# Tao Wang

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## Work Experience

- From 3/29/2020 – now Postdoc Oak Ridge National Lab (ORNL), Oak Ridge, USA
  Nanomaterials Chemistry Group Group Leader: Dr. Shannon M. Mahurin

- From 5/30/2019 to 3/27/2020 Postdoc University of Tennessee (UTK), Knoxville, USA
  Supervisor: Prof. Sheng Dai

## Education

- 2013 – 2018 **Ph.D.** Inorganic Chemistry Jilin University (Changchun, China)
- 2009 – 2013 **B.S.** Material Chemistry Jilin University (Changchun, China)

## Research Experience

My postdoctoral research at ORNL focuses on the synthesis and characterization of porous carbon for energy storage. The main objective is to synthesis **hyper-porous carbon** for supercapacitor.

My postdoctoral research at UTK focuses on the synthesis and characterization of high entropy materials for energy conversion. The main objective is to synthesis high entropy perovskites for water splitting electrocatalysis.

My PhD research includes several theses focusing on the synthesis and applications of **porous polymer colloidal and carbon nanospheres**

- Design and synthesis of uniform polydiaminopyridine (PDAP) colloidal nanospheres with tunable size
- Synthesis of **N doped microporous carbon nanospheres** for **$CO_2$ adsorption**
- Synthesis of ultra-small Pd nanoparticles loaded PDAP for solvent free oxidation of alcohols
- Crosslinking metal-gallic acid to obtain **metal functionalized polymers and porous carbons** as ORR catalysts
- Design and synthesis of **N doped multi-chamber polymer and carbon nanospheres** for supercapacitor

## Expertise & Skills

- Strong knowledge and research experiences in synthesis, characterization and evaluation of **porous carbon**, **nanomaterials**, **metal organic frameworks (MOFs)**, and **single atom catalysts**
- Material applications in: **electrocatalysis, gas adsorption, biomedicine**
- Deep expertise and familiar with: XRD, XPS, XRF, SAXS, TEM, SEM, FT-IR, UV-Vis, DLS and so on
- Excellent and profound ability in tidying up and writing research papers

## Published Journal Papers as First/Co-first Author in Recent 5 Years

1. **Tao Wang**, Robert L Sacci, Jiyuan Liang, Chi-Linh Do-Thanh, Juntian Fan, Hao Chen, Yifan Sun, Bishnu Prasad Prasad Thapaliya, Shannon Mark Mahurin, Musen Zhou, Jianzhong Wu, Scott Wilfred Donne, Sheng Dai*, "Mechanistic Insights of Pore Contributions in Carbon Supercapacitors by Modified Step Potential Electrochemical Spectroscopy" ***J. Electrochem. Soc.***, 2021, 168, 060530.

