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|---|---|
| 姓名 | 张昭良 |
| 学历/学位 | 博士后/博士 |
| 职称/职务 | 教授/博士生导师 |
| 联系电话 | 0531 89736032 |
| 电子邮箱 | chm_zhangzl@ujn.edu.cn;zhangzhaoliang@sdu.edu.cn |
| 实验室/办公室 | 逸夫科学楼B611 |
| 主讲课程 | 环境催化与储能材料 |

**科研方向：**

感兴趣的科研开发领域：

(1) 环境催化，包括机动车尾气催化净化，烟道气脱硝，Soot和VOCs催化氧化（燃烧），高级催化氧化，光催化等；

(2) 能源催化：燃料电池、锂硫电池和可充电铝电池等；

(3) 新型催化材料、储能材料、纳米和多孔材料制备及应用；

(4) 大气污染控制技术与工程；

(5) 水污染控制技术与工程。

Email: chm_zhangzl@ujn.edu.cn; zhangzhaoliang@sdu.edu.cn; zhangzhaoliang@pku.org.cn; zhangzhaoliang@hotmail.com

**科研成果及奖励（包括项目、专利、鉴定等）（2005年以来）：**

2019-2013：国家自然科学基金：氮氧化物催化净化的单金属离子活性位及调控机制（21876061）。

2016-2018：山东省重点研发计划(重大关键技术）：满足重型柴油车国V排放标准的技术与产品

2015-2018：国家自然科学基金：消除碳烟污染的非化学计量氧陶瓷过滤器的催化燃烧机理(21477046)。

2013-2016：国家自然科学基金：非晶复合氧化物中低温脱硝活性位和机理研究（21277060）。

2012-2013：济南市科技成果转化项目，高浓度淀粉废水治理工程。

2011-2012，选择性催化还原烟气脱硝催化剂的制备与成型工艺研究，山东省科技发展计划项目，2011GSF11702。

2011-2013, 国家自然科学基金：基于转化频率的碳烟催化燃烧机制，21077043。

2010.11-2011.10, The Energy Foundation (G-1010-13467): Policies to advance utilization of bio-gas to improve city air quality and achieve multiple environmental benefits, 10万美元；

2008-2010，国家高技术研究发展计划（863），柴油车尾气四效催化技术研究（2008AA06Z320）。

2008-2010，国家自然科学基金：碳烟颗粒在Mg-Al水滑石复合氧化物型NOx存储-还原催化剂上的燃烧（20777028)。

2008-2010，山东省自然科学基金，贵金属和K负载的Mg-Al水滑石复合氧化物对碳烟的催化燃烧（Y2007B36）。(2011年度山东省自然科学基金项目结题评审为优秀)

2005-2006，国家自然科学基金：Pt/K/Cu/Mg-Al-O催化剂碳烟燃烧与NOx存储的双功能效应（20577015）。

2004-2006，山东省优秀中青年科学家科研奖励基金：稀土基柴油车氧化型催化剂的开发（2004bs04017）。

**教学成果与奖励（2005年以来）：**

分别在北京大学、山东大学（北京有色金属研究总院）和湖南大学，获博士（2000）、硕士和学士学位，在 Korea Advanced Institute of Science and Technology完成博士后工作，后在香港理工大学、英国阿伯丁大学和美国康涅狄格大学等地访学。1997-2015年担任化学化工学院分管科研和研究生工作的副院长。现任化学化工学院"化学工程与技术"和"化学工程"学科教授，博士生导师，硕士生导师，中国能源学会能源与环境专业委员会副主任，中国稀土学会催化专业委员会 常务委员，全国环境催化与环境材料学术委员会委员，《环境化学》编委，Scientific Reports-UK编委，国家和山东省重点研发计划专家，山东省环保产业协会副会长，山东省医药化工废水治理工程技术中心主任，山东省清洁生产专家。担任2009年 "第十六届全国稀土催化学术会议"主席，2010年"第六届国际环境催化大会"分会主席，2012年国家自然科学基金委员会第六届"全国环境化学学科中青年学者研讨会"执行主席。担任Angew Chem Int Ed, Journal of Catalysis，Environmental Science & Technology和Applied Catalysis B: Environmental等国际权威期刊审稿专家。ACS（美国化学会）会员。与英国University of Aberdeen、美国University of Connecticut、复旦大学和山东大学等有深入合作。

目前课题组有教授1名，副教授2名，全职博士后1名，在读博士生2名，硕士生9名。已毕业研究生32名，包括上市公司技术总监，中国科学院研究员，英国、匈牙利、香港和日本等国的博士生等。所指导的本科生中，连续3年化工专业的第一名被保送到华东理工大学、天津大学和厦门大学读研，多名本科生到美国、英国等读博。

