Winijkul, Jiguang Deng, Activated carbon supported MnO nanoparticles for efficient ozone decomposition at room temperature, *Catalysis Today*, 2019, In press, DOI: 10.1016/j.cattod.2019.05.063. (IF=4.888, 中科院 2 区)
- [5] Miao He, **Jian Ji***, Biyuan Liu, Haibao Huang*, Reduced TiO₂ with tunable oxygen vacancies for catalytic oxidation of formaldehyde at room temperature, *Applied Surface Science*, 2019, 473, 934-942. (IF=5.155, 中科院 2 区)
- [6] Shuilian Liu, **Jian Ji***, Yi Yu, Haibao Huang*, Facile synthesis of amorphous mesoporous manganese oxides for efficient catalytic decomposition of ozone,

- Catalysis Science Technology*, 2018, 8, 4264-4273. (IF=5.726, 中科院 2 区)
- [7] **Jian Ji**, Ying Xu, Haibao Huang*, Miao He, Shuilian Liu, Gaoyuan Liu, Ruijie Xie, Qiuyu Feng, Yajie Shu, Yujie Zhan, Ruimei Fang, Xinguo Ye, Dennis Y.C. Leung, Mesoporous TiO₂ under VUV irradiation: Enhanced photocatalytic oxidation for VOCs degradation at room temperature, *Chemical Engineering Journal*, 2017, 327, 490-499. (IF=8.355, 中科院 1 区)
- [8] **Jian Ji**, Xiaodong Yan, Gang Qian*, Chong Peng, Xuezhi Duan*, Xinggui Zhou, Morphology and location manipulation of Fe nanoparticles on carbon nanofibers as catalysts for ammonia decomposition to generate hydrogen, *International Journal of Hydrogen Energy*, 2017, 42(27), 17466-17475. (IF=4.084, 中科院 2 区)
- [9] Xuezhi Duan, **Jian Ji***, Xiaodong Yan, Gang Qian*, De Chen*, Xinggui Zhou, Understanding Co-Mo catalyzed ammonia decomposition: Influence of calcination atmosphere and identification of active phase, *ChemCatChem*, 2016, 8, 938-945. (IF=4.495, 中科院 2 区)
- [10] **Jian Ji**, Xuezhi Duan*, Gang Qian, Xinggui Zhou, De Chen, Weikang Yuan, Morphology dependence of catalytic properties of Ni nanoparticles at the tips of carbon nanofibers for ammonia decomposition to generate hydrogen, *International Journal of Hydrogen Energy*, 2014, 39, 20722-20730. (IF=4.084, 中科院 2 区)
- [11] **Jian Ji**, Xuezhi Duan*, Gang Qian, Xinggui Zhou, Gangsheng Tong, Weikang Yuan, Towards an efficient Co-Mo/ γ -Al₂O₃ catalyst using metal amine metallate as an active phase precursor: Enhanced hydrogen production by ammonia decomposition, *International Journal of Hydrogen Energy*, 2014, 39, 12490-12498. (IF=4.084, 中科院 2 区)
- [12] **Jian Ji**, Xuezhi Duan*, Xueqing Gong, Gang Qian, Xinggui Zhou, De Chen, Weikang Yuan, Promotional effect of carbon on Fe catalysts for ammonia decomposition: A density functional theory study, *Industrial & Engineering Chemistry Research*, 2013, 52, 17151-17155. (IF=3.375, 中科院 2 区)
- [13] **Jian Ji**, Xuezhi Duan*, Gang Qian, Ping Li, Xinggui Zhou, De Chen, Weikang Yuan, Fe particles on the tops of carbon nanofibers immobilized on structured carbon microfibers for ammonia decomposition, *Catalysis Today*, 2013, 216, 254-260. (IF=4.888, 中科院 2 区)
- [14] **Jian Ji**, Xuezhi Duan*, Gang Qian, Xinggui Zhou, De Chen, Weikang Yuan, In

