CURRICULUM VITAE

Tracy John Benson

EMPLOYMENT

7/22 – present	Chair, Dan F. Smith Department of Chemical & Biomolecular Engineering Jack Gill Endowed Chair Lamar University
9/22 – present	Full Professor Dan F. Smith Department of Chemical & Biomolecular Engineering Lamar University
6/21 – 7/22	Interim Chair Dan F. Smith Department of Chemical & Biomolecular Engineering
9/15 – 8/22	Associate Professor (tenured) Dan F. Smith Department of Chemical Engineering Lamar University
9/19 – 10/20	Associate Director of Research Center for Midstream Management and Science Lamar University
8/09 – 8/15	Assistant Professor Dan F. Smith Department of Chemical Engineering Lamar University
2/08 – 8/09	Postdoctoral Research Associate Dave C. Swalm School of Chemical Engineering Mississippi State University
1/04 – 12/07	Ph.D. Candidate – Chemical Engineering, Mississippi State University
8/00 – 12/03	M.S. Student – Chemical Engineering, Mississippi State University
1/98 – 8/99	Co-op Engineer (1 year experience), G.E. Plastics, Bay St. Louis, MS

EDUCATION

High School, 1993, Houston High School in Houston, MS

B.S. - Chemical Engineering, 2000, Mississippi State University

M.S. - Chemical Engineering, 2003, Mississippi State University

Ph.D. - Chemical Engineering, 2008, Mississippi State University

RESEARCH INTERESTS

My research thrust is the minimization (or elimination) of industrial wastes, including hazardous materials, unwanted byproducts, and wasted energies by developing alternate chemical transformation pathways for lipid-based biofuels as well as Carbon Capture Utilization & Storage (CCUS) for the reduction of atmospheric CO_2.

PROFESSIONAL AFFILIATIONS

* American Institute of Chemical Engineers
* American Chemical Society
* American Oil Chemists' Society

REFEREE FOR FOLLOWING JOURNALS

Journal of Chemical Technology and Biotechnology
Environmental Progress & Sustainable Energy
Journal of Natural Gas Science & Engineering
Industrial & Engineering Chemistry Research
ACS Sustainable Chemistry & Engineering
International Journal of Hydrogen Energy
Energy Conversion and Management
Journal of CO_2 Utilization
RSC – Green Chemistry
BioEnergy Research
Biomass & Bioenergy
Process Biochemistry
Energy and Fuels
RSC – Advances
Energy

ACTIVITIES, AWARDS, AND FELLOWSHIPS

2023 – Reviewer American Chemistry Council Responsible Care Awards

2019 – 2022 – Member University Undergraduate Curriculum Committee, LU

2018 - 2021 – Chair, Admissions Committee, LU

2018 – 2021 – Undergraduate Research Advisory Board, LU

2017 - 2020 – Jack Gill Distinguished Faculty Fellowship

2016 – 2019 – Member Graduate Council, LU

2015 – 2019 – Graduate Coordinator, Dan F. Smith Department of Chemical Engineering

2013 – 2019 – Chair, Unit Operations Laboratory Renovation and Modernization

2018 – 2019 – Coordinator, Graduate Programs, College of Engineering

2012 - Present – Faculty Advisor, AIChE Student Chapter

2010 – Present – ChemE Car Safety Coordinator, AIChE Southwest Student Region

2018 – Member F2.08 Faculty Annual Review Committee, College of Engineering

2018 – Chair, AIChE Student Chapters Committee

2018 – Faculty leader, Engineering Study Abroad in India

2018 – Chair, Search Committee Department Administrative Assistant

2017 – Chair, Faculty Search Committee

2017 – International Graduate Student Recruiter for Lamar University

2017 – Faculty Externship Motiva Enterprises Inc.

2017 – Vice Chair, AIChE Student Chapters Committee

2017 – Technical Advisor/Safety Consultant for AIChE Middle East Regional ChemE Car Competition in Bahrain

2017 – Co-Chair AIChE Southwest Process Technology Conference Student Program Leadership

2017 – Chair AOCS Industrial Oil Products Poster Session

2016 – 2nd Vice Chair AIChE Student Chapters Committee

2016 – Chair, Advances in Catalysis session at the AIChE spring conference in Houston, TX

2015 – Technical Advisor/Safety Consultant for AIChE Middle East Regional ChemE Car Competition in Bahrain

2015 – Chair, AIChE Sustainability Engineering Forum and area plenary session

2015 – Chair, Advances in Catalysis session at the AIChE spring conference in Austin, TX

2015 – Co-Chair, Chemical and Catalytic Conversions and Processes for Renewable Feedstocks session at the annual AIChE conference in Salt Lake City, UT

2014 – Lamar University Strategic Planning Committee

2014 – University Merit Award (Lamar University)

2014 – Co-Chair, AIChE Sustainability Engineering Forum

2014 – Chair, AOCS New Uses for Glycerol session

2013 – Chair, Integrated Thermo-Chemical and Biochemical Processing for Renewable Fuels and Chemicals session at the annual AIChE conference in San Francisco, CA.

2013 – Co-Chair, Recovery of Value-Added Co-Products from Biorefinery Residuals and Effluents at the annual AIChE conference in San Francisco, CA.

2012 – Chair, Southeast Texas AIChE local section

2012 – Co-Chair, Integrated Thermo-Chemical and Biochemical Processing for Renewable Fuels and Chemicals session at the annual AIChE conference in Pittsburgh, PA

2011 – Chair, New Uses for Glycerol session at the 102nd American Oil Chemists' Society conference in Cincinnati, OH

2010 – Co-Chair, Biorefinery – Biochemical Conversion and Biomass Recalcitrance session at the American Institute for Chemical Engineers annual conference held in Salt Lake City, UT

2010 – Co-Chair, New Uses for Glycerol session at the 101st American Oil Chemists' Society conference held in Phoenix, AR

2009 – Co-chair, Green Chemistry special session at the 100th annual American Oil Chemists' Society conference held in Orlando, FL

2008 – Industrial Oil Products Division Student Award for the American Oil Chemists' Society

2007 – First place Dave C Swalm School of Chemical Engineering student paper competition

2007 – Hearin Fellowship Recipient

2007 – Third place poster presentation award at the student poster competition for the 2007 Mississippi Academy of Sciences annual conference

2007 – Co-chair, Biorefineries session at the 98th annual American Oil Chemists' Society conference held in Quebec, Canada

2006 – Delegate at the 27th annual Council for Chemical Research meeting. This delegation arose from an essay writing competition.

