

# Curriculum Vitae

Xiaolong Chen, Male, born in Oct. 1984

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## Education

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2007-2012. . . . . State Key Laboratory of Rare Earth Resources Utilization, Changchun Institute of Applied Chemistry, Chinese Academy of Sciences, China.

2003-2007. . . . . Hunan Normal University, Changsha. Bachelor of Science in Chemistry, China.

## Employments

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2017/09/05-now            Jinan University, Guangzhou, China, Associate Professor

2013/07/12-2013/07/11   High-temperature materials unit, Structural materials center, National Institute for Materials Science (NIMS), Japan, **Postdoctoral Researcher**;

2012/07/09-2013/07/11   State Key Laboratory of Corrosion and Protection, Institute of Metal Research, Chinese Academy of Sciences, China, **Assistant Professor**.

## Research Projects experience and skills

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2013-2016 Developments and evaluations of advanced thermal barrier coatings (TBCs) by suspension plasma spray;

2013-2016 Developments and evaluations of advanced TBCs with high corrosion resistance against the molten salt attack;

2014-2016 Development and evaluations of advanced plasma-erosion resistant coatings developed by suspension plasma spray;

2014-2016 The development of microcracks (both vertical and horizontal) in suspension plasma sprayed TBCs monitored by in-situ Acoustic Emission method;

2012-2013 Ceramic coating fabrication and evaluations by the EB-PVD process (including TBCs and other ceramic functional coatings);

2007-2012 Doctoral period, to develop new TBCs with improved temperature capability ( $\geq 1200^{\circ}\text{C}$ ) and durability through optimizations of the new ceramic oxides in combination with TBC architectures.

## Awards and Fellowships

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2015. . . . . Young Incentive Award 2015, Japan Thermal Spray Society, *Japan*

2013. . . . . Natural Science Award, Grade One, Jilin Province (Provincial and Ministerial level), *China*

2013. . . . . Granted project of National Natural Science Foundation of China (**PI**), *China*

2009. . . . . Excellent Student in the Graduate School of Chinese Academy of Sciences, *China*

2006. . . . . First class scholarship in Hunan Normal University, *China*

2006. . . . . Excellent Student in Hunan Normal University, *China*

2006. . . . . The winner of the future educator competition in Hunan Normal University, *China*

