ZISHENG ZHANG

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1088 Xueyuan Ave., Nanshan District, Shenzhen, Guangdong Province, 518055, China

EDUCATION

Southern University of Science of Technology (SUSTech) Sep 2015 - Jun 2018
Bachelor of Science, Chemistry (expected) **GPA 3.87/4.00 (Ranking: 1/75)**

University of California, Los Angeles Jul 2018 - Sep 2018
Cross-disciplinary Scholar in Science and Technology (CSST) **GPA 4.00/4.00 (Ranking: 1/101)**

STANDARD TESTS

GRE General Test	**163** V (93%) + **170** Q (97%) + **3.5** AW (42%)	Mar 5th 2017
GRE Chemistry Test	**860** (91%)	Oct 28th 2017
TOEFL Test	**111** (30 R + 29 L + 25 S + 27 W)	Sep 8th 2018

PUBLICATION

1. **Zhang, Z.**; Jimenez-Izal, E.; Hermans, I.; Alexandrova, A. N. *Dynamic Ensemble Representation of Catalytic Surface of Hexagonal Boron Nitride in Conditions of Oxidative Dehydrogenation of Propane.* **2018**, submitted.

2. Wang, Y.; Wang, M.; Jiang, Z.; Wang, Q.; Lucero, M.; Zhang, X.; **Zhang, Z.**; Li, X.; Gu, M.*; Feng, Z.*; Liang, Y.* *Iron Phthalocyanine Precursors to Construct Efficient Single Iron Site Electrocatalysts for Oxygen Reduction Reaction.* **2018**, submitted.

3. Zhong, R.; **Zhang, Z.**; Luo, S.; Zhang, Z. C.; Huang, L.*; Gu, M.* *Comparison of TiO_2 and g-C_3N_4 2D/2D Nanocomposites from Three Synthesis Protocols for Visible-light Induced Hydrogen Evolution.* **2018**, Catalysis Science & Technology, accepted, DOI: 10.1039/C8CY00965A (Front cover highlight)

4. **Zhang, Z.**; Yang, T.; Qin, P.; Dang, L.* *Nickel Bis(dithiolene) Complexes for Electrocatalytic Hydrogen Evolution: A Computational Study.* **2018**, Journal of Organometallic Chemistry, 864, 143-147.

5. Zhong, R.; **Zhang, Z.(equal contribution)**; Yi, H.; Zeng, L.; Tang, C.; Huang, L.*; Gu, M.* *Covalently Bonded 2D/2D O-g-C_3N_4/TiO_2 Heterojunction for Enhanced Visible-Light Photocatalytic Hydrogen Evolution.* **2018**, Applied Catalysis B: Environmental, 237, 1130-1138.

6. Zhang, X.; Wu, Z.; Zhang, X.; Li, L.; Li, Y.; Xu, H.; Li, X.; Yu, X.; **Zhang, Z.**; Liang, Y.* and Wang, H.* *Highly Selective and Active CO_2 Reduction Electrocatalysts Based on Cobalt Phthalocyanine/carbon Nanotube Hybrid Structures.* **2017**, Nature Communications, 8, 14675.

RESEARCH EXPERIENCE

Department of Chemistry and Biochemistry, UCLA Jun 2018 - Nov 2018
Advisor: Prof. Anastassia Alexandrova CSST Summer Fellow

· Applied PSO global optimization combined with DFT calculation to investigate the structure of catalytic boride surface under realistic condition. Established a grand canonical ensemble to study ensemble-averaged surface free energy and Bader charge. Explored structural fluxionality of oxidized boride surface with MD.

Department of Chemistry, SUSTech Sep 2018 - Present
Advisor: Prof. Jun Li Undergraduate Researcher

· Applyied DFT calculaiton to study the mechanism and key reaction intermediates of CO_2RR to rationally designed highly active and stable NiPc-based electrocatalyst for selective electroreduction of CO_2 to CO.

Department of Material Science and Engineering (MSE), SUSTech Jun 2016 - Present
Advisor: Prof. Yongye Liang Undergraduate Researcher

- Applyed DFT calculation to investigating the reaction mechanism of ORR on molecularly engineered FePc. Constructing a FePc/CNT hybrid via $\pi - \pi$ interactions to enhance electrocatalytic activity and stability.
- Fabricated single-atom catalysts for efficient ORR through pyrolysis of ZIF-8 with metal phthalocyanine being metal precursor. Funded by the Student's Platform for Innovation and Entrepreneurship Training Program.
- Designed and synthesized bimetallic Cu/Pd nanoparticles supported on oxidized CNT via an adopted co-strong electrostatic adsorption (SEA) method. Selective electroreduction of CO_2 to formate was achieved in a wide potential range. Poster presentation at Nature Conference: Materials Electrochemistry (Jan. 2018)
- Synthesized and tested CoPc/CNT hybrid for selective electrocatalytic reduction of CO2.

Department of Chemistry & Department of MSE, SUSTech May 2017 - Oct 2018
Advisor: Prof. Limin Huang and Prof. Meng Gu Undergraduate Researcher

- Designed and synthesized covalent TiO_2/O-g-C_3N_4 2D/2D heterojunction through N-O-Ti covalent bonding, achieving enhanced visible-light photocatalytic activity comparing to heterojunctions fabricated by other methods. Applied DFT calculation to investigate the bonding at heterojunction interface, and performed thorough characterization of the interface via STEM, HRTEM, XPS and EELS.

Department of Chemistry, SUSTech May 2017 - Mar 2018
Advisor: Prof. Li Dang Undergraduate Researcher

- Applied DFT calculation to study the substituent effects on electrocatalytic HER using nickel bis(dithiolene) complexes. Developed an electrocatalytic activity descriptor based on pKa of dithiolene ligands. Delivered an oral presentation on ACS publications symposium: Innovation in Energy Conversion (Sept. 2017)

RELATED SKILLS

Experimental: Nanomaterial Synthesis; XRD; TGA; DSC; BET; FL & PL spectroscopy; FT-IR; UV-vis DRS; NMR; SEM; TEM; EDX; GC; HPLC; ICP-MS; Electrochemical & photocatalytic measurements

Programming & Softwares: C, JAVA, Python, MatLab, Shell, LATEX, SolidWorks, AutoCAD, PhotoShop

Quantum Chemistry Programs: Material Studio, Gaussian09 &16, CALYPSO, VASP, CP2K, ORCA, VESTA, P4VASP, Multiwfn, GaussView, VMD, ASE, Jmol

SCHOLARSHIPS & AWARDS

Selected Best Presentations Award in CSST CHEM & MSE division, UCLA	Sep 2018
CSST Scholarship, UCLA	Jul 2018
Outstanding Scientific Research Potential, Shuren College	May 2018
Merit-Based Undergraduate Scholarship, SUSTech	2016, 2017, 2018

EXTRACURRICULAR ACTIVITIES

American Chemistry Society (ACS), SUSTech Student Chapter May 2018 - Present
Vice President & Co-founder

- Organized regular seminars for ACS student members to learn about latest hot papers and discuss interdisciplinary topics in frontiers of chemistry. Invited influential guest speakers to lead forums and seminars.

Material Research Society (MRS), SUSTech Student Chapter May 2018 - Present
Academic Department Leader & Co-founder

- Organized regular seminars for MRS student members to learn about latest hot papers and discuss interdisciplinary topics in frontiers of materials.

Student Union of Shuren College, SUSTech Sep 2015 - Sep 2016
Senior Member and Main Contributor, Academic Department

- Initiated a series of School-wide activities, such as public speaking contests and student-professor meetups.
- Participated in the agenda scheduling, order maintaining and press release