Dr. Ben W.-L. Jang

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Professional Preparation

Research Triangle Institute, Heterogeneous Catalysis, Postdoc.
University of Texas at Arlington, Applied Chemistry, DSc.
National Taiwan University, Chemistry, B.S.

Appointments

11/2014-present	Regents Professor, Texas A&M University System.
8/2007-present	Professor, Department of Chemistry, Texas A&M U.-Commerce.
3/2006-present	Principal Investigator and Program Director, "Research Experience for Undergraduates" Site of National Science Foundation at Texas A&M U.-Commerce, Project Period: 3/15/06-present.
5/2007-7/2014	Department Head, Department of Chemistry, Texas A&M U.-Commerce.
6/2005-8/2005	DOE HERE Program for Faculty at the Oak Ridge National Lab.
7/2003-8/2004	Assistant Head, Department of Chemistry, Texas A&M U.-Commerce.
8/2001-7/2007	Associate Professor, Department of Chemistry, Texas A&M U.-Commerce.
3/1994-6/2001	Research Chemist/Project Manager, Center for Process Research & Center for Engineering and Environmental Technology, Research Triangle Institute, RTP, NC.

TEACHING EXPERIENCES

Taught all level of chemistry courses, including freshmen, upper level and graduate courses. I have started implementing NSF POGIL (Process Orientated Guided Inquiry for Learning) approach to teach Physical Chemistry I & II since Fall 2003. The approach has influenced the teaching approaches of general and organic chemistry in the Chemistry Department. Use education research methods to analyze and support student learning in General Chemistry classes.

UNIVERSITY COMMITTEE SERVICES

University Research Advisory Board member, 2018-present
Teacher Education Admission, Retention and Appeals Committee, 2017-present
Faculty Mentor Initiative, Fall 2010- Spring 2012
Adviser for the International Fellowship Association at A&M-Commerce, Jan. 2010-present
Adviser for the Taiwanese Student Association at A&M-Commerce, Sept. 2009-present
Member of the Academy-Regents' Initiative of A&M-Commerce, Sept. 2002-present
Adviser of the Chinese Student Association at A&M-Commerce, Sept. 2001-present
Facility Advisory Committee, Dec. 2009-2015
Faculty Senate, Budget Committee, Sept. 2006- 2012
International Student Committee, Sept. 2004-2014

PROFESSIONAL ASSOCIATIONS

International Advisory Board, 2014, 2016, 2018 & 2022 International Symposium on Plasmas for Catalysis and Energy Materials (ISPCEM).
Review Panel, 2015 & 2019-20 National Defense Science and Engineering Graduate Fellowship by DoD and ASEE
Guest Editor, Catalysis Today Journal, July 2017-March 2019.
Review Panel, 2018 NSF REU Program.
Review Panel, 2015-17 Fulbright Scholars by Department of State.
Guest Editor, Topic in Catalysis Journal, Sept 2015-March 2017.
Co-Chair of the Organization Committee for the "Catalysis for the Unconventional Energy Source" symposium, ACS National Meeting, Denver, CO, March 2015.
Guest Editor, Catalysis Today Journal, Sept 2012-May 2013.
Chair, International Advisory Board, 2012 International Symposium on Plasmas for Catalysis and Energy Materials (ISPCEM-2012), Sept. 21-24, 2012, Tianjin, China.
Leadership Group, NSF Chemistry REU PIs, 2011-17
Guest Editor, Energy and Environmental Sciences Journal, June 2009-May 2010.
Chair of the Organization Committee for the "Green Chemistry for Fuels of the Future" symposium, ACS National Meeting, San Francisco, CA, March 2010.
Member of the American Chemical Society since 1990.

AWARDS AND HONORS

Research Mentor of the Year, Texas A&M University-Commerce, 2022
Agilent Recognition of Scientific Innovation Award, 2020.
"Fearless Investigation" Award, Texas A&M University-Commerce, 2020
Research Mentor of the Year, Texas A&M University-Commerce, 2017
Regents Professor Award, Texas A&M University System, 2014
Nomination of NSF PAESMEM award, 2012
The Trezzie Pressley "Ceaseless Industry" Award, 2011
H.M. Lafferty Distinguished Faculty Award for Scholarship and Creative Activity, 2007
Faculty Development Leave Award (Texas A&M U.-Commerce), 2007
Nomination for the Neil L. Humfeld Distinguished Faculty Award for Service, 2005
Distinguished Service Award (Texas A&M U.-Commerce) in March 2002
Sigma Xi Award (UT-Arlington Chapter) as the Outstanding Doctoral Student, 1992