## Publications

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1. Yiwei Sun, Hengkai Wu, Hongxu Zhao, **Xiaolong Chen\***, Chaoqian Guo, Junbin Sun, Xueqiang Cao, Chunming Deng, Wei Li, High-temperature degradation of the in-situ laser-glazed plasma sprayed LaMgAl<sub>11</sub>O<sub>19</sub> thermal barrier coating exposed to Ca-Mg-Al-silicate deposits, *Corrosion Science*, 2020,176,108934.
2. Yiwei Sun, Hengkai Wu, **Xiaolong Chen\***, Chunming Deng, Duoli Wu, Xueqiang Cao, Wei Li, Degradation of the plasma sprayed GdMgAl<sub>11</sub>O<sub>19</sub> thermal barrier coating resistant to calcium-magnesium-aluminum-silicate attack at 1350°C, *Corrosion Science*, 2020,169,108593.
3. **Xiaolong Chen\***, Yiwei Sun, Jingkang Hu, Jie Li, Chunming Deng, Duoli Wu, Dahai Zeng, Wei Li, Ying Liu, Binglin Zou\*, Xueqiang Cao, Thermal cycling failure of the multilayer thermal barrier coatings based on LaMgAl<sub>11</sub>O<sub>19</sub>/YSZ, *Journal of the European Ceramic Society*, 2020,40(4),1424-1432.
4. Junbin Sun\*, Jinshuang Wang, Yu Hui, **Xiaolong Chen\***, Preparation and properties of LaMgAl<sub>11</sub>O<sub>19</sub> thermal barrier coatings doped with Gd<sub>2</sub>O<sub>3</sub>, *Ceramics International*, 2020,46,4174-4179.
5. Junbin Sun, Linfeng Niu, Yu Hui, Wenyi Li, **Xiaolong Chen\***, Jinshuang Wang\*, Weihong Lu\*, Thermal conductivity and compatibility of LaMgAl<sub>11</sub>O<sub>19</sub>/LaPO<sub>4</sub> composites, *Ceramics International*, 2020, 46, 27967-27972.
6. **Xiaolong Chen\***, Yiwei Sun, Dexin Chen, Jie Li, Wei Li, Dahai Zeng, Duoli Wu, Binglin Zou\*, Xueqiang Cao, A comparative investigation on the corrosion degradation of plasma sprayed YSZ and LnMgAl<sub>11</sub>O<sub>19</sub> (Ln = Nd, Sm, Gd) coatings exposed to the molten V<sub>2</sub>O<sub>5</sub>+Na<sub>2</sub>SO<sub>4</sub> salt mixture at 1100 °C, *Journal of the European Ceramic Society*, 2019,39(13),3778-3787.
7. **Xiaolong Chen**, Seiji Kuroda\* , Takuma Ohnuki, Hiroshi Araki, Makoto Watanabe, Yoshio Sakka, Effects of processing parameters on the deposition of yttria partially stabilized zirconia coating during suspension plasma spray, *Journal of the American Ceramic Society*, 2016,99 (11),3546-3555.
8. **Xiaolong Chen\***, Hiroshi Honda, Seiji Kuroda, Hiroshi Araki, Hideyuki Murakami, Makoto Watanabe, Yoshio Sakka, Highly segmented thermal barrier coatings deposited by suspension plasma spray: effects of spray process on microstructure, *Journal of Thermal Spray Technology*, 2016,25(8),1638-1649.
9. **Xiaolong Chen**, Takuma Ohnuki, Seiji Kuroda\* , Maciej Gizynski, Hiroshi Araki, Hideyuki Murakami, Makoto Watanabe, Yoshio Sakka, Columnar and DVC-structured thermal barrier coatings deposited by suspension plasma spray: high-temperature stability and their corrosion resistance to the molten salt, *Ceramics International*, 2016, 42,16822-16832.
10. **Xiaolong Chen\***, Xueqiang Cao, Binglin Zou, Jun Gong, Chao Sun, Corrosion of lanthanum magnesium hexaaluminate as plasma-sprayed coating and as bulk material when exposed to molten V<sub>2</sub>O<sub>5</sub>-containing salt, *Corrosion Science*, 2015, 91,185-194.
11. **Xiaolong. Chen\***, Xueqiang. Cao, Binglin. Zou, Jun. Gong, Chao. Sun, High-temperature corrosion behavior of plasma sprayed lanthanum magnesium hexaluminate coating by vanadium oxide, *Journal of the European Ceramic Society*, 2015, 35, 227-236.
12. Binglin. Zou, Yu Hui, Wenzhi Huang, Sumei Zhao, **Xiaolong Chen\***, Jiaying Xu, Shunyan Tao, Ying Wang, Xiaolong Cai, Xueqiang Cao\*, Oxidation protection of carbon/carbon composites with a plasma-sprayed ZrB<sub>2</sub>-SiC-Si/Yb<sub>2</sub>SiO<sub>5</sub>/LaMgAl<sub>11</sub>O<sub>19</sub> coating during thermal cycling, *Journal of the European Ceramic Society*, 2015, 35, 2017-2025.
13. **Xiaolong Chen**, Lijian Gu, Binglin Zou, Ying Wang, Xueqiang Cao\*, New functionally graded thermal barrier coating system based on LaMgAl<sub>11</sub>O<sub>19</sub>/YSZ prepared by air plasma spraying, *Surface & Coatings Technology*, 2012, 206, 2265-2274.

