

Curriculum Vitae

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Postdoctoral Fellowship
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Career Experience:

2016-2018: Assistant Professor, Wuhan University of Technology, Wuhan, China.
2018-now: Postdoctoral Fellowship, Ludwig-Maximilians-Universität München

Education:

2007-2011 B.S. in Chemistry
College of Chemistry and Chemical Engineering, Hunan Normal University, Changsha, China

2011-2016 Ph.D. in Applied Chemistry (Superadvisor: Prof. Xueqiang Cao)
Changchun Institute of Applied Chemistry Chinese Academy of Sciences, University of Chinese Academy of Sciences, Beijing, China

Research Project

1. CMAS resistance mechanism of thermal barrier coatings based on rare-earth composite oxides, supported by Natural Science Foundation of China (Grant No. 51702244).
2. Preparation of wear, corrosion and heat resistant multi-functional coatings on magnesium alloy, supported by Natural Science Foundation of Hubei Province (Grant No. 2017CFB285).
3. The development and testing of new thermal barrier coating materials for H-class industrial gas turbine, supported by Shanghai Electric Gas Turbine Co.,Ltd.

Research interests

1. Developing new alternative thermal barrier coating (TBC) materials to YSZ for applications above 1250°C.
2. The design, preparation and characterization of thermal/environment barrier

coatings (T/EBC) for SiC_f/SiC composite materials used in next-generation gas turbines.

3. Mitigation of CMAS attack on T/EBC by capturing the main constituents of CMAS melt into .

Published articles

1. **Xin Zhou***, Jinshuang Wang, Jieyan Yuan, Junbin Sun, Shujuan Dong, Limin He, Xueqiang Cao*, Calcium-magnesium-alumino-silicate induced degradation and failure of La₂(Zr_{0.7}Ce_{0.3})₂O₇/YSZ double-ceramic-layer thermal barrier coatings prepared by electron beam-physical vapor deposition, *Journal of the European Ceramic Society*, 2018, 38 (4): 1897-1907.
2. Jieyan Yuan, Hao Zhang, **Xin Zhou***, Shujuan Dong, Jianing Jiang, Longhui Deng, Xueqiang Cao*, Phase and microstructure evolution of SrCeO₃ ceramic when exposed to molten V₂O₅ at 700-1250°C, *Corrosion Science*, 2018, 145: 295-306.
3. Junbin Sun, Jinshuang Wang, **Xin Zhou***, Yu Hui, Shujuan Dong, Lifen Li, Longhui Deng, Jianing Jiang, Xueqiang Cao*, Thermal cycling behavior of the plasma-sprayed coating of lanthanum hexaaluminate, *Journal of the European Ceramic Society*, 2018, 38 (4): 1919-1929.
4. Jinshuang Wang, Junbin Sun, Qiangshan Jing, Bing Liu, Hao Zhang, Yongsheng Yu, Jieyan Yuan, Shujuan Dong, **Xin Zhou***, Xueqiang Cao, Phase stability and thermo-physical properties of ZrO₂-CeO₂-TiO₂ ceramics for thermal barrier coatings, *Journal of European Ceramic Society*, 2018, 38 (7):2841-2850.
5. **Xin Zhou***, Limin He, Xueqiang Cao, Zhenhua Xu, Rende Mu, Junbin Sun, Jieyan Yuan, Zou, Binglin*, La₂(Zr_{0.7}Ce_{0.3})₂O₇ thermal barrier coatings prepared by electron beam-physical vapor deposition that are resistant to high temperature attack by molten silicate, *Corrosion Science*, 2017, 115: 143-151.
6. **Xin Zhou**, Zhenhua Xu, Binglin Zou*, Limin He, Jiaying Xu, Xueqiang Cao*, Hot corrosion behaviour of LaTi₂Al₉O₁₉ ceramic exposed to molten V₂O₅ at temperatures of 700-950°C, *Corrosion Science*, 2016, 104: 310-318.
7. **Xin Zhou**, Binglin Zou, Limin He*, Zhenhua Xu, Jiaying Xu, Rende Mu, Xueqiang Cao*, Hot corrosion behaviour of La₂(Zr_{0.7}Ce_{0.3})₂O₇ thermal barrier coating ceramics exposed to molten calcium magnesium aluminosilicate at different temperatures, *Corrosion Science*, 2015, 100: 566-578.
8. Jinshuang Wang, Junbin Sun, Jieyan Yuan, Qiangshan Jing, Shujuan Dong, Bing Liu, Hao Zhang, Longhui Deng, Jianing Jiang, **Xin Zhou***, Xueqiang Cao, Phase stability, thermo-physical properties and thermal cycling behavior of plasma-sprayed CTZ, CTZ/YSZ thermal barrier coatings, *Ceramics International*, 2018, 44(8):9353-9363.
9. Junbin Sun, Jinshuang Wang, Shujuan Dong, Yu Hui, Lifen Li, Longhui Deng, Jianing Jiang, **Xin Zhou***, Xueqiang Cao*, Effect of heat treatment on microstructure and property of plasma-sprayed lanthanum hexa-aluminate coating, *Journal of Alloys and Compounds*, 2018, 739:856–865.
10. Junbin Sun, Jinshuang Wang, **Xin Zhou***, Shujuan Dong, Longhui Deng, Jianing

