

Résumé **Qinglan Zhao** Dec 2018

Female, born on Dec 01, 1990

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MISSION STATEMENTS

- I am aiming to bridge the gap between fundamental sciences and novel applications.
- I am ambitious, young, creative and dedicated to the cutting-edge energy storage field.
- I am highly productive from the top 50 universities with 9 first-author papers, 21 co-author papers, 4 patents, 6 presentations and more high-impact works in the future.

EDUCATION

University of Queensland, Australia, World University Rankings: 48th

Ph.D., Chemical Engineering, Degree expected by Sep 2019, 2016-present

Xiangtan University, China, Chinese University Rankings: 106th

M.Sc., Chemistry, GPA: 3.58/4.00, Ranking: 1/17, 2012-2015

B.Sc., Pharmacy, GPA: 3.49/4.00, Ranking: 1/52, 2008-2012

RESEARCH EXPERIENCE

- **Project: Fundamental study of advanced polymer electrodes for novel sodium-ion energy storage systems**, University of Queensland, supervised by George Zhao (ARC Australian Laureate Fellow) and Andrew K. Whittaker (ARC Australian Research Fellow)
- **Project: Design and assembly of commercial batteries**, Deakin University, supervised by Maria Forsyth (ARC Australian Laureate Fellow), Patrick Howlett and Robert Kerr
- **Project: Advanced carbon materials for electrochemical energy conversion and storage**, Xiangtan University, supervised by Xianyou Wang (the Scientific Chinese 2016 and the highly cited Chinese scholar since 2014)
- **Project: Electrochemical sensing platform based on polymer biomimic membrane** (team leader of the National Undergraduate Innovative Project), Xiangtan University, supervised by Junjie Fei
- **Teaching assistant** in Physical Chemistry
- **Equipment training**: SEM (JOEL 6610, JOEL 7001F, JOEL 7800), TEM (HITACHI 7700, JOEL 2100), XPS (Kratos Axis Ultra), FTIR (Nicolet 5700), TG (DTG-60A), surface area and pore size analyzer (TriStar II 3020)

RESEARCH INTERESTS

- Flexible and stretchable electronics and energy devices
- Design and synthesis of organic molecules and polymers for sustainable energy storage and conversion systems
- Mechanism study of electrochemical reactions by a series of advanced characterizations with a combination of theoretical calculations

PUBLICATIONS

First-Author Articles and Reviews

- [1] **Qinglan Zhao**, et al., Tailored polyimide-graphene nanocomposite as negative electrode and reduced graphene oxide as positive electrode for flexible hybrid sodium-ion capacitors, *ACS Appl. Mater. Inter.*, 2018, 10, 43730-43739.
- [2] **Qinglan Zhao**, et al., A hybrid sodium-ion capacitor with polyimide as anode and polyimide-derived carbon as cathode, *J. Power Sources*, 2018, 396, 12.
- [3] **Qinglan Zhao**, et al., Supercapacitive performance of hierarchical porous carbon microspheres prepared by simple one-pot method, *J. Power Sources*, 2014, 254, 10.
- [4] **Qinglan Zhao**, et al., Pyromellitic dianhydride-based polyimide anodes for sodium-ion batteries, *Electrochim. Acta*, 2018, 265, 702.
- [5] **Qinglan Zhao**, et al., Design and synthesis of three-dimensional hierarchical ordered porous carbons for supercapacitors, *Electrochim. Acta*, 2015, 154, 110.
- [6] **Qinglan Zhao**, et al., Design, preparation and performance of novel three-dimensional hierarchically porous carbon for supercapacitors, *Electrochim. Acta*, 2015, 173, 566.
- [7] **Qinglan Zhao**, et al., Surface modification and performance enhancement of carbon derived from chromium carbide for supercapacitor applications, *J. Electrochem. Soc.*, 2015, 162, A845.
- [8] **Qinglan Zhao**, et al., Polymer electrode materials for sodium-ion batteries, *Materials*, 2018, 11, 2567. (Invited Review)
- [9] **Qinglan Zhao**, et al., Preparation and supercapacitive characteristics of new carbon materials derived from furfuryl alcohol, *Chin. J. Nonferrous Met.*, 2013, 23, 1977.