国家发明专利

张昭良，张志亮，李瑞睿，李倩，辛颖，一种单Pd三效催化剂的制备方法及所得产品，中国发明专利，申请号201610412649.3

张昭良，张志亮，李瑞睿，李倩，辛颖，一种单Rh三效催化剂的制备方法及所得产品，中国发明专利，申请号201610409356.X

张昭良 吕晨曦 田广凯 刘太峥 辛颖 李倩，一种催化柴油车碳烟燃烧的催化剂及其制备方法和应用，中国发明专利，申请号201610216293.6。

张昭良，田广凯，李倩，吕晨曦，辛颖，一种钾锰复合氧化物及其制备方法和在柴油车尾气净化中的应用，中国发明专利，申请号201610171036.5。

张昭良、蔡连国、李壮壮、辛颖、李倩，一种低温烟气脱硫脱硝一体化的装置，实用新型，ZL201620184822.4。(2016年9月14日授权)

张昭良、蔡连国、李壮壮、辛颖、李倩，一种用于低温烟气脱硫脱硝的双氧水高效利用装置，实用新型，ZL201620184823.9。(2016年7月27日授权)

张昭良、蔡连国、李壮壮、辛颖、李倩，用于低温烟气脱硝的臭氧生成羟基自由基的装置，实用新型，ZL201620184824.3。(2016年7月27日授权)

张昭良、蔡连国、李壮壮、辛颖、李倩，利用焦炉烟气热备焦炉烟囱的脱硫脱硝装置，实用新型，申请号201620403225.6。

张昭良、蔡连国、李壮壮、辛颖、李倩，利用焦炉烟气热备焦炉烟囱的脱硫脱硝方法及装置，发明，申请号201610295380.5。

张昭良、蔡连国、李壮壮、辛颖、李倩，一种低温烟气脱硫脱硝一体化的方法及装置，中国，申请号201610137024.0。

张昭良、蔡连国、李壮壮、辛颖、李倩，一种用于低温烟气脱硫脱硝的双氧水高效利用方法及装置，中国，申请号20161037036.3。

张昭良、蔡连国、李壮壮、辛颖、李倩，用于低温烟气脱硝的臭氧生成羟基自由基的方法及装置，20161037037.8。

陈慧，张昭良，田广凯，常伟，吕晨曦，辛颖，李倩，一种混合导体氧化物储氧材料及其制备方法和应用，中国，申请号201510011248.2

张昭良，周钰浩，辛颖，李倩，于明强，一种Cu-SAPO-44微孔分子筛的制备方法及其作为$NH_3$-SCR催化剂的应用，中国，申请号201410761473.3

张昭良，周钰浩，辛颖，李倩，于明强，一种高纯度SAPO-44微孔分子筛的制备方法，中国，申请号201410689487.9

张昭良，范运召，辛颖，李倩，铈锆铝复合氧化物、汽油车尾气三效催化剂以及它们的制备方法，中国，申请号201410457736.1

张昭良，刘莹，周钰浩，辛颖，李倩，一种铁基复合氧化物脱硝催化剂及其制备方法和应用，中国，申请号201410188308.3

张昭良，刘莹，周钰浩，辛颖，李倩，一种具有片花状结构的铁钨复合氧化物脱硝催化剂及其制备方法及应用，中国，ZL201410038893.9

张昭良、谷华春、辛颖、李倩，具有多级孔结构的蜂窝型脱硝催化剂及其制备方法，中国，申请号201410039849.X

张昭良、辛颖、蒋品、于明强、李倩，一种三维有序大孔-介孔金属氧化物或复合氧化物的气相渗透-沉淀制备方法及所得产品，ZL201310327881.3。

张昭良、薛俊强、徐海文、朱杰高、于明强、谷华春、辛颖，一种糖厂滤泥在烟气湿法脱硫中的应用，ZL201210565053.9。

张昭良、谷华春、李倩、赵亭亭、辛颖、李萍，蜂窝陶瓷上涂覆Ti基脱硝催化剂的方法，申请号：201210485579.6。

张昭良，王姿姿，杨家富，辛颖，李倩，王仲鹏，一种高比表面积Ce-Zr-Pr-Nd-O复合氧化物的制备方法，申请号：201110356311.8

张昭良，王姿姿，杨家富，张业新，辛颖，魏少杰，一种高比表面积的立方相铈锆基复合氧化物及其制备方法，申请号：201110138852.3

张昭良，李昕，赵亭亭，李萍，蒋品，王晓，非晶形复合氧化物脱硝催化剂及其制备方法和应用，申请号：201110133318.3。

张昭良，张业新，辛颖，王仲鹏，李倩，一种柴油车尾气四效催化剂及其制备方法和应用，201110080198.5。

王仲鹏、王立国、李昕、魏少杰、张昭良, 一种催化燃烧去除柴油车碳烟的稀土烧绿石型复合氧化物催化剂及其制备方法, 申请号: 201010226770.X.