14. **Xiaolong Chen**, Yu Zhao, Wenzhi Huang, Hongmei Ma, Binglin Zou, Ying Wang, Xueqiang Cao\*, Thermal aging behavior of plasma sprayed LaMgAl<sub>11</sub>O<sub>19</sub> thermal barrier Coating, *Journal of the European Ceramic Society*, 2011, 31, 2285–2294.
15. **Xiaolong Chen**, Yu Zhao, Xizhi Fan, Yangjia Liu, Binglin Zou, Ying Wang, Hongmei Ma, Xueqiang Cao\*, Thermal cycling failure of new LaMgAl<sub>11</sub>O<sub>19</sub>/YSZ double ceramic top coat thermal barrier coating systems, *Surface & Coatings Technology*, 2011, 205, 3293–3300.
16. **Xiaolong Chen**, Yu Zhao, Lijian Gu, Binglin Zou, Ying Wang, Xueqiang Cao\*, Hot corrosion behaviour of plasma sprayed YSZ/LaMgAl<sub>11</sub>O<sub>19</sub> composite coatings in molten sulfate–vanadate salt, *Corrosion Science*, 2011, 53, 2335–2343.
17. **Xiaolong Chen**, Binglin Zou, Ying Wang, Hongmei Ma, Xueqiang Cao\*, Microstructure and thermal cycling behavior of air plasma-sprayed YSZ/LaMgAl<sub>11</sub>O<sub>19</sub> composite coatings, *Journal of Thermal Spray Technology*, 2011, 20 (6), 1328–1338.
18. **Xiaolong Chen**, Yanfei Zhang, Xinhua Zhong, Zhenhua Xu, Jiangfeng Zhang, Yongliang Cheng, Yu Zhao, Yangjia Liu, Xizhi Fan, Ying Wang, Hongmei Ma, Xueqiang Cao\*, Thermal cycling behaviors of the plasma sprayed thermal barrier coatings of hexaaluminates with magnetoplumbite structure, *Journal of the European Ceramic Society*, 2010, 30, 1649–1657.
19. **陈小龙**, 张彦飞, 许振华, 赵宇, 曹学强\*, 等离子喷涂稀土六铝酸盐热障涂层, *热喷涂技术*, 2009, 1(2), 43-47.
20. Zuhair S. Khan, Binglin Zou\*, **Xiaolong Chen**, Hafiz M. Saleem, Tanveer Zia, M.B.Khan, Xueqiang Cao\*, Thermal cycling behavior and hot corrosion performance of the plasma sprayed Er<sub>2</sub>Si<sub>2</sub>O<sub>7</sub> coatings deposited on C<sub>f</sub>/SiC composites, *Journal of Asian Ceramic Societies*, 2015, 3, 123-129.
21. Zuhair S. Khan, Binglin Zou, **Xiaolong Chen**, Chunjie Wang, Xizhi Fan, Lijian Gu, Wenzhi Huang, Xueqiang Cao\*, Novel double ceramic coatings based on Yb<sub>2</sub>Si<sub>2</sub>O<sub>7</sub>/La<sub>2</sub>(Zr<sub>0.7</sub>Ce<sub>0.3</sub>)<sub>2</sub>O<sub>7</sub> by plasma spraying on C<sub>f</sub>/SiC composites and their thermal shock behavior, *Surface & Coatings Technology*, 2012, 207, 546–554.
22. Lijian Gu, Binglin Zou, Xizhi Fan, Shuibing Zeng, **Xiaolong Chen**, Ying Wang, Xueqiang Cao\*, Oxidation behavior of plasma sprayed Al@NiCr with cyclic thermal treatment at different temperatures, *Corrosion Science*, 2012, 55, 164-171.
23. Shuibing Zeng, Yangjia Liu, Xizhi Fan, Wenzhi Huang, Lijian Gu, Binglin Zou, **Xiaolong Chen**, Zuhair S. Khan, Ling Zhu, Daowu Yang, Xueqiang Cao\*, Thermal Shock Resistance of APS 8YSZ Thermal Barrier Coatings on Titanium Alloy, *Journal of Thermal Spray Technology*, 2012, 21, 335-343.
24. Zuhair S. Khan, Binglin Zou, Wenzhi Huang, Xizhi Fan, Lijian Gu, **Xiaolong Chen**, Shuibing Zeng, Chunjie Wang, Xueqiang Cao\*, Synthesis and characterization of Yb and Er based monosilicate powders and durability of plasma sprayed Yb<sub>2</sub>SiO<sub>5</sub> coatings on C/C–SiC composites, *Materials Science and Engineering B*, 2012, 177, 184-189.
25. Xizhi Fan, Lijian Gu, Shuibing Zeng, Ling Zhu, Chunjie Wang, Ying Wang, Binglin Zou, Wenzhi Huang, **Xiaolong Chen**, Zuhair Subhani Khan, Xueqiang Cao\*, Improving stability of thermal barrier coatings on magnesium alloy with electroless plated Ni–P interlayer, *Surface and Coatings Technology*, 2012, 206, 4471-4480.
26. Yangjia Liu, Xizhi Fan, Shuibing Zeng, Ying Wang, Binglin Zou, Lijian Gu, **Xiaolong Chen**, Zuhair Subhani Khan, Daowu Yang, Xueqiang Cao\*, Corrosion behavior of coating with plasma sprayed 8YSZ on the surface of carbon steel, *Journal of Rare Earths*, 2012, 30, 592-598.
27. Xizhi Fan, Yangjia Liu, Zhenhua Xu, Ying Wang, Binglin Zou, Lijian Gu, Chunjie Wang, **Xiaolong**

