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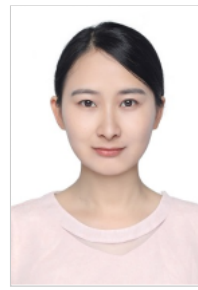
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### 程星星

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**基本信息:** 程星星, 女, 1984, 教授, 工学博士。

**联系方式:** Email: [xcheng@sdu.edu.cn](mailto:xcheng@sdu.edu.cn)

**教育背景:**

2002-2006年, 东南大学, 动力工程专业, 学士学位;

2006-2008年, 东南大学, 动力工程与工程热物理专业, 硕士学位;

2009-2013年, 加拿大不列颠哥伦比亚大学(University of British Columbia), 化学与生物工程, 博士学位。

**研究生培养与本科教学:** 共计指导博士生、硕士生20余人, 所培养研究生数人次获得研究生国家奖学金、校长奖学金、专项以及优秀毕业生等资助或称号, 获山东省优秀博士论文、山东省优秀硕士论文、山东省研究生优秀成果奖等奖项。主讲研究生课程《反应器设计》、《新能源材料研究方法》, 主讲本科课程《传热学》等。

**研究领域:**

(1) 烟气污染物治理, 主要为宽温度区间一氧化碳脱硝技术, 主要用于钢铁、焦化、化工、冶金等行业的烟气低温脱硝领域实现脱硝过程的绿色循环和资源自给化, 并大幅降低脱硝过程的运行成本。研究内容包括新型反应器开发、催化剂研发、反应过程优化、工程应用推广等。此部分研究还结合VOC治理、余热回收等过程, 实现多污染的联合脱除和协同生产过程的资源化烟气利用。

(2) 氢能技术及新能源综合利用技术, 主要研究碳基储氢材料、水合物储氢技术、光水电解制氢技术、氢气纯度检测技术、源综合利用的技术经济性分析法研究等。

(3) 废弃生物质的高值化资源化利用, 主要研究内容为废弃生物质制备高品质活性炭技术、生物质炭土壤改良剂开发、生物解焦油的提质利用、木醋液植物生长调节剂及有机农药提取技术等。

(4) 强化传热及热量综合利用技术, 主要研究面向电池系统的热管理及强化传热技术、燃料电池的小型化和热量管理、基于改性增效的传热强化技术、传热及相变蓄热的格子玻尔兹曼模拟等。

**科研项目:** 主持与参与国家自然科学基金面上项目、国家自然科学基金青年项目、国家重点研发计划子课题、山东省自然科学基金面上项目、山东省自然科学基金面上项目、低品位能源利用技术及系统教育部重点实验室开放课题、其他省部级项目或政府/企业委托项目等。

**论文论著:** 先后在所研究的领域获授权和申请国家发明专利20余项, 获授权美国发明专利1项; 本人及所指导的研究生今发表SCI/EI论文共计60余篇。

近年部分代表论文和已获授权发明专利如下:

a) 部分论文列表

1. Xingxing Cheng\*, etc. NO reduction by CO over copper catalyst supported on mixed CeO<sub>2</sub> and Fe<sub>2</sub>O<sub>3</sub>: Catalyst design and ad test. Applied Catalysis B: Environmental 239 (2018) 485–501
2. Luyuan Wang, Xingxing Cheng\*, etc. Effect of the NO+CO reaction on the consumption of carbon supports: An in situ TG-FTIR analysis. Chemical Engineering Journal, 2018, 352, 90-102
3. Jianjie Li #, Peiliang Sun #, Xingxing Cheng \*,etc. A novel integrated rotary reactor for NO reduction by CO and air preheating. Reactor design and heat transfer modelling. Applied Thermal Engineering, Volume 190, 25 May 2021, 116815
4. Mudassir Hussain Tahir #, Rana Muhammad Irfan #, Xingxing Cheng \*, etc. Mango peel as source of bioenergy, bio-based char via pyrolysis, thermodynamics and evolved gas analyses. Journal of Analytical and Applied Pyrolysis. 2021, 155:105066
5. Donghai An, Xiaofei Sun, Xingxing Cheng\*, etc. Investigation on mercury removal and recovery based on enhanced adsorption on activated coke. Journal of Hazardous Materials, 384(2020)121354
6. Jiapeng Fu, Binxuan Zhou, Zhen Zhang, Tao Wang, Xingxing Cheng\*, Leteng Lin, Chunyuan Ma. One-step rapid pyrolysis activation method to prepare nanostructured activated coke powder. Fuel, 262, 2020, 116514.
7. Donghai An, Xiang Wang, Xingxing Cheng\*, etc. Regeneration performance of activated coke for elemental mercury removal by microwave and thermal methods. Fuel Processing Technology, 199 (2020) 106303.
8. Qianwen Du, Xingxing Cheng\*, etc. Investigation on NO reduction by CO and H<sub>2</sub> over metal oxide catalysts Cu<sub>2</sub>M<sub>9</sub>CeO<sub>x</sub>. International Journal of Hydrogen Energy. 45(33), 2020, 16469-16481
9. Mudassir Hussain Tahir, Xingxing Cheng\*, etc. Comparative chemical analysis of pyrolyzed bio oil using online TGA-FTIR and GC. Journal of Analytical and Applied Pyrolysis, 2020, 150, 104890
10. Xingxing Cheng\*, Xiuping Wang, etc. Investigation on NO reduction and CO formation over coal char and mixed iron powder. Fuel. Volume 245, 1 June 2019, Pages 52-64.