张昭良，杨曦，辛颖，蒋品，王仲鹏，李倩, 一种纳米量子点级柴油车燃料添加型催化剂及制备方法和应用，ZL201010611602.2

张昭良，杨曦，辛颖，蒋品，王仲鹏，李倩, 一种纳米量子点级Fe3O4超顺磁性粒子的制备方法，ZL201010611591.8

张昭良，辛颖，韩栋，王仲鹏，张业新，李昕，一种稀土元素掺杂的氧化铈纳米棒的工业化制备方法，ZL200910229235.7

张昭良，辛颖，韩栋，王仲鹏，张业新，李昕，一种稀土氢氧化物及氧化物纳米棒的工业化制备方法，ZL200910229967.6

张昭良，于鹏飞，张业新，耿浩然，牟宗刚，鲍 猛，降低柴油车尾气中碳烟颗粒燃烧温度的催化剂及制备方法，ZL200510043564.4

张昭良，牟宗刚，于鹏飞，张业新，倪献智，鲍 猛，柴油车尾气碳烟燃烧和NOx存储-还原的双功能催化剂及制备方法，ZL200510128436.X

杨锡尧，张昭良，马骏，中国发明专利ZL00123794.2, 同时消除混合气中二氧化硫和氮氧化物的复合氧化物催化剂

杨锡尧，张昭良，马骏，中国发明专利ZL00123795.0：一种同时消除混合气中二氧化硫和氮氧化物的催化剂

代表性论文（2005年以来）：

Ying Xin*, Nana Zhang, Xiao Wang, Qian Li, Xicheng Ma, Yongxin Qi, Lirong Zheng, James A Anderson, Zhaoliang Zhang*, Effective synthesis of the Cu-SAPO-44 zeoliet with excellent activity for selective catalytic reduction of NOx by NH3, Catalysis Today, 2018. (Invited paper)

Sumair Imtiaz, Zahid Ali Zafar, Rameez Razaq, Dan Sun, Ying Xin, Qian Li, Zhaoliang Zhang*, Lei Zheng, Yunhui Huang, James A Anderson*, Electrocatalysis on separatore modified by molybdenum trioxide nanobelts for lithium-sulfur batteries, Advanced Materials Interface, 2018, 1800243.

Rameez Razaq, Dan Sun, Ying Xin, Qian Li, Taizhong Huang, Lei Zheng, Zhaoliang Zhang, Yunhui Huang, Enhanced kinetics of polysulfide redox reactions on Mo2C/CNT in lithium-sulfur batteries, Nanotechnology, 2018, 29: 295401.

Ying Xin, Hao Li, Nana Zhang, Qian Li, Zhaoliang Zhang, Xiaoming Cao, P Hu, Lirong Zheng, James A Anderson, Molecular-level insight into selective catalytic reduction of NOx with NH3 to N2 over highly effecient bifunctional VaMnOx catalyst at low temperature, ACS Catalysis, 2018, 8: 4937-4949.

Taizheng Liu, Qian Li, Ying Xin, Zhaoliang Zhang, Xingfu Tang, Lirong Zheng, Pu-Xian Gao, Quasi free K cations confined in hollandite-type tunnels for catalytic solid (catalyst)-solid (reactant) oxidation reactions, Applied Catalysis B: Environmental, 2018, 232: 108-116.

Zahid Ali Zafar, Sumair Imitaz, Ruirui Li, Jinghao Zhang, Rameez Razaq, Ying Xin, Qi Li, Zhaoliang Zhang*, Yunhui Huang, A super-long life rechargeable aluminum battery, Solid State Ionics, 2018, 320: 70-75.

Yin Xin, Nana Zhang, Qian Li, Zhaoliang Zhang*, Xiaoming Cao, Lirong Zheng, Yuewu Zeng, James A Anderson*, Selective catalytic reduction of NOx with NH3 over short-range ordered W-O-Fe structures with high thermal stability, Applied Catalysis B: Environmental, 2018, 229: 81-87.

Taizhong Huang*, Hengyi Fang, Luping Xu*, Zuankai Wang*, Ying Xin, Jiemei Yu, SHuo Yao, ZHaoliang Zhang, Electrocatalytic performance of cubic NiS2 and hexagonal NiS for oxygen reduction reaction, Journal of Catalysis, 2018, 359: 223-232.

