

# Curriculum Vitae

*Mark Edward Zappi, PhD, PE*

## **EDUCATION**

BS-Civil Engineering, 1984, University of Louisiana at Lafayette

MS-Chemical Engineering, 1991, Mississippi State University

PhD-Chemical Engineering, 1995, Mississippi State University

## **PROFESSIONAL REGISTRATION**

Professional Engineer (P.E.) Registration: State of Mississippi (No. 10903) and State of Louisiana (No. 37515)

## **RESEARCH INTERESTS**

1. Research, development, and commercialization of biomass-derived and/or biotechnology-based processes for the production of commercial chemicals and energy.
2. Research, development, and design of innovative technologies for treatment of contaminated media (including environmental matrices, drinking water, process air streams, and wastewaters).
3. Development of energy resources.
4. Development and fielding of alternative energy and green production systems.
5. C1 capture and utilization systems.
6. GHG reduction systems and technologies.
7. Commercialization of engineered systems and associated market development.
8. Development of novel teaching methods for educating STEM majors.
9. Research program development and optimized project management.
10. Economic development.
11. Enhancing STEM education opportunities for K12 students.
12. Workforce retraining and jobs retention.

## **EMPLOYMENT**

2019 – Present      BORSF Endowed Chair in Bioprocessing  
College of Engineering (Chemical Engineering)

|                |                                                                                                                                                                                                                                           |
|----------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                | University of Louisiana at Lafayette                                                                                                                                                                                                      |
| 2018 – Present | Professor of Civil Engineering (Joint Appointment – Tenured in Chemical Engineering at UL)<br>University of Louisiana at Lafayette                                                                                                        |
| 2015 – Present | Director of the Center for Environmental Protection, Energy Institute of Louisiana, University of Louisiana at Lafayette                                                                                                                  |
| 2015 – Present | Executive Director of the Energy Institute of Louisiana (EIL),<br>University of Louisiana at Lafayette                                                                                                                                    |
| 2010 – 2018    | Chevron Professor of Chemical Engineering,<br>University of Louisiana at Lafayette                                                                                                                                                        |
| 2006 – 2014    | Director<br>UL Bioprocessing Research Laboratory (BRL),<br>University of Louisiana at Lafayette                                                                                                                                           |
| 2005 - 2018    | Dean of Engineering<br>University of Louisiana at Lafayette                                                                                                                                                                               |
| 2005 – Present | Professor of Chemical Engineering (Tenured)<br>UL College of Engineering<br>University of Louisiana at Lafayette                                                                                                                          |
| 2002 - 2005    | Texas Olefins Professor of Chemical Engineering<br>Dave C. Swam School of Chemical Engineering<br>The James Worth Bagley College of Engineering<br>Mississippi State University                                                           |
| 2002 - 2005    | Graduate Program Coordinator<br>Dave C. Swam School of Chemical Engineering<br>The James Worth Bagley College of Engineering<br>Mississippi State University                                                                              |
| 9/00 - 2005    | Director of the Mississippi University Research Consortium for the Utilization of Biomass (A DOE EPSCoR funded group consisting of MSU, UM, USM, and JSU)<br>Dave C. Swalm School of Chemical Engineering<br>Mississippi State University |
| 1998 - 2017    | President of Zapco Environmental Consulting Inc.<br>Formerly a Registered MS S-CORP                                                                                                                                                       |

Lafayette, LA

- 1999 - 2002      Professor of Chemical Engineering (Tenured August 1999)  
Dave C. Swalm School of Chemical Engineering  
Mississippi State University
- 1997 - 2005      Director of the MSU Environmental Technology Research and  
Applications (E-TECH) Laboratory (External grant funded  
laboratory – soft funded)  
Dave C. Swalm School of Chemical Engineering  
Mississippi State University
- 1996 - 1999      Associate Professor of Chemical Engineering  
Department of Chemical Engineering  
Mississippi State University
- 1992 - 1996      Biological and Oxidation Processes Team Leader  
Environmental Engineering Division  
Environmental Laboratory  
U.S. Army Corps of Engineers  
Engineering Research and Development Center  
(Waterways Experiment Station)  
Vicksburg, MS
- 1984 - 1992      Research Environmental Engineer  
Environmental Engineering Division  
Environmental Laboratory  
U.S. Army Corps of Engineers  
Engineering Research and Development Center  
(Waterways Experiment Station)  
Vicksburg, MS

### **AWARDS/HONORS**

1995 Invited Participant and Discussion Leader in the ***National Academy of Engineering's*** First Annual Symposium on Frontiers of Engineering, Beckman Center, University of California-Irvine, Sept. 21-23, 1995. Selected as one of the Top 100 most promising young engineers in the US (member of Group1). This was the first symposium of its kind by the NAE, yet the symposium has continued since.

1991 - “Young Professional of the Year”, Vicksburg Chapter of the Society of American Military Engineers

1994 - "Commander's Award for Civilian Service Award", USAE Waterways Experiment Station, Vicksburg, MS, for development of the "AOP Toolbox" Evaluation Protocol.

Officially commended by the U.S. Army Corps of Engineers twelve times during the period of 1984 – 1996 for research activities in support of military activities.

1993 - Profiled as an "Outstanding Team Member" by the US Army Corps of Engineers (Represented the Environmental Engineering Field)

1996 - "Toulmin Medal National Award for Best Research Publication" presented by the Society of American Military Engineers

1996 - "US Army Engineer Waterways Experiment Station Director's Research and Development Achievement Award", US Army Corps of Engineers Engineering Research and Development Center

1996 - "US Department of the Army Research and Development Achievement Award", US Army Corps of Engineers

1998 - Full Member of Sigma Xi (inducted in 1998), The Scientific Research Society

2000 - Designated a "2000 - 2001 Hearin Professor of Engineering", College of Engineering, Mississippi State University

2001 - Designated a "2001 - 2002 Hearin Distinguished Professor of Engineering", College of Engineering, Mississippi State University

2002 - Designated the "Texas Olefins Professor of Chemical Engineering" at the Dave C. Swalm School of Chemical Engineering, MSU.

2003 - Recipient of the "2003 Ralph Powe University Research Award", MSU Chapter of Sigma Xi.

2003 - James Worth Bagley College of Engineering "Researcher of the Year" Award

2007 - Leadership Lafayette Graduate – Class XX (Class 20)

2010 - Chevron Professorship in Chemical Engineering – University of Louisiana

2015 - "A. B. Patterson Award for Engineering Management", Louisiana Engineering Society

2019 - Awarded the "BORSF Endowed Chair in Bioprocessing", UL College of Engineering, University of Louisiana

2020, 2021 - Outstanding Achievement in Externally Funded Research award – University of Louisiana

2020 - Designated a “UL Distinguished Faculty Member” – University of Louisiana

2023 – UL College of Engineering “Researcher of the Year Award”

### **UNIVERSITY COURSES TAUGHT (FORMAL ACADEMIC)**

- 1 - Design Concepts for Chemical Engineers (freshman level) – at MSU
- 2 - Mass and Energy Balances (sophomore level) – at MSU
- 3 - Fluids (sophomore level) – at MSU
- 4 - Pollution Abatement and Remediation (senior/graduate level) – at MSU
- 5 - Introduction to Site Remediation Design (graduate level) – at MSU
- 6 - CHE Graduate Seminar Series (graduate level) – at UL
- 7 – PhD Seminar Series (Developed and Taught: college-wide course) – at UL
- 8 – Transport Phenomena (sophomore/junior level) – at UL
- 9 – Hazardous Waste Treatment (senior/graduate level [400G]) – at UL
- 10 – Solid and Hazardous Waste Management (graduate level) – at UL
- 11 – Industrial Waste Treatment (graduate level) – at UL

### **UNIVERSITY COURSES DEVELOPED**

Developed the following engineering classes:

- 1 - Design Concepts for Chemical Engineers (Freshman Level Course)
- 2 - Pollution Abatement and Remediation (Senior/Graduate Level Course)
- 3 - Introduction to Site Remediation Design (Graduate Level Course)

