

## 李轩科 教授 博士生导师

李轩科教授现为武汉科技大学化学与化工学院院长,武汉科 技大学化学与化工学院学科带头人,二级教授/博士生导师,湖 北省楚天学者特聘教授,武汉科技大学先进炭材料工程中心以及 中国宝武-武汉科技大学炭材料联合工程研究中心主任。2007年 获得湖北省自然科学二等奖。2012年获湖北省有突出贡献中青 年专家。长期从事高品质炭纤维纺丝沥青的合成机制及制备;高 导热沥青基炭纤维的制备技术和控制机制;高导热石墨材料及其 高导热复合材料的制备技术与控制机理;过渡金属碳化物在炭材 料表面的形成机制和纳米过渡碳化物的控制合成,电催化和电池 用先进储能炭材料。先后在 Adv. Energy Mater., Adv. Funct. Mater., Energy Storage Mater., Carbon, J. Energy Chem.等知名期刊上发表 研究论文 200 余篇。申请中国发明专利 19 项,其中授权专利 14 项。目前兼任: SCI 源刊《新型炭材料》编委, 广东省热管理工程与材料重点实验室学术委员会委员, 湖北省煤转化与新型炭材料重点实验室学术委员会委员。

## 部分主持或参加科研项目(课题)

 1、国家自然科学基金面上项目,51372177,高定向炭纤维及其高导热炭/炭复合材料的控制制备与导热机理研究, 2014/01-2017/12,80万元,已结题,主持。

2、国家自然科学基金近空飞行器重大专项重点项目, 91016003,超高温、高导热、非烧蚀炭/炭复合材料制备技术及 防热和热响应机制研究,2011/01-2014/12,300万元,已结题, 主持。

3、国家自然科学基金面上项目,50672070,纳米碳管反应模板 在熔盐中制备碳化物纳米纤维及合成机理,2007/01-2009/12,29 万元,已结题,主持。

## 近五年文章

[1] Jing Wu, Rong Zhao, Hui Xiang, Chenfan Yang, Wenda zhong, Chengzhi Zhang, Qin Zhang\*, Xuanke Li\* and Nianjun Yang\*.
"Exposing Highly Active (100) Facet on a SnS2/SnO2 Electrocatalyst to Boost Efficient Hydrogen Evolution"Appl. Catalysis B 292 (2021) 120200 (一区:16.683)

- [2] WendaZhong, WenlongLi, ChenfanYang, JingWu, RongZhao, MemonaIdrees, HuiXiang, QinZhang\*, XuankeLi\*. "Interfacial electron rearrangement: Ni activated Ni(OH)2 for efficient hydrogen evolution" J. Energy. Chem., 2021, 61, 236-242 (− ⊠:7.216)
- [3] Bing Sun, Qin Zhang,\* Chengzhi Zhang, Wenli Xu, Jiapei Wang, Guanming Yuan, Wei Lv, Xuanke Li,\* and Nianjun Yang\*. "A Passionfruit-Like Carbon-Confined Cu2ZnSnS4 Anode for Ultralong-Life Sodium Storage." Adv. Energy Mater. 2021, 2100082 (一区:25.245)
- [4] Zhao Jin, Xiaohua Zuo, Xiangyi Long, Zhengwei Cui, Guanming Yuan\*, Zhijun Dong, Jiang Zhang, Ye Cong, Xuanke Li\*.
  "Accelerating the oxidative stabilization of pitch fibers and improving the physical performance of carbon fibers by modifying naphthalene-based mesophase pitch with C9 resin." Journal of Analytical and Applied Pyrolysis, 2021, 154: 10500 (Ξ Ξ:3.905)
- [5] Chenfan Yang, Rong Zhao, Hui Xiang, Jing Wu, Wenda Zhong, Wenlong Li, Qin Zhang,\* Nianjun Yang,\* and Xuanke Li\*.
  "Ni-Activated Transition Metal Carbides for Efficient Hydrogen Evolution in Acidic and Alkaline Solutions." Adv. Energy Mater., 2020, 2002260. (-⊠:25.245)