Sibo Wang, Shoucheng Du, Wenxiang Tang, Son Hoang, Xingxu Lu, Wen Xiao, Bo Zhang, Junfei Weng, Evan Schneer, Yanbing Guo*, Jun Ding, Zhaoliang Zhang, Pu-Xian Gao*, Mesoporous perovskite nanotube-array enhanced metallic-state platinum dispersion for low temperature propane oxidation, ChemCatChem, 2018, 10: 2184-2189.

Ying Xin, Nana Zhang, Qian Li, Zhaoliang Zhang*, Xiaoming Cao*, Lirong Zheng, Yuewu Zeng, James A. Anderson*, Active site identification and modification of electronic states by atomic-scale doping to enhance oxide catalyst innovation, ACS Catalysis, 2018, 8: 1399-1404.

Qian Li, Ying Xin, Zhaoliang Zhang*, Xiaoming Cao*, Electron donation mechansim of superior Cs-supported oxides for catalytic soot combustion, Chemical Engineering Journal, 2018, 337: 654-660.

Shengnan Ji, Sumair Imtiaz, Dan Sun, Ying Xin, Qian Li, Taizhong Huang, Zhaoliang Zhang*, Yunhui Huang, Coralline-like N-doped hierarchically porous carbon derived Enteromorpha as host matrix for Lithium-Sulfur battery, Chemistry-A Europe Journal, 2017, 23

18208-18215.

Ying Xin, Qian Li, Zhaoliang Zhang, Zeolitic materials for de$NO_X$ selective catalytic reduction (invited review), ChemCatChem, 2018, 10:29-41. (VIP, Back cover picture)

Chenxi Lu, Taizheng Liu, Qiaolan Shi, Qian Li, Ying Xin, Lei Zheng, Zhaoliang Zhang, Plausibility of potassium ion-exchanged ZSM-5 as soot combustion catalysts, Scientific Reports, 2017, 7: 3300.

Nana Zhang, Ying Xin, Xiao Wang, Mingfen Shao, Qian Li, Xicheng Ma, Yongxin Qi, Lirong Zheng, Zhaoliang Zhang*, Iron-niobium composite oxides for selective catalytic reduction of NO with $NH_3$, Catalysis Communications, 2017, 97 (5): 111-115.

Zahid Ali Zafar, Sumair Imtiaz, Rameez Razaq, Shengnan Ji, Taizhong Huang, Zhaoliang Zhang*, Yunhui Huang*, James A. Anderson*, Cathode Materials for Rechargeable Aluminum Batteries: Current Status and Progress, Journal of Materials Chemistry A, 2017, 5(12): 5646-5600. ( Back cover picture )

Ying Xin, Xiao Wang, Qian Li, Xicheng Ma, Yongxin Qi, Lirong Zheng, James A. Anderson, Zhaoliang Zhang*, The potential of Cu-SAPO-44 in selective catalytic reduction of $NO_X$ with $NH_3$, ChemCatChem, 2016, 2016, 8 (26): 3740-3745. (Back cover picture).

Changlan Wen, Xueping Gao, Taizhong Huang*, Xiaoying Wu, Luping Xu, Jiemei Yu, Haitao Zhang, Zhaoliang Zhang*, Jitian Han, Hao Ren, Reduced graphene oxide supported chromium oxide hybrid as high efficient catalyst for oxygen reduction reaction, International Journal of Hydrogen Energy, 2016, 41 (26): 11099 - 11107.

Sumair Imtiaz, Jian Zhang, Zahid Ali Zafar1, Shengnan Ji, Taizhong Huang, James A. Anderson, Zhaoliang Zhang*, Yunhui Huang*, Biomass-derived nanostructured porous carbons for lithium-sulfur batteries, Science China Materials, 2016, 59 (5): 389-407.

Yaxin Chen, Guangkai Tian, Meijuan Zhou, Zhiwei Huang, Chenxi Lu, Pingping Hu, Jiayi Gao, Zhaoliang Zhang* and Xingfu Tang*, Catalytic control of typical particulate matters and volatile organic compounds emissions from simulated biomass burning, Environmental Science & Technology, 2016, 6: 4511-4515.

Hao Li,Ying Xin, Xiao Wang, Yuhao Zhou, Qian Li, Zhaoliang Zhang*, A novel dual-template method for synthesis of SAPO-44 zeolite, RSC Advances, RSC Advances, 2016, 6: 35910-35913.

Guangkai Tian, Hui Chen, Chenxi Lu, Ying Xin, Qian Li, James A. Anderson, Zhaoliang Zhang*, An oxygen pool from $YBaCo_4O_7$-based oxides for soot combustion, *Catalysis Science & Technology*, 2016, 6: 4511 - 4515.

Zhiwei Huang, Hao Li, Jiayi Gao, Xiao Gu, Li Zheng, Pingping Hu, Ying Xin, Junxiao Chen, Yaxin Chen, Zhaoliang Zhang, Jianmin Chen, Xingfu Tang*, Alkali- and sulfur-resistant tungsten-based catalysts for NOx emissions control, Environmental Science & Technology, 2015, 49, 14460−14465.