- 4 – Designing Leaders (leadership development program for engineering & technology students)
- 5 – Chemical Engineering 101 (introduction to the chemical engineering field)
- 6 – Chemical Engineering – Special Topics (Graduate Level) – Design of Treatment Systems
- 7 – PhD Seminar Series (all PhD student within the college take this class)
- 8 – Redeveloped the UL Hazardous Waste Treatment course (400/400G)

### **SHORT COURSE/TEACHING SEMINARS TAUGHT**

1. Introduction to Hazardous Organic-Contaminated Waste Treatment
2. Management of Organics-Contaminated Sediments
3. Management of Industrial Waste Streams (Pollution Abatement)
4. Industrial Pollution Prevention Methods
5. Treatment Methods for Industrial Wastes
6. Biofuels Processing Methods
7. Production of Biodiesel
8. Anaerobic Digestion of Agricultural Waste to Produce Biofuels
9. Introduction to Biofuels Production Methods
10. Alternative Energy Developments
11. Future Trends in the Global Energy Markets
12. The Future of the Global Natural Gas Markets
13. Introduction to Carbon Adsorption
14. The Use of Ozone to Treat Complex Wastewaters and Soil Matrices
15. Carbon Capture and Sequestration

## 16. Introduction to Wind Energy

### **RESEARCH ENTERPRISE (FUNDING) HISTORY – Over \$45M of External R&D Project Funds Generated since 1984.**

#### **1984 - 1996: US Army Corps of Engineers Waterways Experiment Station (Over \$27M generated during this period)**

1. Compatibility of Ninth Avenue Superfund Site Groundwater With Two Soil-Bentonite Slurry Wall Backfill Mixtures - COE Omaha District; Role: PI; Funding: \$120K (1988-1990)
2. Activated Sludge Treatability of Ninth Avenue Groundwater - COE Omaha District; Role: PI; Funding: \$265K (1988-1991)
3. Adsorption of North and Northwest Boundary Groundwaters Using Activated Carbon - US Army Rocky Mountain Arsenal; Role: PI; Funding: \$115K (1990-1991)
4. The Federal Integrated Biotreatment Research Consortium - US DoD Strategic Environmental Research and Development Program; Role: Founder and PI; Funding: \$24,000K (1989–1995)
5. Evaluation of UV/Hydrogen Peroxide Treatment of Four Polluted Waters at RMA - US Army Rocky Mountain Arsenal; Role: CO-PI; Funding: \$250K (1986-1988)
6. Evaluation of the Chemodynamics of NDMA within the North Boundary Containment and Treatment System at RMA - US Army Rocky Mountain Arsenal; Role: PI; Funding: \$130K (1991-1992)
7. Bioslurry Treatment of Explosives Contaminated Soils - US Navy; Role: PI; \$250K (1994-1996)
8. Evaluation of Organic Pollutant Mobility of Solidification/Stabilization Processing of Basin F Waters - US Army Environmental Center; Role: CO-PI; Funding: \$125K (1985-1986)
9. Evaluation of the Leaching Potential of Organics and Inorganics from New Bedford Harbor Sediments - US Army COE - Omaha District; Role: CO-PI' Funding: \$210K (1987-1989)
10. Organization and Development of Insitu Bioremediation: Laboratory Program Development - US Army Environmental Center; Role: CO-PI; Funding: \$165K (1990-1991)

11. Development of Peroxone Oxidation for Treatment of Groundwater Contaminated With Military-Related Wastes - US DoD Strategic Environmental Research and Development Program; Role: PI; Funding: \$3,200K (1993-1995)
12. Factors Effecting the Solidification/Stabilization of Contaminated Wastes - USEPA; Role: CO-PI; Funding: \$280K (1985-1987)
13. Evaluation of BDAT Standards for the Bioslurry Treatment of Contaminated Soils - USEPA; Role: PI; Funding: \$255K (1987-1990)
14. Biofilter Treatment of TCE Contaminated Air - US DoD Strategic Environmental Research and Development Program; Role: CO-PI; Funding: \$1,200K (1992-1995)
15. Pilot Scale Evaluation of Peroxone at the Cornhusker Army Ammunition Plant - US Army COE Kansas City District; Role: PI; Funding: \$325K (1995-1996)
16. Evaluation of Bioslurry Remediation for TNT Contaminated Soils from the Former Nebraska Ordnance Plant - US Army COE; Role: PI; Funding: \$165K (1992-1994)
17. Treatability of Lang Superfund Site - US Army COE Kansas City District; Role: PI; Funding: \$135K (1990-1992)
18. Rapid Development of Microbial Strains for Bioremediation of Military Soils and Dredged Materials Contaminated with PAHs - WES; Role: CO-PI; Funding: \$120K (1990-1993)
19. Treatment of Organics Contaminated Debris Using Dark AOPs - WES; Role: PI; Funding: \$55K (1993)
20. Evaluation of Dredged Material Disposal Alternatives for the U.S. Navy Homeport at Everett, Washington - US Army COE Seattle District; Role: CO-PI; Funding: \$225K (1987-1989)
21. Evaluation of Operational Factors Contributing to Reduced Recharge Capacity of the North Boundary Treatment System, Rocky Mountain Arsenal, Commerce City, CO. - US Army Rocky Mountain Arsenal; Role: PI; Funding: \$280K (1987-1989)
22. Pilot Scale Assessment of Peroxone Oxidation for Potential Treatment of Three Contaminated Groundwaters at Rocky Mountain Arsenal, Commerce City, CO - Rocky Mountain Arsenal; Role: PI; Funding: \$185K (1991-1992)
23. Development of a Zero Headspace Aerobic, Suspended Growth Bioreactor - WES; Role: PI; Funding: \$50K (1990)

24. Treatment of Low-Level Contaminated Landfill Leachate Using Advanced Oxidation Processes - US Army COE Baltimore District; Role: PI; Funding: \$145K (1989-1991)

25. Evaluation of Peroxone Oxidation Techniques for Removal of Explosives from Cornhusker Army Ammunition Plant Wastes - US Army COE - Kansas City District; Role: PI; Funding: \$335K (1992-1994)

26. A Laboratory Evaluation of the Feasibility of Chemical Oxidation Processes For Treatment of Contaminated Groundwaters - Rocky Mountain Arsenal; Role: PI; Funding: \$245K (1988-1989)

27. A Laboratory Evaluation of Solidification/Stabilization of New Bedford Harbor Sediments - US Army COE; Role: CO-PI; Funding: \$250K (1988-1989)

28. Evaluation of Contaminant Mobility from Indiana Harbor Dredged Materials - US Army COE Chicago District; Role: CO-PI; Funding: \$185K (1987-1989)

29. Fate of Ammonia and PCBs During Dredged Material Disposal at a CCF Within Saginaw Bay, MI - US Army COE Detroit District; Role: CO-PI; Funding: \$100K (1987)

30. Development of EK for Insitu Remediation of Contaminated Sediments - US DoD Strategic Environmental Research and Development Program; Role: CO-PI; Funding: \$295K (1994-1996)

**1996 - 2005: Mississippi State University - Over \$16M generated during this period:**

1. Bioremediation of Petroleum Waste Sites- Mississippi Department of Transportation; Role: PI; Funding: \$50K (1996)

2. Development of a Design Protocol for Using Biocells to Cleanup Petroleum Hydrocarbon Contaminated Soils Excavated During Highway Construction- Mississippi Department of Transportation; Role: PI; Budget: \$77K (1996)

3. Aerobic Biotreatment of Solvent Contaminated Process Off-Gases Using Aliphatic Gas Utilizers-USAE Waterways Experiment Station; Role: PI; Funding: \$28K (1996)

4. Sonolytically Enhanced Peroxone Oxidation (Sono-Peroxone) for Treatment of Contaminated Wastewaters and Groundwaters - USEPA's Gulf Coast Hazardous Substance Research Center; Role: PI; Funding: \$223K (1997-1999)

5. Development of an Innovative Kenaf-Based Biosorptive Water Treatment Process-MSU Kenaf Research Program; Role: PI; Funding: \$44K (2001)