RECENT PUBLICATIONS (in the last 5 years)

Xinxiang Cao, Ben W.–L. Jang, Jiaxue Hu, Lei Wang, Siqi Zhang "Synthetic Strategies of Supported Pd–Based Bimetallic Catalysts for Selective Semi–hydrogenation of Acetylene: A Review and Perspectives" *Molecules*, **2023**, 28, 2572. DOI: 10.3390/molecules28062572

Tarek Md. Anamul Haque, Michael Brdecka, Valeria Duran Salas and Ben Jang "Effects of temperature, reaction time, atmosphere, and catalyst on hydrothermal liquefaction of Chlorella" *Can. J. Chem. Eng.* **2023**, DOI:10.1002/cjce.24839

Xinxiang Cao, Ruijian Tong, Siye Tang, Ben W.-L. Jang, Arash Mirjalili, Jiayi Li, Xi-Ning Guo, Jingyi Zhang, Jiaxue Hu, Xin Meng "Design of Pd-Zn Bimetal MOF Nanosheets and

MOF-derived Pd3.9Zn6.1/CNS Catalyst for Selective Hydrogenation of Acetylene under Simulated Front-end Conditions" *Molecules*, **2022**, *27*, 5736. DOI: 10.3390/molecules27175736

Tarek Md. Anamul Haque, Martin Perez, Michael Brdecka, Valeria Duran Salas and Ben Jang "Effects of plasma and atmosphere on catalytic hydrothermal liquefaction of Chlorella." *Ind. Eng. Chem. Res*. **2022**, 61, 12513. DOI: 10.1021/acs.iecr.2c02300

Xinxiang Cao, Huijie Zhu, Ben W.-L. Jang, Arash Mirjalili, Chunlai Yang, Luoqing Jiang, Siye Tang, Junjie Zhang, Juanjuan Qin, Long Zhang "Novel and green synthesis of nitrogen-doped carbon cohered Fe_3O_4 nanoparticles with rich oxygen vacancies and Its application" *Catalysts*, **2022**, *12*, 621. doi: 10.3390/catal12060621

Anton V. Dubrovskiy, Susan Broadway, Rebecca Weber & Diana Mason, Ben Jang, Blain Mamiya, Cynthia B. Powell, G. Robert Shelton, Deborah Rush Walker, Vickie Williamson, and Adrian Villalta-Cerdas "Is the STEM Gender Gap Closing?" *J. Res. Sci. Math. Tech. Edu.* **2021**. doi.org/10.31756/jrsmte.512

Shelton, G. Robert; Mamiya, Blain; Weber, Rebecca; Walker, Deborah; Powell, Cynthia; Jang, Ben; Villalta-Cerdas, Adrian; Dubrovskiy, Anton; Mason, Diana **"**Early warning signals from automaticity diagnostic instruments for first- and second-semester general chemistry" *J. Chem. Educ.* **2021**, 98, 3061−3072. doi.org/10.1021/acs.jchemed.1c00714

Rebecca Weber, Cynthia B Powell, Vickie Williamson, Blain Mamiya, Deborah Rush Walker, Anton Dubrovskiy, G Robert Shelton, Adrian Villalta Cerdas, Ben Jang, Susan Broadway and Diana Mason "Relationship between Academic Preparation in General Chemistry and Potential Careers" *Biomed J Sci & Tech Res*, **2021**. DOI: 10.26717/BJSTR.2020.32.005312

Cynthia B. Powell, Joseph Simpson, Vickie Williamson, Anton Dubrovskiy, Deborah Rush Walker, Ben W.-L. Jang, G. Robert Shelton, Diana Mason "Impact of arithmetic automaticity on students' success in second-semester general chemistry" *Chem. Edu. Res. and Prac.,* **2020**. DOI: 10.1039/d0rp00006j

Kai Li, Tengteng Lyu, Junyi He and Ben W.-L. Jang "Selective hydrogenation of acetylene over Pd/CeO_2" *Front. Chem. Sci. Eng.,* **2020**. https://doi.org/10.1007/s11705-019-1912-2

Xiaoliang Yan, Jingjun Lu, Qianqian Wang, Yanze Du, Bo Qin, Huigang Wang, Ruifeng Li, and Ben W.-L. Jang "Ni Catalysts from Laboratory Investigations to Chemical Industry" Catalysis Book Series, *Royal Society of Chemistry*, **2020**. doi.org/10.1039/9781788019477-00024