- [6] Jing Wu, Xiaxiang Zhang, Zheng Li, Chenfan Yang, Wenda Zhong, Wenlong Li, Chengzhi Zhang, Nianjun Yang,\* Qin Zhang,\* and Xuanke Li\*. "Toward High-Performance Capacitive Potassium-Ion Storage: A Superior Anode Material from Silicon Carbide-Derived Carbon with a Well-Developed Pore Structure." Adv. Funct. Mater., 2020, 2004348. (一 区:16.863)
- [7] Guanming Yuan\*, You Li, Xiangyi Long, Zhengwei Cui, Zhijun Dong, Ye Cong, Jiang Zhang, Xuanke Li\* "Tuning anisotropic thermal conductivity of unidirectional carbon/carbon composites by incorporating carbonaceous fillers." Journal of Materials Science, 2020, 55(12): 5079-5098 (Ξ 🖂 :3.553)
- [8] Bing Sun, Qin Zhang\*, Hui Xiang, Fei Han, Wen Tang, Guanming Yuan, Ye Cong, Changling Fan, Aidan Westwood, Xuanke Li\*. "Enhanced Active Sulfur in Soft Carbon via Synergistic Doping Effect for Ultra-stable Lithium-ion Batteries." Energy Storage Materials, 2020, 24: 450-457 (一区:16.28)
- [9] Yunfeng Guan, Song Jiang, Ye Cong\*, Jiapei Wang, Zhijun Dong, Qin Zhang, Guanming Yuan, Yanjun Li, Xuanke Li\* "A hydrofluoric acid-free synthesis of 2D vanadium carbide (V2C) MXene for supercapacitor electrodes." 2D Materials, 2020, 7(2):

025010 (一区:7.140)

- [10] Tianxiang Xu, Jiapei Wang, Song Jiang, Qin Zhang, Yanjun Li, Ye Cong,\*, Xuanke Li,\* "Ternary BiOBr/TiO2/Ti3C2Tx nanocomposites with heterojunction structure and improved photocatalysis performance." Chinese Chemical Letter, 2020 (二区:4.632)
- [11] Guo, Jianguang, Li, Xuanke\*, Xu, Huitao, Zhu, Hui, Li, Baoliu, Westwood, Aidan. "Molecular Structure Control in Mesophase Pitch via Co-Carbonization of Coal Tar Pitch and Petroleum Pitch for Production of Carbon Fibers with Both High Mechanical Properties and Thermal Conductivity." ENERGY & FUELS, 2020, 34(5):6474-6482 (三区:3.421)
- [12] Li, Baoliu, Guo, Jianguang, Huang, Jiajun, Xu, Huitao, Dong, Zhijun, Li, Xuanke\*. "Impact of Microstructure on the Electrochemical Performance of Round-Shaped Pitch-Based Graphite Fibers." MATERIALS, 2020, 13(8) (三区:3.057)
- [13] Guo, Jianguang, Zhu, Hui, Xu, Huitao, Westwood, Aidan, Li, Xuanke\*. "Spinnable Mesophase Pitch Prepared via Co-carbonization of Fluid Catalytic Cracking Decant Oil and Synthetic Naphthalene Pitch." ENERGY & FUELS, 2020, 34(2):2566-2573 (三区: 3.421)
- [14] Shi, Kui, Yang, Jianxiao, Li, Jun, Zhang, Xiaxiang, Wu, Wei,

Liu, Hongbo, Yoon, Seong-Ho, Li, Xuanke\*\*. "Effect of oxygen-introduced pitch precursor on the properties and structure evolution of isotropic pitch-based fibers during carbonization and graphitization." FUEL PROCESSING TECHNOLOGY, 2020, 199 ( $\Box \boxtimes :4.982$ )

- [15] Li, Zheng, Zhang, Chengzhi, Han, Fei, Wang, Fei, Zhang, Fuquan, Shen, Wei, Ye, Chong,Li, Xuanke, Liu, Jinshui.
  "Towards high-volumetric performance of Na/Li-ion batteries: a better anode material with molybdenum pentachloride-graphite intercalation compounds (MoCl5-GICs)." JOURNAL OF MATERIALS CHEMISTRY A, 2020, 8 (5) :2430-2438 (一 区:11.301)
- [16] Zhang, Chengzhi, Han, Fei, Wang, Fei, Liu, Qingdi, Zhou, Dianwu, Zhang, Fuquan, Xu, Shaohua, Fan, Changling, Li, Xuanke, Liu, Jinshui. "Improving compactness and reaction kinetics of MoS2@C anodes by introducing Fe9S10 core for superior volumetric sodium/potassium storage." ENERGY STORAGE MATERIALS 2020, 24:208-219 (一区:16.28)
- [17] Hui Zhu, Xuanke Li\*, Zhijun Dong, Ye Cong, Guanming Yuan, Zhengwei Cui. "In situ growth of dense SiC nanowires on structural defined carbon fibers without sacrificing flexibility."
   Ceramics International, 46 (2020) 26017–26026 (二区:3.83)