6. Use of Chemical Priming for Enhancing the Bioremediation Potential of Heavy PAH

Contaminated Sediments - MS/AL SeaGrant Consortium; Role: PI; Funding: \$142K (2000-2002)

7. Enhancing Biotreatment of TPH Contaminated Soil Using Abiotic Techniques-US Navy Construction Battalion Center; Role: PI; Funding: \$15K (2003)

8. Development of Integrated Abiotic-Biotic Processes for Remediation of TNT Contaminated Environmental Media; Sponsor: Army Research Office; Role: PI; Funding: \$433K (1997-2000)

9. Treatment of Wood Preserving Waste Contaminated Waters Using Ozonation With and Without Hydrogen Peroxide Enhancement; USEPA Gulf Coast Hazardous Substance Research Center; Role: PI; Funding: \$228K (1999-2000)

10. Evaluation of O&M Procedures for the Development of an Effective Anaerobic Lagoon Wastewater Treatment System; Tyson Foods Inc.; Role: PI; Funding: \$7K (1997)

11. Development and Evaluation of Waste Management Strategies for Swine Raising Facilities Through the Formation of an Industrial and Agricultural Waste Management and Abatement Team; Sponsor: MSU COE-Hearin Foundation Grant; Role: PI; Funding: \$126K (1998-1999)

12. Development of a Kenaf Based Biosorptive Process; Sponsor: USGA Water Resources Research Institute; Role: PI; Funding: \$65K (1998-1999)

13. Analytical System for Identification of By-Products Produced from the Incomplete Degradation of Relevant Military Pollutants-I; Sponsor: Army Research Office; Role: PI; Funding: \$121K (1998)

14. Evaluation of Two Oxidation Options for a Solvents Contaminated Soil; Sponsor: IVI Engineering Inc.; Role: PI; Funding: \$8K (2000)

15. Evaluation of Two Remediation Options for Gasoline Contaminated Soils; Sponsor: IVI Engineering Inc.; Role: PI; Funding: \$14K (2000)

16. Evaluation of Two Oxidation Options for PCE Contaminated Soils; Sponsor: IVI Engineering Inc.; Role: PI; Funding: \$9K (2001)

17. Evaluation of Optimization Techniques for a Poultry Processing Lagoon; Sponsor: Sanderson Farms Inc.; Role: PI; Funding: \$8K (2002)

18. Development of an Ethanol Production Facility; Sponsor: Mississippi Ethanol Inc.; Role: CO-PI; Funding: \$300K (2000-2001)

19. Formation of the Mississippi University Research Consortium for Utilization of Biomass- Phase I: Production of Biofuels Initiative; Sponsor: US-DOE; Role: PI; Funding: \$3,600K (2001-2003)
20. Development of a Phytologically -Based Biosorptive Water Treatment Process; Sponsor: USEPA Gulf Coast Hazardous Substance Research Center; Role: PI; Funding: \$185K (1999-2002)
21. Analytical System for Identification of By-Products from the Incomplete Degradation of Explosives Compounds-II; Sponsor: ARO; Role: PI; Funding: \$123K (1999)
22. Development and Evaluation of Waste Management Strategies for Swine Raising Facilities-Student Support Funds; Sponsor: MSU COE-Hearin Foundation Grant; Role: PI; Funding: \$9K (1998)
23. Kenaf-Based Biofiltration System for Odor Suppression and Nutrient Recycling in Confined Animal Feeding Operations (CAFO); Sponsor: USDA-MAFES; Role: PI; Funding: \$44K (1998-1999)
24. Farm-Level Implementation of the Swine Odor Reduction Bioreactor System (SORBS); Sponsor: Mississippi Agriculture and Forest Experiment Station/USDA-SRI Funds; Role: CO-PI; Funding: \$80K (1999)
25. Development of Biomass-Based Energy Phase I; Sponsor: USDA (via Oklahoma State University); Role: CO-PI; Funding: \$844K (2002-2003)
26. Accelerated Development of Ethanol Producing Unicarbonic Fermenters; Sponsor: USDOE; Role: PI; Funding: \$210K (2001-2002)
27. Development of Insitu Chemical Oxidation for Remediation of Contaminated Aquifers: DoD SERDP Program; Role: CO-PI; Funding: \$600K (2000-2001)
28. Assessment of Management Techniques for Controlling Oxidation By-Products during Drinking Water Treatment: Northeast Mississippi Water District; Role: PI; Funding: \$36K (2003)
29. Evaluation of Process Designs for Production of Biogas from Confined Animal Feeding Operations; Sponsor: Mississippi Alternative Energy Enterprises; Role: PI; Funding: \$32K (1999)
30. Formation of the Mississippi University Research Consortium for Utilization of Biomass- Phase II: Production of Biofuels Initiative; Sponsor: US-DOE; Role: PI; Funding: \$3,600K (2004-2006)

31. Development of Biomass-Based Energy Phase II; Sponsor: USDA (via Oklahoma State University); Role: CO-PI; Funding: \$844K (2003-2005)
32. Assessment of Engineering Issues Regarding the Production of Biodiesel Using Mississippi Feedstocks; Sponsor: Mississippi Biomass Council; Role: PI; Funding: \$10K (2003)
34. Treatability Assessment of Insitu Chemical Oxidation for Two Contaminated Sites; Sponsor: Brown and Caldwell Engineers; Role: PI; Funding: \$14K (1999)
35. Development of Commercial-Ready Syngas Fermentation Step; Sponsor: Mississippi Ethanol LLC; Role: PI; Funding: \$1,100K. (2005-2006)
36. Biodiesel Development Program; Sponsor: DOE; Role: PI; Funding: \$2,500K (2004-2006)
37. Combined Power and Heat Research Center; Sponsor: DOE; Role: CO-PI; Funding: \$1,000K (2005-2006)

**2005 – Present: University of Louisiana - Over \$9M generated during this period:**

1. Technical Assistance of Biodiesel Production; Sponsor: DOE via MSU; Role: PI; Funding: \$23K (2005-2006)
2. Completion of Bioconsortium Report; DOE via MSU; Role: PI; Funding: \$33K (2006)
3. Technical Assistance with the Evaluation of Syngas Fermentation to Ethanol; Sponsor: DOE via MSU; Role: PI; Funding: \$17K (2006)
4. Workshop on Combined Heat and Power Using Non-Traditional Fuels for Louisiana Industries; Sponsor: DOE; Role: CO-PI; Funding: \$59K (2008)
5. Development of a Commercial Ready Small-Scale Gasifier Unit; Sponsor: NorthStar LLC; Role: PI; Funding: \$72K (2007)
6. Evaluation of Alternative Energy Sources for Small Louisiana Rural Towns; Sponsor: DNR; Role: PI; Funding: \$50K (2008)
7. Development of Novel Feedstocks for Lipid-Based Chemical Production in Louisiana; Sponsor: LA BOR ITRS; Role: PI; Funding: \$213K (2007-2009)
8. Development of Biofuels via the Clean Power and Energy Research Consortium;

Sponsor: La BOR; Role: PI; Funding: \$150K (2008-2009)

9. Planning Grant: Center for Visual Decision Informatics; Sponsor: NSF; Role: CO-PI; Funding: \$10K (2009)

10. Commercialization of a Novel Gasifier System; Sponsor: CLECO; Role: CO-PI; Funding: \$1,265K (2010-2017)

11. Bioprocessing for Clean Energy; Sponsor: LA BOR via CPERC; Role: CO-PI; Funding: \$150K (2009-2010)

12. Production of Novel Feedstocks for Biofuels Production; Sponsor: DOE via CPERC; Timespan: Role: CO-PI; Funding: \$368K (2009-2010)

13. Design and Construction of a Biomass-Fed Gasifier System; Sponsor: DOE; Role: CO-PI; Funding: \$1,360K (Funds spent by Cleco) (2009-2011)

