

Huilei Zhao

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EDUCATION	TEXAS A&M UNIVERSITY , College Station, Texas (GPA 3.44/4.00) May 2017	
	UNIVERSITY OF WISCONSIN-MILWAUKEE , Wisconsin (Transfer) (GPA 3.70/4.00) Sep. 2011- May 2014	
	<ul style="list-style-type: none"> PhD of Mechanical Engineering Direction: Photocatalysis, nanomaterials, thermal dynamics 	
SKILLS	SHANDONG UNIVERSITY , Jinan, Shandong, P.R. China June 2011	
	<ul style="list-style-type: none"> B.S. of Chemistry B.A. of Finance (Outstanding Graduates Award in Shandong Province) 	
	MATERIAL CHARACTERIZATION: GC, XRD, BET, SEM-EDS, UV-Vis, RAMNA, TEM, HPLC, TOC, Spectrofluorometer MATERIAL SYNTHESIS: Hydrothermal, Sol-gel, solid-state, ALD, Photodeposition, Wet impregnation LANGUAGE: English, Chinese SOFTWARE: Mathematica, Origin, MS Office PROGRAMMING: Python	
EXPERIENCE	Management	TEXAS A&M UNIVERSITY , College Station, Texas Sep. 2014-Present Laboratory Manager <ul style="list-style-type: none"> Designed and initiated new lab for low carbon energy & sustainable environment Managed usage and time arrangement, and established standard operation procedure of all equipments Oversaw the laboratory safety and kept the whole laboratory clean and in an orderly manner Ensured the regents and supplies were available when needed
	Teaching	TEXAS A&M UNIVERSITY , College Station, Texas Jan.-May 2015 Graduate Assistant (MEEN 315 Principle of Thermodynamics) <ul style="list-style-type: none"> Offered guest lectures for 86 undergraduate students Assisted teachers with recordkeeping, such as tracking attendance and calculating grades Graduate Teaching Certificate (NSF CIRTL) Apr. 2015 UNIVERSITY OF WISCONSIN-MILWAUKEE , Wisconsin Jan.-May 2013 Teaching Assistant (ME 312 Basic Heat Transfer) <ul style="list-style-type: none"> Led sample-problem discussions and performed lab instructions for 2 sections
	Volunteer	BIG EVENT , Texas A&M University, College Station, Texas 2016 <ul style="list-style-type: none"> Participated in the community service CHASING THE SUNLIGHT Volunteer activity in underdeveloped area, Rizhao, China Aug. 2009 Organizer & Team Leader & Teacher (team of 22 students from 5 varied majors and 4 different universities) <ul style="list-style-type: none"> Initiated and organized the volunteer activity: volunteer teaching, science advocacy Designed the unique Team T-Shirt, brochure for scientific knowledge, and sketching course syllabus Oversaw the team progress and budget, and ensured the safety of all team members Excellent Social Practice Award & Scholarship for Excellent Social Works 2009
	Research since 2011	Topic 1: Novel TiO ₂ -based nanomaterials for CO ₂ photoreduction to fuels using sunlight Topic 2: Design of high-performance material for photo and thermal catalytic CO ₂ reforming of CH ₄ Topic 3: Investigate the effect of defect on the photocatalytic performance of TiO ₂ for CO ₂ photoreduction <ul style="list-style-type: none"> Proficiently operated Gas Chromatograph (GC) for mixed gas component (etc. CO₂, CO, CH₄, H₂...) analysis Installed and possessed problem solving ability for both compact-column and capillary-column GC Installed and operated atomic layer deposition (ALD) to engineer novel nanomaterials Mentored undergraduates for NSF REU project, and high school chemistry teachers for NSF RET project Collaborated with Urban Ecology Center including lab tour and series lectures
	HONORS	<ul style="list-style-type: none"> The 1st Place Prize Poster competition at Texas A&M Energy Institute Workshop Jun-15 Travel Award Texas A&M University TEES Mar. 2015 The 2nd Place Prize (Graduate) at UWM CEAS Annual Poster Competition Apr. 2012 Chancellor Graduate Student Award in ME department University of Wisconsin Milwaukee 2011-2014

