**Qun He** Columbia University, NY 10027, USA, qh2204@columbia.edu, +1 (917)-288-9047

**Education Background:**

*2011.9-2015.6* Undergraduate education Anhui University (AHU), Hefei, China

*2015.9-present* Graduate education University of Science and Technology of China (USTC), Hefei, China

*2018.11-present* Visiting scholar Columbia University (CU), New York, USA

**Academic Achievements:**

* *second-prize scholarship from AHU.*
* *first-prize scholarship from AHU (2 times)*
* *National Encouragement scholarship from AHU*
* *first-prize scholarship from USTC (4 times)*
* *National scholarship from USTC*
* *Tang lixin scholarship from USTC*
* *The scholarship for outstanding graduate students from CSC*
* *and other scholarships…*

**Academic Experience:**

**Conferences attended:**

7th annual meeting of shanghai light source (Xiamen, 2017), Nature conference (Shenzhen, 2018), and 1st International Symposium on Electrocatalysis and Electrosynthesis (Changsha, 2018).

**Research interests:**

Synthesis and fine structure analysis of nanomaterials, and their applications for electrocatalysis, photocatalysis.

**Main research skills:**

Familiar with the basic characterization methods of materials, and analysis of X-ray adsorption spectroscopy (XAS). XAS, mainly including X-ray adsorption near edge structure (XANES) and extended X-ray adsorption fine structure (EXAFS) spectra, are employed to analyze the electronic and atomic structures of our materials to pursue their reality-close states. Familiar with the use of Raman, XRD, SEM, TEM, STEM, UPS, XPS, EPR, FTIR, UV-VIS, ICP, GC, BET, TPD, soft XAS… The practiced uses of these methods bring me much help to my researches.

**Recent interests:**

1. Design of efficient nano-catalysts from general/electrochemical methods for ORR/ CO2RR/HER/NRR.
2. Mechanistic study of reduction catalysis based on ex-/in-situ techniques.

**Research works:**

Personal Google Research Website: [**https://sites.google.com/view/qunhesresearchwebsite**](https://sites.google.com/view/qunhesresearchwebsite)

