

Kangning Zhao

Gender: Male

Date of Birth: Aug. 18, 1990

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Education

➤ **Visiting Scholar, University of Wisconsin-Madison (Supervisor: Prof. Xudong Wang) Aug. 2016 - Aug. 2018**

Major: Material Science

Research focus: In-situ TEM investigation of metal oxide for lithium battery and novel electrode for zinc ion battery

➤ **Ph. D, Wuhan University of Technology (Supervisor: Prof. Liqiang Mai and Liang Zhou) Sep.2012-Jan. 2019**

Major: Material Science

Research focus: Novel electrode materials for Na-ion and Li-ion batteries and exploration of storage mechanism

➤ **Bachelor of Engineering, Wuhan University of Technology**

Sep. 2008-Jun. 2012

Major: Material Science

Academic Appointments:

➤ **Assistant Professor, Shanghai University**

Mar. 2019-May 2010

College of Sciences & Institute for Sustainable Energy

Research focus: **Aqueous Zinc/Aluminum ion (air) battery, single atom, and MOF for electrochemical catalysis**

➤ **Postdoc, École polytechnique fédérale de Lausanne (EPFL)**

May 2020-Present

Laboratory of Advanced Separations

Research focus: **Ion-selective Membrane, Redox-flow battery**

Research Interest

- ✓ Design and Synthesis of Nanostructured/Bulk Materials through Chemical Route and Ball milling process.
- ✓ Fabrication of Energy Storage Device including **Metal Ion Battery** as well as **Supercapacitor**.
- ✓ In-situ Characterization Methods (including **in-situ XRD, in-situ Raman, In-situ TEM, in-situ FT-IR**) in Energy Materials.
- ✓ Investigation of **electrolyte** for **lithium metal battery**

Professional Affiliation

- ✓ Review Editor for Frontier in Chemistry (IF = 3.9)
- ✓ Review Editor for Frontier in Energy Research
- ✓ Journal referees: Nano Energy, Energy Storage Materials, Chemical Engineering Journal, ACS Applied Materials Interface, Nanoscale, RSC Advances, Journal of Alloy and Compounds, Ceramic International, Ionics, Frontier in Energy Research, Chemical Physics Letters.

Reference

- ✓ **Liqiang Mai** (mlq518@whut.edu), Wuhan University of Technology, Changjiang Scholar Distinguished Professor
- ✓ **Kumar Varoon Agrawal**(kumar.agrawal@epfl.ch), École polytechnique fédérale de Lausanne, Professor
- ✓ **Liang Zhou** (liangzhou@whut.edu.cn), Wuhan University of Technology, Young Thousand Talent Plan Professor

Skills & Techniques

- **Material Preparation:** Adequate in various synthesis methods in **fabricating nanomaterials** for energy storage application. Proficiency in **preparing non-aqueous electrolyte** for Lithium/Sodium/Potassium/Magnesium ion battery and supercapacitor application.
- **Material Characterization:** X-ray Diffraction (**XRD**), Transmission Electron Microscope (**TEM**), Scanning Electron Microscope (**SEM**), Atomic Force Microscope (**AFM**), Fourier Transform Infrared Spectroscopy (**FTIR**), Raman Spectra, Thermal Gravimetric Analysis (**TGA**), Raman Spectrum, etc.
- **Device Fabrication:** **Lithium/Sodium/Potassium/Magnesium ion battery**, aqueous **Zn/Al ion battery**, Supercapacitor, **Electro-catalysis (including HER, OER, and ORR)** etc.
- **In-situ Device Characterization:** Adequate in various in-situ device fabrications such as **in-situ XRD, in-situ Raman, In-situ FT-IR, and in-situ TEM** characterizations of electrode materials for energy storage applications.

Selected Publications

I have published 69 peer-viewed papers. Total citation: 3937 times, H index: 33,
(Google Scholar: scholar.google.com/citations?user=hrdFeUwAAAAJ&hl=zh-CN
ORCID ID: 0000-0003-2916-4386.)

