

WEIMING WAN

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Education

Columbia University, New York City, NY

M.S./Ph.D. Track Candidate, Chemical Engineering, Overall GPA: 3.85 expected 2018

Relevant Coursework: Advanced Chemical Kinetics, Advanced Chem. Eng. Thermodynamics, Partial Differential Equation, Surface Reactions & Kinetics

Tsinghua University, Beijing, China

B.S. Chemical and Industrial Biological Engineering & B.S. Economics (Second Degree Program) 2009 - 2013

Skills

Surface Science Techniques: Temperature Programmed Desorption (TPD), High-Resolution Electron Energy Loss Spectroscopy (HREELS), Auger Electron Spectroscopy (AES), X-ray Photoelectron Spectroscopy (XPS), Density Functional Theory calculation (DFT)

Reactor Techniques: Extended X-Ray Absorption Fine Structure (EXAFS), X-ray Diffraction (XRD), batch reactor (using FTIR), flow reactor (equipped with gas chromatography)

Software: Matlab, Igor, Origin Pro, Photoshop and Chemical Engineering software such as Aspen Plus, AutoCAD, Fluent CFD and Material Studio

Research Experience

Graduate Research Assistant

Sep. 2013 – Present

Columbia University - Dr. Jingguang Chen

- Combine theoretical calculations and surface science techniques to understand the ring opening mechanism for furfural on Ir(111) and Co/Ir(111) surfaces. The results were published in *ACS catalysis* and *ChemCatChem*
- Apply the theoretical calculations, surface science techniques and flow reactor experiments to understand the role of Pt-based bimetallic catalysts and metal modified Mo₂C catalysts in the furfural HDO reactions. The result was published in *ACS catalysis* and two manuscripts were in preparation
- Apply reactor experiments and surface characterization to measure the gas-phase products and surface intermediates to study the support effects in CO₂ hydrogenation reaction. The result was published in *Angewandte Chemie*
- Coordinate with Prof. Heyden Andreas's group (University of South Carolina) to study the selective hydrodeoxygenation of glycerol on Cu/Mo₂C catalysts. The result will be published in one journal article
- Collaborate with Prof. Beatriz Roldán Cuenya's group (Ruhr University Bochum) to test the morphology of the plasma treated CuO_x sample. The result will be published in one journal article
- Manage the surface science lab, train new Ph.D. students and visiting scholars, repair the broken equipment, organize lab cleaning and schedule weekly literature research presentation

Undergraduate Research Assistant

Tsinghua University - Dr. Yangcheng Lu

Sep. 2011-Jul. 2013

- Explored a method to controllably produce nano-scale polystyrene using premix membrane emulsification
- Developed a creative membrane dispersing device, which significantly improved the controllability in preparing polystyrene nanoparticles

Selected Publications

- **W. Wan**, B. M. Tackett, J. G. Chen, "Reactions of water and C1 molecules on carbide and metal-modified carbide surfaces" *Chemical Society Reviews* **2017**, 46(7), 1807-1823
- **W. Wan**, G. R. Jenness, K. Xiong, D. G. Vlachos, J. G. Chen, "Ring-opening reaction of furfural and tetrahydrofurfuryl alcohol on hydrogen pre-dosed Ir(111) and Co/Ir(111) surfaces" *ChemCatChem* **2017**, 9, 1701-1707
- Z. Jiang, **W. Wan**^{*}, Z. Lin, J. Xie, J. G. Chen, "Understanding the Role of M/Pt(111) (M = Fe, Co, Ni, Cu) Bimetallic Surfaces for Selective Hydrodeoxygenation of Furfural" *ACS Catalysis* **2017**, 7, 5758-5765 [*co-first authors]