李倩，谷华春，辛颖，李壮壮，张昭良*，**V2O5-WO3/TiO2** 脱硝催化剂机械强度和孔隙率的响应曲面模型，化工学报，2015, 66 (9): 3496-3503. ( Invited paper )

Qian Li, Xiao Wang, Hui Chen, Ying Xin, Chenxi Lu, **Zhaoliang Zhang***, Lirong Zheng, Lei Zheng, K-supported catalysts for diesel soot combustion: making a balance between activity and stability, Catalysis Today, DOI: 10.1016/j.cattod.2015.07.036. (Invited paper)

Taizhong Huang*, Jiemei Yu, Jitian Han, Zhaoliang Zhang**, Yin Xing, Changlan Wen, Xiaoying Wu, Yihe Zhang, Oxygen reduction catalytic characteristics of vanadium carbide and nitrogen doped vanadium carbide, Journal of Power Sources, 2015, 300 : 483-490.

Zhiliang Zhang, Yunzhao Fan, Ying Xin, Qian Li, Ruirui Li, James A. Anderson, Zhaoliang Zhang, Improvement of air/fuel ratio operating window and hydrothermal stability for Pd-only three-way catalysts through a Pd-$Ce_2Zr_2O_8$ superstructure interaction, Environmental Science & Technology, 2015, DOI: 10.1021/acs.est.5b01361.

Yongming Sun, Ryan B. Sills, Xianluo Hu*, Zhi Wei Seh, Xu Xiao, Henghui Xu, Wei Luo, Huanyu Jin, Ying Xin, Tianqi Li, Zhaoliang Zhang, Jun Zhou, Wei Cai, Yunhui Huang*, Yi Cui*, A bamboo-inspired nanostructure design for flexible, foldable and twistable energy storage devices, Nano Letters, 2015, DOI: 10.1021/acs.nanolett.5b00738.

Hui Chen, Yexin Zhang*, Ying Xin, QianLi, **ZhaoliangZhang***, Zheng Jiang, Yuping Ma, HaoZhou, Jian Zhang, Enhanced $NO_X$ conversion by coupling NOx storage-reduction with CO adsorption-oxidation over the combined Pd−K/MgAlO and Pd/MgAlO catalysts, Catalysis Today, 2015, DOI: 10.106/j.cattod.2014.12.019. (Invited paper)

Taizhong Huang, Shun Mao, Guihua Zhou, Zhaoliang Zhang, Zhenhai Wen, Xingkang Huang, Suqin Ci, Junhong Chen, High performance catalyst support for methanol oxidation with graphene and vanadium carbonitride, Nanoscale, 2015,7, 1301-1307.

Qian Li, Huachun Gu, Ping Li, Yuhao Zhou, Ying Liu, Zhongnan Qi, Ying Xin, Zhaoliang Zhang*, In situ IR and kinetic studies of selective catalytic reduction of NO with NH3 on Ce–Ti amorphous oxides, Chinese Journal of Catalysis, 35 (2014) 1289–1298。（Invited paper）

Qian Li, Xiao Wang, Ying Xin, Zhaoliang Zhang*, Yexin Zhang, Ce Hao*, Ming Meng*, Lirong Zheng, Lei Zheng, A unified intermediate and mechanism for soot combustion on potassium-supported oxides, Scientific Reports, 2014, 4, 4725; DOI:10.1038/srep04725.

Ying Xin, Pin Jiang, Mingqiang Yu, Huachun Gu, Qian Li, Zhaoliang Zhang*, A universal route to fabricate hierarchically ordered macro-/mesoporous oxides with enhanced intrinsic activity, Journal of Materials Chemistry A, 2014, 2 (18): 6419-6425. DOI:10.1039/C3TA15060G

Yexin Zhang*, Shaojie Chen, Qian Li, Zhaoliang Zhang*, Jian Zhang, Different mechanisms between reactions of soot with gaseous and adsorbed NO2, Chinese Science Bulletin, 2014, 59 (26): 2604-2608. (Invited paper)

Qian Li, Xiao Wang, Wei Chang, Hui Chen, Zhaoliang Zhang*, Promotional effects of Ce doping and NOx on the catalytic soot combustion over MnMgAlO hydrotalcite-based mixed oxides, Journal of Rare Earths, 2014, 32 (2): 176-183. DOI: 10.1016/S1002-0721(14)60048-X. (Invited paper)

Chen Zhou, Xiao Liu, Chunzheng Wu, Yanwei Wen,c Yejian Xue, Rong Chen, Zhaoliang Zhang, Bin Shan*, Hongfeng Yin*, Wei Guo Wang, NO Oxidation Catalysis on Copper Doped Hexagonal Phase LaCoO3: A Combined Experimental and Theoretical Study, Physical Chemistry Chemical Physics, 2014, 16, 5106-5112.