- situ production of Ni catalysts at the tips of carbon nanofibers and application in catalytic ammonia decomposition, *Industrial & Engineering Chemistry Research*, 2013, 52, 1854-1858. (IF=3.375, 中科院 2 区)
- [15] Wenzhao, Fu, Chen Han, Dali Li, Wen Yao Chen*, **Jian Ji**, Gang Qian, Weikang Yuan, Xuezhi Duan*, Xinggui Zhou, Polyoxometalates-engineered hydrogen generation rate and durability of Pt/CNT catalysts from ammonia borane, *Journal of Energy Chemistry*, 2020, 41, 142-148. (IF=5.162, 中科院 3 区)
- [16] Ruimei Fang, Wenjun Huang, Haibao Huang, Qiuyu Feng, Miao He, **Jian Ji**, Biyuan Liu, Dennis Y.C. Leung, Efficient MnO_x/SiO₂@AC catalyst for ozone-catalytic oxidation of gaseous benzene at ambient temperature, *Applied Surface Science*, 2019, 470, 439-447. (IF=5.155, 中科院 2 区)
- [17] Yajie Shu, Miao He, **Jian Ji**, Haibao Huang, Shuilian Liu, Dennis Y.C. Leung, Synergetic degradation of VOCs by vacuum ultraviolet photolysis and catalytic ozonation over Mn_xCe/ZSM-5, *Journal of Hazardous Materials*, 2019, 364, 770-779. (IF=7.65, 中科院 1 区)
- [18] Ruijie Xie, **Jian Ji**, Kaiheng Guo, Dongxue Lei, Qingjuan Fan, Dennis Y.C. Leung, Haibao Huang*, Wet scrubber coupled with UV/PMS process for efficient removal of gaseous VOCs: Roles of sulfate and hydroxyl radicals, *Chemical Engineering Journal*, 2019, 356, 632-640. (IF=8.355, 中科院 1 区)
- [19] Ruimei Fang, Miao He, Haibao Huang*, Qiuyu Feng, **Jian Ji**, Yujie Zhan, Dennis Y.C. Leung, Wei Zhao, Effect of redox state of Ag on indoor formaldehyde degradation over Ag/TiO₂ catalyst at room temperature, *Chemosphere*, 2018, 213, 235-243. (IF=5.108, 中科院 2 区)
- [20] Yajie Shu, Yin Xu, Haibao Huang*, **Jian Ji**, Shimin Liang, Muyan Wu, Dennis Y.C. Leung, Catalytic oxidation of VOCs over Mn/TiO₂/activated carbon under 185 nm VUV irradiation, *Chemosphere*, 2018, 208, 550-558. (IF=5.108, 中科院 2 区)
- [21] Ruimei Fang, Qiuyu Feng, Haibao Huang*, **Jian Ji**, Miao He, Yujie Zhan, Biyuan Liu, Dennis Y.C. Leung, Effect of K⁺ ions on efficient room-temperature degradation of formaldehyde over MnO₂ catalysts, *Catalysis Today*, 2019, 327, 154-160. (IF=4.888, 中科院 2 区)
- [22] Ruijie Xie, **Jian Ji**, Haibao Huang*, Dongxue Lei, Ruimei Fang, Yajie Shu, Yujie Zhan, Kaiheng Guo, Dennis Y.C. Leung, Heterogeneous activation of peroxymonosulfate over monodispersed Co₃O₄/activated carbon for efficient

