

# YIZHENG TAN

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## EDUCATION

### Graduate:

University of Wisconsin-Madison, Madison WI  
Ph.D. in Chemistry, specialized area in Materials Chemistry (2007-2013)  
Advisor: Prof. Robert Hamers  
Dissertation title: Optical and Electronic Studies of Photostability and Charge Dynamics

### Undergraduate:

Cornell University, Ithaca NY  
Bachelor of Arts in Chemistry, cum laude, with Distinction in all Subjects (2003-2007)

## RESEARCH EXPERIENCE

### Post-doctoral:

Lawrence Berkeley National Laboratory (2013-current)  
Milliron Research Group

- Application and investigation of mesoporous metal oxide nanocrystal architectures as cathode materials for Li-air batteries

### Doctoral:

Department of Chemistry, University of Wisconsin-Madison (2007-2013)  
Research advisor: Prof. Robert Hamers

- Influence of surface ligand properties of various conjugated ligands on the air/water photostability of CdSe quantum dots
- Development of in-situ functionalization stable hole-accepting dithiocarbamate ligands to enhance photostability of CdSe quantum dots
- Development of transient surface photovoltage techniques for detection of charge separation in materials
- Collaborations with other graduate students and post-docs to extend time-resolved photovoltaic measurements to a variety of different systems

### Undergraduate:

Undergraduate assistant: Sogah Laboratory, Cornell University (2006-2007)

- Involved in making precursors for polymers inspired by spider silk

Summer Intern: ExxonMobil Research and Engineering Company, Annandale NJ (2006)

- Investigated the effects of thin metal films on the quality factor of silicon AFM microcantilevers and its potential for sensing applications

Undergraduate assistant: Njardarson Laboratory, Cornell University: (2005)

- Involved in synthesis of several starting materials and reagents for syntheses and studies of novel inorganic catalysts

## TEACHING EXPERIENCE

Video Demonstrator: Department of Chemistry Demo Lab, University of Wisconsin-Madison (2011)

- Participated in the development of a 10-min tutorial video about light absorption and UV-Visible spectroscopy using quantum dots as demonstration material, to be included in an undergraduate general chemistry textbook

Teaching Assistant: Analytical Chemistry (Chem 327), University of Wisconsin-Madison (Spring 2008)

- Led discussion and extensive laboratory sections focused on developing undergraduates' analytical chemistry skills

Teaching Assistant: General Chemistry I (Chem 103), University of Wisconsin-Madison (Fall 2007)

- Led discussion and laboratory sections

Chemistry Tutor: The Learning Strategies Center, Cornell University (2006-2007)

- Staffed a tutoring center aimed at helping undergraduates in their general chemistry courses

## HONOURS AND AWARDS

Dean's List, Cornell University

Full undergraduate scholarship awarded by the Public Service Department of Malaysia

## PUBLICATIONS and PRESENTATIONS

1. Yizheng Tan, Song Jin, and Robert J. Hamers, "Influence of Hole-Sequestering Ligands on the Photostability of CdSe Quantum Dots", *J. Phys. Chem. C*, 2013, **117**(1), 313-320
2. Ryan Franking, Linsen Li, Mark A. Lukowski, Fei Meng, Yizheng Tan, Robert J. Hamers and Song Jin, "Facile post-growth doping of nanostructured hematite photoanodes for enhanced photoelectrochemical water oxidation", *Energy and Environmental Science*, 2013, **6**, 500-512
3. Jixin Chen, Rose E. Ruther, Yizheng Tan, Lee M. Bishop, and Robert J. Hamers, "Molecular Adsorption on ZnO(10-10) Single Crystal Surfaces: Morphology and Charge Transfer", *Langmuir*, 2012, **28**(28), 10437-10445
4. Sohil Shah, Michelle C. Benson, Lee M. Bishop, Alex M. Huhn, Rose E. Ruther, Joseph C. Yeager, Yizheng Tan, Kacie M. Louis, and Robert J. Hamers, "Chemically assembled heterojunctions of SnO<sub>2</sub> nanorods with TiO<sub>2</sub> nanoparticles via "click" chemistry", *Journal of Materials Chemistry*, 2012, **22**, 11561-11567
5. Miguel Cabán-Acevedo, Matthew S. Faber, Yizheng Tan, Robert J. Hamers, and Song Jin "Synthesis and Properties of Semiconducting Iron Pyrite (FeS<sub>2</sub>) Nanowires", *Nano Letters*, 2012, **12**(4), 1977-1982
6. Linsen Li, Yanghai Yu, Fei Meng, Yizheng Tan, Robert J. Hamers, and Song Jin, "Facile Solution Synthesis of  $\alpha$ -FeF<sub>3</sub>-H<sub>2</sub>O Nanowires and Their Conversion to  $\alpha$ -Fe<sub>2</sub>O<sub>3</sub> Nanowires for Photoelectrochemical Application", *Nano Letters*, 2012, **12**(2), 724-731
7. Allison C. Cardiel, Michelle C. Benson, Lee M. Bishop, Kacie M. Louis, Joseph C. Yeager, Yizheng Tan, and Robert J. Hamers, "Chemically Directed Assembly of Photoactive Metal Oxide

Nanoparticle Heterojunctions via the Copper-catalyzed Azide-Alkyne Cycloaddition "Click" Reaction", *ACS Nano*, 2012, **6**(1), 310-318

8. Jixin Chen, Ryan Franking, Rose E. Ruther, Yizheng Tan, Xueying He, Stephanie R. Hogendoorn, and Robert J. Hamers, "Formation of Molecular Monolayers on TiO<sub>2</sub> Surfaces: A Surface Analogue of the Williamson Ether Synthesis", *Langmuir*, 2011, **27**(11), 6879-6889
9. Michelle C. Benson, Rose E. Ruther, James B. Gerken, Matthew L. Rigsby, Lee. M. Bishop, Yizheng Tan, Shannon. S. Stahl, and Robert. J. Hamers, "Modular "Click" Chemistry for Electrochemically and Photoelectrochemically Active Molecular Interfaces to Tin Oxide Surfaces", *ACS Applied Materials & Interfaces*, 2011, **3**(8), 3110-3119
10. Yizheng Tan, Ryan Franking, Andrew Mangham, and Robert J. Hamers, "Surface Chemistry Control of Quantum Dot Sensitized Solar Cells" Poster Session for the 2009 UW Energy Hub Conference, Madison, WI