Xinxiang Cao, Tengteng Lyu, Wentao Xie, Arash Mirjalili, Adelaide Bradicich, Ricky Huitema, Ben W.-L. Jang**,** Jong K. Keum, Karren More, Changjun Liu **"**Preparation and investigation of Pd doped Cu catalysts for selective hydrogenation of acetylene**"** *Front. Chem. Sci. Eng.,* **2020**, 14(4), 522. doi: 10.1007/s11705-019-1822-3

Ben W.-L. Jang, Anis Allagui, Chang-jun Liu, Tomohiro Nozaki, Xin Tu, Xiaobing Zhu, Preface of "Frontiers in Plasma Catalysis", *Catal. Today*, **2019**, doi.org/10.1016/j.cattod.2019.06.021

Dai, Tianchi; Zhou, Hao; Liu, Yang; Cao, Ranran; Zhan, Jingjing; Liu, Lifen; Jang, Ben "Synergy of Lithium, Cobalt and Oxygen Vacancies in Lithium Cobalt Oxide for Airborne Benzene Oxidation: A Concept of Reusing Electronic Wastes for Air Pollutant Removal" *ACS Sus. Chem. Eng.*, **2019**, 7, 5072. DOI: 10.1021/acssuschemeng.8b05894

RECENT PRESENTATIONS (in the last 5 years)

Jade Nguyen, Hailey Burt and Ben Jang "Design of Palladium Catalysts for Selective Hydrogenation of Alkynes" Annual Research Symposium, Texas A&M University-Commerce, Commerce, TX, April 11, **2023**.

Saurav Kumar, Phillip Mynarski and Ben Jang "CO_2 dissociation over Ni supported on doped ceria catalysts" Annual Research Symposium, Texas A&M University-Commerce, Commerce, TX, April 11, **2023**.

Noah Smith, Shahrukh Islam and Ben Jang "Biosorption of nickel in wastewater with chlorella followed by hydrothermal liquefaction for bio-oil production" Annual Research Symposium, Texas A&M University-Commerce, Commerce, TX, April 11, **2023**.

Phillip Mynarski, Saurav Kumar and Ben Jang "CO_2 dissociation over Ni supported on doped ceria catalysts" 2023 AICHE Spring Meeting & 19th Global Congress on Process Safety, San Antonio, TX, March 12-16, **2023**

Hailey Burt and Ben Jang "Design of Palladium Catalysts for Selective Hydrogenation of Alkynes" 18th Texas A&M System Pathway Symposium, Galveston, TX, March 2-3, **2023**.

Shahrukh Islam, Valeria Duran, Nichol Green, and Ben Jang "Microalgal biosorption of heavy metal contaminated wastewater and utilization of recovered biomass to produce biofuel" 18th Texas A&M System Pathway Symposium, Galveston, TX, March 2-3, **2023**.

Noah Smith, Shahrukh Islam and Ben Jang "Biosorption of nickel and wastewater with chlorella followed by hydrothermal liquefaction for bio-oil production" 18th Texas A&M System Pathway Symposium, Galveston, TX, March 2-3, **2023**.

Dacoda Acker, Phillip Mynarski, Eduardo Ramirez, Saurav Kumar and Ben Jang "Carbon dioxide dissociation through the use of ceria-based catalysts" 18th Texas A&M System Pathway Symposium, Galveston, TX, March 2-3, **2023**.

Angela Silva, Shahrukh Islam, Valeria Duran, Nicole Green and Ben Jang "Biosorption removal of heavy metals in wastewater using chlorella followed by hydrothermal liquefaction for fuel production" ACS SWRM, Baton Rouge, LA, Nov. 6-9, **2022**.

Hailey Burt, John Rodriguez, Cameran Nealy and Ben Jang "Synthesis and evaluation of Palladium Catalysts for Liquid Phase Selective Hydrogenation of Alkynes" ACS SWRM, Baton Rouge, LA, Nov. 6-9, **2022**.

Nicole Green, Shahrukh Islam, Valeria Duran, Angela Silva and Ben Jang "Biosorption and Hydrothermal Liquefaction of Chlorella" ACS SWRM, Baton Rouge, LA, Nov. 6-9, **2022**.

Shahrukh Islam, Michael Brdecka, Valeria Duran, Nichol Green, Angela Silva and Ben Jang "Utilization of microalgae *Chlorella* recovered from biosorption of Cu contaminated wastewater to produce bio fuel by hydrothermal liquefaction" ACS SWRM, Baton Rouge, LA, Nov. 6-9, **2022**.

Phillip Mynarski, Dacoda Acker, Saurav Kumar and Ben Jang "Synthesis, evaluation and characterization of Ni-$CeZrO_2$ for CO2 dissociation" ACS SWRM, Baton Rouge, LA, Nov. 6-9, **2022**.