1. Yu, Zhuo; Wang, Bingliang; Liao, Xiaobin; **Zhao, Kangning***; Yang, Zhifang; Xia, Fanjie; Sun, Congli; Feng, Ningning; Wang, Zhuo; Pang, Ying; Fan, Chaoying; Zhang, Jingping; Wang, Yonggang *; Boosting Polysulfide Redox Kinetics by Graphene-Supported Ni Nanoparticles with Carbon Coating. *Advanced Energy Materials* 2020, 20000907. (**Corresponding author**)
2. Zou, Wenwen; Sun, Congli; **Zhao, Kangning***; Li, Jiantao; Pan, Xuelei; Ye, Daixin; Xie, Yanping; Xu, Wangwang; Zhao, Hongbin*; Zhang, Lei, Surface reconstruction of NiCoP pre-catalysts for bifunctional water splitting in alkaline electrolyte. *Electrochimica Acta* 2020, 136114. (**Corresponding author**)
3. Sun, Congli*; Liao, Xiaobin; Xia, Fanjie; Zhao, Yan; Zhang, Lei; Mu, Sai; Shi, Shanshan; Li, Yanxi; Peng, Haoyang; Tendeloo, Gustaaf Van, **Zhao, Kangning***; Wu, Jinsong*, High Voltage Cycling Induced Thermal Vulnerability in LiCoO₂ Cathode: Cation Loss and Oxygen Release Driven by Oxygen Vacancy Migration. *ACS nano* 2020 doi: 10.1021/acsnano.0c02237. (**Corresponding author**)
4. Lian, Sitian; Sun, Congli; Xu, Weina; Huo, Wangchen; Luo, Yanzhu; **Zhao, Kangning***; Yao, Guang; Xu, Wangwang; Zhang, Yuxin; Li, Zhi, Mai, Liqiang* Built-in oriented electric field facilitating durable ZnMnO₂ battery. *Nano energy* 2019, 62, 79-84. (**Corresponding author**)