14. Biogas Resource Development; Sponsor: CLECO; Role: PI; Funding: \$1,580K (2011-2017)

15. Development of Biofuels – Phase 2; Sponsor: DOE (CPERC); Role: PI; Funding: \$180K (2011-2013)

16. Design and Installation of Syngas Monitoring System; Sponsor: DNR & Cleco; Role: PI; Funding: \$240K (2012)

17. Design of an Automated Crawfish Peeler; Sponsor: Louisiana Crawfish Promotion and Research Board; Role: CO-PI; Funding: \$292K (2012-2019)

18. Evaluation of Commercially Manufactured Feeds with Different Fat Compositions on Reproductive Performance of Captive Breeding Alligators; Sponsor: Arlen B. Cenac, Jr. Farms & Louisiana Alligator growers Association; Role: CO-PI; Funding: \$66,226 (2014 – 2017)

19. Evaluation of Process Operational Parameters on Production of Densified Bio-coal from Bagasse, using Pilot and Demonstration Scale Torrefaction Systems; Sponsor: American Biocarbon, CT LLC.; Role: CO-PI; Funding: \$234,614 (2017 – 2019)

20. Pilot Scale Evaluation of Torrefaction Operating Process Parameters on Fuel Properties of Bagasse; Sponsor: American Biocarbon, CT LLC.; Role: CO-PI; Funding: \$42,883 (2017 – 2018)

21. Production of Fuels and Other Life Support Products Using Wastewaters as a Feed into a Space-Based Biochemical Conversion System (BIOSYS); Sponsor: NASA; Role:

Science Lead Investigator (Scl); Funding: \$2,200K (2018 – 2021).

22. Right-of-Way Utilization for Renewable Energy Production: An Applications Potential Assessment within Louisiana; Sponsor: LDOTD-TIRE; Role: CO-PI; Funding: \$30K (2018)

23. Evaluation of Commercially Manufactured Feeds with Different Fat Compositions on Reproductive Performance of Captive Breeding Alligators; Sponsor: Golden Ranch Farms, LLC; Role: CO-PI; Funding: \$37,032 (2018 – 2019)

24. Up-Valuing of Natural Gas and Biogas Through the Conversion of Methane into Lipids Via Metabolic Processing by Methanotrophs; Sponsor: Louisiana Board of Regents ITRS Program; Role: CO-PI; Funding: \$331,000 (2019 – 2022)

25. Operation and Maintenance of the Cleco Alternative Energy Center; Sponsor: Cleco; Role: CO-PI; Amount: \$406,000 (2019 – 2021)

26. Israel-United States Binational Industrial Research and Development Project – Enhancing O&G Extractions; Sponsor: DOE via the BIRD Institute; Role: CO-PI; Amount: \$1,800,000 (2020 – 2024)

27. Evaluation of Reforestation of Highway Right of Way Lands on Carbon Sequestration Potential in Louisiana – Sponsor: LDOTD TIRE; Role: CO-PI; Amount: \$30,000 (2021 – 2022)

28. Evaluation of Bioproducts from Louisiana Seafood Processing Plants – Sponsor: Louisiana Fish & Wildlife; Role: PI; Amount: \$50K (2021-2022)

29. Development of a Biopharma Industry Within Louisiana – Sponsor: EDA/APC; Role: Co-PI; Amount: \$500,000 (2022)

30. Development of a Green Hydrogen Hub Within the H2The Future EDA Build Back Better Project – Sponsor: US EDA via GNO; Role: Co-PI; Amount: \$75,000,000 (\$6M at UL with Zappi having a \$2M budget); Project Timeline: 2022 – 2026.

31. Assessing Commercial Products Derived from the Processing of Giant Salvinia – Sponsor: Louisiana Department of Wildlife and Fisheries; Role: PI; Amount: \$600,000; Project Timeline: 2024 – 2026.

32. Improving the Resiliency of Louisiana's Power Grid; Sponsor: USDOE via Louisiana DNR; Role: CO-PI; Amount: \$500M (\$87M to UL via Dr. T. Chambers as UL PI); Project Timeline: 2023 through 2031.

33. Operational Support to the Louisiana C1 Extension Service; Sponsor: State of Louisiana; Role: PI and Director; Amount: \$1,100K; Project Timeline: 2022 through 2026.

34. Labor Support for Energy and Carbon Management Outreach Coordinator; Sponsor: ExxonMobil (Gift); Role: PI; Amount: \$240K; Project Timeline: 2024 through 2027.

35. Conversion of Waste Plastics to Sustainable Carbon Black; Sponsor: La Board of Regent ITRS Program; Role: CO-PI; Amount: \$563,000; Project Timeline: 2023 through 2026

36. Development of Microalgae-based Carbon Capture Systems; Sponsor: NSF FUEL/LSU; Role: PI; Amount: \$214,000; Project Timeline: 2024 to 5/26

37. Optimization of Poultry Litter Digestion; Sponsor: NSF FUEL/LSU; Role: CO-PI (Nicholls State University is the lead); Amount: \$155,000; Project Timeline: 2024 to 2026

### **PROFESSIONAL AFFILIATIONS**

- \* American Institute of Chemical Engineers
- \* American Society of Civil Engineers
- \* Louisiana Engineering Society
- \* Water Environment Federation
- \* Society of Petroleum Engineers

### **PROFESSIONAL SOCIETY EDITORIAL/REVIEW AFFILIATIONS:**

- \* Associate Editor (1994-1998) for ASCE Journal of Environmental Engineering
- \* Associate Editor (1998-2000) for Journal of Waste Management
- \* Associate Editor (2003 - 2005) for Environmental Progress
- \* Guest Editor (Spring 2002) for the Journal of Hazardous Materials
- \* Peer Reviewer for the Journal of Solar Energy
- \* Peer Reviewer for Journal of Environmental Engineering
- \* Peer Reviewer for Journal of Waste Management
- \* Peer reviewer for the Journal of Advanced Oxidation Technologies
- \* Peer reviewer for Critical Reviews in Environmental Science and Technology
- \* Peer reviewer for Electrochemical Acta
- \* Peer reviewer for the Bioremediation Journal
- \* Peer reviewer for Chemosphere Journal
- \* Peer reviewer for the Journal of Hazardous Materials
- \* Peer reviewer for the Journal of Soil Contamination
- \* Peer reviewer for Environmental Science and Technology
- \* Peer reviewer for Journal of Environmental Toxicology
- \* Peer reviewer for Journal of Environmental Engineering Science
- \* Peer reviewer for the Soil and Sediment Contamination: An International Journal
- \* Peer reviewer for Water Research Journal

- \* Peer reviewer for Bioresource Technology
- \* Peer reviewer for Journal of Environmental Engineering Science
- \* Peer reviewer for Journal of Biofuels, Bioproducts & Biorefining
- \* Peer reviewer for the International Journal of Green Energy
- \* Peer-reviewer for the IEEE Xplor Journal
- \* Peer-reviewer for the Journal of Industrial and Engineering Chemistry Research
- \* Editor for the Springer Publishing Algae Biorefinery Book Series with two volumes published.
- \* Peer reviewer for the Journal of Chemical Engineering & Processing: Process Intensification
- \* Section Editor-Emerging Sustainable Practices (2019 – Present) for the Journal of Environmental Quality Management (J. Wiley Publishing, New York, NY)
- \* Guest Editor for a Special Issue on Sustaining Food, Energy, and Water (FEW) Issues for the Journal of Sustainability (published March 2021).
- \* Peer-reviewer for the Journal of Algae Research
- \* Peer-reviewer for the Reviews in Environmental Science and Bio/Technology Journal
- \* Peer-reviewer for Chemical Engineering Science Journal
- \* Peer-reviewer for the Journal of Chemical Engineering
- \* Peer-reviewer for the Journal of Cluster Science
- \* Peer-reviewer for the Journal of Environmental Technology and Innovation
- \* Peer-reviewer for Critical Reviews in Environmental Science and Technology

