

## Dr. Shuang Liu (Curriculum Vitae)

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### Current Position

Associate Professor in School of Materials Science & Engineering, Ocean University of China, Qingdao, 266100, P.R. China

### Education

2010 - 2015 - **Ph.D.** Materials Science & Engineering, Tsinghua University, China

2006 - 2010 - **B.S.** Materials Science & Engineering, Tsinghua University, China

### Research Interests

Heterogeneous catalysis; Exhaust purification; Catalytic conversion; Nano-catalyst design.

### Publication in Refereed Journals

1. Houlin Wang, Shuting Luo, Meisheng Zhang, Wei Liu, Xiaodong Wu\*, **Shuang Liu\***. “Roles of oxygen vacancy and  $O_x^-$  in oxidation reactions over  $CeO_2$  and  $Ag/CeO_2$  nanorod model catalysts”, *Journal of Catalysis*, 2018, 368: 365.
2. Houlin Wang, Shuting Luo, Xinghao Li, Wei Liu, Xiaodong Wu, Duan Weng, **Shuang Liu\***. “Thermally stable  $Ag/Al_2O_3$  confined catalysts with high diffusion-induced oxidation activity”, *Catalysis Today*, 2018, Online Published (doi: 10.1016/j.cattod.2018.06.027).
3. Houlin Wang, Baofang Jin, Haobo Wang, Ningning Ma, Wei Liu, Duan Weng, Xiaodong Wu, **Shuang Liu\***. “Study of Ag promoted  $Fe_2O_3@CeO_2$  as superior soot oxidation catalysts: The role of  $Fe_2O_3$  crystal plane and tandem oxygen delivery”, *Applied Catalysis B: Environmental*, 2018, 237: 251.
4. Houlin Wang, Minghan Liu, Yue Ma, Ke Gong, Wei Liu, Rui Ran, Duan Weng, Xiaodong Wu\*, **Shuang Liu\***. “Simple strategy generating hydrothermally stable core-shell platinum catalysts with tunable distribution of acid sites”, *ACS Catalysis*, 2018, 8: 2796.
5. Yuxi Gao, Anqi Duan, **Shuang Liu\***, et al. “Study of  $Ag/Ce_xNd_{1-x}O_2$  nanocubes as soot oxidation catalysts for gasoline particulate filters: Balancing catalyst activity and stability by

Nd doping”, *Applied Catalysis B: Environmental*, 2017, 203: 116.

6. Houlin Wang, **Shuang Liu\***, Zhen Zhao, et al. “Activation and deactivation of Ag/CeO<sub>2</sub> during soot oxidation: influences of interfacial ceria reduction”, *Catalysis Science & Technology*, 2017, 7: 2129.

7. **Shuang Liu\***, Xiaodong Wu\*, Wei Liu, et al. “Soot oxidation over CeO<sub>2</sub> and Ag/CeO<sub>2</sub>: Factors determining the catalyst activity and stability during reaction”, *Journal of Catalysis*, 2016, 337: 188.

8. **Shuang Liu\***, Xiaodong Wu\*, Jia Tang, et al. “An exploration of soot oxidation over CeO<sub>2</sub>-ZrO<sub>2</sub> nanocubes: Do more surface oxygen vacancies benefit the reaction?” *Catalysis Today*, 2017, 281: 454.

9. **Shuang Liu**, Xiaodong Wu\*, Duan Weng\*, et al. “Roles of acid sites on Pt/H-ZSM5 catalyst in catalytic oxidation of diesel soot”, *ACS Catalysis*, 2015, 5: 909.

10. **Shuang Liu**, Xiaodong Wu\*, Hui Luo, et al. “Pt/zeolite catalysts for soot oxidation: Influence of hydrothermal ageing”, *Journal of Physical Chemistry C*, 2015, 119: 17218.

11. **Shuang Liu**, Xiaodong Wu\*, Duan Weng, et al. “Sulfation of Pt/Al<sub>2</sub>O<sub>3</sub> catalyst for soot oxidation: High utilization of NO<sub>2</sub> and oxidation of surface oxygenated complexes”, *Applied Catalysis B: Environmental*, 2013, 138-139: 199.