5. Zhang, Lei; Yao, Bin; Sun, Congli*; Shi, Shanshan; Xu, Wangwang; **Zhao, Kangning***, Sulfur-Deficient Porous SnS_{2-x} Microflowers as Superior Anode for Alkaline Ion Batteries. *Materials* 2020, 13 (2), 443. (**Corresponding author**)
6. **Zhao, Kangning**; Wen, Mingying; Dong, Yifan; Zhang, Lei; Yan, Mengyu; Xu, Wangwang; Niu, Chaojiang; Zhou, Liang; Wei, Qiulong; Ren, Wenhao, Thermal induced strain relaxation of 1D iron oxide for solid electrolyte interphase control and lithium storage improvement. *Advanced Energy Materials* 2017, 7 (6), 1601582. (**First author**)
7. **Zhao, Kangning**; Liu, Fengning; Niu, Chaojiang; Xu, Wangwang; Dong, Yifan; Zhang, Lei; Xie, Shaomei; Yan, Mengyu; Wei, Qiulong; Zhao, Dongyuan, Graphene Oxide Wrapped Amorphous Copper Vanadium Oxide with Enhanced Capacitive Behavior for High-Rate and Long-Life Lithium-Ion Battery Anodes. *Advanced Science* 2015, 2 (12), 1500154. (**First author**)
8. **Zhao, Kangning**; Sun, Congli; Yu, Yanhao; Dong, Yifan; Zhang, Chenyu; Wang, Chongmin; Voyles, Paul M; Mai, Liqiang; Wang, Xudong, Surface gradient Ti-doped MnO₂ nanowires for high-rate and long-life lithium battery. *Acs Applied Materials & Interfaces* 2018, 10 (51), 44376-44384. (**First author**)
9. **Zhao, Kangning**; Wang, Chenxu; Yu, Yanhao; Yan, Mengyu; Wei, Qiulong; He, Pan; Dong, Yifan; Zhang, Ziyi; Wang, Xudong; Mai, Liqiang, Ultrathin surface coating enables stabilized zinc metal anode. *Advanced Materials Interfaces* 2018, 5 (16), 1800848. (**First author**)
10. **Zhao, Kangning**; Zhang, Lei; Xia, Rui; Dong, Yifan; Xu, Wangwang; Niu, Chaojiang; He, Liang; Yan, Mengyu; Qu, Longbin; Mai, Liqiang, SnO₂ Quantum dots@ graphene oxide as a high-rate and long-life anode material for lithium-ion batteries. *Small* 2016, 12 (5), 588-594. (**First author**)
11. Zhang, Lei; **Zhao, Kangning**; Luo, Yanzhu; Dong, Yifan; Xu, Wangwang; Yan, Mengyu; Ren, Wenhao; Zhou, Liang; Qu, Longbing; Mai, Liqiang, Acetylene black induced heterogeneous growth of macroporous CoV₂O₆ nanosheet for high-rate pseudocapacitive lithium-ion battery anode. *ACS Applied Materials & Interfaces* 2016, 8 (11), 7139-7146. (**Co-First author**)
12. Zhang, Lei; **Zhao, Kangning**; Sun, Congli; Yu, Ruohan; Zhuang, Zechao; Li, Jiantao; Xu, Weina; Wang, Chongmin; Xu, Wangwang; Mai, Liqiang, Compact Sn/SnO₂ microspheres with gradient composition for high volumetric lithium storage. *Energy Storage Materials* 2020, 25, 376-381. (**Co-First author**)
13. Zhang, Lei; **Zhao, Kangning**; Xu, Wangwang; Dong, Yifan; Xia, Rui; Liu, Fengning; He, Liang; Wei, Qiulong; Yan, Mengyu; Mai, Liqiang, Integrated SnO₂ nanorod array with polypyrrole coverage for high-rate and long-life lithium batteries. *Physical Chemistry Chemical Physics* 2015, 17 (12), 7619-7623. (**Co-First author**)
14. Zhang, Lei; **Zhao, Kangning**; Xu, Wangwang; Meng, Jiashen; He, Liang; An, Qinyou; Xu, Xu; Luo, Yanzhu; Zhao, Tingwei; Mai, Liqiang, Mesoporous VO₂ nanowires with excellent cycling stability and