## **STEERING COMMITTEE/PROGRAM REVIEW ACTIVITIES**

- \* Member of the 1995 Chemistry Coordination Group of the Army Research Office
- \* Technical Reviewer for the 1996 US Environmental Protection Agency's Environmental Verification Program (ETV)
- \* Peer-reviewer/Participant of the 1996 Department of Energy's Environmental Management/ Science Program Review Meeting, Bioremediation Workgroup 10A, Washington D.C., June 17 - 18, 1996.
- \* Peer-reviewer for the National Science Foundation's SBIR Research Program
- \* Peer-reviewer for the Louisiana Transportation Research Board's TIRE Program
- \* Peer-reviewer for the National Research Council's Twinning Program
- \* Peer-reviewer for the Oak Ridge National Laboratory's Ralph E. Powe Junior Faculty Enhancement Award
- \* Peer-reviewer for proposals submitted to the Program Solicitation for the Cooperative Institute for Coastal and Estuarine Environmental Technology (CICEET), University of New Hampshire.
- \* Peer-Reviewer for the Illinois-Indiana Sea Grant College Grants Program
- \* Peer-Reviewer for the Mississippi-Alabama Sea Grant College Grants Program
- \* Peer-Reviewer for the Washington State Sea Grant College Grants Program
- \* Peer-Reviewer for the US Department of State's US Civilian Research and Development Foundation's Science Center Program

- \* Peer-Reviewer for the American Chemical Society's Petroleum Research Fund
- \* Member of the Advisory Board for the University of Notre Dame's Center for Environmental Science and Technology (CEST): 1999 - 2002
- \* Member of the Advisory Board for Army Research Office project located at Jackson State University - project entitled "Treatment of Polycyclic Aromatic Hydrocarbons or Trinitrotoluene- Contaminated Waters and Soils with Immobilized Enzymes and Photosensitizers (ARO Grant #W911NF-04-1-0327)"
- \* Peer-Reviewer for the 2004 Research Program of The Consortium for Plant Biotechnology Research, Inc., St. Simons Island, GA.
- \* Peer-Reviewer for the 2005 American Chemical Society's Petroleum Research Fund, Washington DC.
- \* Peer-Reviewer, WSU, Biomass R&D Initiative - 2006
- \* Peer-Reviewer, DOE Sun Grant Program – University of Tennessee - 2007
- \* Peer-Reviewer, DOE Sun Grant R&D Program – Oklahoma State University – 2007
- \* Peer-Reviewer/Panel Member, DOE's Biofuels Program – Biodiesel Platform, Golden, CO, September 2007
- \* Louisiana Board of Regents Planning Committee Member (representing the University of Louisiana System – Member; 2013 – Current)
- \* Member, Louisiana Department of Transportation and Development Technical Advisory Committee; Appointed by the SEC of Transportation of Louisiana; 2016 – 2018.
- \* Member of NSF Supported Review Panel for the State of New Mexico's NSF ESPCoR SII Program; Organized by the American Association for the Advancement of Science; OCT 2017.
- \* One Acadiana Infrastructure Envisioning Committee Member (2018 – 2020)
- \* NSF CREST Review Team – 2024 Program

## **KEY RESEARCH PROGRAM DEVELOPMENT ACTIVITIES**

### **DoD Related Research Development Activities:**

- \* Past Member of the Waterways Experiment Station Groundwater Modeling Team - In Charge of Remediation Processes Task Area
- \* Former Member of the USAE Waterways Experiment Station's Organics Treatment R&D Work Group
- \* Former Technical Monitor for several Army research contracts and grants in the area of site restoration research (approximately \$2 million of total grant expenditures).
- \* Former Member, DoD Triservices Environmental R&D Strategic Plan Development Team – Organizer and Head of both Explosives in Soils and Explosives in Water Work Groups (1990 – 1996)
- \* SBIR program reviewer (1992 – 1996)
- \* Former Member of the ARO Research Advisory Board (1996 – 1999)
- \* Project review for US AEC concerning installation restoration projects (1998 – 2000)

- \* Championed a MOA between UL and the US Army Corps of Engineers New Orleans District (Oct 2015)
- \* UL Lead on the development of the US-Israel Energy Institute – Tulane University Led multi-US institution R&D program planned for DOE funding (Initiated 2015 to current)
- \* Organizing a multi-university Energy R&D program between Canada, Mexico, and the US through joint collaboration via various funding pools (UL activity – May 2017 to current) – in partnership with Mississippi State University.

### **International Research Collaborations:**

- \* Former Member of Working Group No. 1520 (Soil Treatment Technologies) for the DoD Joint US-Germany Environmental Technology Exchange Program.
- \* Active with American Chemical Society=s International Initiatives Award.
- \* Hosted numerous international visiting scientists within R&D facilities (2 at WES, 3 at MSU, and 1 at UL)
- \* Organizer of 2012 VerTech Conference, Lafayette, LA (NOV12)
- \* Member of the US/Israel Energy R&D Collaboration Forum (US Senate Energy Committee Organized), Tulane University (April 2014)
- \* Member of the Louisiana Gulf Coast Oil Exhibition (LAGCOE) International Committee (2012 – present)
- \* Initiated formal educational and R&D agreements with 18 Mexican universities
- \* Developed a proposal for inclusion of UL as a CONACyT affiliated university (2016)
- \* Founder and Chairperson of the 2017 Louisiana Energy Research Forum held during LAGCOE 2017 (part of program)
- \* Chairperson of the 2017 VerTech Conference (Lafayette, LA – OCT 2017)
- \* Organizer of the 2017 Green City Competition (Lafayette, LA – OCT 2017)
- \* Founder and organizer of the North American Energy Research Alliance (initiated 2017) – involves Canada, Mexico, and US
- \* Program Co-Chair for the 2019 IEEE Green Power Conference, Lafayette, LA (April 2019)
- \* Founder and Executive Director of the North America Energy Research Alliance (formed in 2018)

### **TESTIMONY (US Senate and Others):**

- \* Selected Delegate to the "Innovative Clean Up Technologies Guarantee Savings" Meeting, Hart Senate Building, US Senate, July 11, 1995, Washington DC.
- \* Testimony before the Full US Senate Agricultural, Nutrition and Forestry Committee, May 6, 2004 – Hearing on the Future of Biofuels within the US. Washington DC.
- \* Testimony before the Louisiana Public Service Commission concerning the utilization potential of alternative energy options in Louisiana and suggested mechanisms to

phase these options in – LPSC Meeting in Natchitoches, LA. May 19, 2011.

- \* Testimony before the Quadrennial Energy Review on Energy Infrastructure Needs for the US (Jointly hosted by the DOE and US Senate Energy Committee); New Orleans, LA; May 27, 2014.

- \* Testimony before the Louisiana House Committee on Natural Resources and Environment, Baton Rouge, LA., Tuesday, May 2, 2023. Note testified twice during this meeting.

- \* Testimony before the Louisiana Senate Special Panel on CCUS, Baton Rouge, LA, January 18<sup>th</sup>, 2024.

- \* Testimony before the Louisiana Legislative Clean Hydrogen Task Force, Baton Rouge, LA, July 21, 2024.

## **ACADEMIC ACTIVITIES**

### **Research Program Development**

- \* Founder and Director of the Environmental Technology Research and Applications Laboratory (E-TECH Laboratory) of the Chemical Engineering Department of Mississippi State University

- \* Director of the Mississippi University Research Consortium for the Utilization of Biomass (a \$7.2 million DOE/State funded R&D group)

- \* Chair of the MSU VP-Research's Energy R&D Program Development Committee

- \* Briefed numerous congressional staffers concerning R&D program development at MSU and interfaced with resulting program development (in support of the VP-R&D Office at MSU)

- \* Organized a series of posters on MSU and DOE Bioconsortium-related biotechnology R&D for presentation at the 2004 Mississippi Intellectual Property Forum and Technology Expo, Jackson, MS, Nov, 30, 2004.