11. Peiliang Sun, Xingxing Cheng\*, etc. N-Doped FeCo/ASC catalysts for NOx reduction by CO in a simulated rotary reactor. *Sci. Technol.*, 2019,9, 4429
12. Donghai An, Xiaoyang Zhang, Xingxing Cheng \*, Yong Dong \*. Performance of Mn-Fe-Ce /GOx for Catalytic Oxidation of H<sub>2</sub> and Selective Catalytic Reduction of NOx in the same temperature range. *Catalysts*, 8, 399
13. Xingyu Zhang, Xingxing Cheng\*, etc. Effect of ZrO<sub>2</sub> support on Cu/Fe<sub>2</sub>O<sub>3</sub>-CeO<sub>2</sub>/ZrO<sub>2</sub> catalyst for NO removal by CO using rotary reactor. *Catalysis Science & Technology*, 2018, 8, 5623 - 5631
14. Xingxing Cheng\*, etc. Catalytic reduction of nitrogen oxide by carbon monoxide, methane and hydrogen over transition metal supported on BEA zeolites. *International Journal of Hydrogen Energy*. 2018, 43(48), 21969-21981
15. Peiliang Sun, Xingxing Cheng \*, etc, Jingcai Chang. NOx reduction by CO over ASC catalysts in a simulated rotary reactor: effect of CO<sub>2</sub>, H<sub>2</sub>O and SO<sub>2</sub>. *RSC Advances*, 2018, 8, 36604-36615
16. Xingxing Cheng\*, etc. Investigation on NO reduction and CO formation over coal char and mixed iron powder. *Fuel* 245 (2018) 64
17. Xingxing Cheng\*, etc. A novel on-site wheat straw pretreatment method: Enclosed torrefaction. *Bioresource Technology*, 2019, 2019, 48-55.
18. Xingxing Cheng \*, etc. Comparative study of coal based catalysts for NO adsorption and NO reduction by CO. *Fuel*. 2018, 214, 241
19. Xingxing Cheng \*, etc. IR and kinetic study of sewage sludge combustion at different oxygen concentrations. *Waste Management (2018)* 74, 279-287
20. Xingxing Cheng\*, etc., Nitrogen oxides reduction by carbon monoxide over semi-coke supported catalysts in a simulated rotary reactor: reaction performance under dry conditions, *Green Chemistry*, 18, 5305-5324, 2016.
21. Luyuan Wang, Xingxing Cheng\*, etc., Investigation on Fe-Co binary metal oxides supported on activated semi-coke for NO reduction by CO, *Applied Catalysis B: Environmental*, 201, 636-651, 2017.
22. Xingxing Cheng\*, etc., A simulated rotary reactor for NOx reduction by carbon monoxide over Fe/ZSM-5 catalysts, *Chemical Engineering Journal*, 307, 24- 40, 2017.
23. Xingxing Cheng, Xiaotao T. Bi\*, Reaction Kinetics of Selective Catalytic Reduction of NOx by Propylene over Fe/ZSM-5, *Chemical Engineering Journal*, 211-212, 453-462, 2012.
24. Xingxing Cheng, Luyuan Wang, Zhiqiang Wang\*, etc., Catalytic Performance of NO Reduction by CO over Activated Semicoke Supported Fe/Co Catalysts, *Industrial & Engineering Chemistry Research*, 2016, 55 (50), 12710–12722
25. Xingyu Zhang, Chunyuan Ma, Xingxing Cheng\*, etc., Performance of Fe-Ba/ZSM-5 catalysts in NO + O<sub>2</sub> adsorption and NO reduction, *International Journal of Hydrogen Energy*, 2017, In press.
26. Luyuan Wang, Zhiqiang Wang, Xingxing Cheng\*, etc. In situ DRIFTS study of the NO + CO reaction on Fe-Co binary metal oxides over activated semi-coke supports. *RSC Advances*, 2017, In press.
27. Xingxing Cheng, Xiaotao T. Bi\*, Modeling and simulation of nitrogen oxides adsorption in fluidized bed reactors, *Chemical Engineering Science*, 96, 42-54, 2013.
28. Xingxing Cheng, Xiaotao T. Bi\*, Hydrodynamics of an i-CFB deNOx reactor, *Powder Technology*, 251, 25-36, 2014
29. Xingxing Cheng, Xiaotao T. Bi\*, A review of recent advances in selective catalytic NOx reduction reactor technologies, *Particuology*, 16, 1-18, 2014.
30. Xingxing Cheng, Xiaotao T. Bi\*, Catalytic NOx Reduction in a Novel i-CFB Reactor: I. Kinetics Development and Modeling of Reduction Zone, *Industrial & Engineering Chemistry Research*, 53, 9365-9376, 2014.
31. Xingxing Cheng, Xiaotao T. Bi\*, Catalytic NOx Reduction in a Novel i-CFB Reactor: II. Modeling and Simulation of i-CFB Reactors, *Industrial & Engineering Chemistry Research*, 53, 11901-11912, 2014.
32. Xingxing Cheng, Xiaotao T. Bi\*, Modeling NOx adsorption onto Fe/ZSM-5 catalysts in a fixed bed reactor, *International Journal of Chemical Reactor Engineering*, 11, 1-12, 2013.
33. Terris T. Yang, Hsiaotao T. Bi\*, Xingxing Cheng. Effects of O<sub>2</sub>, CO<sub>2</sub> and H<sub>2</sub>O on NOx adsorption and selective catalytic reduction over Fe/ZSM-5. *Applied catalysis B: Environmental*. 102, 163-171, 2011.