- enhanced rate capability for lithium batteries. *RSC advances* 2014, 4 (63), 33332-33337. (**Co-First author**)
15. Zhang, Lei; **Zhao, Kangning**; Yu, Ruohan; Yan, Mengyu; Xu, Wangwang; Dong, Yifan; Ren, Wenhao; Xu, Xu; Tang, Chunjuan; Mai, Liqiang, Phosphorus enhanced intermolecular interactions of SnO₂ and graphene as an ultrastable lithium battery anode. *Small* 2017, 13 (20), 1603973. (**Co-First author**)
 16. Dong, Yifan; Wang, Bingliang; **Zhao, Kangning**; Yu, Yanhao; Wang, Xudong; Mai, Liqiang; Jin, Song, Air-stable porous Fe₂N encapsulated in carbon microboxes with high volumetric lithium storage capacity and a long cycle life. *Nano Letters* 2017, 17 (9), 5740-5746. (**Co-First author**)
 17. Sun, Congli; **Zhao, Kangning**; He, Yang; Zheng, Jianming; Xu, Wangwang; Zhang, Chenyu; Wang, Xiang; Guo, Mohan; Mai, Liqiang; Wang, Chongmin, Interconnected Vertically Stacked 2D-MoS₂ for Ultrastable Cycling of Rechargeable Li-Ion Battery. *Acs Applied Materials & Interfaces* 2019, 11 (23), 20762-20769. (**Co-First author**)
 18. Xu, Wangwang; Sun, Congli; **Zhao, Kangning**; Cheng, Xun; Rawal, Saurin; Xu, Ye; Wang, Ying, Defect engineering activating (Boosting) zinc storage capacity of MoS₂. *Energy Storage Materials* 2019, 16, 527-534. (**Co-First author**)
 19. Xu, Wangwang; **Zhao, Kangning**; Wang, Ying, Electrochemical activated MoO₂/Mo₂N heterostructured nanobelts as superior zinc rechargeable battery cathode. *Energy Storage Materials* 2018, 15, 374-379. (**Co-First author**)
 20. Xu, Wangwang; **Zhao, Kangning**; Niu, Chaojiang; Zhang, Lei; Cai, Zhengyang; Han, Chunhua; He, Liang; Shen, Teng; Yan, Mengyu; Qu, Longbing, Heterogeneous branched core-shell SnO₂-PANI nanorod arrays with mechanical integrity and three dimensional electron transport for lithium batteries. *Nano energy* 2014, 8, 196-204. (**Co-First author**)
 21. Xu, Wangwang; Xie, Zhiqiang; Cui, Xiaodan; **Zhao, Kangning**; Zhang, Lei; Dietrich, Grant; Dooley, Kerry M; Wang, Ying, Hierarchical graphene-encapsulated hollow SnO₂@ SnS₂ nanostructures with enhanced lithium storage capability. *Acs Applied Materials & Interfaces* 2015, 7 (40), 22533-22541.
 22. Xu, Wangwang; Xie, Zhiqiang; Cui, Xiaodan; **Zhao, Kangning**; Zhang, Lei; Mai, Liqiang; Wang, Ying, Direct growth of an economic green energy storage material: a monocrystalline jarosite-KFe₃(SO₄)₂(OH)₆-nanoplates@ rGO hybrid as a superior lithium-ion battery cathode. *Journal of Materials Chemistry A* 2016, 4 (10), 3735-3742.
 23. Xu, Weina; **Zhao, Kangning**; Huo, Wangchen; Wang, Yizhan; Yao, Guang; Gu, Xiao; Cheng, Hongwei; Mai, Liqiang; Hu, Chenguo; Wang, Xudong, Diethyl ether as self-healing electrolyte additive enabled long-life rechargeable aqueous zinc ion batteries. *Nano energy* 2019, 62, 275-281.
 24. Xu, Wangwang; **Zhao, Kangning**; Zhang, Lei; Xie, Zhiqiang; Cai, Zhengyang; Wang, Ying, SnS₂@ Graphene nanosheet arrays grown on carbon cloth as freestanding binder-free flexible anodes for