- \* Organized UL Bioprocessing Research Laboratory, 2007

- \* Successfully had UL Bioprocessing Research Laboratory invited into CPERC – 2007

- \* CPERC Executive Committee Member – 2008 - Present

- \* Obtainment and Equipping of a 5 ac. Biotechnology R&D Facility at Crowley, LA – 2008 through Present - (To Date: \$10M investment at no cost to the university) – inclusive of 3-ton per day gasifier R&D system (partnership with Drs. T. Chambers and J. Guillory, UL ENGR)

- \* Director of the UL Energy Institute of Louisiana (2011 – present)

- \* Member of UL VP-R's Institute and Center Director Advisory Committee (2014 – present)

- \* Redesign of the Energy Institute of Louisiana: 2014 – 2015.

- \* Facilitated setting up over \$4M of new R&D solar facility at UL at no cost to the

university.

- \* UL Lead for the US-Israel Energy Institute
- \* UL Lead for the North American Energy Alliance
- \* Organized NSF site visit for Dr. Siddia Qidwai (Program Director for MoMS) on Feb. 26, 2018 to discuss obtaining funding from NSF (opened up to all UL faculty).
- \* Organized a series of young faculty R&D and Tenure short courses (2018)
- \* Founded and Taught first PhD Seminar in the UL College of Engineering (started Fall 2018) – oriented toward career development
- \* Organized NSF Site Visit for Dr. Luis Cubano (Program Manager for CREST) on September 5, 2024 inclusive of a campus-wide seminar on generating NSF funding.
- \* Technical Lead on evolving PHMSA R&D program funding for the LNG Research Program – pending new R&D center in Louisiana.
- \* Organized a Tenure and Promotion Seminar in support of the College's young faculty development program.
- \* Organization team member for UL on a joint LaTech/UL CREST proposal for 2025 submittal (topical area is thermal conversion of biomass to products).

### **University Committee Membership**

- \* Review Committee for the Vice-President for Research's 2002 Research Initiation Awards
- \* Faculty Senator - Elected to the Robert Holland Faculty Senate at MSU (3/2003 - 3 year term) – one of 3 faculty elected senators
- \* Subcommittee on Environmental Studies Group, Mississippi State University (current)
- \* Steering Committee and Focus Area Group for the MSU Life Sciences and Biotechnology Institute (Appointed by VP-Research as part of planning effort during 1998 - 1999)
- \* MSU's College of Engineering's Entrepreneurial Development Team (1998 - 1999)
- \* Senior Process Environmental Engineer for the MSU's Mississippi Technical Assistance Program (Mississippi Industry Assistance/Development Program - served from 1996 - 2000)
- \* MSU/MAFES Nutrient Management Team (current)
- \* MSU College of Engineering Faculty Council (1999 - 2001)
- \* Chair of the Research Committee for the MSU College of Engineering Faculty Council (1999 - 2001)
- \* Mississippi State University Faculty Research Advisory Committee (2000 - 2003)
- \* Department of Chemical Engineering Graduate Affairs Committee (As Departmental Graduate Coordinator, currently serve as Chair and formerly as a member)
- \* Served on faculty selection committees
- \* Past Member, MSU Faculty Senate Ancillary Committee (2002 - present)
- \* Past Member, MSU College of Engineering Dean Search Committee (2004)
- \* Past Lecturer of the 2004/2005 MSU Bettersworth Leadership Lectureship Program
- \* Past Member, MSU VP-Research Intellectual Property Committee (current)
- \* Past Member, MSU CHE Department Head Search Committee (current)
- \* Past Chairman, MSU Bagley College of Engineering Bioresources Program

## Development Committee

- \* Past Member, MSU Bagley College of Engineering Diversity Advisory Committee
- \* Member UL Search Committees for the Director of Project Head Start (2006)
- \* Member of UL Search Committee for the Director of Enrollment Services (2007)
- \* Member of UL Search Committee for the Director of VP-Research (2007 & 2011)
- \* Member, UL IP Committee (2006 – 2015)
- \* Member, UL Diversity Action Council (2005 – 2010)
- \* Member, UL Ad Hoc Graduate Council Evaluation Committee (2012 – 2013)
- \* Member, UL Strategic Planning Committee/Governance Sub-Committee (2012)
- \* Member, UL Department Head Position Development Committee (2016 – 2017)
- \* Member, UL Office of Development's Naming Committee (2017 – 2021)
- \* Member, UL Athletics Advisory Committee (2019 – Present)
- \* Member, UL Graduate Council representing the College of Engineering (2019 – Present [Chair for 2021/22])
- \* Member of the UL Graduate Student Retention Committee (2018 – Present)
- \* Member of the UL College of Engineering Peer-Review Committee (2019 – Present)
- \* Member of the UL Graduate Council's Membership Committee (2019 – Present)
- \* Member of the UL Faculty Senate (2019 - Present)
- \* Member of the Search Committee for the UL Director of Sponsored Programs (2019)
- \* Member of the UL Innovation and Research Advisory Council (2020 – Present)
- \* Member of the UL Faculty Grievance Committee (2020 – Present)
- \* Member of the UL Strategic Planning Committee – Research Subunit (2022)
- \* Member of the UL Faculty Senate ad hoc committee on tenure and promotion (2023 to present)
- \* Member of the UL Faculty Senate ad hoc committee on academic dean hiring procedures (2024 to present)
- \* Member of the UL Graduate Council on Updating the UL Graduate Assistant handbook (2024 to present)

## Mentoring of Student Organizations

Faculty Advisor - MSU Omega Chi Epsilon, 2003 - 2005

Faculty Advisor – UL National Society of Black Engineers, 2006 – 2008

Faculty Co-Advisor – UL National Society of Black Engineers, 2007 – 2012

Founder and Program Coordinator – Designing Leaders student leadership development program at UL, 2009 to Present

## Peer-Review of Promotion and Tenure

- \* 2003 – 2005 Member, MSU Chemical Engineering Tenure and Promotion Committee

\* Dr. Zappi has reviewed Tenure and Promotion Packets for faculty from: University of Utah, University of Alabama-Birmingham, University of Mississippi, Jackson State University, and Brigham Young University (2000 – Present)

\* When serving as the Dean of Engineering at UL (2005 to 2018), Dr. Zappi was the lead administrator for providing the college's recommendations on T & P matters to the Provost and President of UL.

\* Member of the UL College of Engineering Peer-Review Committee (2019 – Present) which reviews all Tenure and Promotion Packets for the College and reports directly to the Provost.

### **State and Local Government Service**

|                 |                                                                                                                                             |
|-----------------|---------------------------------------------------------------------------------------------------------------------------------------------|
| * 1997 – 1998   | Member of an Invited Subcommittee for Innovative Technologies of the Mississippi Legislatively-Appointed Committee on the Swine Industry    |
| * 2006 – 2013   | Chairman of the Louisiana Legislative Biofuels Panel                                                                                        |
| * 2009 – 2015   | Member and Co-Chair of the Louisiana Immersive Technology Enterprise (LITE) Commission                                                      |
| * 2012 – 2013   | Member School to Career/Work Enhancement Task Force (Lafayette Parish School System)                                                        |
| * 2013 – 2015   | Member and Co-Chair of the Louisiana Universities Marine Consortium (LUMCON) Science and Education Advisory Council                         |
| *2014 – Present | Member, Louisiana Board of Regents Planning Committee representing the University of Louisiana System.                                      |
| *2015 – 2019    | Member, Lafayette I-49 Connector Partners (LCP) Team Technical Advisory Committee (Invited by LDOTD Secretary)                              |
| *2018 – 2019    | Member, UL and One Acadiana Infrastructure Planning Committee                                                                               |
| *2020           | Member of the Lafayette Consolidated Government President's Transition Committee (assisting with public utilities and economic development) |
| 2020 – Present  | CO-Chair of the Science Advisory Group for the Louisiana Governor's Climate Change Task Force                                               |