2005 – Search Committee member for the Director of the Dave C. Swalm School of Chemical Engineering at Mississippi State University

K – 12 OUTREACH

- Lamar Intro To Engineering (LITE) – weeklong Junior High summer camp 2014 - current); sponsored by state and industrial grants
- Camp ChemE – weeklong High school summer camp (2023); sponsored by local chemical industry
- Project Engineer (formerly LITE Senior) – weeklong High School summer camp (120 students 2017/2018); sponsored by industrial support
- Introduce a Girl to Engineering – Annual daylong event with hands-on demonstrations; sponsored by ExxonMobil
- Discover Engineering – K-6th annual event (~400 students per year 2014 - 2023)
- College of Engineering STEM workshop – Teachers and Administrators (50 - 100 per year 2015 - 2023); sponsored by BASF
- Southeast Texas Career Expo – Demonstration to area high students (~3,400 students per year since 2016 - 2024)
- High School visits – Overview of Chemical Engineering/ demonstrate common ChemE unit operations (~500 students per year 2015 – 2024)
- Develop hands-on demonstration units – Distillation, Fluidized Catalytic Cracking, Enhanced Oil Recovery, Chocolate Production

COURSE TEACHINGS

Lamar University
CHEN 4420 – Mass Transfer (Fall '09, '12 – '17)
CHEN 3310 – Momentum Transfer (Fall '10 & '11, Summer '12 & '13)
CHEN 4310 – Unit Operations Laboratory (Fall '11 – '21)
CHEN 3330 – Thermodynamics II (Summer '12 – '14)

CHEN 6347 – Advanced Thermodynamics (Spring ‘12 – ‘17, Spring ‘19 – ‘21)
CHEN 5301 – Industrial Chemical Catalysis (Spring ‘10 & ‘11, Summer ‘14)
CHEN 1101 – Introduction to Chemical Engineering (Fall ’17 – ‘24, Spring ‘19 – ‘24)
CHEN 3340 – Process Analysis (Fall ‘21 – ‘22, Spring ‘22)
ENGR 4301 – Carbon Capture Utilization & Storage (Fall ‘22)
ENGR 4301 – Industrial Chemical Catalysis (Fall ‘23)

Mississippi State University
CHE 3223 – Mass Transfer (Spring ‘09)
CHE 6000 – Bio-analytical Research Methods (Fall ‘08)
CHE 3203 – Fluid Flow Operations (Fall ‘06)

RESEARCH GRANTS (funded)

“Biodiesel Production via Transmethylation of Triglycerides: A Glycerol-free Biofuel,” Project supported by the Texas Hazardous Waste Research Center, FY 2010 ($15,000), FY 2011 ($18,250) – PI.

“Temperature Programmed Desorption (TPD) Study for a CO_2 Sequestration Catalyst” Project supported by Lamar University REG, ($5,000) – PI.

“Hydrotreating Phospholipids: Developing the Biorefinery for Microbial Oils” Project supported by the Texas Hazardous Waste Research Center, FY2013 ($20,000) – PI.

“Heterogeneous Catalyst Development for the Conversion of Phospholipid-Containing Feedstocks to Renewable Transportation Fuels” Project supported by the Texas Hazardous Waste Research Center, FY2014 - 2015 ($30,000) – PI.

“In Situ Raman Study for a Renewable Fuels Catalyst” Project supported by Lamar University REG, FY2014 ($5,000) – PI.

“MRI: Acquisition of an LC/MS/MS System for Multidisciplinary Research and Educational Projects” Project supported by NSF – MRI, FY2014 – FY2016 ($456,549) – Senior Personnel

“Lamar Introduction to Engineering (LITE)” Project supported by Texas Higher Education Coordinating Board for junior high school engineering summer camp FY2014 ($12,500) – PI.

“Lamar Introduction to Engineering (LITE)” Project supported by Texas Higher Education Coordinating Board for junior high school engineering summer camp FY2015 ($13,998) – PI.

“Lamar Introduction to Engineering (LITE)” Project supported by ExxonMobil for junior high school engineering summer camp FY2015 ($15,000) – PI.

“Direct Photocatalytic Conversion of CO_2-Containing Flue Gases” Project supported by Texas Air Research Center, FY2017 – 2018, ($33,450) – PI.

"Development and Testing of Amine-Type Scavengers for the Removal of H_2S from Liquid Sour Crudes" Project Supported by Texas Hazardous Waste Research Center FY2016 – 2018, ($23,000) – PI.

"Lamar Introduction to Engineering (LITE)" Project supported by Texas Higher Education Coordinating Board for junior high school engineering summer camp FY2016 ($12,900) – PI.

"Lamar Introduction to Engineering (LITE)" Project supported by ExxonMobil for junior high school engineering summer camp FY2016 ($15,000) – PI.

"Large Volume Carbon Dioxide Conversions Using Functionalized Visible Light Activated Photocatalytic Materials" Project funded by Center for Advances in Water and Air Quality, FY 2016, ($25,000) – PI.

"MRI – Acquisition of Transmission Electron Microscope at Lamar University" Funded by NSF MRI ($525,000) – coPI

"Distillation Requirements of Naphthenic Acids" Funded by SOCHEM Solutions ($10,000) – PI

"Lamar Introduction to Engineering (LITE)" Project supported by Texas Higher Education Coordinating Board for junior high school engineering summer camp FY2017 ($14,266) – PI.

"Lamar Introduction to Engineering (LITE)" Project supported by ExxonMobil for junior high school engineering summer camp FY2017 ($15,000) – PI.

"DOE CarbonSafe" Project supported by DOE, FY 2017 – 2018, ($99,999) – coPI

"DOE GoMCarb" Project supported by DOE, FY 2018 – 2023, ($306,246) – PI

"Texas Louisiana Carbon Management Community" DOE Office of Fossil Energy and Carbon Management, FY2024 – 2025, $146,595, PI

"Houston Direct Air Capture (DAC) Hub for the Production of e-Fuels" DOE Office of Fossil Energy and Carbon Management, FY 2024 – 2026, $74,956, PI

"Reaction of Isocyanates with H2S" BASF, FY2024, $50,000, PI.