- advanced sodium batteries. *Journal of Alloys and Compounds* 2016, 654, 357-362.
25. An, Qinyou; Lv, Fan; Liu, Qiuqi; Han, Chunhua; **Zhao, Kangning**; Sheng, Jinzhi; Wei, Qiulong; Yan, Mengyu; Mai, Liqiang, Amorphous vanadium oxide matrixes supporting hierarchical porous Fe₃O₄/graphene nanowires as a high-rate lithium storage anode. *Nano Letters* 2014, 14 (11), 6250-6256.
26. Cai, Zhengyang; Xu, Lin; Yan, Mengyu; Han, Chunhua; He, Liang; Hercule, Kalele Mulonda; Niu, Chaojiang; Yuan, Zefan; Xu, Wangwang; Qu, Longbing, **Zhao, Kangning**; Mai, Liqiang, Manganese oxide/carbon yolk-shell nanorod anodes for high capacity lithium batteries. *Nano Letters* 2015, 15 (1), 738-744.
27. Dai, Yuhang; Li, Qidong; Tan, Shuangshuang; Wei, Qiulong; Pan, Yexin; Tian, Xiaocong; **Zhao, Kangning**; Xu, Xu; An, Qinyou; Mai, Liqiang, Nanoribbons and nanoscrolls intertwined three-dimensional vanadium oxide hydrogels for high-rate lithium storage at high mass loading level. *Nano energy* 2017, 40, 73-81.
28. Dong, Yifan; Li, Shuo; **Zhao, Kangning**; Han, Chunhua; Chen, Wei; Wang, Bingliang; Wang, Lei; Xu, Boan; Wei, Qiulong; Zhang, Lei, Hierarchical zigzag Na_{1.25}V₃O₈ nanowires with topotactically encoded superior performance for sodium-ion battery cathodes. *Energy & Environmental Science* 2015, 8 (4), 1267-1275.
29. Dong, Yifan; Xu, Xiaoming; Li, Shuo; Han, Chunhua; **Zhao, Kangning**; Zhang, Lei; Niu, Chaojiang; Huang, Zhe; Mai, Liqiang, Inhibiting effect of Na⁺ pre-intercalation in MoO₃ nanobelts with enhanced electrochemical performance. *Nano energy* 2015, 15, 145-152.
30. Fang, Liang; Xie, Yanping; Yang, Ya; Zhu, Boya; Wang, Yueyue; Liu, Mingxin; **Zhao, Kangning**; Zhao, Hongbin; Zhang, Jiujun, Interfacial electronic modulation of multi-shelled CoP hollow spheres via surface reconstruction for high-efficient hydrogen evolution reaction. *ACS Applied Energy Materials* 2019.
31. Han, Chunhua; Zhang, Baoxuan; **Zhao, Kangning**; Meng, Jiashen; He, Qiu; He, Pan; Yang, Wei; Li, Qi; Mai, Liqiang, Oxalate-assisted formation of uniform carbon-confined SnO₂ nanotubes with enhanced lithium storage. *Chemical Communications* 2017, 53 (69), 9542-9545.
32. Hu, Ping; Yan, Mengyu; Wang, Xuanpeng; Han, Chunhua; He, Liang; Wei, Xiujian; Niu, Chaojiang; **Zhao, Kangning**; Tian, Xiaocong; Wei, Qiulong, Single-nanowire electrochemical probe detection for internally optimized mechanism of porous graphene in electrochemical devices. *Nano Letters* 2016, 16 (3), 1523-1529.
33. Khajehbashi, S Mohammad B; Li, Jiantao; Wang, Manman; Xu, Lin; **Zhao, Kangning**; Wei, Qiulong; Shi, Changwei; Tang, Chunjuan; Huang, Lei; Wang, Zhaoyang, A Crystalline/Amorphous Cobalt (II, III) Oxide Hybrid Electrocatalyst for Lithium-Air Batteries. *Energy Technology* 2017, 5 (4), 568-579.