Yunzhao Fan, Zizi Wang, Ying Xin, Qian Li, Zhaoliang Zhang*, Yingxia Wang, Significant improvement of thermal stability for CeZrPrNd oxides simply by supercritical CO2 drying, PLoS ONE 2014, 9 (2): e88236.

Zhen Li, Lixia Yuan*, Ziqi Yi, Yang Liu, Ying Xin, Zhaoliang Zhang, Yunhui Huang*, A dual coaxial nanocable sulfur composite for high-rate lithium-sulfur batteries, Nanoscale,2014, 6: 1653-1660. DOI: 10.1039/C3NR04347A.

Zhen Li, Lixia Yuan*, Ziqi Yi, Yongming Sun, Yang Liu, Yan Jiang, Yue Shen, Ying Xin, Zhaoliang Zhang, Yunhui Huang*, Insight into the electrode mechanism in lithium-sulfur batteries with ordered microporous carbon confined sulfur as cathode, Advanced Energy Materials, 2014, 4: 13014737. DOI: 10.1002/aenm.201301473.

Zhongpeng Wang*, Liguo Wang, Fang He, Zheng Jiang, Tiancun Xiao, Zhaoliang Zhang*, Catalytic soot oxidation over Ce- and Cu-doped hydrotalcites-derived mesoporous mixed oxides, Journal of Nanoscience and Nanotechnology, 2014, 14 (9): 7087-7096.

Zhongpeng Wang, Xiaotong Yan, Xinlin Bi, Liguo Wang, Zhaoliang Zhang*, Zheng Jiang, Tiancun Xiao, Qiang Wang*, Lanthanum-doped Copper-based hydrotalcites derived mixed oxides for NOx adsorption,soot combustion and NOx-soot removal, Materials Research Bulletin, 2014, 51: 119–127.

Xueyu Yang, Mingren Liu, Zhongpeng Wang, Qian Li, Zhaoliang Zhang, Determination of 4-tert-octylphenol in surface water samples of Jinan in China by solid phase extraction coupled with GC-MS, Journal of Environmental Sciences, 2013, 25 (8) 1712–1717.

张业新, 王晓， 王力， 王仲鹏, 李倩， 张昭良*, Pd-K/MgAlO 催化剂上的NOx存储、脱附和还原过程，环境化学，2013， 32 (7):1300–1307. (Invited paper)

Zhongpeng Wang, Xiaomin Zhang, Liguo Wang, Zhaoliang Zhang*, Zheng Jiang, Tiancun Xiao, Ahmad Umar, Qiang Wang*, Co-Mn-Al Nonstoichiometric Spinel-Type Catalysts Derived from Hydrotalcites for the Simultaneous Removal of Soot and Nitrogen Oxides, Science of Advanced Materials, 2013, 5 (10): 1449–1457.

Xin Guo, Ming Meng*, Fangfang Dai, Qian Li, Zhaoliang Zhang*, Zheng Jiang, Shuo Zhang, Yuying Huang, NOx-assisted soot combustion over

dually substituted perovskitecatalysts La1-xKxCo1-yPdyO3-, Applied Catalysis B, Environmental, 2013, 142–143: 278–289.

Long Qie, Weimin Chen, Henghui Xu, Xiaoqin Xiong, Yan Jiang, Feng Zou, Xianluo Hu, Ying Xin, Zhaoliang Zhang, Yunhui Huang*, Synthesis of functionalized 3D hierarchical porous carbon for high performance supercapacitor, Energy & Environmental Science, 2013, 6: 2497–2504.

Tao Wei, Yun-Hui Huang*, Rui Zeng, Li-Xia Yuan, Xian-Luo Hu, Wu-Xing Zhang, Long Jiang, Jun-You Yang, Zhao-Liang Zhang*, Evaluation of Ca3Co2O6 as cathode material for high-performance solid-oxide fuel cell, Nature: Scientific Reports, 2013, 3: 1125. doi:10.1038/srep01125.

Pin Jiang, Xi Yang, Ying Xin, Yongxin Qi, Xicheng Ma, Qi Li, Zhaoliang Zhang*, Facile synthesis of water-soluble and superparamagnetic Fe3O4 dots through a polyol-hydrolysis route, Journal of Materials Science, 2013, 48 (6): 2365-2369. DOI: 10.1007/s10853-012-7018-6.