b). 已获授权发明专利

- [1]. Air preheating and NOx reduction integrated reactor and reaction (美国专利)
- [2]. 一种回转式HC-SCR脱硝反应器. (发明专利, 201410153584.6)
- [3]. 钢铁企业自给式绿色脱硝系统及工艺. (发明专利, 201410350546.X)
- [4]. 一种利用贫富氧交替反应进行烟气脱硝的工艺 (发明专利, 201410153585.0)
- [5]. 一种NOx吸附还原双功能催化剂的分步分区制备方法. (发明专利, 201510119805.2).
- [6]. 空预脱硝一体反应器及反应方法 (发明专利, 201410246772.3)

[7].一种NO<sub>x</sub>吸附还原双功能催化剂的分步分区制备方法 (发明专利, 2015101198052)

[8].一种高温风道脱硝反应器及其脱硝的方法 (发明专利, 2015101192677)

[9].一种全碳烟气脱硝系统及脱硝方法 (发明专利, 201510516291.4)

[10].一种穿透式可装载催化剂模块 (发明专利, 201510956060.5)

[11].一种催化氧化换热器及其工作方法 (发明专利, 201510980833.3)

[12].烟气催化剂、烟气中多种污染物协同处理装置及方法. (发明专利: 201920560611.4)

[13].一种低温滴水吸收式催化脱硝方法, (发明专利: 2017 1 0443842.8)

[14].一种回转式脱硫脱硝反应器及系统. (发明专利: 201610933782.3)

[15].一种CO-SCR脱硝催化剂及制备方法与应用. (发明专利: 2020101960259)

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地址: 济南市经十路17923号 邮编: 250061 电话: 0531-88392701 传真: 0531-88392701 [网站管理]