- degradation of gaseous toluene, *Chemical Engineering Journal*, 2018, 341, 383-391. (IF=8.355, 中科院 1 区)
- [23] Ruimei Fang, Haibao Huang, **Jian Ji**, Miao He, Qiuyu Feng, Yujie Zhan, Dennis Y.C. Leung, Efficient MnO_x supported on coconut shell activated carbon for catalytic oxidation of indoor formaldehyde at room temperature, *Chemical Engineering Journal*, 2018, 334, 2050-2057. (IF=8.355, 中科院 1 区)
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- [25] Gaoyuan Liu, **Jian Ji**, Peng Hu, Sixin Lin, Haibao Huang*, Efficient degradation of H₂S over transition metal modified TiO₂ under VUV irradiation: Performance and mechanism, *Applied Surface Science*, 2018, 433, 329-335. (IF=5.155, 中科院 2 区)
- [26] Yajie Shu, **Jian Ji**, Ying Xu, Jiguang Deng, Haibao Huang*, Miao He, Dennis Y.C. Leung, Muyan Wu, Shengwei Liu, Shuilian Liu, Gaoyuan Liu, Ruijie Xie, Qiuyu Feng, Yujie Zhan, Ruimei Fang, Xinguo Ye, Promotional role of Mn doping on catalytic oxidation of VOCs over mesoporous TiO₂ under Vacuum Ultraviolet (VUV) irradiation, *Applied Catalysis B: Environmental*, 2018, 220, 78-87. (IF=14.229, 中科院 1 区)
- [27] Ruimei Fang, Haibao Huang*, Wenjun Huang, **Jian Ji**, Qiuyu Feng, Yajie Shu, Yujie Zhan, Gaoyuan Liu, Ruijie Xie, Influence of peracetic acid modification on the physicochemical properties of activated carbon and its performance in the ozone-catalytic oxidation of gaseous benzene, *Applied Surface Science*, 2017, 420, 905-910. (IF=5.155, 中科院 2 区)
- [28] Gaoyuan Liu, **Jian Ji**, Haibao Huang*, Ruijie Xie, Qiuyu Feng, Yajie Shu, Yujie Zhan, Ruimei Fang, Miao He, Shuilian Liu, Xinguo Ye, Dennis Y.C. Leung, UV/H₂O₂: An efficient aqueous advanced oxidation process for VOCs removal, *Chemical Engineering Journal*, 2017, 324, 44-50. (IF=8.355, 中科院 1 区)
- [29] Di Wang, **Jian Ji**, Bingxu Chen, Wen Yao Chen, Gang Qian, Xuezhi Duan*, Xingguo Zhou, Anders Holmen, De Chen, Novel Fe/MnK-CNTs nanocomposites as catalysts for direct production of lower olefins from syngas, *AIChE Journal*, 2017, 63, 154-161. (IF=3.463, 中科院 2 区)
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- Chen, Weikang Yuan, Modified carbon nanotubes by KMnO₄ supported iron Fischer-Tropsch catalyst for direct conversion of syngas to lower olefins, *Journal of Materials Chemistry A*, 2015, 3, 4560-4567. (IF=10.733, 中科院 1 区)
- [31] Xiangping Zhou, **Jian Ji**, Di Wang, Xuezhi Duan*, Gang Qian, De Chen, Xinggui Zhou, Hierarchical structured α -Al₂O₃ supported S-promoted Fe catalysts for direct conversion of syngas to lower olefins, *Chemical Communications*, 2015, 51, 8853-8856. (IF=6.164, 中科院 1 区)
- [32] Xuezhi Duan, **Jian Ji**, Gang Qian*, Xinggui Zhou, De Chen*, Recent advances in synthesis of reshaped Fe and Ni particles and their catalytic applications, *Catalysis Today*, 2015, 249, 2-11. (Invited Review, IF=4.888, 中科院 2 区)
- [33] Wenyao Chen, **Jian Ji**, Xiang Feng, Xuezhi Duan*, Gang Qian, Ping Li, Xinggui Zhou, De Chen*, Weikang Yuan, Mechanistic insight into size-dependent activity and durability in Pt/CNT catalyzed hydrolytic dehydrogenation of ammonia borane, *Journal of the American Chemical Society*, 2014, 136(48), 16736-16739. (IF=14.695, 中科院 1 区)
- [34] Wenyao Chen, **Jian Ji**, Xuezhi Duan*, Gang Qian, Ping Li, Xinggui Zhou, De Chen, Weikang Yuan, Unique reactivity in Pt/CNT catalyzed hydrolytic dehydrogenation of ammonia borane, *Chemical Communications*, 2014, 50, 2142-2144. (IF=6.164, 中科院 1 区)
- [35] Xuezhi Duan, Gang Qian, Yan Liu, **Jian Ji**, Xinggui Zhou*, De Chen*, Weikang Yuan, Structure sensitivity of ammonia decomposition over Ni catalysts: A computational and experimental study, *Fuel Processing Technology*, 2013, 108, 112-117. (IF=4.507, 中科院 2 区)
- [36] Xuezhi Duan, **Jian Ji**, Gang Qian, Chen Fan, Yian Zhu, Xinggui Zhou*, De Chen*, Weikang Yuan, Ammonia decomposition on Fe(110), Co(111) and Ni(111) surfaces: A density functional theory study, *Journal of Molecular Catalysis A: Chemical*, 2012, 357, 81-86. (IF=5.008, 中科院 2 区)

专利发表情况

- [1] 段学志, 周湘萍, 王迪, 冯翔, **纪建**, 钱刚, 周兴贵; 一种负载型铁基催化剂及其制备方法和用途, CN104785263A
- [2] 段学志, 张志华, 冯翔, **纪建**, 周湘萍, 王迪, 范清海, 钱刚, 周兴贵; 一种氨硼烷水解制氢的方法, CN104261347A
- [3] 段学志, 陈文尧, 冯翔, **纪建**, 周湘萍, 王迪, 范清海, 钱刚, 周兴贵; 一种铂-碳复合物纳米催化剂及其制备方法和用途, CN104258847A

- [4] 黄海保, 曹硕, **纪建**, 刘水莲; 一种催化臭氧分解的锰氧化物催化剂及其制备方法, CN109603817A
- [5] 黄海保, 余忆, 刘水莲, 纪建; 一种非晶态锰氧化物催化剂及其制备方法和应用, CN109772159A
- [6] 黄海保, 余忆, 纪建; 一种臭氧催化剂的制备方法及其制备的臭氧催化剂和应用, CN109926045A