UNDERGRADUATE STUDENTS MENTORED

Tamara Frydson (Lamar)	Bradley Goins (Lamar)	Austin Prince (Lamar)
Samir Budhatoki (Lamar)	Bleinie Dickerson (Lamar)	Jennifer Watters (Lamar)
Victoria Simon (Lamar)	Emily Brown (Lamar)	Estibi Azpilicueta (Lamar)
Jameson Roberts (Lamar)	Biragi Kasali (Lamar)	Joanna Cardona (Lamar)
Neel Moore (Lamar)	Peyton Lee (Lamar)	John Bergeron (Lamar)

Maxine Jones (MSU)	Bethany Thompson (MSU)	Tray Achorn (MSU)
Katrina Parker (MSU)	Jared Fisher (MSU)	Allison Forks (MSU)
Britton Eyles (MSU)		

GRADUATE STUDENTS and POST DOCTORATES MENTORED

Rafiq Islam (PhD) – Dissertation Title "Hydrotalcite/Ligand Catalysts for the Formation of Glycerol-free Biodiesel from Lipid Oil Feedstocks Using Dimethyl Carbonate" (Graduated May 2013)

Yishan Zhang (PhD) – Dissertation Title "Synthesis of Novel Catalysts for the Trireforming Conversion of Carbon Dioxide" (Graduated Dec 2014)

Md. Erfan Raihan (PhD) "Comprehensive Paradigm for Converting Waste Carbon Dioxide to Value Added Chemicals" (Graduated May 2017)

Karishma Piler (PhD) "Synthesis and Material Characterization of TiO_2 – SWCNT Nanocomposites and Their Application in Photocatalytic Conversion of Carbon Dioxide to Useful Hydrocarbons" (Graduated Dec 2019)

Linh Doan (PhD) "Estimating Thermodynamic Properties for the Removal of H2S Using Amine and Ionic Liquid Absorbents for Midstream Processes" (Graduated Dec 2020)

Adhish Saketh Madugula "Performance of Economic Model Predictive Control on Absorption and Adsorption Based CO_2 Capture and Storage Methods from Stationary Fuel Combustion Sources in Refineries" (Graduated Dec 2022)

Yogesh Kurle (MS) – Thesis Title "Process Development for Triacylglycerol Conversion to a Glycerol-free Biofuel" (Graduated Dec 2011)

Thomas Zacharia (MS) – Thesis Title "Multi-metal Nanoparticle Catalyst Synthesis Using Reverse Micelle Technique" (Graduated Dec 2012)

Hayat Raza (MS) – Thesis Title "Aspen Simulation of Hydrothermal Liquefaction Process for the Conversion of Algae to Renewable Fuels and Chemicals" (Graduated May 2014)

Khaled Alamr (MS) – Thesis Title "Reactor Design and Optimization for Photocatalytic Conversion of Carbon Dioxide" (Graduated Aug 2014)

Joshua Borton (MS) – Thesis Title "Parametric Study fro Triazabicyclodecene Catalyzed Biofuel Using High Free Fatty Acid Feedstocks" (Graduated Dec 2014)

Keyvan Mollaeian (MS) – Thesis Title "Layered Double Hydroxide Catalyst for the Conversion of Crude Vegetable Oils to a Sustainable Biofuel" (Graduated May 2015)

Frank Lopez (MS) – "Kinetic Evaluation of Lipid Oil Conversion to Biofuel Using Layered Double Hydroxide Doped with Triazabicyclodecene Catalyst" (Graduated Dec 2016)

Mihir Kulkarni (MS) – "Synthesis and Characterization of Supported Nickel Nanoparticles on Titanium Dioxide Using Reverse Micelles" (Graduated May 2017)

Ashik Mahmud (MS) – "A Parametric Analysis for the Formation of Nano-particle Catalyst Sites Using Reverse Micelle Synthesis Techniques" (Graduated Dec 2017)

Adeniji Adetayo (MS) – "Evaluation of the Intraparticle Mobility of Group I, II, and VIIIB Poisons in Fluidized Catalytic Cracking Catalysts Under Reaction Conditions" (Graduated Dec 2017)

Obakore Agbroko (MS) "Reactive Distillation for the Production of Propanediols from Glycerol" (expected graduation: May 2022)

Gautam Singh Thakur (MS) "Reactor Performance for Tri-Reforming Under Real Conditions" (expected graduation: Dec. 2021)

Juan Cruz (Post-Doctoral Research Associate) – Research included fundamental chemistries for the reverse micelle formation and subsequent use for nanoparticle, multi-metal catalysts.

Adhish Saketh Madugula (Post Doctoral Research Associate) – Research included synthesis and testing of ionic liquids for carbon capture

REFEREED PUBLICATIONS

1. **Benson, T**. and George, C. (2005), "Cellulose Based Adsorbent Materials for the Dehydration of Ethanol Using Thermal Swing Adsorption," Adsorption Journal, 11, 697 – 701. http://link.springer.com/article/10.1007%2Fs10450-005-6009-1

2. **Benson, T**., Hernandez, R., French, W.T., Alley, E.G., and Holmes, W.E. (2007) "Reactions of Fatty Acids in Superacid Media: Identification of Equilibrium Products," Journal of Molecular Catalysis A: Chemical, 274, 173 – 178. http://dx.doi.org/10.1016/j.molcata.2007.05.003

3. **Benson, T.,** Holmes, W.E., White, M.G., French, W.T., Alley, E.G, Hernandez, R. (2007) "Development of a Heterogeneous Catalytic Cracking Reactor Utilizing Online Mass Spectrometry Analysis," Journal of Chromatography A, 1172, 204 – 208. https://www.sciencedirect.com/science/article/pii/S0021967307016196

4. **Benson, T.**, Holmes, W.E., White, M.G., French, W.T., Alley, E.G., and Hernandez, R. (2008) "Heterogeneous Cracking of an Unsaturated Fatty Acid and Reaction Intermediates on H^{+}ZSM-5 Catalyst," Clean – Soil, Air, Water, 36, 652 – 656. http://onlinelibrary.wiley.com/doi/10.1002/clen.200800050/abstract

5. **Benson, T**., Hernandez, R., French, W.T., Alley, E.G., and Holmes, W.E. (2009) "Elucidation of the Catalytic Cracking Pathway for Unsaturated Mono-, Di-, and Triacylglycerides on H^+ZSM-5 Catalyst," Journal of Molecular Catalysis A: Chemical, 303, 117 – 123. https://www.sciencedirect.com/science/article/pii/S138111690900020X

6. Zhu, J., Gu, H., Rapole, S.B., Luo, Z, Pallavkar, S., Haldolaarachchige, N., **Benson, T**., Ho, T.C., Hopper, J., Young, D.P., Wei, S., and Guo, Z. (2012) "Looped Carbon Capturing and Environmental Remediation: Case Study of Magnetic Polypropylene Nanocomposites," RSC Advances, 2, 4844-4856. http://pubs.rsc.org/en/Content/ArticleLanding/2012/RA/C2RA01150F#!divAbstract

7. Revellame, E., **Benson, T.J.,** Forks, A.L., French, W., and Hernandez, R. (2012) "Parametric Study on the Production of Renewable Fuels and Chemical from Phospholipid-containing Biomass," Topics in Catalysis, 55, 185 – 195. http://link.springer.com/article/10.1007%2Fs11244-012-9787-1

8. Revellame, E., Hernandez, R., French, W., Phan, P., **Benson, T.J.,** Forks, A., and Callahan, R. (2012) "Lipid Storage Compounds in Raw Activated Sludge Microorganisms for Biofuels and Oleochemicals Production," RSC Advances, 2 (5), 2015 – 2031. http://pubs.rsc.org/en/content/articlelanding/2012/ra/c2ra01078j#!divAbstract

9. Islam, R.M., Kurle, Y.M., Gossage, J.L., **Benson, T.J.** (2013) "Kinetics of Triazabicyclodedene Catalyzed Triglycerides Conversion to Glycerol-free Biofuel Using Dimethyl Carbonate," Energy & Fuels, 27, 1564 – 1569. http://dx.doi.org/10.1021/ef400048v

10. **Benson, T.J.**, Richmond, P.C., Leblanc, W. (2013) "Unit Operation Experiment Linking Classroom with Industrial Process," Chemical Engineering Education, V47, 91-96.