34. Li, Jiantao; Fan, Dalian; Wang, Manman; Wang, Zhaoyang; Liu, Ziang; **Zhao, Kangning**; Zhou, Liang; Mai, Liqiang, Hierarchical Bimetallic Selenide Nanosheet-Constructed Nanotubes for Efficient Electrocatalytic Water Oxidation. *ChemElectroChem* 2019, 6 (2), 331-335.
35. Li, Jiantao; Huang, Wenzhong; Wang, Manman; Xi, Shibo; Meng, Jiashen; **Zhao, Kangning**; Jin, Jun; Xu, Wangwang; Wang, Zhaoyang; Liu, Xiong, Low-crystalline bimetallic metal–organic framework electrocatalysts with rich active sites for oxygen evolution. *ACS Energy Letters* 2018, 4 (1), 285-292.
36. Liu, Minmin; Wang, Linlin; **Zhao, Kangning**; Shi, Shanshan; Shao, Qinsi; Zhang, Lei; Sun, Xueliang; Zhao, Yufeng; Zhang, Jiujun, Atomically dispersed metal catalysts for the oxygen reduction reaction: synthesis, characterization, reaction mechanisms and electrochemical energy applications. *Energy & Environmental Science* 2019, 12 (10), 2890-2923.
37. Luo, Yanzhu; Xu, Xu; Tian, Xiaocong; Wei, Qiulong; Yan, Mengyu; **Zhao, Kangning**; Xu, Xiaoming; Mai, Liqiang, Facile synthesis of a $\text{Co}_3\text{V}_2\text{O}_8$ interconnected hollow microsphere anode with superior high-rate capability for Li-ion batteries. *Journal of Materials Chemistry A* 2016, 4 (14), 5075-5080.
38. Mai, Liqiang; CHEN, DanDan; **Zhao, Kangning**; CHEN, ShiYu; WEI, QiuLong; CHEN, Wei, Nanowire device for electrochemical energy storage. *Chinese Science Bulletin* 2013, 58 (32), 3312-3327.
39. Niu, Chaojiang; Huang, Meng; Wang, Peiyao; Meng, Jiashen; Liu, Xiong; Wang, Xuanpeng; **Zhao, Kangning**; Yu, Yang; Wu, Yuzhu; Lin, Chao, Carbon-supported and nanosheet-assembled vanadium oxide microspheres for stable lithium-ion battery anodes. *Nano Research* 2016, 9 (1), 128-138.
40. Niu, Chaojiang; Meng, Jiashen; Han, Chunhua; **Zhao, Kangning**; Yan, Mengyu; Mai, Liqiang, VO_2 nanowires assembled into hollow microspheres for high-rate and long-life lithium batteries. *Nano Letters* 2014, 14 (5), 2873-2878.
41. Niu, Chaojiang; Meng, Jiashen; Wang, Xuanpeng; Han, Chunhua; Yan, Mengyu; **Zhao, Kangning**; Xu, Xiaoming; Ren, Wenhao; Zhao, Yunlong; Xu, Lin, General synthesis of complex nanotubes by gradient electrospinning and controlled pyrolysis. *Nature communications* 2015, 6 (1), 1-9.
42. Owusu, Kwadwo Asare; Qu, Longbing; Li, Jiantao; Wang, Zhaoyang; **Zhao, Kangning**; Yang, Chao; Hercule, Kalele Mulonda; Lin, Chao; Shi, Changwei; Wei, Qiulong, Low-crystalline iron oxide hydroxide nanoparticle anode for high-performance supercapacitors. *Nature communications* 2017, 8 (1), 1-11.
43. Pang, Qiang; Sun, Congli; Yu, Yanhao; **Zhao, Kangning**; Zhang, Ziyi; Voyles, Paul M; Chen, Gang; Wei, Yingjin; Wang, Xudong, $\text{H}_2\text{V}_3\text{O}_8$ nanowire/graphene electrodes for aqueous rechargeable zinc ion batteries with high rate capability and large capacity. *Advanced Energy Materials* 2018, 8 (19), 1800144.