12. **Shuang Liu**, Xiaodong Wu\*, Duan Weng\*, “Ceria-based catalysts for diesel soot oxidation: A review”, *Journal of Rare Earths*, 2015, 33: 567.

13. **Shuang Liu**, Xiaodong Wu\*, Yu Lin, et al. “Active oxygen-assisted NO-NO<sub>2</sub> recycling and decomposition of surface oxygenated species on diesel soot with Pt/Ce<sub>0.6</sub>Zr<sub>0.4</sub>O<sub>2</sub> catalyst”, *Chinese Journal of Catalysis*, 2014, 35: 407.

14. **Shuang Liu**, Xiaodong Wu\*, Duan Weng, et al. “Combined promoting effects of platinum and MnO<sub>x</sub>-CeO<sub>2</sub> supported on alumina on NO<sub>x</sub>-assisted soot oxidation: Thermal stability and sulfur resistance”, *Chemical Engineering Journal*, 2012, 203: 25.

15. **Shuang Liu**, Xiaodong Wu\*, Duan Weng, et al. “NO<sub>x</sub>-assisted soot oxidation on Pt-Mg/Al<sub>2</sub>O<sub>3</sub> catalysts: Magnesium precursor, Pt particle size, and Pt-Mg interaction”, *Industrial & Engineering Chemistry Research*, 2012, 51: 2271.

## **Invited Oral Presentations**

1. **Shuang Liu**, “Exploration of the model ceria-based soot oxidation catalysts — from mechanism to application”, The 22<sup>th</sup> National Conference on Rare Earth Catalysis, **Qingdao China**, 12-14 October 2018.
2. **Shuang Liu**, “Exploration of the model ceria-based soot oxidation catalysts — from mechanism to application”, The 359<sup>th</sup> Young Scientists Forum of China Association for Science and Technology, **Changchun, China**, 27-29 September 2018.
3. **Shuang Liu**, “A simple strategy generating core-shell Pt catalysts with ultrahigh hydrothermal stability and tunable acid site distribution”, The 8<sup>th</sup> Japan-China Workshop on Environmental Catalysis and Eco-Materials, **Tsukuba, Japan**, 2-8 December 2017.
4. **Shuang Liu**, “Ceria-based soot oxidation catalysts for exhaust purification”, The 5<sup>th</sup> World Materials Summit, **Rizhao, China**, 18-20 October 2016.
5. **Shuang Liu**, “Soot oxidation over CeO<sub>2</sub> and Ag/CeO<sub>2</sub>: Factors determining the catalyst activity and stability during reaction”, The 7<sup>th</sup> Japan-China Workshop on Environmental Catalysis and Eco-Materials, **Guangzhou, China**, 7-8 November 2015.
6. **Shuang Liu**, “Combined promoting effects of Pt and MnO<sub>x</sub>-CeO<sub>2</sub> supported on Al<sub>2</sub>O<sub>3</sub> on NO<sub>x</sub>-assisted soot oxidation”, BIT’s 5<sup>th</sup> Annual Global Congress of Catalysis, **Qingdao, China**, 21-23 September 2014.
7. **Shuang Liu**, “Sulfation of Pt/Al<sub>2</sub>O<sub>3</sub> catalyst for soot oxidation: High utilization of NO<sub>2</sub> and oxidation of surface oxygenated complexes”, The 6<sup>th</sup> Japan-China Workshop on Environmental Catalysis and Eco-Materials, **Ehime, Japan**, 27-30 November 2013.
8. **Shuang Liu**, “Combined promoting effects of platinum and MnO<sub>x</sub>-CeO<sub>2</sub> supported on alumina on NO<sub>x</sub>-assisted soot oxidation: thermal stability and sulfur resistance”, The 1<sup>st</sup> International Education Forum on Environment and Energy Science, **Hawaii, USA**, 8-11 December 2012.