11. Kurle, Y.M., Islam, M.R., and **Benson, T.J**. (2013) "Process Development and Simulation of Glycerol-free Biodiesel from Canola Oil and Dimethyl Carbonate," Fuel Processing Technology, 114, 49-57. http://dx.doi.org/10.1016/j.fuproc.2013.03.030

12. Zhang, Y., Cruz, J., Zhang, S., Lou, H., **Benson, T.J**. (2013) "Process Simulation and Optimization of Methanol Production Coupled to Tri-reforming Process," International Journal of Hydrogen Energy, 38, 13617 – 13630. http://dx.doi.org/10.1016/j.ijhydene.2013.08.009

13. Islam, Md. R., Guo, J., Rutman, D., **Benson, T.J.** (2013) "Immobilization of Triazabicyclodecene in Surfactant Modified Mg/Al Layered Double Hydroxides," RSC – Advances, 3, 24247 – 24255, http://dx.doi.org/10.1039/C3RA43051K

14. **Benson, T.,** Daggolu, P., Hernandez, R., Liu,S., and White, M. (2013) "Review – Deoxygenation Chemistry for Biomass Feedstock Conversion," Advances in Catalysis, 56, 187 – 353. (Book Chapter) http://dx.doi.org/10.1016/B978-0-12-420173-6.00003-6

15. Zhang, Y., Zhang, S., Gossage, J., Lou, H., **Benson, T.J.** (2014) "Thermodynamic Analysis of Tri-reforming Reactions to Produce Syngas," Energy & Fuels, 28, 2717 – 2726. https://pubs.acs.org/doi/10.1021/ef500084m

16. Zhang, Y., Zhang, S., Gossage, J., Lou, H., **Benson, T.J.** (2014) "A Conceptual Design by Integrating Steam Reforming and Dry Reforming Coupled with Partial Oxidation of Methane Processes for CO_2 Emission Reduction," Chemical Engineering & Technology, 37, 1493 – 1499. http://onlinelibrary.wiley.com/doi/10.1002/ceat.201400132/abstract

17. Fang, Y., Rasel, M.A.K., **Benson, T.J.,** Richmond, P.C. (2014) "Novel Hands-on Water Overflow SIS Experiment in Undergraduate Process Control Laboratory," Chemical Engineering Education, V49, 37 – 46.

18. Zhang, Y., Zhang, S., **Benson, T.J.** (2015) "A Conceptual Design by Integrating Dimethyl Ether (DME) Production with Tri-reforming Process for CO_2 Emission Reduction," Fuel Processing Technology, 131, 7 – 13. http://www.sciencedirect.com/science/article/pii/S0378382014004731

19. Mollaeian, K., Wei, S., Islam, M.R., Dickerson, B., Holmes, W.E., **Benson, T. J.** (2016) "Development of an Online Raman Analysis Technique for Monitoring the Production of Biofuels" ACS Energy & Fuels, 30 (5), 4112-4117. http://dx.doi.org/10.1021/acs.energyfuels.6b00313

20. Agbroko, O. W., Piler, K., **Benson, T. J.** (2017) "A Comprehensive Review of H_2S Scavenger Technologies from Oil and Gas Streams," ChemBioEng Reviews, 4, 1 – 22. https://onlinelibrary.wiley.com/doi/abs/10.1002/cben.201600026

21. Lu, Y., Doan, L., Bafana, A., Yu. G., Jeffryes, C., **Benson, T**., Wei, S., Wujcik, E.K. (2018) "Multifunctional Nanocomposite Sensors for Environmental Monitoring" Ch. 6, Polymer-Based Multifunctional Nanoncomposites and Their Applications.

22. Borton, J., Lopez, F., Linh, D., Holmes, W.E., **Benson, T.J.** (2019) "Conversion of High Free Fatty Acid Lipid Feedstocks to Biofuel Using Triazabicyclodecene Catalyst (Homogeneous and Heterogeneous)" Energy & Fuels, 33, 3322 - 3330. https://pubs.acs.org/doi/10.1021/acs.energyfuels.9b00359

23. Piler, K., Muhmud, A., **Benson, T.J.** (2019) "A Regression Analysis with Laboratory Validation for the Use of Reverse Micelles to Achieve Desired Nanonsized Catalytically Active Sites" Chemical Engineering Communications, 207, 537 – 548. https://www.tandfonline.com/doi/full/10.1080/00986445.2019.1605506

24. Doan, L., **Benson, T.J.** (2020) "Solubility and Activity Coefficients of Three Triazine-Type Compounds in Various Low Ionic Strength Aqueous Solutions" Journal of Chemical & Engineering Data, 65, 5, 2325 – 2331. https://doi.org/10.1021/acs.jced.9b00898

25. Piler, K., Watters, J., **Benson, T.J.** (2020) "Band Gap Tuning of TiO_2 NP-SWCNT Nanocomposite Materials Using Surfactant Synthesis Techniques" Materials Letters, 278, 128410. https://doi.org/10.1016/j.matlet.2020.128410

26. Piler, K., Bahrim, C., Sylvestre Twagirayezu, **Benson, T.J.** (2020) "Lattice Disorders of TiO_2 and Their Significance in the Photocatalytic Conversion of CO_2" Advances in Catalysis, V 66, Chapter 2 (https://doi.org/10.1016/bs.acat.2020.09.001)

27. Madugula, A.C.S., Sachde, D., Hovorka, S.D., Meckel, T.A., **Benson, T.J.** (2021) "Estimation of CO_2 Emissions from Petroleum Refineries Based on the Total Operable Capacity form Carbon Capture Applications" Chemical Engineering Journal Advances, 18, 100162. https://doi.org/10.1016/j.ceja.2021.100162