## **ECONOMIC DEVELOPMENT ACTIVITY HISTORY**

### **WITHIN MISSISSIPPI**

- \* Invited by Gov. Harley Barbour (MS) as a guest speaker in his economic development meeting to present information on developing bioproducts for the State of Mississippi to parties interested in new economic development within rural Mississippi (AUG 2004)
- \* Assisted Mississippi Technology Alliance with alternative power industry recruiting and technical assistance with process optimization
- \* Assisted numerous MS-based industries with process optimization and achieving wastewater goals (in some cases, actually keeping them open) via participation in the MISSTAP Program
- \* Volunteer technical expert for the Mississippi Technical Assistance Program (MISSTAP) which help MS industries reduce wastes and production costs (over 10 companies assisted)
- \* Part of the organizing team for the Mississippi Industrial Extension Service at MSU
- \* Provided technical outreach to numerous start-up companies in MS and LA

### **WITHIN LOUISIANA**

- \* Provided significant technology transfer to numerous potential industries considering locating in Louisiana via LEDA, LA Dept. of Eco. Dev. (working with both Messrs. Kelsey Short [Agriculture] and Dane Revette [Energy])
- \* Assisted numerous Louisiana companies with technology optimization and obtainment of funding (examples include CLECO, Aquatic Energy, Evangeline Training Facility, LA Biofuel Resources, and Burning Bush)
- \* Briefed via invitation the full Acadiana Legislative Delegation in the future of biofuels within Louisiana – Briefed this group twice between 2012 and 2015.
- \* Provided significant process optimization and commercialization assistance to Aquatic Energy as they attempt to commercialize within Louisiana - Consultant

- \* Assisted MePOL with biodiesel company process modeling for new business start-up
- \* Working with LA rice farmers on the development of a self-generated biodiesel production network
- \* Worked with COMM Mike Strain and the successful siting of a crusher in LA along with several other potential new start-ups for LA
- \* Assisted Patoutville sugar mill with the evaluation of an Italian bagasse to starch process that they may commercialize
- \* Successfully recruited NorthStar Gasifiers to invest in a potential start-up venture on LA via the securing of R&D funds for UL and project assistance from Cleco & DOE
- \* Serve as the Co-Chair of LEDA's Alternative Energy ED Initiative – within this capacity provided the following:
  - a. Design and organization of five working committees
  - b. Briefed the Acadiana Legislative Delegation on LEDA's alternative energy ED initiative
  - c. Organized a monthly lecture series on alternative energy
  - d. Serve on the Executive Planning Committee
- \* 2009 – 2015: Louisiana Immersive Technology Enterprise (LITE) Commissioner
- \* Provided uncompensated training on alternative energy to numerous state and federal agencies including AgCenter Extension Service, USDA field agents, IRS Agents, US Department of Commerce, and USDA RC&D directors
- \* Organized numerous site visits to alternative energy facilities for various state agencies
- \* Technical reviewer on LED's assessment report on the developing algae culturing industry within Louisiana (2009)
- \* Member of several industry recruiting teams under LEDA and LED (2008 to present)
- \* Organized economic development meetings between US and Mexican officials during 2016 and 2017 (one visit to the US and one visit to Mexico)
- \* Member of Ad Hoc Committee on Re-Developing the New Energy Industry in the Acadiana Region – organized by Lafayette Economic Development Authority (March 2019)

- \* Member of the LEDA Ad Hoc Committee to Stimulate Consulting Engineering Industries to move to Acadiana (Spring 2019 - Present)
- \* Member of the City of Lafayette and Lafayette Parish In-coming President (Josh Guillory) Transition Advisory Board for Public Works Issues (January 2020 – 2021)
- \* UL Representative for the LEDA/UL Energy Series on energy economic development (2023 to present)
- \* Keynote Speaker at the 71<sup>st</sup> Louisiana Mineral Law Institute – presenting insights on CCUS to attorneys, March 21, 2024.

## INTELLECTUAL PROPERTY OBTAINMENT ACTIVITIES

### **PATENTS AWARDED**

1. Foaming Monitor for Bioslurry Reactors - Granted July 1999 - Number 5,922,112 – Role: Co-Inventor (Zappi); Patent Holder: US Army Corps of Engineers.
2. Bast Medium Biological Reactor Treatment System for Remediation and Odor Suppression of Organic Waste Streams - Granted August 20, 2002 - Number 6,436,288 – Role: Co-Inventor (Zappi); Patent Holder: Mississippi State University.
3. Production of Lipids, Biodiesel, and Other Value-Added Chemicals from Wastewater Treatment Plant Sludges – Granted December 29, 2009; Number 7,638,314 – Role: Lead Inventor (Zappi); Patent Holder: Mississippi State University
4. Biorefinery Method and System for Isolated Environments; Granted March 16, 2021; Number 10947144; Role – Lead Inventor (Zappi); Patent Holder: UL.
5. Enhanced Activated Sludge as Drilling Mud Additive; Granted December 10, 2019; Number 10501674; Inventors – Drs. Rafael Hernandez and Mark Zappi and Mr. Gopi Tripuraneni; Patent Holder is UL.
6. Method of Manufacturing an Adsorbent and Resulting Composition of Matter, Granted January 17, 2023, USPO Number 11-554-360 B2; Inventors, Dr. Daniel Gang, Mr. Qiyu Lian, and Dr. Mark E. Zappi; Patent Holder is UL.
7. Production of Adhesives and Other Glue-Like Materials from Unextracted Sewage Treatment Plant Sludges, Animal Manures, and Animal Manure-Based Sludges, and Bacterial and Fungal Cells and Cell Components as Derived from Culturing Operations; Granted: February 6, 2024; USPO No. 11,891,547; Inventors: Chirdon, Zappi,

Hernandez, and Trahan; Patent Holder: UL.

8. Amorphous Cobalt-Inherent Silicon Oxide Catalyst; Granted: January 20, 2024; USPO No. 11,884,564 B2; Inventors: Gang, Lian, Zappi, and Holmes; Patent Holder: UL.

9. Method of manufacturing an adsorbent and resulting composition of matter; US Patent number: 11554360; Filed: July 30, 2019; Date of Patent: January 17, 2023 Assignee: University of Louisiana at Lafayette; Inventors: Daniel Dianchen Gang, Qiyu Lian, Mark Zappi.

10. Rack for treatment of respiratory masks; Patent number: 12194188; Filed: April 1, 2021; Date of Patent: January 14, 2025; Assignee: University of Louisiana at Lafayette Inventors: Mark E. Zappi, William Holmes, Andrei Chistoserdob, Wayne Sharp, Alex Zappi, Rafael Hernandez, William Chirdon, Don Begneaud, Thomas Broussard

**PUBLICATIONS: 6,300+ Citations/H-Index = 41  
(300+ Technical Publications; 100+ Keynote Speaking Engagements; & 750+ Technical Presentations)**

### **BOOK AUTHORSHIP/EDITORSHIP**

1. Bajpai, R. and Zappi, M., Editors, 1997, Bioremediation of Surface and Subsurface Contamination, Annuals of the New York Academy of Sciences, Volume 829.

2. Bajpai, R., Prokop, A., and Zappi, M. (eds.), 2013, Algal Biorefineries – Volume 1: Cultivation of Cells and Products, Springer Publishers, New York, NY.

3. Prokop, A., Bajpai, R., and Zappi, M. (eds.), 2015, Algal Biorefineries – Volume 2: Products and Refinery Design, Springer Publishers, New York, NY. NOTE: This book is ranked among the Top 25% current best-selling books (2018) by Springer Publishers.

### **REFEREED PUBLICATIONS**

#### **Fully Published Papers in Print:**

1. Myers, T.M. and Zappi, M.E., 1992, "Laboratory Evaluation of Solidification/Stabilization Technology For Reducing the Mobility of Heavy Metals in New Bedford Harbor Sediments," Stabilization and Solidification of Hazardous, Radioactive, and Mixed Wastes, ASTM STP-1123, Gilliam and Wiles, Eds., pp. 304-319.

2. Zappi, M.E., Gunnison, D., and Teeter, C.L., 1994, "Bioslurry Treatment of a Petroleum

Hydrocarbon Contaminated Soil," Recombinant Technology DNA II, Annuals of the New York Academy of Sciences, Volume 721, pp. 466-480.

3. Bajpai, R., Zappi, M.E., and Gunnison, D., 1994, "Additives for Establishment of Biologically Active Zones During Insitu Bioremediation," Recombinant Technology DNA II, Annuals of the New York Academy of Sciences, Volume 721, pp. 440-449.