Jiang, Xueqiang Cao*, Microstructure and thermal cycling behavior of plasma-sprayed $\text{LaMgAl}_{11}\text{O}_{19}$ coatings, *Ceramics International*, 2018, 44(5): 5572-5580.

11. Jinshuang Wang, Junbin Sun, Hao Zhang, Shujuan Dong, Jianing Jiang, Longhui Deng, Xin Zhou*, XueqiangCao*, Effect of spraying power on microstructure and property of nanostructured YSZ thermal barrier coatings, *Journal of Alloys and Compounds*,2018, 730:471–482.

12. Jieyan Yuan, Junbin Sun, Jinshuang Wang, Hao Zhang, Shujuan Dong, Jianing Jiang, Longhui Deng, Xin Zhou*, XueqiangCao*, SrCeO_3 as a novel thermal barrier coating candidate for high-temperature applications, *Journal of Alloys and Compounds*,2018, 740:519–528.

13. Limin He[#]*, Xin Zhou[#], Bintao Zhong, Zhenhua Xu, Rende Mua, Guanghong Huang, Xueqiang Cao, Phase evolution, interdiffusion and failure of $\text{La}_2(\text{Zr}_{0.7}\text{Ce}_{0.3})_2\text{O}_7/\text{YSZ}$ thermal barrier coatings prepared by electron beam-physical vapor deposition, *Journal of Alloys and Compounds*, 2015, 624: 137–147. (Co-first author)

14. Xin Zhou, Zhenhua Xu, Xizhi Fan, Sumei Zhao, Xueqiang Cao*, Limin He*, $\text{Y}_4\text{Al}_2\text{O}_9$ ceramics as a novel thermal barrier coating material for high-temperature applications, *Materials Letters*, 2014, 134: 146-148.

15. Xin Zhou, Zhenhua Xu, Rende Mu, Limin He*, Guanghong Huang, Xueqiang Cao*, Thermal barrier coatings with a double-layer bond coat on Ni_3Al based single-crystal super alloy, *Journal of Alloys and Compounds*, 2014,591: 41–51.

16. Junbin Sun, Jinshuang Wang, Hao Zhang, Jieyan Yuan, Shujuan Dong, JianingJiang, Longhui Deng, Xin Zhou*, XueqiangCao*, Thermal cycling behavior of the plasma-sprayed coating of lanthanum hexaaluminate, *Journal of Alloys and Compounds*, 2018, 750:1007–1016.

Paper submitted

1. Si Chen, Xin Zhou*, Junbin Sun, Hao Zhang, Jinshuang Wang, Jieyan Yuan, Jianing Jiang, Longhui Deng, Shujuan Dong, Xueqiang Cao* Mg_2SiO_4 as a novel thermal barrier coating material for gas turbine applications, *Journal of the European Ceramic Society*, Major Revision.
2. Xin Zhou*, Tao Chen, Zhonghua Deng, Hao Zhang, Jieyan Yuan, Jianing Jiang, Xueqiang Cao*, Failure of plasma sprayed nano-zirconia-based thermal barrier coatings exposed to molten $\text{CaO-MgO-Al}_2\text{O}_3\text{-SiO}_2$ deposits, *Journal of the American Ceramic Society*, Major Revision.