28. Madugula, A.C.S., Jeffreys, C., Henry, J., **Benson, T.J.** (2024) "A Simulation-Based Model Studying Monoethanolamine and Aprotic Heterocyclic Anion Ionic Liquid (AHA-IL) Mixtures for Carbon Capture" Computers and Chemical Engineering, 183, 108599. https://doi.org/10.1016/j.compchemeng.2024.108599

29. Doan, L., Elgar, K., Rahman, A., **Benson, T.J.** "Evaluation of Infinite Dilution Activity Coefficients for Hydrogen Sulfide Absorption in Butyl-Methylimidazolium-Type Ionic Liquids" (in preparation)

30. Doan, L., Elgar, K., Rahman, A., **Benson, T.J.** "Towards the Structure-Property Relationship Between Hydrogen Sulfide and Butyl-Methylimidazolium-Type Ionic Liquids" (in preparation)

PATENTS

U.S. PATENT #: 10,316,254 "Hydrothermal Synthesis of Alkali Promoted MoS_2-based catalyst" (issued 11 June 2019)

ORAL PRESENTATIONS

1. 20 April 2000 – "Batch Oxidation of White Phosphorus in Aqueous Solution in a Parr Bomb Reactor" – Presented at the AICHE Southern Regional Student Conference

2. 26 September 2001 – "Separation of Fermenter Effluents" – At the 2001 Gulf Coast Regional Environmental Conference, I presented this paper describing the use of biomass adsorbents, derived as by-products, to dehydrate ethanol.

3. 6 June 2002 – "Pilot Scale Peroxone Treatment of Groundwater Contamination with PCP" – At the 2002 Water Environment Federation Conference in Jackson, MS, I presented the results from a pilot plant project in south Mississippi

4. 26 June 2002 – "Innovative Adsorbents for the Dehydration of Ethanol" – Presented the results of master's thesis project at the 18th Annual International Fuel Ethanol Workshop and Tradeshow in Springfield, IL.

5. 25 March 2003 – "Separation of Ethanol from Fermenter Effluents" – Presented information on the process of distillation and dehydration of fermented ethanol at the 2003 Mississippi Biomass Conference in Jackson, Ms.

6. 19 November 2003 – "Development of New Adsorption Materials for the Dehydration of Ethanol" – Presented results from master's thesis project at the 2003 Annual AICHE conference in San Francisco, CA.

7. 9 November 2004 – "Producing Electric Power from Broiler Litter" – Presented at the 2004 Annual AICHE conference in Austin, TX.

8. 1 November 2005 – "Production of Biodiesel from Lipid-Rich Industrial Waste Streams" – Presented at the 2005 Annual AICHE conference in Cincinnati, OH.

9. 15 November 2006 – "Cracking of Lipid Molecules by a Superacid" – Presented at the 2006 Annual AICHE conference in San Francisco, CA.

10. 28 March 2007 – "Product identification from the catalytic cracking of *cis*-9-octadecenoic acid" – Presented at the 233rd ACS National Meeting and Exposition in Chicago, IL.

11. 14 May 2007 – "Online Mass Spectrometry Analysis of a Catalytic Cracking Reactor." Presented at the 98th Annual AOCS Meeting & Expo in Quebec City, QC.

12. 16 May 2007 – "Cracking of Fatty Acids Over H-ZSM-5 Catalyst: Elucidation of Reaction Mechanisms" – Presented at the 98th Annual AOCS Meeting & Expo in Quebec City, QC.

13. 27 August 2007 – "Catalytically Cracking of Unsaturated Lipids of H-ZSM-5" – Presented at the 2007 Mississippi State University Biofuels Conference.

14. 9 November 2007 – "Identification of The Cracking Mechanism of Mono-, Di-, and Triglycerides Over H^+Zsm-5 Catalyst" – Presented at the 2007 annual AICHE conference in Salt Lake City, UT.

15. 20 May 2008 – "Elucidation of Mechanism for the Cracking of Unsaturated Lipids Using a Benchmark Catalyst and Commercial Catalysts" Presented at the 98th Annual AOCS Meeting & Expo in Seattle, WA.

16. 2 June 2008 – "Catalytic Cracking Reaction Pathway for Unsaturated Acylglycerides on a Benchmark Catalyst and Commercial Catalysts" Presented at the Clean Technology and Sustainable Industries Conference and Trade Show in Boston, MA.

17. 14 August 2008 – "Renewable Diesel: Production Chemistry and Economics" Presented at the 3rd annual Biofuels Conference at Mississippi State University.

18. 19 August 2008 – "Proposed Teaching, Research, and Service Philosophy at Florida A&M" Invited Speaker. Presented to the Department of Biological and Agricultural Systems Engineering at Florida A&M University.

19. 25 August 2008 – "Determination of reaction pathway for the Heterogeneous Catalytic Cracking of Unsaturated Acylglycerides" Presented at the 18th International Congress of Chemical and Process Engineering in Prague, Czech Republic.

20. 18 November 2008 – "Renewable Diesel: Production Chemistry and Economics" Presented at the 2008 annual AICHE conference in Philadelphia, PA.

21. 20 November 2008 – "Product Distribution for Heterogeneous Catalytic Cracking of Acylglycerides on Commercial Catalysts" Presented at the 2008 annual AICHE conference in Philadelphia, PA.

22. 20 November 2008 – "Identification of Metals Found In Biofuel Lipids Using Inductively Coupled Plasma/mass Spectrometry" Presented at the 2008 annual AICHE conference in Philadelphia, PA.

23. 31 March 2009 – "Conversion of Lipid Feedstocks to Renewable Fuels: Production of Renewable Diesel" Invited Seminar. Presented to the Department of Chemical Engineering at Lamar University.

24. 6 April 2009 – "Production of Green Fuels from Lipids: In Search of Reaction Pathways" Invited Seminar. Presented to the Dave C. Swalm School of Chemical Engineering at Mississippi State University.

25. 27 April 2009 – "Conversion of Lipid Feedstocks to Renewable Fuels: Production of Renewable Diesel" Invited Seminar. Presented to the Department of Chemical Engineering at Worcester Polytechnic University.

26. 6 May 2009 – "Heterogeneous Catalytic Cracking of Phospholipids to Renewable Fuels" Invited Seminar. Presented at the 2009 annual AOCS conference in Orlando, FL.

27. 4 Nov 2009 – "Conversions of Phospholipids to Renewable Diesel: Reaction Pathways and Effects on Hydrotreating Catalysts" Presented at the 2009 annual AICHE conference in Nashville, TN.

28. 19 May 2010 – "Production of Biodiesel Using Dimethyl Carbonate as the Methylating Agent: A Glycerol-free Biofuel." Presented by graduate student, Michael Miguez, at the annual AOCS conference in Phoenix, AZ.