Co-Author Articles

- [10] Dongfang Yang, **Qinglan Zhao**, et al., Encapsulation of NiCo₂O₄ in nitrogen-doped reduced graphene oxide for sodium ion capacitors, *J. Mater. Chem. A*, 2018, 6, 14146.
- [11] Jing Liu, **Qinglan Zhao**, et al., Nanoporous carbon supported platinum-copper nanocomposites as anode catalysts for direct borohydride-hydrogen peroxide fuel cell, *Electrochim. Acta*, 2015, 171, 96.
- [12] Hao Wang, **Qinglan Zhao**, et al., Preparation and performance of β -MnO₂ nanorod @ nanoflake (Ni, Co, Mn) oxides with hierarchical mesoporous structure, *RSC Adv.*, 2014, 4, 42910.
- [13] Jing Liu, **Qinglan Zhao**, et al., Performance improvement of activated nanoporous carbon supported gold catalyst as an anode for direct borohydride-hydrogen peroxide fuel cells, *RSC Adv.*, 2014, 4, 17129.
- [14] Dongfang Yang, Binghui Xu, **Qinglan Zhao**, et al., Three-dimensional nitrogen-doped holey graphene and transition metal oxide composites for sodium-ion batteries, *J. Mater. Chem. A*, 2018, DOI: 10.1039/c8ta09188a.
- [15] Chun Wu, Jiao Gao, **Qinglan Zhao**, et al., Preparation and supercapacitive behaviors of the ordered mesoporous/microporous chromium carbide-derived carbons, *J. Power Sources*, 2014, 269, 818.
- [16] Jiao Gao, Xianyou Wang, **Qinglan Zhao**, et al., Synthesis and supercapacitive performance of three-dimensional cubic-ordered mesoporous carbons, *Electrochim. Acta*, 2015, 163, 223.
- [17] Youwei Zhang, Xianyou Wang, **Qinglan Zhao**, et al., Facile preparation and

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- performance of hierarchical self-assembly MnCo_2O_4 nanoflakes as anode active material for lithium ion batteries, *Electrochim. Acta*, 2015, 180, 866.
- [18] Chun Wu, Xianyou Wang, **Qinglan Zhao**, et al., Effects of preparation temperature on electrochemical performance of nitrogen-enriched carbons, *Trans. Nonferrous Met. Soc. China*, 2014, 24, 3541.
- [19] Yilan Wu, Xin Fan, Rohit Ranaganathan Gaddam, **Qinglan Zhao**, et al., Mesoporous niobium pentoxide/carbon composite electrodes for sodium-ion capacitors, *J. Power Sources*, 2018, 408, 82.
- [20] Ming Li, Ying Qi, Yonglan Ding, **Qinglan Zhao**, et al., Electrochemical sensing platform based on the quaternized cellulose nanoparticles/acetylene black/enzymes composite film, *Sensor. Actuat. B Chem.*, 2012, 168, 329.
- [21] Xin Fan, Yilan Wu, Rohit Ranaganathan Gaddam, **Qinglan Zhao**, et al. High-performance hybrid $\text{Mg}^{2+}/\text{Li}^+$ batteries based on tin sulfide/holey graphene foam cathode, *ACS Appl. Energy Mater.*, 2018, Submitted.
- [22] Jing Liu, Lanhua Yi, Xianyou Wang, **Qinglan Zhao**, et al., Investigation of nanoporous carbon supported palladium-zinc nanocomposites as anode catalysts for direct borohydride-hydrogen peroxide fuel cell, *Int. J. Hydrog. Energy*, 2015, 40, 7301.
- [23] Jing Liu, Hao Wang, Chun Wu, **Qinglan Zhao**, et al., Preparation and characterization of nanoporous carbon-supported platinum as anode electrocatalyst for direct borohydride fuel cell, *Int. J. Hydrog. Energy*, 2014, 39, 6729.
- [24] Yawen Yang, Hao Lu, Xiaoming Sun, **Qinglan Zhao**, et al., Improvement on the electrocapacitive properties of NiO with carbon, *Chem. Lett.*, 2018, doi:10.1246/cl.180836.
- [25] Xiukang Yang, Ruizhi Yu, Long Ge, Di Wang, **Qinglan Zhao**, et al., Facile synthesis and performances of nanosized Li_2TiO_3 -based shell encapsulated $\text{LiMn}_{1/3}\text{Ni}_{1/3}\text{Co}_{1/3}\text{O}_2$ microspheres, *J. Mater. Chem. A*, 2014, 2, 8362.
- [26] Hao Wu, Xianyou Wang, Lanlan Jiang, Chun Wu, **Qinglan Zhao**, et al., The effects of electrolyte on the supercapacitive performance of activated calcium carbide-derived carbon, *J. Power Sources*, 2013, 226, 202.
- [27] Hao Wang, Jing Liu, Xianyou Wang, Chun Wu, **Qinglan Zhao**, et al., Nanoflaky MnO_2 grown in situ on carbon microbeads as an anode material for high-performance lithium-ion batteries, *RSC Adv.*, 2014, 4, 22241.
- [28] Hao Wang, Yanqing Fu, Xianyou Wang, Jiao Gao, Youwei Zhang, **Qinglan Zhao**. Preparation and performance of tubular nanoflaky (Ni, Co, Mn) oxides with hierarchical mesoporous structure, *J. Alloy. Compd.*, 2015, 639, 352.
- [29] Chun Wu, Xianyou Wang, Bowei Ju, Lanlan Jiang, Hao Wu, **Qinglan Zhao**, et al., Supercapacitive performance of nitrogen-enriched carbons from carbonization of polyaniline/activated mesocarbon microbeads, *J. Power Sources*, 2013, 227, 1.
- [30] Chun Wu, Xianyou Wang, Bowei Ju, Yansong Bai, Lanlan Jiang, Hao Wu, **Qinglan Zhao**, et al., Supercapacitive behaviors of the nitrogen-enriched activated mesocarbon microbead in aqueous electrolytes, *J. Solid State Electr.*, 2013, 17, 1693.