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PUBLICATIONS

- 1 **Zhao, H.L.**, Xu, J., Liu, L.J., Rao, G.Y., Zhao, C.Y., Li, Y.* CO₂ photoreduction with water vapor by Ti-embedded MgAl layered double hydroxides, *Journal of CO₂ Utilization* . **2016**, , 15, 15-23
- 2 **Zhao, H.L.**, Liu, L.J., Andino, J.M., Li, Y.* Bicrystalline TiO₂ with Controllable Anatase/Brookite Phase Content for Enhanced CO₂ Photoreduction to Fuels. *Journal of Materials Chemistry A*. **2013**, 1, 8209-8216
- 3 Rao, G.Y., Zhang, Q.Y., **Zhao, H. L.**, Chen, J.T., Li, Y.* Novel Titanium Dioxide/Iron(III) Oxide/Graphene Oxide Photocatalytic Membrane for Enhanced Humic Acid Removal from Water, *Chemical Engineering Journal* . **2016**, 302, 633-640
- 4 Liu, L.J., Jiang, Y.Q., **Zhao, H.L.**, Chen, J.T., Cheng, J.L., Yang, K.S.*, Li, Y.* Engineering Coexposed {001} and {101} Facets in Oxygen-Deficient TiO₂ Nanocrystals for Enhanced CO₂ Photoreduction under Visible Light, *ACS Catalysis* . **2016**, 6, 1097-1108
- 5 Zhao, C.Y., Liu, L.J., Rao, G.Y., **Zhao, H.L.**, Wang, L. H., Xu, J.Y., Li, Y.* Synthesis of novel MgAl layered double oxides grafted TiO₂ cuboids and their photocatalytic activity on CO₂ reduction with water vapor, *Catalysis Science & Technology* . **2015**, 5, 3288-3295
- 6 Zhao, C.Y., Liu, L.J., Zhang, Q.Y., Rogers, J.E., **Zhao, H.L.**, Li, Y.* Synthesis of Carbon-TiO₂ Nanocomposites with Enhanced Reversible Capacity and Cyclic Performance as Anodes for Lithium-Ion Batteries, *Electrochimica Acta*. **2015**, 155, 288-296.
- 7 Liu, L.J., Zhao, C.Y., **Zhao, H.L.**, Zhang, Q.Y., Li, Y.* ZnO-CoO Nanoparticles Encapsulated in 3D Porous Carbon Microspheres for High-performance Lithium-Ion Battery Anodes ,*Electrochimica Acta*. **2014**, 135, 224-231.
- 8 Liu, L.J., Zhao, C.Y., Pitts, D.T., **Zhao, H.L.**, Li, Y.* CO₂ Photoreduction with H₂O Vapor by Porous MgO/TiO₂ Microspheres: Effects of Surface MgO Dispersion and CO₂ Adsorption/Desorption Dynamics. *Catalysis Science & Technology* . **2014**, 4, 1539-1546
- 9 Zhao, C.Y., Liu, L.J., **Zhao, H.L.**, Krall, A., Wen, Z., Chen, J.H., Hurley, P., Jiang, J., Li, Y.* Sulfur-Infiltrated Porous Carbon Microspheres with Controllable Multi-Modal Pore Size Distribution for High Energy Lithium-Sulfur Batteries. *Nanoscale* . **2014**, 6, 882-888
- 10 Liu, L.J., Gao, F., **Zhao, H.L.**, Li, Y.* Tailoring Cu Valence and Oxygen Vacancy in Cu/TiO₂ Catalysts for Enhanced CO₂ Photoreduction Efficiency. *Applied Catalysis B: Environmental* . **2013**, 134-135, 349-358
- 11 Liu, L.J., Pitts, D.T., **Zhao, H.L.**, Zhao, C.Y., Li, Y.* Silver-incorporated bicrystalline (anatase/brookite) TiO₂ microspheres for CO₂ photoreduction with water in the presence of methanol. *Applied Catalysis A: General* . **2013**, 467, 474-482
- 12 Liu, L.J., Zhao, C.Y., **Zhao, H.L.**, Pitts, D., Li, Y.* Porous Microspheres of MgO-Patched TiO₂ for CO₂ Photoreduction with H₂O Vapor: Temperature-Dependent Activity and Stability. *Chemical Communications* . **2013**, 49, 3664-3666
- 13 Zhao, C.Y., Krall, A.J., **Zhao, H.L.**, Zhang, Q.Y., Li, Y.* Ultrasonic spray pyrolysis synthesis of Ag/TiO₂ nanocomposite photocatalysts for simultaneous H₂ production and CO₂ reduction. *International Journal of Hydrogen Energy* , **2012**, 37(13), 9967-9976
- 14 Liu, L.J., **Zhao, H.L.**, Andino, J. M., Li, Y.* Photocatalytic CO₂ reduction with H₂O on TiO₂ nanocrystals: Comparison with anatase, rutile, brookite polymorphs and exploration of surface chemistry. *ACS Catalysis* . **2012**, 2, 1817-1828