29. 15 June 2010 – "Development of an Ideal Hydrotreating Catalyst for the Conversion of Phospholipids to Biofuels." Presented at the 21st International Symposium for Chemical Reaction Engineering in Philadelphia, PA.

30. 9 Nov 2010 – "Production of Biodiesel Using Dimethyl Carbonate as the Methylating Agent: A Glycerol-free Biofuel" Presented by graduate student Michael Miguez at the 2010 annual AICHE conference in Salt Lake City, UT.

31. 3 May 2011 – "Alternate Methylating Agent in Producing Glycerol-free Biofuel" Presented at the 102nd annual AOCS conference in Cincinnati, OH.

32. 18 Oct 2011 – "In situ FTIR Study for Tri-Reforming Reaction" Presented by graduate student Yishan Zhang at the annual AIChE conference in Minneapolis, MN.

33. 19 Oct 2011 – "Development of Nanoparticle Catalyst for the Trireforming of CO_2-Rich Flue Gases" Presented at the annual AIChE conference in Minneapolis, MN.

34. 19 Oct 2011 – "Unique Processing Considerations for the Trireforming of CO_2 to Syngas" Presented at the annual AIChE conference in Minneapolis, MN.

35. 28 Mar 2012 – "From Nano-Catalyst to Trireforming Process: Engineered CO_2 Conversion" Presented at the ACS Annual Spring conference in San Diego, CA.

36. 1 Apr 2012 – "Reviving a Dormant Section: A Case Study" Presented at the AIChE Local Section Leadership Workshop in Houston, TX.

37. 23 Aug 2012 – "Catalytic and Process Development for Glycerol-free Biofuel from Acylglyceride Lipids" Presented at the ACS Annual Fall conference in Philadelphia, PA.

38. 23 Aug 2012 – "In situ FTIR Spectroscopy for the Conversion of CO_2 to Syngas via Trireforming" Presented at the ACS Annual Fall conference in Philadelphia, PA.

39. 29 Oct 2012 – "Reverse Micelle Synthesis and Characterization of Nanoparticle Catalysts for Tri-Reforming of CO2" Presented at annual AIChE conference in Pittsburg, PA by (Presented by Yishan Zhang-PhD student)

40. 29 Oct 2012 – "Biodiesel Production Without Glycerol Byproduct: Dimethyl Carbonate As Replacement for Methanol" Presented at annual AIChE conference in Pittsburg, PA by (Presented by Tamara Frydson-undergraduate paper competition)

41. 30 Oct 2012 – "A Distillation Experiment Linking Classroom with Industrial Processing" Presented at annual AIChE conference in Pittsburg, PA as part of the ChE Curriculum symposium.

42. 1 Nov 2012 – "In Situ FTIR Identification of the Reactive Sites of a Ni/TiO2 Steam Reforming Catalyst" Presented at annual AIChE conference in Pittsburg, PA by (Presented by Yishan Zhang-PhD student)

43. 1 Nov 2012 – "Simulation and Heat-Integration of Glycerol-Free Biodiesel Plant from Canola Oil with Dimethyl Carbonate" Presented at annual AIChE conference in Pittsburg, PA by (Presented by Mohammad Rafiqul Islam-PhD student)

44. 25 Sept 2013 – "Catalytic and Process Development for Glycerol-free Biofuel from Lipids" Presented to Renewable Biofuels, Inc. (invited talk)

45. 3 Nov 2013 – "Kinetic Evaluation and Reactor Modeling for Transesterification of Lipids with Dimethyl Carbonate Using the Homogeneous Catalyst Triazabicyclodecene" Presented at annual AIChE conference in San Francisco, CA.

46. 4 Nov 2013 – "Experience Using Inexpensive Water Overflow Experiment to Demonstrate SIS Concepts" Presented at annual AIChE conference in San Francisco, CA. (Presented by colleague Dr. Peyton Richmond)

47. 7 Nov 2013 – "Development of a Heterogeneous Guanidine Base Catalyst for the Conversion of Lipids to a Sustainable Biofuel" Presented at annual AIChE conference in San Francisco, CA.

48. 7 Nov 2013 – "Process Simulation and Optimization of Methanol Production Coupled to Tri-Reforming Process" Presented at annual AIChE conference in San Francisco, CA. (Presented by Yishan Zhang-PhD student)

49. 31 Mar 2014 – "Kinetic and Thermodynamic Aspects for CO_2 Conversion to Methanol via Trireforming" Presented at the annual AIChE spring conference in New Orleans, LA.

50. 6 May 2014 – "Overview: What's Around the Corner for the Glycerol Market?" Presented at the annual AOCS Conference in San Antonio, TX.

51. 27 April 2015 – "Photocatalyst Development and Reactor Design for the Conversion of Carbon Dioxide and Water so Syngas" Presented AIChE Spring Conference in Austin, TX (Presented by Md. Erfan Raihan-PhD student)

52. 2 Oct 2015 – "Carbon Dioxide Conversion Through Tri-Reforming: Reactor/Process Design and Optimization" Presented at the AIChE Southwest Process Technology Conference in Galvestion, TX - Won Best Speaker Award

53. 9 Nov 2015 – "Optimized Annular Reactor Modeling and Performance for Photocatalytic Carbon Dioxide Conversion" Presented at AIChE annual conference in Salt Lake City, UT (Presented by Md. Erfan Raihan-PhD student)

54. 9 Nov 2015 – "Carbon Dioxide Conversion: Catalyzing the Reaction and Society's Interest" Presented at the Area Plenary session of Health, Safety & Environmental Sustainability at AIChE annual conference in Salt Lake City, UT

55. 11 Nov 2015 – "A Parametric Study for the Conversion of High Free Fatty Acid Lipid Feedstocks to Biofuel Using Triazabicyclodecene Catalyst" Presented at AIChE annual conference in Salt Lake City, UT (Presented by Obakore Agbroko-PhD student)

56. 26 Aug 2016 – "Carbon Dioxide Conversion Through Tri-Reforming: Reactor/Process Design and Optimization" Presented at the Southeast Symposium on Contemporary Engineering Topics in Jackson, MS

57. 15 Nov 2016 – "Development and Testing of Amine-Type Scavengers for the Removal of H_2S from Liquid Sour Crudes" Presented at AIChE annual conference in San Francisco, CA (Presented by Obakore Agbroko-PhD Student)

58. 17 Nov 2016 – "In Situ Analysis for the Production of Biofuel Using a Heterogeneous Layered Double Hydroxide Catalyst" Presented at AIChE annual conference in San Francisco, CA (Presented by Obakore Agbroko-PhD Student)

59. 3 May 2017 – "Reactive Distillation: Exploring Process Intensification Routes for the Oil Products Industry" Presented at the AOCS Conference in Orlando, FL

60. 25 Oct 2017 – "Conversion of Crude Glycerol to Propanediols Using Reactive Distillation" Presented at the LAGCOE Conference in Lafayette, LA

61. 31 Oct 2017 – "Advances in Process Intensification: Using Reactive Distillation for the Conversion of Crude Glycerol" Presented at the AIChE annual Conference in Minneapolis, MN (Presented by Obakore Agbroko-PhD Student)

62. 1 Nov 2017 – "The Effects of Dispersion Surfactants on the Photocatalytic Properties of Titanium Dioxide – Single Walled Carbon NanoTubes" Presented at the AIChE annual Conference in Minneapolis, MN (Presented by Karishma Piler-PhD Student)

63. 25 April 2018 – "Medium Chain Alcohol Production Using Alkali-Promoted Mo-Sulfide Fischer – Tropsch Catalysts," Presented at the AIChE Spring Conference in Orlando, FL.