44. Qu, Longbing; Zhao, Yunlong; Khan, Aamir Minhas; Han, Chunhua; Hercule, Kalele Mulonda; Yan, Mengyu; Liu, Xingyu; Chen, Wei; Wang, Dandan; Cai, Zhengyang, **Zhao, Kangning**; Mailiqiang, Interwoven Three-Dimensional Architecture of Cobalt Oxide Nanobrush-Graphene@ Ni_xCo_{2-x}(OH)_{6-x} for High-Performance Supercapacitors. *Nano Letters* 2015, 15 (3), 2037-2044.
45. Ren, Wenhao; Liu, Dongna; Sun, Congli; Yao, Xuhui; Tan, Jian; Wang, Chongmin; **Zhao, Kangning**; Wang, Xuanpeng; Li, Qi; Mai, Liqiang, Nonhierarchical heterostructured Fe₂O₃/Mn₂O₃ porous hollow spheres for enhanced lithium storage. *Small* 2018, 14 (26), 1800659.
46. Ren, Wenhao; Yao, Xuhui; Niu, Chaojiang; Zheng, Zhiping; **Zhao, Kangning**; An, Qinyou; Wei, Qiulong; Yan, Mengyu; Zhang, Lei; Mai, Liqiang, Cathodic polarization suppressed sodium-ion full cell with a 3.3 V high-voltage. *Nano energy* 2016, 28, 216-223.
47. Ren, Wenhao; Zheng, Zhiping; Luo, Yanzhu; Chen, Wei; Niu, Chaojiang; **Zhao, Kangning**; Yan, Mengyu; Zhang, Lei; Meng, Jiashen; Mai, Liqiang, An electrospun hierarchical LiV₃O₈ nanowire-in-network for high-rate and long-life lithium batteries. *Journal of Materials Chemistry A* 2015, 3 (39), 19850-19856.
48. Ren, Wenhao; Zheng, Zhiping; Xu, Chang; Niu, Chaojiang; Wei, Qiulong; An, Qinyou; **Zhao, Kangning**; Yan, Mengyu; Qin, Mingsheng; Mai, Liqiang, Self-sacrificed synthesis of three-dimensional Na₃V₂(PO₄)₃ nanofiber network for high-rate sodium-ion full batteries. *Nano energy* 2016, 25, 145-153.
49. Shi, Shanshan; Sun, Congli; Yin, Xiuping; Shen, Liying; Shi, Qin hao; **Zhao, Kangning**; Zhao, Yufeng; Zhang, Jiu jun, FeP Quantum Dots Confined in Carbon-Nanotube-Grafted P-Doped Carbon Octahedra for High-Rate Sodium Storage and Full-Cell Applications. *Advanced Functional Materials* 2020, 30 (10), 1909283.
50. Sun, Qiangchao; Cheng, Hongwei; **Zhao, Kangning**; Zhou, Huijie; Zhao, Hongbin; Yao, Wenli; Xu, Qian; Lu, Xionggang, Mg²⁺ Doped LiNi_{1/3}Co_{1/3}Mn_{1/3}O₂ Hollow Flake-Like Structures with Enhanced Performances Cathodes for Lithium-Ion Batteries. *ChemistrySelect* 2020, 5 (4), 1275-1281.
51. Tang, Chunjuan; Zhu, Jiexin; Wei, Xiujuan; He, Liang; **Zhao, Kangning**; Xu, Chang; Zhou, Liang; Wang, Bo; Sheng, Jinzhi; Mai, Liqiang, Copper silicate nanotubes anchored on reduced graphene oxide for long-life lithium-ion battery. *Energy Storage Materials* 2017, 7, 152-156.
52. Wang, Junhui; Yan, Mengyu; **Zhao, Kangning**; Liao, Xiaobin; Wang, Peiyao; Pan, Xuelei; Yang, Wei; Mai, Liqiang, Field effect enhanced hydrogen evolution reaction of MoS₂ nanosheets. *Advanced Materials* 2017, 29 (7), 1604464.
53. Wang, Lei; Dong, Yifan; **Zhao, Kangning**; Luo, Wen; Li, Shuo; Zhou, Liang; Mai, Liqiang, Interconnected LiCuVO₄ networks with in situ Cu generation as high-performance lithium-ion battery anode. *Physical Chemistry Chemical Physics* 2017, 19 (20), 13341-13347.