学术会议参加情况

- [1] Xiaodong Yan, **Jian Ji**, Gang Qian, Xuezhi Duan, Xinggui Zhou. Shape-controlled Ni and Fe nanocatalysts for increased hydrogen production, *The 2nd International Symposium on Catalytic Science and Technology in Sustainable Energy and Environment (EECAT 2016)*, 2016, Tianjin, China, (Poster Presentation)
- [2] **Jian Ji**, Xuezhi Duan, Gang Qian, Xinggui Zhou, De Chen, Weikang Yuan. Morphology dependence of ammonia decomposition to generate hydrogen of Ni catalysts at the tips of carbon nanofibers, *International Conference on Hydrogen Production–2014 (ICH2P-2014)*, 2014, Fukuoka, Japan. (Oral Presentation)
- [3] **Jian Ji**, Xuezhi Duan, Gang Qian, Ping Li, Xinggui Zhou, De Chen, Weikang Yuan. Fe particles on the tops of CNFs immobilized on structured CMFs for NH₃ decomposition. *4th International Conference on Structured Catalysts and Reactors (ICOSCAR-4)*, 2013, Beijing, China. (Oral Presentation)
- [4] **Jian Ji**, Xing Li, Xuezhi Duan, Ping Li, Xinggui Zhou, Weikang Yuan, Nano-carbon supported metal catalysts for hydrogen release from ammonia, *Sino-German Workshop on Nanostructured Materials for Hydrogen Production*, 2013, Dalian, China. (Oral presentation)
- [5] **Jian Ji**, Xuezhi Duan, Xinggui Zhou, De Chen, Weikang Yuan, Controlled synthesis of Ni and Fe catalysts with tailored structures and morphologies for NH₃ decomposition, *BASF Research Forum Asia & BASF Excellent PHD Prize*, 2013, Shanghai, China. (Oral presentation)
- [6] **纪建**, 严晓栋, 段学志, 钱刚, 周兴贵, 修光利, 氨分解 Fe、Ni 纳米催化剂的理性设计与性能调控, *第十五届全国青年催化学术会议*, 2015, 合肥, 中国. (口头报告)
- [7] **纪建**, 段学志, 钱刚, 李平, 周兴贵, 纳米 Ni-CNFs/mica 催化剂的制备及其在氨分解制氢体系中的应用, *第六届全国化学工程与生物化工年会*, 2010, 长沙, 中国. (口头报告)
- [8] **Jian Ji**, Xuezhi Duan, Gang Qian, Xinggui Zhou, De Chen, Carbon-induced reshaping of Ni and Fe nanocatalysts for ammonia decomposition, *6th International Symposium on Carbon for Catalysis (CARBOCAT-VI)*, 2014, Trondheim, Norway.

(Poster presentation)

- [9] **Jian Ji**, Xiaodong Yan, Xuezhi Duan, Gang Qian, Xinggui Zhou, Weikang Yuan, Fe or Ni particles at the tips of carbon nanofibers: Highly active and Stable catalysts for CO_x-free hydrogen generation from ammonia, 第15届全国氢能会议暨第7届两岸三地氢能研讨会, 2014, 上海, 中国. (墙报)
- [10] **Jian Ji**, Yi Yu, Shuilian Liu, Haibao Huang, Structural manipulation of manganese oxides for ozone decomposition, The 10th International Conference on Environmental Catalysis & the 3rd International Symposium on Catalytic Science and Technology in Sustainable Energy and Environment (ICEC&EECAT2018), 2018, Tianjin, China. (Oral Presentation)
- [11] **Jian Ji**, Shuilian Liu, Yi Yu, Haibao Huang, Structural manipulation of manganese oxides for enhanced catalytic decomposition of ozone, The 8th Tokyo Conference on Advanced Catalytic Science and Technology (TOCAT8), 2018, Yokohama, Japan. (Oral Presentation)
- [12] **Jian Ji**, Jindou Hou, Xuemei Liao, Highly oxidized palladium efficiently catalyzed selective aerobic oxidation of 5-HMF into 2, 5-furandicarboxylic acid, The 10th International Conference on Environmental Catalysis & the 3rd International Symposium on Catalytic Science and Technology in Sustainable Energy and Environment (ICEC&EECAT2018), 2018, Tianjin, China. (Poster Presentation)

其他技能

英语水平：国家英语六级；能够熟练使用英语进行日常交流及科技论文写作

计算机技能：熟练使用 MS Office、Origin、SciFinder、Endnote、Materials Studio 等软件和检索工具；全国计算机二级 C 语言、三级网络技术；可使用 DFT 相关软件如 VASP 进行理论计算