64. 2 April 2019 – "Development of Thermodynamic Parameters for Amine-Containing H_2S Scavengers," Presented at the AIChE Spring Conference in New Orleans, LA (Presented by Linh Doan-PhD Student)

65. 4 April 2019 – "Process & Economic Considerations for the Hydrothermal Liquefaction of Algae to Fuels and Chemicals," Presented at the IEEE GreenTech Conference in Lafayette, LA.

66. 18 July 2019 – "Exploring the Gulf of Mexico Sub-Sea Floor as a Sink for Waste CO_2," Presented at the Carbon Management Conference in Houston, TX.

67. 12 Nov 2019 – "Unique Preparation of TiO_2 – SWCNT Nanocomposites for the Photocatalytic Conversion of Carbon Dioxide," Presented at the AIChE Annual Conference in Orlando, FL.

68. 14 Nov 2019 – "Analysis of Pyrolysis Oil Model Compounds Using in-Situ Raman" Presented at the AIChE Annual Conference in Orlando, FL (Presented by Adhish Madugula – PhD Student)

69. 14 Nov 2019 – "Relationship of Solubility and Thermodynamic Parameters for Amine-Containing Non-Regenerative H_2S Scavengers," Presented at the AIChE Annual Conference in Orlando, FL (Presented by Linh Doan – PhD Student)

70. 16 Nov 2020 – "New Insights for the Thermodynamic Behavior of H_2S and Ionic Liquid Mixtures," Presented virtually at the AIChE Annual Conference (Presented by Linh Doan – PhD student)

71. 16 Nov 2020 – "Optimization and Transport of CO_2 from Refineries in Southeast Texas for Offshore Subsea Storage," Presented virtually at the AIChE Annual Conference (Presented by Adhish Chandra Saketh Madugula – PhD Student)

72. 16 Nov 2020 – "Latest Advancements in Midstream Technologies," Presented virtually at the AIChE Annual Conference.

73. 11 Jan 2021 – "A Look at the Sustainable Conversion of CO2 to Useful Fuels and Chemicals" Invited talk presented at webinar for CO_2 Research Group at PDPU - Gandhinagar, Gujarat, India

74. 13 Nov 2022 – "Evaluation of Aprotic Heterocyclic Anion Ionic Liquids for Post Combustion Carbon Capture" Presented at the AIChE Annual Conference (Presented by Adhish Chandra Saketh Madugula – PhD Student)

75. 26 Oct. 2023 – "Technology Development for Carbon Capture and Conversion" Presented at BASF Houston, TX

76. 26 Oct. 2023 – "Thermodynamic Properties of Amine-Type and Ionic Liquid H2S Scavengers" Presented at BASF, Houston, TX

77. 6 Nov. 2023 – "Estimation of Environmental Impacts of [P2228][2-CNPyr] and its Monoethanolamine Based Hybrid Solvent Using LCA Methodology" Presented at the AIChE Annual Conference (Presented by Adhish Chandra Saketh Madugula – Post Doctoral Research Associate)

78. 27 Mar. 2024 – "Role of Nonaqueous Amines for Potential CO2 Capture Solvents" Presented at the AIChE Spring Conference (Presented by Aishwarya Roy – MS Student).

POSTER PRESENTATIONS

1. Jones, M., Benson, T., and George, C. (2002) "Ethanol: Fuel for the New Millennium." Presented at the 1st annual E-Week poster competition at Mississippi State University.

2. Smith, T., Benson, T., and George, C. (2003) "Ethanol Dehydration Using Biomass Adsorbents." Presented at the 2nd annual E-Week poster competition at Mississippi State University.

3. Benson, T., Zappi, M., and French, T. (2004) "Preliminary Assessment of the Technical and Economic Viability of Producing Biogas at MS Broiler Poultry Raising Operations." Presented at the Southern Bio-Products Conference in Biloxi, MS.

4. Benson, T. and George, C. (2004) "Cellulose Based Adsorbent Materials for the Dehydration of Ethanol Using Thermal Swing Adsorption." Presented at the 8th annual Fundamentals of Adsorption in Sedona, AZ.

5. Hartenbower, B., Benson, T., and Zappi, M. (2005) "Methane Generation from Broiler Chicken Litter for the Production of Electrical Energy." Presented at the Southern Bio-Products Conference in Jackson, MS.

6. Benson, T., Hernandez, R., French, T., and Zappi, M. (2006) "Using Lipids from Industrial Waste Sources to Produce Biodiesel." Presented at the Southern Bio-Products Conference in Choctaw, MS.

7. Benson, T., Holmes, W.E., White, M.G., French, W.T., Alley, E.G, Hernandez, R., (2007) "Development of a Laboratory Scale Catalytic Cracking Reactor." Presented at the 2007 annual AICHE conference in Salt Lake City, UT.

8. Benson, T., Holmes, W.E., Hernandez, R., French, W.T., White, M.G., and Alley, E.G. (2008) "Development of a Laboratory Scale Catalytic Cracking Reactor" – Presented at the Pittcon Conference and Expo 2008 in New Orleans, LA.

9. Forks, A., Benson, T.J., Holmes, W.E., French, W.T., and Hernandez, R. (2009) "Reaction Kinetics for the Homogeneous Catalytic Cracking of a Saturated Triglyceride" – Presented at the 2009 annual AOCS conference in Orlando, FL.

10. Benson, T., Cruz, J., Lou, H., Zhang, Y., Gangadharan, P. (2012) "From Nano-Catalyst to Trireforming Process: Engineered CO_2 Conversion" Presented at the ACS Annual Spring conference SciMix in San Diego, CA.

11. Benson, T.J. and Islam, Md. R. (2013) “Synthesis and Characterization of Guanidine Base-Functionalized Mg/Al Layered Double Hydroxides” Presented the North American Symposium on Chemical Reaction Engineering in Houston, TX.