2. **Tao Wang**, Juntian Fan, Chi-Linh Do-Thanh, Xian Suo, Zhenzhen Yang, Hao Chen, Yating Yuan, Hailong Lyu, Shize Yang*, Sheng Dai*, "Perovskite oxide–halide solid solutions: A platform for electrocatalysts" ***Angew. Chem. Int. Ed.*** 2021, 60, 9953.
3. Liangliang Zhang, **Tao Wang**, Tu-Nan Gao, Hailong Xiong, Rui Zhang, Zhilin Liu, Shuyan Song, Sheng Dai, Zhen-An Qiao*, "Multistage self-assembly strategy: Designed synthesis of N-doped mesoporous carbon with high and controllable pyridine N content for ultrahigh surface-area-normalized capacitance" ***CCS Chem.*** 2020, 2, 870.
4. Zhenzhen Yang, **Tao Wang**, Hao Chen, Xian Suo, Phillip Halstenberg, Hailong Lyu, Wei Jiang, Shannon M Mahurin, Ilja Popovs*, Sheng Dai*, "Surpassing the Organic Cathode Performance for Lithium-Ion Batteries with Robust Fluorinated Covalent Quinazoline Networks" ***ACS Energy Lett.*** 2021, 6, 41.
5. **Tao Wang**, Francis Okejiri, Zhen-An Qiao*, Sheng Dai, "Tailoring polymer colloids derived porous carbon spheres based on specific chemical reactions" ***Adv. Mater.*** 2020, 32, 2002475.
6. **Tao Wang**, Huimin Luo*, Yaocai Bai, Jianlin Li, Ilias Belharouak, Sheng Dai*, "Direct Recycling of Spent NCM Cathodes through Ionothermal Lithiation" ***Adv. Energy Mater.*** 2020, 10, 2001204.
7. **Tao Wang**, Hao Chen, Zhenzhen Yang, Jiyuan Liang, Sheng Dai*, "High-Entropy Perovskite Fluorides: A New Platform for Oxygen Evolution Catalysis" ***J. Am. Chem. Soc.*** 2020, 142, 10, 4550.
8. **Tao Wang**, Yan Sun, Liangliang Zhang, Kaiqian Li, Yikun Yi, Shuyan Song, Mingtao Li, Zhen-An Qiao*, Sheng Dai, "Space-Confined Polymerization: Controlled Fabrication of Nitrogen-Doped Polymer and Carbon Microspheres with Refined Hierarchical Architectures" ***Adv. Mater.*** 2019, 31, 1807876.
9. Tu-Nan Gao, **Tao Wang**, Wei Wu, Yali Liu, Qisheng Huo, Zhen-An Qiao*, Sheng Dai, "Solvent-Induced Self-Assembly Strategy to Synthesize Well-Defined Hierarchically Porous Polymers" ***Adv. Mater.*** 2019, 31, 1806254.
10. **Tao Wang**, Ying Jing, Yan Sun, Yali Ma, Kaiqian Li, Yunling Liu, Ling Zhang*, Qisheng Huo, Zhen-An Qiao*, "Controlled Synthesis of Noble Metal@Mesoporous Carbon Colloid as Highly Active Nanocatalysts" ***ACS Appl. Nano Mater.*** 2018, 1, 1563.
11. **Tao Wang**, Pengfei Zhang, Yan Sun, Bing Liu, Yunling Liu, Zhen-An Qiao*, Qisheng Huo, Sheng Dai, "New Polymer Colloidal and Carbon Nanospheres: Stabilizing Ultrasmall Metal Nanoparticles for Solvent-Free Catalysis" ***Chem. Mater.*** 2017, 29, 4044.
12. **Tao Wang**, Yan Sun, Ang Li, Yali Ma, Danyang Feng, Youxing Fang, Yunling Liu, Qisheng Huo, Zhen-An Qiao*, Sheng Dai, "A General Synthesis of Abundant Metal Nanoparticles Functionalized Mesoporous Graphitized Carbon" ***RSC Adv.*** 2017, 7, 50966.

