Dr. Tianqi Wang
Assistant Professor

Faculty of Innovation Engineering
Macau University of Science and Technology

Office: A406a
TEL: +853 88972816
E-mail: tqwang@must.edu.mo

Academic Qualification

Ph.D. in Environmental Science, The Chinese University of Hong Kong, 2018

MSc in Environmental Science and Engineering, Nanchang University, 2015

BSc in Environmental Engineering, Nanchang University, 2012

Research & Teaching Area

Photocatalytic/photothermal water treatment and air cleaning; Synergetic adsorption and catalysis; Energy & environmental catalysis; Environmental materials

Research Grants

- China Postdoctoral Science Foundation, 2019-2021, PI.

Awards & Honors (Selected)

- Shenzhen Overseas High-Level Talent Project, 2019
- Outstanding Overseas Postdoctoral Fellow, Guangdong, 2019
- Postgraduate Student Publication Award, School of Life Sciences, CUHK, 2018
- Outstanding Master's Thesis Award, Jiangxi, 2016
- Provincial Government Scholarship, Jiangxi, 2015

Working Experience

- Assistant Professor, Macau University of Science and Technology (2022-)
- Research Assistant, City University of Hong Kong, Shenzhen Research Institute (2021-2022)
- Visiting scholar, City University of Hong Kong (2020-2021)
- Postdoctoral fellow, Shenzhen University (2019-2021)
- Postdoctoral fellow, City University of Hong Kong (2018-2019)

Journal Editorship

- ✧ Associate Editor, Frontiers in Fuels (2022-)
- ✧ Topic Editor, Insights in Solar Fuels: 2022, Frontiers in Fuels – Solar Fuels, 2022

Representative Publications

(1) **Tianqi Wang**[#], Yufei Wang[#], Mingzhe Sun, Aamir Hanif, Hao Wu, Qinfen Gu, Yong Sik Ok, Daniel C.W. Tsang, Jiyang Li, Jihong Yu, Jin Shang. Thermally treated zeolitic imidazolate framework-8 (ZIF-8) for visible light photocatalytic degradation of gaseous formaldehyde. ***Chemical Science***, 2020, 11, 6670. (**Journal back cover**)

(2) **Tianqi Wang**, Zhifeng Jiang, Taicheng An, Guiying Li, Huijun Zhao, Po Keung Wong. Enhanced visible-light-driven photocatalytic bacterial inactivation by ultrathin carbon-coated magnetic cobalt ferrite nanoparticles. ***Environmental Science & Technology***, 2018, 52 (8), 4774–4784.

(3) Kemeng Xiao[#], **Tianqi Wang**[#], Mingzhe Sun, Aamir Hanif, Qinfen Gu, Bingbing Tian, Zhifeng Jiang, Bo Wang, Hongli Sun, Jin Shang, Po Keung Wong. Photocatalytic bacterial inactivation by a rape pollen-MoS_2 biohybrid catalyst: synergetic effects and inactivation mechanisms. ***Environmental Science & Technology***, 2020, 54 (1), 537-549.

(4) D. Xia, Q. Chen, Y. Jiao, Q. Lian, M. Sun, C. He, J. Shang, **Tianqi Wang***. A modified flower pollen-based photothermocatalytic process for enhanced solar water disinfection: Photoelectric effect and bactericidal mechanisms. ***Water Research***, 2022, 217 (15), 118423.

(5) **Tianqi Wang**[#], Bingbing Tian[#], Dingren Ma, Bin Han, Mingzhe Sun, Aamir Hanif, Dehua Xia, Jin Shang. Recent advances on porous materials for synergetic adsorption and photocatalysis. ***Energy & Environmental Materials***, 2021, DOI: 10.1002/eem2.12229.

(6) Zhuoyun Tang, Dingren Ma, Qi Chen, Yongyi Wang, Mingzhe Sun, Qiyu Lian, Jin Shang, Po Keung Wong, Chun He, Dehua Xia, **Tianqi Wang***. Nanomaterial-Enabled photothermal-based solar water disinfection processes: Fundamentals, recent advances, and mechanisms. ***Journal of Hazardous Materials***, 2022, 437, 129373.

(7) **Tianqi Wang**, Zhifeng Jiang, Ka Him Chu, Dan Wu, Bo Wang, Hongli Sun, Ho Yin Yip, Taicheng An, Huijun Zhao, Po Keung Wong. X-shaped α-FeOOH with enhanced charge separation for visible-light-driven photocatalytic overall water splitting. ***ChemSusChem***, 2018, 11 (8), 1365-1373.

(8) **Tianqi Wang**, Pavani Dulanja Dissanayake, Mingzhe Sun, Zeyu Tao, Wei Han, Ning An, Qinfen Gu, Dehua Xia, Bingbing Tian, Yong Sik Ok, Jin Shang. Adsorption and visible-light photocatalytic degradation of organic pollutants by functionalized biochar: Role of iodine doping and reactive species. ***Environmental Research***, 2021, 197, 111026.

(9) **Tianqi Wang**, Mingzhe Sun, Zhifeng Jiang, Bo Wang, Hongli Sun, Jin Shang, Po Keung Wong. Efficient Z-scheme visible-light-driven photocatalytic bacterial inactivation by

hierarchical MoS_2-encapsulated hydrothermal carbonation carbon core-shell nanospheres. ***Applied Surface Science***, 2019, 464, 43-52.