12. Zhang, Y., Cruz, J., Benson, T.J. (2013) “Development of a Reverse Micelle Catalyst Synthesis Method for Producing Multi-Metal Nano-Structures on a TiO2 Anatase Support” Presented at the 2013 annual AIChE conference in San Francisco, CA.

13. Benson, T., Raza, H., Roberts, G.W., Fortier, M.O., Stagg-Williams, S.M., Sturm, B.S.M (2013) “Aspen Simulation for the Hydrothermal Liquefaction of Algae to Generate Fuels and Chemicals” Presented at the 2013 annual AIChE conference in San Francisco, CA.

14. Raihan, Md. E. and Benson, T. (2015) “Reactor Simulation of Photocatalytic Carbon Dioxide Conversion By Saturated Steam over TiO2” Presented at the 2015 annual AIChE conference in Salt Lake City (Presented by Md. Erfan Raihan-PhD Student)

15. Agbroko, O., Mollaeian, K., Holmes, W., Benson, T.J. (2015) “Online Raman Spectroscopy Analysis Technique for Monitoring Biofuel Reaction Using Heterogeneous Layered Double Hydroxide Catalyst” Presented at the 2015 annual AIChE conference in Salt Lake City (Presented by Obokore Agbroko-PhD Student)

16. Piler, K., Bernnazzani, P., Bahrim, C., Benson, T.J. (2016) “Novel Catalysts for Photocatalytic Conversion of CO_2/H_2O and CO_2/CH_4 Systems to Syngas” (Presented by Karishma Piler-PhD Student)

17. Doan, L., Benson, T.J. (2017) “Investigating the Drug Delivery Effect for Anti-Cancer Compounds Using Graphene Oxide Nanoparticles” Presented at the AIChE annual Conference in Minneapolis, MN (Presented by Linh Doan-PhD Student)

18. Agbroko, O., Piler, K., Benson, T.J. (2017) “Investigation on Chemical Absorbents for the Effective Removal of H2S from Crude Oils” Presented at the AIChE annual Conference in Minneapolis, MN (Presented by Obakore Agbroko-PhD Student)

19. Agbroko, O. and Benson T.J. (2017) Process Intensification Using Reactive Distillation: Conversion of Crude Glycerol to Propanediol” Presented at the 9th Annual AIChE Southwest Process Technology Conference in Galveston, TX (Presented by Obakore Agbroko-PhD Student)

20. Piler, K. and Benson, T.J. (2017) “Development and Testing of Amine-Type Scavengers for Elimination of H_2S from Liquid Sour Crudes” Presented at the 9th Annual AIChE Southwest Process Technology Conference in Galveston, TX (Presented by Karishma Piler-PhD Student)

21. Piler, K. and Benson, T.J. (2018) "Self-Assembly of Specific Nanonstructures on Catalytic Supports Using Reverse Micelles" Presented at the 10th Annual AIChE Southwest Process Technology Conference in Galveston, TX (Presented by Karishma Piler-PhD Student)

22. Roy, Aishwarya, Madugula, A.C.S., and Benson, T.J. (2024) "Identification of Non-Aqueous Solvents for Pairing with Amine-type CO2 Capture Systems" International Day of Women and Girls in Science, Beaumont, TX (Presented by Aishwarya Roy – MS Student)

COMMITTEE MEMBER FOR GRADUATE STUDENT RESEARCH

Roxanne Padlan (MS) "Synthesis and Characterization of Layered Double Hydroxides" Defended 2010

Charlene Taylor (MS) "Electrochemical Impedance Spectroscopic Characterization of Carbon Coated Sulfonated Polytetra-Fluoroethylene Based Ion Conductor" Defended 2010

Emre Atabey (MS) "Fluorescent Electrospun Polyvinyl Alcohol Nanocomposite Fibers with CdSe@ZnS Quantum Dots" Defended 2011

Juri Selig (PhD) "Combustion Synthesis of Thermoelectric Oxides" Defended 2012

Aisha Leh (PhD) "Study Parameters Controlling Drop Adhesion to Surfaces" Defended May 2012

Jiahua Zhu (PhD) "Integrated Nanocomposites Toward Electrochemical Energy Storage and Environmental Remediation" Defended 2013

Preeti Gangadharan (PhD) "Sustainability of Syngas Conversion Technologies" Defended May 2013

Kai Liang Zheng (PhD) "Incorporating Sustainability into the Early Design Stage of Chemical Process-Reaction Pathway Selection" Defended May 2013

Sruthi Tadakamalla (MS) "Polyaniline Stabilized Magnetic Nanoparticles Reinforced Epoxy Nanocomposites and Flame Retardant Epoxy Resin Nanocomposites" Defended Aug 2013

Babak Rafie Nia (MS) "Gas Separator Mist Eliminator Wires-Liquid Adhesion Using the Centrifugal Adhesion Balance" Defended Dec 2013

Belinda Molina (MS) "Alkali Promoted Molybdenum Disulfide Based Catalysts, Development and Characterization for Alcohol Synthesis from Carbon Monoxide and Hydrogen" Defended Dec 2013

Tsai-Nan Mai (MS) "A Modeling and Experimental Study of the Kinetics of Intracellular Synthesis of Silver Nanoparticles Using Chlamydomonas Reinhardii" Defended June 2017

Monique Wilburn (PhD) “Methane Oxidation Over, and Sulfur Interactions with, Pd/Pt Bimetallic Catalysts” Defended Dec 2017 (University of Houston)

Melanie Hazlett (PhD) “Kinetic and Mechanistic Study of CO and Hydrocarbon Oxidation, and NOx Oxidation and Reduction Over Pt-Pd Catalysts” Defended Dec 2017 (University of Houston)

Yan Fang (PhD) “Process Safety Applications of Plant DCS Data and Operating Procedure Analysis with Risk Assessment” Defended Aug 2018

Adarsh Bafana (PhD) “Nanomaterials: Synthesis, Sustainability, and Applications” Defended Aug 2019

Shishir Kumar (PhD) “Sustainable Microwave Synthesis of Inorganic Nanoparticles and Their Application” Defended Aug 2019

Ashigur Rahman (PhD) “Biosynthetic Conversion of Ag^{+} to Colloidally Stable AG^{0} Nanoparticles by *Chlamydomonas Reinhardtii*: A Mechanistic View of the Light-Induced Synthesis Process and the Impact of the Extracellular Polymeric Substances on the Stability of the Nanoparticles” Defended Dec 2019

Aniket Khade “Condition Monitoring with Magnetic Sensors for Prognosis and Reduced Mechanism Development for Ammonia-Natural Gas Co-Firing” Defended May 2021