Ping Li, Ying Xin, Qian Li, Zhongpeng Wang, Zhaoliang Zhang*, Lirong Zheng, Ce–Ti amorphous oxides for selective catalytic reduction of NO with NH3: Confirmation of Ce–O–Ti active sites, Environmental Science & Technology, 2012, 46 (17): 9600–9605. DOI: 10.1021/es301661r.

Yexin Zhang, Xiao Wang, Zhongpeng Wang, Qian Li, Zhaoliang Zhang*, Limin Zhou, Direct spectroscopic evidence of CO spillover and subsequent reaction with pre-adsorbed NOx on Pd and K co-supported Mg–Al mixed oxides, Environmental Science & Technology, 2012, 46 (17): 9614–9619. DOI: 10.1021/es302018x.

Xiao Wang, Yexin Zhang, Qian Li, Zhongpeng Wang, Zhaoliang Zhang*, Identification of active oxygen species for soot combustion on LaMnO3 perovskite, Catalysis Science & Technology, 2012, 2 (9), 1822–1824. (DOI: 10.1039/c2cy20353g)

张业新，苏庆运*，王姿姿，王仲鹏，李倩，高希彦，张昭良*，Pd和K共负载的Mg-Al水滑石基氧化物同时去除碳烟和NOx，燃烧科学与技术，2012, 18(1): 56–61.。

Zizi Wang, Ying Xin, Zhaoliang Zhang*, Qian Li, Yihe Zhang, Limin Zhou, Synthesis of Fe-doped CeO2 nanorods by a widely applicable coprecipitation route, Chemical Engineering Journal, 2011, 178 : 436– 442.

Yexin Zhang, Qingyun Su, Qian Li, Zhongpeng Wang, Xiyan Gao, Zhaoliang Zhang*, Determination of mechanism for soot oxidation with NO on potassium-supported Mg–Al hydrotalcite mixed oxides, Chemical Engineering & Technology, 2011, 34(11): 1864–1868.

Ying Xin, Xi Yang, Pin Jiang, Zhaoliang Zhang*, Zhongpeng Wang, Yihe Zhang, Synthesis of CeO2-based quantum dots through a polyol-hydrolysis method for fuel-borne catalysts, ChemCatChem, 2011, 3(11): 1772–1778.

Hui Zhao, Ying Xin, Haixia Wang, Zhaoliang Zhang, Shiquan Liu, A comparison of the formation of SiO2 particles under the catalysis of dodecylamine and ammonia solutions, Journal of Inorganic and Organometallic Polymers, 2011, 21(4): 925–928.

Xin Li, Shaojie Wei, Zhaoliang Zhang*, Yexin Zhang, Zhongpeng Wang, Qingyun Su, Xiyan Gao, Quantification of the active site density and turnover frequency for soot combustion with O2 on Cr doped CeO2, Catalysis Today, 2011, 175 (1): 112– 116.

李倩, 王仲鹏, 孟明, 张昭良*, 柴油车尾气碳烟颗粒催化消除研究进展, 环境化学, 2011, 301 (1): 331–336. (invited paper)

Zhaoliang Zhang*, Yexin Zhang, Qingyun Su, Zhongpeng Wang, Qian Li, Xiyan Gao, Determination of intermediates and mechanism for soot combustion with NOx/O2 on potassium-supported Mg-Al hydrotalcite mixed oxides by in situ FTIR, Environmental Science & Technology, 2010, 44 (21): 8254–8258.

Zhaoliang Zhang*, Dong Han, Shaojie Wei, Yexin Zhang, Determination of active site densities and mechanism for soot combustion with O2 on Fe-doped CeO2 mixed oxides, Journal of Catalysis, 2010, 276 (1): 16–23.

Ying Xin, Yongxin Qi, Xicheng Ma, Zhongpeng Wang, Zhaoliang Zhang*, Shuxiang Zhang, Rare-earth (Nd, Sm, Eu, Gd and Y) enhanced CeO2 solic solution nanorods prepared by co-precipitation without surfactants, Materials Letters, 2010, 64 (23): 2659–2662.

Ying Xin, Zhongpeng Wang, Yongxin Qi, Zhaoliang Zhang*, Shuxiang Zhang, Synthesis of rare earth (Pr, Nd, Sm, Eu and Gd) hydroxide and oxide nanorods (nanobundles) by a widely applicable precipitation route, Journal of Alloys and Compounds, 2010, 507(1): 105–111.(2010-09-24)

杨曦, 张昭良*, 王仲鹏, 柴油车燃料添加型催化剂研究进展, 环境科学与技术, 2010, 33 (7): 81–84.

Zhaoliang Zhang*, Yexin Zhang, Zhongpeng Wang, Xiyan. Gao, Catalytic performance and mechanism of potassium-supported Mg-Al hydrotalcite mixed oxides for soot combustion with O2, Journal of Catalysis, 2010, 271(1): 12–21.