Patents

- [31] Xianyou Wang, **Qinglan Zhao**, et al., A technique for preparation of morphology controllable hierarchical ordered porous chromium carbide-derived carbons for supercapacitors, *Chinese National Invention Patent*, Grant No. CN103771392A, 2014.

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- [32] Xian you Wang, Lianwu Wang, **Qinglan Zhao**, et al., A technique for preparation of anode materials for lead-carbon batteries, *Chinese National Invention Patent*, Grant No. CN105024046A, 2015.
- [33] Xianyou Wang, Youwei Zhang, **Qinglan Zhao**, et al., A technique for preparation of hierarchical self-assembled $\text{Mn}_{(3-x)}\text{Co}_x\text{O}_4$ nanoflakes as anode material for lithium-ion batteries, *Chinese National Invention Patent*, Grant No. CN104659359A, 2015.
- [34] Xianyou Wang, Youwei Zhang, **Qinglan Zhao**, et al., A technique for preparation of activated carbons derived from bamboo shells for supercapacitors, *Chinese National Invention Patent*, Grant No. CN104891491A, 2015.

Presentations and Abstracts in Conferences

- [35] **Qinglan Zhao**, et al., Flexible hybrid sodium-ion capacitor based on freestanding self-assembled polyimide/graphene composite as anode and reduced graphene oxide as cathode, the International Conference on Advanced Energy Materials, University of Surrey, Guildford, United Kingdom, 2018 (oral presentation).
- [36] **Qinglan Zhao**, et al., A hybrid sodium-ion capacitor fabricated with polyimide as anode and polyimide-derived carbon as cathode, the University of Queensland and the Korea Advanced Institute of Science and Technology (UQ-KAIST) Workshop, Brisbane, Australia, 2018 (poster presentation).
- [37] **Qinglan Zhao**, et al., Advanced polymer electrodes for novel sodium-ion energy storage systems, the Three Minute Thesis Competition, Brisbane, Australia, 2017 (oral presentation).
- [38] **Qinglan Zhao**, et al., Preparation and supercapacitive performance of surface modified three-dimensional ordered hierarchically porous carbon, the 18th National Conference on Electrochemistry held by the Chinese Society of Electrochemistry (CSE), Harbin, China, 2015 (poster presentation).
- [39] **Qinglan Zhao**, et al., Facile synthesis of hierarchical porous carbon as supercapacitor electrode material, Meeting Abstracts, *The Electrochemical Society*, 2014, 2, 308 (oral presentation).
- [40] **Qinglan Zhao**, et al., One-pot preparation and supercapacitive characteristics of novel hierarchical porous carbon microspheres, the 17th National Conference on Electrochemistry held by the Chinese Society of Electrochemistry (CSE) and Soochow University, Soochow, China, 2013 (poster presentation).

COMMUNITY SERVICES

Vice President , Graduate Student Union, Xiangtan University,	2013-2015
Executive President , Graduate Student Union, Xiangtan University,	2012-2013
Office Director , Student Union, Xiangtan University,	2009-2011
Reporter and Editor , Sky31 Website, Xiangtan University,	2008-2010

HONOURS AND REWARDS

International Postgraduate Research Scholarship	(2016, academic merit-based)
University of Queensland Centennial Scholarship	(2016, academic merit-based)

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Outstanding Graduates of the State	(2015, top 1 %)
Principal Grant	(2015, top 1 %)
National Graduates Scholarship	(2014, top 1 %)
Outstanding Postgraduate Student Leader	(2013, top 5 %)
Outstanding Graduates Award	(2012, top 5 %)
The First-prize Scholarship	(2011, top 3 %)
81 Millionaire's Scholarship	(2011, top 3 %)
The Second-prize Scholarship	(2010, top 5 %)
Hecheng Scholarship	(2010, top 1 %)
The Third-prize Scholarship	(2009, top 10%)

REFEREES

- **Prof. George Zhao**, the principle advisor of the Ph.D., School of Chemical Engineering, University of Queensland, email: george.zhao@uq.edu.au, +61 7 334 69997
- **Prof. Andrew K. Whittaker**, the associate advisor of the Ph.D., Australian Institute for Bioengineering and Nanotechnology, University of Queensland, email: a.whittaker@uq.edu.au, +61 7 334 63885