- [18] Bao-liu Li, Jian-guang Guo, Bing Xun, Hui-tao Xu, Zhi-jun Dong, Xuan-ke Li\*. "Preparation, microstructure and properties of three-dimensional carbon/carbon composites with high thermal conductivity." New Carbon Materials, 2020, 35(5): 567-575 (三区:1.761)
- [19] Guanming Yuan,\* Zheng Xue, Zhengwei Cui, Aidan Westwood, Zhijun Dong, Ye Cong, Jiang Zhang, Hui Zhu, and Xuanke Li\*. "Constructing the Bridge from Isotropic to Anisotropic Pitches for Preparing Pitch-Based Carbon Fibers with Tunable Structures and Properties." ACS Omega, 2020, 5, 21948–21960 (三区:2.87)
- [20] Jing Zhang, Tianxiang Xu, Ye Cong, Yeqiong Zhang, Xuanke Li\* "Improved rate performance and cycling stability of graphitized mesoporous carbon as anode materials for lithium-ion batteries." Journal of Materials Science, 2019, 54(1): 648-658 (三区:3.553)
- [21] Cao, Shuo,Yang, Jianxiao, Li, Jun , Shi, Kui ,Li, Xuanke\*. "Preparation of oxygen-rich hierarchical porous carbon for supercapacitors through the co-carbonization of pitch and biomass." DIAMOND AND RELATED MATERIALS 2019, 96: 118-125 (二区:2.65)
- [22] Ye, Chong, Huang, Dong, Li, Baoliu, Yang, Pingjun, Liu,

Jinshui,Wu, Huang,Yang, Jianxiao, Li, Xuanke\*. "Ablation Behavior of the SiC-Coated Three-Dimensional Highly Thermal Conductive Mesophase-Pitch-Based Carbon-Fiber-Reinforced Carbon Matrix Composite under Plasma Flame." MATERIALS 2019, 12 (7) ( $\Xi \boxtimes : 3.057$ )

- [23] Li, Zheng, Zhang, Chengzhi, Han, Fei, Zhang, Fuquan, Zhou, Dianwu, Xu, Shaohua, Liu, Hongbo, Li, Xuanke\*, Liu, Jinshui. "Improving the cycle stability of FeCl3-graphite intercalation compounds by polar Fe2O3 trapping in lithium-ion batteries." NANO RESEARCH 2019, 12 (8) : 1836-1844 (− 区:8.183)
- [24] Zhang, Chengzhi, Han, Fei, Ma, Jianmin, Li, Zheng,Zhang, Fuquan, Xu, Shaohua, Liu, Hongbo, Li, Xuanke\*, Liu, Jinshui, Lu, An-Hui. "Fabrication of strong internal electric field ZnS/Fe9S10 heterostructures for highly efficient sodium ion storage" JOURNAL OF MATERIALS CHEMISTRY A 2019, 7 (19): 11771-11781 (一区:11.301)
- [25] Wang, Hanpeng, Yang, Jianxiao, Li, Jun, Shi, Kui, Li, Xuanke\*. "Effects of oxygen content of pitch precursors on the porous texture and surface chemistry of pitch-based activated carbon fibers." SN APPLIED SCIENCES, 2019, 1 (3)
- [26] Shi, Kui, Zhang, Xiaxiang, Wu, Wei, Yang, Jianxiao, Liu,

Hongbo, Li, Xuan-ke<sup>\*</sup>. "Effect of the oxygen content and the functionality of spinnable pitches derived from ethylene tar by distillation on the mechanical properties of carbon fibers." NEW CARBON MATERIALS 2019, 34 (1): 84-92 ( $\equiv \boxtimes$ :1.761)

- [27] Shi, Kui, Yang, Jianxiao, Ye, Cong, Liu, Hongbo, Li, Xuanke\*. "A Comparison of Ethylene-Tar-Derived Isotropic Pitches Prepared by Air Blowing and Nitrogen Distillation Methods and Their Carbon Fibers." MATERIALS, 2019, 12 (2)  $(\equiv \boxtimes :3.057)$
- [28] Yeqiong Zhang, Ye Cong\*, Jing Zhang, Xuanke Li\*, Yanjun Li, Zhijun Dong, Guanming Yuan, Jiang Zhang, Zhengwei Cui.
  "Effects of activation temperatures on the surface structures and supercapacitive performances of porous carbon fibers" Surface & coatings Technology, 2018, 349: 384-391 (Ξ Σ:3.784)
- [29] Guanming Yuan,\* Zhao Jin, Xiaohua Zuo, Zheng Xue, Feng Yan, Zhijun Dong, Ye Cong, Xuanke Li\*. "Effect of Carbonaceous Precursors on the Structure of Mesophase Pitches and Their Derived Cokes" Energy & Fuels, 2018, 32: 8329–8339 (三区: 3.421)
- [30] Zhijun Dong, Jian Meng, Hui Zhu, Guanming Yuan, Ye Cong, Jiang Zhang, Xuanke Li\* "Synthesis of SiC nanowires via