## Published Journal Papers as Co-author

1. Zhenzhen Yang, Wei Guo, Hao Chen, Takeshi Kobayashi, Xian Suo, **Tao Wang**, Song Wang, Long Cheng, Gongping Liu, Wanqin Jin, Shannon M Mahurin, De-en Jiang, Ilja Popovs, Sheng Dai, ***J. Membr. Sci*** 2021, 638, 119698.
2. Hao Chen, Zhenzhen Yang, Xiang Wang, Felipe Polo-Garzon, Phillip W Halstenberg, **Tao Wang**, Xian Suo, Shi-Ze Yang, Harry M Meyer III, Zili Wu, Sheng Dai, ***J. Am. Chem. Soc.*** 2021, 143, 23, 8521.
3. Zhenzhen Yang, Tongyu Liu, Song Wang, Hao Chen, Xian Suo, **Tao Wang**, Bishnu Prasad Thapaliya, De-en Jiang, Ilja Popovs, Sheng Dai, ***Chem. Mater.*** 2021, 33, 9, 3386.
4. Hao Chen, Juntian Fan, Yuqing Fu, Chi-Linh Do-Thanh, Xian Suo, **Tao Wang**, Ilja Popovs, De-en Jiang, Yating Yuan, Zhenzhen Yang, Sheng Dai, ***Adv. Mater.*** 2021, 33, 2008685.
5. Yali Luo, Zhenzhen Yang, Xian Suo, Hao Chen, **Tao Wang**, Ziqian Wang, Yunfei Liu, Yinong Lyu, Ilja Popovs, Sheng Dai, ***Nano Res.*** 2021, 14, 3282–3287.
6. Wei Jiang, **Tao Wang***, Hao Chen, Xian Suo, Jiyuan Liang, Wenshuai Zhu, Huaming Li, Sheng Dai, **Nano Energy** 2021, 79, 105464.
7. Yating Yuan, **Tao Wang**, Hao Chen, Shannon M Mahurin, Huimin Luo, Gabriel M Veith, Zhenzhen Yang, Sheng Dai, ***Angew. Chem. Int. Ed.*** 2020, 59, 21935.
8. Hao Chen, Shi-Ze Yang, Zhenzhen Yang, Wenwen Lin, Haidi Xu, Qiang Wan, Xian Suo, **Tao Wang**, De-en Jiang, Jie Fu, Sheng Dai, **ACS central science**, 2020, 6, 1617.
9. Hailong Lyu, Jianlin Li, **Tao Wang**, Bishnu P Thapaliya, Shuang Men, Charl J Jafta, Runming Tao, Xiao-Guang Sun,

Sheng Dai, ***ACS Appl. Energy Mater.*** 2020, 3, 5657.

10. Zhenzhen Yang, Hao Chen, Song Wang, Wei Guo, **Tao Wang**, Xian Suo, De-en Jiang, Xiang Zhu, Ilja Popovs, Sheng Dai, ***J. Am. Chem. Soc.*** 2020, 142, 15, 6856.
11. Yali Luo, Zhenzhen Yang, Wei Guo, Hao Chen, **Tao Wang**, Yunfei Liu, Yinong Lyu, Huimin Luo, Sheng Dai, ***J. Mater. Chem. A*** 2020, 8, 4740.
12. Wei Wu, Yikun Yi, **Tao Wang**, Tunan Gao, Qisheng Huo, Shuyan Song, Mingtao Li, Zhen-An Qiao, ***ChemElectroChem*** 2019, 6, 724-730.
13. Yali Liu, Pengfei Zhang, Junmin Liu, **Tao Wang**, Qisheng Huo, Li Yang, Lei Sun*, Zhen-An Qiao, Sheng Dai, ***Chem. Mater.*** 2018, 30, 8579−8586.
14. Libo Zhou, Ying Jing, Yubin Liu, Zhihe Liu, Duyang Gao, Haobin Chen, Weiye Song, **Tao Wang**, Xiaofeng Fang, Weiping Qin, Zhen Yuan, Sheng Dai, Zhen-An Qiao, Changfeng Wu,***Theranostics*** 2018, 8, 663-675.
15. Danyang Feng, Tu-Nan Gao, Meihong Fan, Ang Li, Kaiqian Li, **Tao Wang**, Qisheng Huo, Zhen-An Qiao, ***NPG Asia Mater.*** 2018, 10, 800–809.
16. Yali Ma, Yu Zhang, Xue Wang, Meihong Fan, Kaiqian Li, **Tao Wang**, Yunling Liu, Qisheng Huo, Zhen-An Qiao, Sheng Dai, ***Nanoscale*** 2018, 10, 5731-5737.
17. Ang Li, Xue Wang, **Tao Wang**, Huali Liu, Tunan Gao, Meihong Fan, Qisheng Huo, Zhen-An Qiao, ***Chem-Eur. J.*** 2018, 24, 12600-12606.
18. Yan Sun, **Tao Wang**, Ang Li, Ling Zhang, Qisheng Huo, Zhen-An Qiao, ***Chem-Asian J.*** 2017, 12, 3039-3045.