Valeria Duran, Michael Brdecka, Lin Guo and Ben Jang "Hydrothermal Liquefaction of Common Reeds Grown in Wastewater" ACS SWRM, Baton Rouge, LA, Nov. 6-9, **2022**.

Shahrukh Islam and Ben Jang "Atmosphere and solvent effects on production of bio-oil from microalgae and the metal distributions in the process products" Annual Research Symposium, Texas A&M University-Commerce, Commerce, TX, April 19, **2022**.

Phillip Mynarski, Dacoda Acker, Eduardo Ramirez and Ben Jang "CO_2 dissociation over Ni

supported on doped ceria catalysts“ 2022 AICHE Spring Meeting & 18th Global Congress on Process Safety, San Antonio, TX, April 10-14, **2022**

Cameran Nealy, Hailey Burt, Rania Qabbani and Ben Jang “Promoted Palladium Catalysts for Liquid Phase Semi-Hydrogenation of Alkynes” ACS National Meetings, San Diego, CA, March 20-24, **2022**.

Valeria Duran, Michael Brdecka, Tarek Haque and Ben Jang “Investigation of Catalytic Hydrothermal Liquefaction of Chlorella” ACS National Meetings, San Diego, CA, March 20-24, **2022**.

Michael Brdecka, Valeria Duran, Tarek Haque and Ben Jang “Hydrothermal Liquefaction of Chlorella and Reeds to Bio-oils and other Value added products” ACS National Meetings, San Diego, CA, March 20-24, **2022**.

Shahrukh Islam and Ben Jang “Utilization of Biomass for energy and environmental application” 17th Texas A&M System Pathway Symposium, College Station, TX, March 3-4, **2022**.

Hailey Burt and Ben Jang “Promoted Palladium Catalysts for Liquid Phase Semi-Hydrogenation of Alkynes” 17th Texas A&M System Pathway Symposium, College Station, TX, March 3-4, **2022**.

Michael Brdecka, Valeria Duran, Tarek Haque and Ben Jang “Hydrothermal Liquefaction of Chlorella and Reeds to Bio-oils and other Value added products” 17th Texas A&M System Pathway Symposium, College Station, TX, March 3-4, **2022**.

Valeria Duran, Tarek Haque, Michael Brdecka and Ben Jang “Investigation of Catalytic Hydrothermal Liquefaction of Chlorella” 17th Texas A&M System Pathway Symposium, College Station, TX, March 3-4, **2022**.

Diana Mason, Vickie Williamson, Rebecca Weber, Susan Broadway, Amy Petros, Blain Mamiya, Deborah Walker, Cynthia Powell, George Shelton, Anton Dubrovskiy, Ben Jang, Adrian Villalta-Cerdas “Foundational MUST-know Skills for General Chemistry” ACS SWRM, Austin TX, Oct. 31-Nov. 3, **2021**.

Ben Jang and Stephen Starnes “A NSF REU Site Focusing on Regional Community College Students” ACS SWRM, Austin TX, Oct. 31-Nov. 3, **2021**.

Michael Brdecka, Tarek Haque, Valeria Duran, Jamie Suzuki and Ben Jang “Catalytic Hydrothermal Liquefaction of Chlorella to Bio-oils with ZSM-5” ACS SWRM, Austin TX, Oct. 31-Nov. 3, **2021**.

Phillip Mynarski, Advaith Kamath, David Perin and Ben Jang “Study of ceria based catalysts for CO_2 dissociation” ACS SWRM, Austin TX, Oct. 31-Nov. 3, **2021**.

Valeria Duran, Tarek Haque, Michael Brdecka, Jamie Suzuki and Ben Jang “Investigation of Hydrothermal Liquefaction of Chlorella with Y Zeolite” ACS SWRM, Austin TX, Oct. 31-Nov. 3, **2021**.

Hailey Burt, Cameran Nealy, Rania Qabbani, Francisco Duran, Dylan Knight, and Ben Jang “Promoted Palladium Catalysts for Liquid Phase Selective Hydrogenation of Alkynes” ACS SWRM, Austin TX, Oct. 31-Nov. 3, **2021**.

Dylan Knight, Benjamin Santoyo, Jordan Whelchel, Syed Hussaini, and Ben Jang “Supported Palladium Catalysts for Selective Hydrogenation of Ethyl Phenylpropiolate” ACS RMRM, Nov. 12-13, **2020**.

Tarek Haque, Martin Perez Jaimes, Erika Cardenas, Kevin Largent and Ben Jang “An Investigation of Plasma Modified Zeolite Catalyst on Hydrothermal Liquefaction of

Chlorella Powder" ACS RMRM, Nov. 12-13, **2020**.