catalyst-free pyrolysis of silicon-containing carbon materials derived from a hybrid precursor" Ceramics International, 2017, 43: 11006-11014 ( $\equiv \boxtimes$ :3.83)

- [31] Jian Meng, Zhi-jun Dong, Cheng Zhang, Guan-ming Yuan, Ye Cong, Jiang Zhang, Xuanke Li\*. "Preparation and anti-oxidation properties of HfB2-WB2-Si/SiC-SiCNW composite coating" China Surface Engineering, 2017, 30(3): 104-114
- [32] Guan-Ming Yuan, Zheng Xue, Zheng-Wei Cui, Zhi-Jun Dong, XuanKe Li\*, Zhong-Wei Zhang, Jun-Shan Wang. "Controlled preparation and thermal conductivity of highly oriented graphite blocks", Journal of Inorganic Materials, 2017, 32(6): 587-595 (三区:0.901)
- [33] Zheng-wei Cui, Xuanke Li\*, Ye Cong, Zhi-jun Dong, Guan-ming Yuan, Jiang Zhang. "Synthesis of tantalum carbide from multiwall carbon nanotubes in a molten salt medium" New Carbon Materials, 2017, 32(3): 205-212 (三区:1.761)
- [34] Hui Zhu, Xuanke Li\*, Zhijun Dong, Guozhi Ma, Fei Han, Ye Cong, Guanming Yuan, Zhengwei Cui, Aidan Westwood. "Effect of carbon fiber crystallite size on the formation of hafnium carbide coating and the mechanism of the reaction of hafnium with carbon fibers" CARBON, 2017, 115: 640-648 (-

区:8.821)

- [35] Yanyan Yu, Yunfeng Guan, Ye Cong\*, Xiulan Yuan, Xuanke Li\*, Jiang Zhang. "Preparation and supercapacitive performances of SiC-CDCs" Chinese Journal of Inorganic Materials, 2017, 33(5): 853-859
- [36] Zhu, Hui, Li, Xuanke\*, Han, Fei, Dong, Zhijun,Yuan, Guanming, Ma, Guozhi, Westwood, Aidan, He, Kejie. "The effect of pitch-based carbon fiber microstructure and composition on the formation and growth of SiC whiskers via reaction of such fibers with silicon sources" CARBON, 2016, 99: 174-185 (一区:8.821)
- [37] Han, Fei, Zhang, Chengzhi, Yang, Jianxiao, Ma, Guozhi, He, Kejian, Li, Xuanke\*. "Well-dispersed and porous FeP@C nanoplates with stable and ultrafast lithium storage performance through conversion reaction mechanism" JOURNAL OF MATERIALS CHEMISTRY A, 2016, 33(4): 12781-12789 (一 区:11.301)
- [38] Yuan, Guanming, Li, Xuanke\*, Yi, Jing, Dong, Zhijun, Westwood, Aidan, Li, Baoliu, Cui, Zhengwei, Cong, Ye, Zhang, Jiang,Li, Yanjun. "Mesophase pitch-based graphite fiber-reinforced acrylonitrile butadiene styrene resin composites with high thermal conductivity" CARBON, 2015, 95:

1007-1019 (一区:8.821)

- [39] Dong, Zhijun, Zhang, Xian, Huang, Qing, Zhang, Jiang, Zuo, Xiaohua, Li, Wen, Yuan, Guanming, Li, Xuanke\*. "Synthesis and pyrolysis behavior of a soluble polymer precursor for ultra-fine zirconium carbide powders" CERAMICS INTERNATIONAL, 2015, 41(6): 7359-7365 (二区:3.83)
- [40] Cong, Ye, Li, Xuanke\*, Dong, Zhijun, Yuan, Guanming, Cui, Zhengwei, Zhang, Jiang. "Core-shell structured carbon black@TiO2 microsphere with enhanced visible light photocatalytic activity" MATERIALS LETTERS, 2015, 138: 200-203 (三区:3.204)