**Selected publications:**

1. High-Metallic-Phase-Concentration Mo1–xWxS2 Nanosheets with Expanded Interlayers as Efficient Electrocatalysts, **Qun He**,† Yangyang Wan,† Hongliang Jiang,† Chuanqiang Wu, Zhongti Sun, Shuangming Chen, Yu Zhou, Haiping Chen, Daobin Liu, Yasir A. Haleem, Binghui Ge, Xiaojun, Wu, Li Song, ***Nano Res.***, 2018, *11*, 1687.
2. In Situ Growth of Metallic 1T-WS2 Nanoislands on Single-Walled Carbon Nanotube Films for Improved Electrochemical Performance, **Qun He**,† Weiyu Xu,† Shuangming Chen, Daobin Liu, Muhammad Habib, Qin Liu, Changda Wang, Yasir A. Haleem, Ting Xiang, Chuanqiang Wu, Adnan Khalil, Qi Fang, Zhiqiang Niu, Li Song, ***RSC Adv.***, 2016, *6*, 87919.
3. Single Transition-Metal Atoms within One- and Two-Dimensional Carbon-Based Catalysts: Definitive Structural Identification toward Active Sites, Hongliang Jiang,† **Qun He**,† Changda Wang, Hengjie Liu, Youkui Zhang, Yunxiang Lin, Xusheng Zheng, Shuangming Chen, Li Song, ***Adv. Energy Mater.***, 2018, 1800436.
4. Active Sites Engineering towards Carbon-Based Catalysts Boosting Oxygen Reduction Catalysis, Sidi Wang,† **Qun He**,† Changda Wang, Hongliang Jiang, Chuanqiang Wu, Shuangming Chen, Guobin Zhang, Li Song, ***Small***, 2018, 1800128.
5. Highly Defective Oxyhydroxides from Electrochemical Reconstruction for Efficient Oxygen Evolution Catalysis, **Qun He**,† Hui Xie,† Zia ur Rehman, Changda Wang, Ping Wan, Hongliang Jiang, Wangsheng Chu, Li Song, ***ACS Energy Letters***,2018, *3*, 861.
6. 1T'-Mo1-xWxS2/CdS Heterostructure Enabling Robust Photocatalytic Water Splitting: Unveiling the Interfacial Charge Polarization, **Qun He**, Yangyang Wan, Youkui Zhang, Hongliang Jiang, Hengjie Liu, Xusheng Zheng, Shuangming Chen, Xiaojun Wu, Li Song, ***Solar RRL***, 2018, 18000032.
7. Nickel Vacancies Boost Reconstruction in Nickel Hydroxide Electrocatalyst, **Qun He**,† Yangyang Wan,† Hongliang Jiang, Ziwen Pan, Chuanqiang Wu, Mei Wang, Xiaojun Wu, Bangjiao Ye, Pulickel M. Ajayan, Li Song, ***ACS Energy Lett.*,** 2018, *3*, 1373.
8. Confined Bimetallic Phosphide within P, N Co-doped Carbon Layers towards Boosted Bifunctional Oxygen Catalysis, Shuang Yang,† **Qun He**,† Hongliang Jiang, Shuangming Chen, Li Song, ***J. Mater. Chem. A,*** 2018, *6*, 11281.
9. Tracking Structural Self-reconstruction and Identifying True Active Sites toward Cobalt Oxychloride Oxygen Evolution Pre-catalyst, Hongliang Jiang,† **Qun He**,† Xiyu Li,† Chuanqiang Wu, Youkui Zhang, Shuangming Chen, Changda Wang, Jun Jiang, Pulickel M Ajayan, Li Song, ***Adv. Mater.***, 2019, 1805127.
10. Breaking the Volcano-Plot Limits for Pt-based Electrocatalysts by Selective Tuning Adsorption of Multiple Intermediates, Xuesi Wang,† Qun He,† Li Song, Mietek Jaroniec, Yao Zheng, and Shi-Zhang Qiao, ***J. Mater. Chem. A***, 2019, *7*, 13635.
11. Structural Self-Reconstruction of Catalysts in Electrocatalysis, Hongliang Jiang, **Qun He**, Youkui Zhang, Li Song, ***Acc. Chem. Res.*** 2018, *51*, 2968.
12. Electronic Structure Reconfiguration toward Pyrite NiS2 via Engineered Heteroatom Defect Boosting Overall Water Splitting, Hengjie Liu, **Qun He**, Hongliang Jiang, Yunxiang Lin, Youkui Zhang, Muhamaad Habib, Shuangming Chen, Li Song, ***ACS Nano***, 2017, *11*, 11574.
13. Gram-Scale Aqueous Synthesis of Stable Few-Layered 1T-MoS2: Applications for Visible-Light-Driven Photocatalytic Hydrogen Evolution, Qin Liu, Xiuling Li, **Qun He**, Adnan Khalil, Daobin Liu, Ting Xiang, Xiaojun Wu, Li Song, ***Small***, 2015, *41*, 5556.
14. Stable Metallic 1T-WS2 Ultrathin Nanosheets as Promising Agent for Near-Infrared Photothermal Ablation Cancer Therapy, Qin Liu, Chunyang Sun, **Qun He**, Adnan Khalil, Ting Xiang, Daobin Liu, Yu Zhou, Jun Wang, Li Song, ***Nano Res.***, 2015, *8*, 3982.
15. Ultrathin Carbon Layer Coated MoO2 Nanoparticles for High-Performance Near-Infrared Photothermal Cancer Therapy, Qin Liu, Chunyang Sun, ***Qun He***, Daobin Liu, Adnan Khalil, Ting Xiang, Ziyu Wu, Jun Wang, Li Song, ***Chem. Commun.***, 2015, *51*, 10054.