54. Wang, Luoluo; Hu, Zhengyao; **Zhao, Kangning**; Luo, Yanzhu; Wei, Qiulong; Tang, Chunjuan; Hu, Ping; Ren, Wenhao; Mai, Liqiang, Hollow spherical LiNi_{0.5}Mn_{1.5}O₄ built from polyhedra with high-rate performance via carbon nanotube modification. *Science China Materials* 2016, 59 (2), 95-103.
55. Wang, Xuanpeng; Niu, Chaojiang; Meng, Jiashen; Hu, Ping; Xu, Xiaoming; Wei, Xiujuan; Zhou, Liang; **Zhao, Kangning**; Luo, Wen; Yan, Mengyu, Novel K₃V₂(PO₄)₃/C Bundled Nanowires as Superior Sodium-Ion Battery Electrode with Ultrahigh Cycling Stability. *Advanced Energy Materials* 2015, 5 (17), 1500716.
56. Wang, Zhaoyang; Xu, Lin; Huang, Fuzhi; Qu, Longbing; Li, Jiantao; Owusu, Kwadwo Asare; Liu, Ziang; Lin, Zifeng; Xiang, Binhua; Liu, Xiong, Copper–Nickel Nitride Nanosheets as Efficient Bifunctional Catalysts for Hydrazine-Assisted Electrolytic Hydrogen Production. *Advanced Energy Materials* 2019, 9 (21), 1900390.
57. Wei, Qiulong; Jiang, Yalong; Qian, Xiaoshi; Zhang, Liang; Li, Qidong; Tan, Shuangshuang; **Zhao, Kangning**; Yang, Wei; An, Qinyou; Guo, Jinghua, Sodium ion capacitor using pseudocapacitive layered ferric vanadate nanosheets cathode. *iScience* 2018, 6, 212-221.
58. Wei, Qiulong; Tan, Shuangshuang; Liu, Xiaoyi; Yan, Mengyu; Wang, Fengchao; Li, Qidong; An, Qinyou; Sun, Ruimin; **Zhao, Kangning**; Wu, Hengan, Novel polygonal vanadium oxide nanoscrolls as stable cathode for lithium storage. *Advanced Functional Materials* 2015, 25 (12), 1773-1779.
59. Yan, Mengyu; He, Pan; Chen, Ying; Wang, Shanyu; Wei, Qiulong; **Zhao, Kangning**; Xu, Xu; An, Qinyou; Shuang, Yi; Shao, Yuyan, Water-lubricated intercalation in V₂O₅ · nH₂O for high-capacity and high-rate aqueous rechargeable zinc batteries. *Advanced Materials* 2018, 30 (1), 1703725.
60. Yan, Mengyu; Zhang, Guobin; Wei, Qiulong; Tian, Xiaocong; **Zhao, Kangning**; An, Qinyou; Zhou, Liang; Zhao, Yunlong; Niu, Chaojiang; Ren, Wenhao, In operando observation of temperature-dependent phase evolution in lithium-incorporation olivine cathode. *Nano energy* 2016, 22, 406-413.
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64. Yu, Yang; Niu, Chaojiang; Han, Chunhua; **Zhao, Kangning**; Meng, Jiashen; Xu, Xiaoming; Zhang,

- Pengfei; Wang, Lei; Wu, Yuzhu; Mai, Liqiang, Zinc pyrovanadate nanoplates embedded in graphene networks with enhanced electrochemical performance. *Industrial & Engineering Chemistry Research* 2016, 55 (11), 2992-2999.
65. Zhang, Guobin; Xiong, Tengfei; He, Liang; Yan, Mengyu; **Zhao, Kangning**; Xu, Xu; Mai, Liqiang, Electrochemical in situ X-ray probing in lithium-ion and sodium-ion batteries. *Journal of materials science* 2017, 52 (7), 3697-3718.
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67. Zhou, Huijie; Cheng, Hongwei; Zhao, Hongbin; **Zhao, Kangning**; Zhao, Yufeng; Zhang, Jiujun; Xu, Qian; Lu, Xionggang, Superior Stability and Dynamic Performance of Single Crystal $\text{LiNi}_{1/3}\text{Co}_{1/3}\text{Mn}_{1/3}\text{O}_2$ Nanorods from $\beta\text{-MnO}_2$ Template for Lithium-Ion Batteries. *Journal of The Electrochemical Society* 2019, 166 (2), A59-A67.
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