- Chen**, Zuhair S. Khan, Daowu Yang, Xueqiang Cao\*, Preparation and characterization of 8YSZ thermal barrier coatings on rare earth-magnesium alloy, *Journal of Thermal Spray Technology*, 2011, 20, 948–957.
28. Lijian Gu, **Xiaolong Chen**, Xizhi Fan, Yangjia Liu, Binglin Zou, Ying Wang, Xueqiang Cao\*, Improvement of thermal shock resistance for thermal barrier coating on aluminum alloy with various electroless interlayers, *Surface & Coatings Technology*, 2011, 206, 29–36.
29. Zhenhua Xu, Limin He\*, **Xiaolong Chen**, Yu Zhao, Xueqiang Cao\*\*, Thermal barrier coatings of rare earth materials deposited by electron beam-physical vapor deposition, *Journal of Alloys and Compounds*, 2010, 508, 94–98.
30. Zhenhua Xu, Limin He\*, **Xiaolong Chen**, Yu Zhao, Rende Mu, Shimei He, Xueqiang Cao\*\*, Thermal cycling behavior of  $\text{La}_2\text{Zr}_2\text{O}_7$  coating with the addition of  $\text{Y}_2\text{O}_3$  by EB-PVD, *Journal of Alloys and Compounds*, 2010, 508, 85–93.
31. Yongliang Cheng, Jiangfeng Zhang, Yanfei Zhang, **Xiaolong Chen**, Ying Wang, Hongmei Ma, Xueqiang Cao\*, Preparation of hollow carbon and silicon carbide fibers with different cross-sections by using electrospun fibers as templates, *European Journal of Inorganic Chemistry*, 2009, 28, 4248–4254.
32. Zhenhua Xu, Limin He, Xinghua Zhong, Jiangfeng Zhang, **Xiaolong Chen**, Hongmei Ma, Xueqiang Cao\*, Effects of  $\text{Y}_2\text{O}_3$  addition on the phase evolution and thermophysical properties of lanthanum zirconate, *Journal of Alloys and Compounds*, 2009, 480, 220–224.
33. Jiangfeng Zhang, Xinghua Zhong, Yongliang Cheng, Ying Wang, Zhenhua Xu, **Xiaolong Chen**, Hongmei Ma, Yu Zhao, Xueqiang Cao\*, Thermal-shock resistance of  $\text{LnMgAl}_{11}\text{O}_{19}$  (Ln=La, Nd, Sm, Gd) with magnetoplumbite structure, *Journal of Alloys and Compounds*, 2009, 482, 376–381.