张业新, 苏庆运, 王仲鹏, 高希彦, 张昭良*, 钾对镁铝水滑石复合氧化物的表面改性, 物理化学学报, 2010, 26 (4): 921–926.

王仲鹏, 张昭良*, 碳烟颗粒在NOx储存催化剂上的燃烧研究进展, 工业催化, 2009, 17 (4): 1–5.

Yexin Zhang, Qingyun Su, Zhongpeng Wang, Yunhong Yang, Ying Xin, Dong Han, Xi Yang, Hongbo Wang, Xiyan Gao, Zhaoliang Zhang*, Synthesis and toluene adsorption/desorption property of beta zeolite coated on cordierite honeycomb by an in situ crystallization method, Chemical Engineering & Technology, 2008, 31 (12): 1856–1862.

Zhaoliang Zhang*, Yexin Zhang, Zonggang Mu, Pengfei Yu, Xianzhi Ni, Shilong Wang, Lisheng Zheng, Synthesis and catalytic properties of Ce0.6Zr0.4O2 solid solutions in the oxidation of soluble organic fraction from diesel engines, Applied Catalysis B: Environmental, 2007, 76 (3-4): 335–347.

Zhaoliang Zhang*, Zonggang Mou, Pengfei Yu, Yexin Zhang, Xianzi Ni, Diesel soot combustion on potassium promoted hydrotalcite-based mixed oxide catalysts, Catalysis Communication, 2007, 8 (11): 1621–1624.

Zhang Zhaoliang*, Geng Haoran, Zheng Lisheng, Du Bin，Resistance to sulfidation and catalytic performance of titanium-tin solid solutions in SO2+CO and NO+SO2+CO reactions, Applied Catalysis, A: General, 2005, 284: 231–237.

Zhang Zhaoliang*, Geng Haoran, Zheng Lisheng, Du Bin, Characterization and catalytic activity for the NO decomposition and reduction by CO of nanometer Co3O4, Journal of Alloys and Compounds, 2005, 394: 317–321.

刘赵穹，马骏，张昭良，梁均方，杨锡尧，CO为还原剂同时还原SO2和NO的SnO2 - TiO2固溶体催化剂 II 催化剂的物理化学性质，催化学报，2004，25 (4): 302-308.

Zhang Zhaoliang, Ma Jun, Yang Xiyao，Separate/simultaneous catalytic reduction of sulfur dioxide and/or nitric oxide by carbon monoxide over titanium-tin solid solution catalysts，Chemical Engineering Journal, 2003, 95: 15-24.

Zhang Zhaoliang, Ma Jun, Yang Xiyao, Separate/Simultaneous catalytic reduction of sulfur dioxide and/or nitric oxide by carbon monoxide over Ti2-promoted cobalt sulfides, Journal of Molecular Catalysis A: Chemical，2003, 195 (1-2): 189-200.

Liu Zhaoqong，Ma Jun，Zhang Zhaoliang，Yang Xiyao, SO2-assisted simultaneous reduction of SO2 and NO by CO on SnO2-TiO2 Solid Solution, Catalysis Letters, 2003, 86(1-3): 87-95.

Zhang Zhaoliang, Zhu Lili, Ma Jun, Ren Shaoling and Yang Xiyao, Temperature programmed desorption-mass spectrometry study of NO desorption and decomposition by titania supported 12-tungstophosphoric acid, Reaction Kinetics and Catalysis Letters, 2002, 76 (1): 93-101.

Zhang Zhaoliang, Ma Jun, Liu Zhaoqong, Ren Shaoling, Yang Xiyao, and Kou Yuan, Titanium-promoted cobalt sulfide catalysts for NO

decomposition and reduction by CO, Chemistry Letters, 2001: 464-465.

Zhang Zhaoliang, Sun Dongsheng, Efforts of particle size on the electrochemical properties of Mm(NiCoMnAl)5 alloy, Journal of Alloys and Compounds, 1998, 270: L7-L9.

张昭良, 马骏, 杨锡尧, 高效一体化脱硫脱硝催化剂, 物理化学学报, 2001, 17 (6): 481-483.

刘赵穹，马骏, 张昭良, 杨锡尧, Sn0.5Ti0.5O2催化剂上SO2、NO和CO反应的机理，物理化学学报, 2002, 18 (3): 193-196.

张昭良, 孙东升，杨锡尧, AB5型贮氢合金电极的性能, 物理化学学报, 1998, 14 (10): 954-956.

Jin Hongmei, Li Guoxun, Wang Ruikun, Wang Chaoqun, Zhang Zhaoliang, Sun Lihong, Characteristics of La-Pr-Nd electrodes for nickel-metal hydride batteries, Rare Metals, 1997, 16 (3): 182-187.