Syed Hussaini, Jordan Whelchel, Keith Vinson, Dylan Knight and Ben Jang "Supported Palladium Catalysts for Selective Hydrogenation of Ethyl Phenylpropiolate" 259th ACS National Meetings, Philadelphia, PA, March 22-26, **2020**

Martin Perez Jaimes, Erika Cardenas, Kevin Largent, Jade Nguyen and Ben Jang "Liquefaction of Chlorella Using Ethanol and/or Water" 259th ACS National Meetings, Philadelphia, PA, March 22-26, **2020**

Martin Perez Jaimes, Michael Pimentel, and Ben Jang "Comparison of Bio-oil Produced Via Hydrothermal Liquefaction Using Ethanol vs Water" ACS SWRM-RMRM El Paso, TX, Nov 13-16, **2019**

Kevin Largent, Erika Cardenas, Martin Perez and Ben Jang "Liquefaction of *Chlorella* to bio-oils with water and water/ethanol" ACS SWRM-RMRM El Paso, TX, Nov 13-16, **2019**

Martin Perez Jaimes, Michael Pimentel, and Ben Jang "Comparison of Bio-oil Produced via Hydrothermal Liquefaction Using Ethanol vs Water" 2019 SACNAS Conference, Honolulu, Hawaii, Oct. 31-Nov. 2, **2019**

Jonathan Flores and Ben Jang "Conversion of algae into bio-oil via hydrothermal liquefaction" ACS MWRM, Wichita, KS, Oct. 16-19, **2019**

Erika Cardenas, Kevin Largent Martin Perez, Jonathan Flores and Ben Jang "Conversion of algae into bio-oil through hydrothermal liquefaction" ACS MWRM, Wichita, KS, Oct. 16-19, **2019**

Amber Flores and Ben Jang "the theoretical conversion of bacteria to bio-oil via hydrothermal liquefaction" Annual Research Symposium, Commerce TX, April 9, **2019**.

Seunga Kim and Ben Jang "Investigation of PdCeOx solid-solution catalysts for selective hydrogenation of acetylene" Annual Research Symposium, Commerce TX, April 9, **2019**.

Keith Vinson, Blaine Williams and Ben Jang "Supported Palladium Catalysts for Liquid Phase Hydrogenation of Alkynes" Annual Research Symposium, Commerce TX, April 9, **2019**.

Martin Perez, Michael Pimentel and Ben Jang "Comparison of bio-oil produced via Hydrothermal Liquefaction using Ethanol vs Water" Annual Research Symposium, Commerce TX, April 9, **2019**.

Seunga Kim, Kathryn Willbanks, Wentao Xie, and Ben-W.-L. Jang "Development of novel Pd-ceria catalyst system for selective hydrogenation of acetylene" 257th ACS National Meetings, Orlando FL, Mar. 31- April 4, **2019**.

Martin Perez, Michael Pimentel and Ben Jang "Comparison of bio-oil produced via hydrothermal liquefaction using ethanol vs. water" 257th ACS National Meetings, Orlando FL, Mar. 31- April 4, **2019**.

CURRENT AND RECENT FUNDING

Co-PI, National Science Foundation, Major Research Instrumentation (MRI) of SEM/EDX, **$144k,** 9/1/2022-8/31/2025

PI, National Science Foundation, Research Experiences for Undergraduates (REU) grant, **$351k**, 9/1/2021-8/31/2024

PI, National Science Foundation REU grant, **$295k**, 8/1/2017-4/30/2022

PI, American Chemical Society, Petroleum Research Fund grant, **$70k**, 6/1/2017- 8/31/2022

PI, National Science Foundation REU grant, **$300k**, 6/1/13-1/31/18.
PI, User Project to Center for Nanophase Materials Sciences of the Oak Ridge National Lab, No-cost use of any equipment at ORNL up to 30 days, (estimated value: **$50k/yr**) 08/01/15-7/30/18.
PI, "Building the Capacity of STEM Teacher Preparation at Texas A&M University-Commerce ", NSF DUE, **$174k**, 9/1/11-8/31/15
PI, Welch Foundation, Departmental Grant, **$75k**, 6/1/12-5/31/15.
PI, National Science Foundation, STEM Scholarship grant, **$593k**, 8/15/08-8/31/14.
PI, National Science Foundation REU grant, **$219k**, 8/1/09-7/31/13.
PI, National Science Foundation, Course Curriculum Laboratory Innovation grant, **$181k**, 6/1/09-5/31/13.