(10) **Tianqi Wang**, Ping Zhang, Daishe Wu, Mingzhe Sun, Yuheng Deng, Ray L. Frost. Effective removal of zinc (II) from aqueous solutions by tricalcium aluminate (C_3A). ***Journal of Colloid and Interface Science***, 2015, 443, 65-71.

(11) Ping Zhang[#], **Tianqi Wang[#]**, Guangren Qian, Daishe Wu, Ray L. Frost. Removal of methyl orange from aqueous solutions through adsorption. ***Journal of Colloid and Interface Science***, 2014, 426, 44-47.

(12) Zhifeng Jiang, Hongli Sun, **Tianqi Wang**, Bo Wang, Wei Wei, Huaming Li, Shouqi Yuan, Taicheng An, Huijun Zhao, Jiaguo Yu, Po Keung Wong. Nature-inspired catalyst for visible-light-driven photocatalytic CO_2 reduction. ***Energy & Environmental Science***, 2018, 11, 2382-2389.

(13) Zhifeng Jiang, Bo Wang, Yan Li, Ho Shing Chan, Hongli Sun, **Tianqi Wang**, Huaming Li, Shouqi Yuan, Michael KH Leung, Anhuai Lu, Po Keung Wong. Solar-light-driven rapid water disinfection by ultrathin magnesium titanate/carbon nitride hybrid photocatalyst: Band structure analysis and role of reactive oxygen species. ***Applied Catalysis B: Environmental***, 2019, 257, 117898.

(14) Hongli Sun, Kang Wei, Dan Wu, Zhifeng Jiang, Hui Zhao, **Tianqi Wang**, Qun Zhang, Po Keung Wong. Structure defects promoted exciton dissociation and carrier separation for enhancing photocatalytic hydrogen evolution. ***Applied Catalysis B: Environmental***, 2020, 264, 118480.

(15) Mingzhe Sun, Aamir Hanif, **Tianqi Wang**, Chao Yang, Jin Shang. Chrysanthemum flower like silica with highly dispersed Cu nanoparticles as a high-performance NO_2 adsorbent. ***Journal of Hazardous Materials***, 2021, 418, 126400.

(16) Mingzhe Sun, Qinfen Gu, Aamir Hanif, **Tianqi Wang**, Jin Shang. Transition metal cation-exchanged SSZ-13 zeolites for CO_2 capture and separation from N_2. ***Chemical Engineering Journal***, 2019, 370, 1450-1458.

(17) Hongli Sun, Zhifeng Jiang, Dan Wu, Liqun Ye, **Tianqi Wang**, Bo Wang, Taicheng An, Po Keung Wong. Defects type dependent near-infrared-driven photocatalytic bacterial inactivation by defective Bi_2S_3 nanorods. ***ChemSusChem***, 2019, 12 (4), 890-897.

(18) Aamir Hanif, Mingzhe Sun, **Tianqi Wang**, Shanshan Shang, Daniel CW Tsang, Jin Shang. Ambient NO_2 adsorption removal by Mg–Al layered double hydroxides and derived mixed metal oxides. ***Journal of Cleaner Production***, 2021, 313, 127956.

(19) Ping Zhang, **Tianqi Wang**, Longlong Zhang, Daishe Wu, Ray L. Frost. XRD, SEM and infrared study into the intercalation of sodium hexadecyl sulfate (SHS) into hydrocalumite. ***Spectrochimica Acta Part A: Molecular and Biomolecular Spectroscopy***, 2015, 151, 673-678.

(20) Ping Zhang, **Tianqi Wang**, Guangren Qian, Daishe Wu, Ray L.Frost. Effective intercalation of sodium dodecylsulfate (SDS) into Hydrocalumite: Mechanism discussion via Near-infrared and mid-infrared investigations. ***Spectrochimica Acta Part A: Molecular and***

Biomolecular Spectroscopy, 2015, 149, 166-172.

(21) Ping Zhang, **Tianqi Wang**, Guangren Qian, Ray L. Frost. Organo-LDH synthesized via tricalcium aluminate hydration in the present of Na-dodecylbenzenesulfate aqueous solution and subsequent investigated by near-infrared and mid-infrared. ***Spectrochimica Acta Part A: Molecular and Biomolecular Spectroscopy***, 2014, 125, 195-200.

[#] – Co-first author; * – Corresponding author

Patents

(1) Jin Shang, **Tianqi Wang**, Mingzhe Sun. Self-cleaning fabric and article. US patent, 17/843,143, 2022.

(2) Jin Shang, **Tianqi Wang**, Mingzhe Sun. A carbon nanowire, a fabric, a manufacturing method therefor, and an additive for a fabric. US patent, 17/835,392, 2022.

(3) Jin Shang, Mingzhe Sun, **Tianqi Wang**. An adsorbent for CO_2 capture from N_2 or CH_4. CN 202111352460.7, 2021.

(4) Jin Shang, Gang Li, **Tianqi Wang**. A method for helium purification. CN 201910433137.9, 2019.

(5) Ping Zhang, **Tianqi Wang**, Daishe Wu. A method for the treatment of zinc ions-contained wastewater, CN 201410259834.4, 2014.