4. Zappi, M., Ragan, F., Qasim, M., Myers, K., McCormick, and Cullinane, M.J., 1995, "Soil Treatment Using Photolytic Solvent Recycle," Proceedings from the ASCE Geoenvironmental 2000 Conference, February 1995, New Orleans, LA.

5. Acar, Y. and Zappi, M., 1995, "Infrastructural Needs in Waste Containment and Environmental Restoration," ASCE Journal of Infrastructure, Volume 1, No. 2., pp. 82 - 91.

6. Zappi, M., Gunnison, D., and Fredrickson, H., 1995, "Aerobic Treatment of TNT Contaminated Soils Using Two Engineering Approaches," Bioremediation of Recalcitrant Organics, Hinchee, Hoeppel, and Anderson, eds., Battelle Press, Columbus, OH, pp. 281-287.

7. Hong, A., Zappi, M.E., Kuo, C.H., and Hill, D., O., 1996, "Modeling the Kinetics of Illuminated and Dark Advanced Oxidation Processes", ASCE Journal of Environmental Engineering, Vol. 122, No. 1, pp. 58-62.

8. Zappi, M., Rogers, B., Teeter, C., Gunnison, D., and Bajpai, R., 1996, "Bioslurry Treatment of Wood Preserving Waste Contaminated Soils," Journal of Hazardous Materials, Volume 46, pp. 1 - 12.

9. Taha, M., Soewarto, I., Acar, Y., Gale, R., and Zappi, M., 1996, "Solubilization of TNT in Surfactant Solutions", Environmental Geotechnics, Kamon, M. (editor), A.A. Balkema Publishers, Rotterdam, Holland

10. Kuo, H., Zhong, L., and Zappi, M., 1996, "The Role of the Hydrogen Peroxide-Ozone Reactions in the Advanced Oxidation of Hazardous Pollutants", Emerging Technologies in Hazardous Waste Management VI, Tedder and Pohland, eds., American Academy of Environmental Engineers Publication, pp. 177 - 190.

11. Taha, M., Soewarto, I., Acar, A., Gale, R., and Zappi, M., 1997, "Surfactant Enhanced Desorption of TNT From Soil," Journal of Water, Air, and Soil Pollution, V100, pp. 33-48.

12. Zhong, L., Kuo, C., and Zappi, M., 1997, "Kinetics and Mechanisms of the Reaction Between Ozone and Hydrogen Peroxide", Journal of South China University of Technology, Volume 25, No. 12, pp. 50-54.

13. Kuo, C., Zhong, L., Wang, J., and Zappi, M., 1997, "Vapor and Liquid Phase Ozonation

of Benzene," Ozone Science and Engineering, V19, No. 2, pp. 109-127.

14. Harvey, S., Fredrickson, H., Evans, W., Zappi, M., and Hill, D., 1997, "Evaluation of Bioslurry Ecosystems for Removal of TNT from Contaminated Soil Using a Variety of Process Amendments", Annuals of the NY Academy of Sciences, V829, pp. 142-159.

15. Best, E., Zappi, M., Fredrickson, H., Sprecher, S., Larson, S., and Ochman, M., 1997, "Screening of Aquatic and Wetland Plant Species for Phytoremediation of Explosives Contaminated Groundwater from the Iowa Army Ammunition Plant", Annuals of the New York Academy of Sciences, Vol. 829, pp. 179-194.

16. Zhong, L., Kuo, C., and Zappi, M., 1997, "Kinetics of Gas Phase Ozonation of Trichloroethylene", Journal of Chemical Industry and Engineering, V48, N5, pp. 571-575.

17. Kuo, C., Zappi, M., and Chen, S., 1997, "Factors Affecting Destruction Rates of Toluene and 2,4,6-Trinitrotoluene by the Peroxone Oxidation Process", Environmental Applications of Advanced Oxidation Technologies, Proceedings of the Second International Symposium, Electric Power Research Institute, Palo Alto, CA.

18. Zappi, M., 1998, "Treatment of Explosives Contaminated Groundwaters", Encyclopedia of Environmental Analysis and Remediation, John Wiley and Sons Inc., New York, NY, pp. 2002-2018.

19. Taha, R., Acar, Y., Gale, R., and Zappi, M., 1998, "Behavior of Trinitrotoluene in Electrokinetic Processing", Jurnal Kejuruteraan, Number 10-1998, pp. 33-49.

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23. Gunnison, D., Zappi, M., Teeter, C., Pennington, J., and Bajpai, R., 2000, "Attenuation Mechanisms of n-Nitrosodimethylamine at an Operating Intercept and Treat Groundwater Remediation System", Journal of Hazardous Materials, B73, pp. 179 - 197.

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Hydrogen Peroxide as an Oxygen Source for Bioremediation Activities Within Saturated Aquifer Systems”, Journal of Air and Waste Management, V50, N10, pp. 1818 - 1830.

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27. Qiu, Y., Kuo, C.H., and Zappi, M., 2001, “Performance and Simulation of Ozone Absorption and Reactions in a Stirred-Tank Reactor”, Environmental Science and Technology”, V35, pp. 209-215.

28. Qiu, Y., Kuo, C.H., and Zappi, M., 2002, “Ozonation Kinetics of Six Dichlorophenol Isomers”, Ozone Science and Engineering, V24, pp. 123-1331.

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36. Ford, J., Hernandez, R., and Zappi, M., 2006, “Bench-Scale Evaluation of Advanced Oxidation Processes for Treatment of a Cyanide Contaminated Wastewater from an Engine

Manufacturing Facility”, Journal of Environmental Progress, V25, pp. 32-38.

37. Sparks, D., Hernandez, R., Zappi, M., Blackwell, D., and Fleming, T, 2006, “Extraction of Rice Bran Oil Using Supercritical Carbon Dioxide and Propane”, Journal of the American Oil Chemist Society, V83, pp. 885-891.

38. Taconi, K., Zappi, M. E., French, W. T., and Brown, L. R, 2007, “Feasibility of Methanogenic Digestion Applied to a Low pH Acetic Acid Solution”, Bioresource Technology, V98, pp. 1576-1585.

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32. Zappi, M., Hernandez, R., Sparks, D., Horne, J., Brough, M., Arora, S., Motsenbocker, D., 2004, A Review of the Engineering Aspects of the Biodiesel Industry, MSU E-TECH Laboratory Report ET-03-003, Report Submitted to the Mississippi Biomass Council, Jackson, MS
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34. Adebisi, G., Bridges, S., Bush, M., Claude, L., Nosser, M., Reese, D., Sarnowska, K., Seiler, E., Smyer, W., Stevenson, T., Vizzini, T., and Zappi, M., 2005, Charting a Course Towards Achieving Diversity by 2008, Bagley College of Engineering, Mississippi State University.
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37. Zappi, M., 2008, Engineering Feasibility Study on the Aquatic Energy Algae Culturing Process, Report Provided to Aquatic Energy Investment Group

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39. Zappi, M., Fortela, D., Revellame, E., Sharp, W., Gang, D., Hernandez, R., Trahan, J., and Picou-Mikolajczyk, A., and Dufreche, S., 2013, Anaerobic Digestion Progress Report – Year 2012, Submitted to the Louisiana PSC via Cleco (Pineville, LA).

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48. Guznick, G., Zappi, M., Revellame, E., Fortela, D., Hernandez, R., Sharp, W., Chistoserdove, A., Holmes, W., Gang, D., and Holmes, S., 2020, NASA EPSCoR Annual Report - 2019, University of Louisiana at Lafayette.

49. Villa, J., Fortela, D., Sharp, W., Zappi, M., Holmes, S., Rebecca Willis, Torres, F., Despain, K., and Hetler, S., 2022, Enhancing the Carbon Dioxide Sequestering Capacity of Louisiana Highway Right of Way Lands, Project Final Report to Louisiana Department of Transportation and Development TIRE Program, Report No. FHWA/LA.17/22-3TIRE, LDOTD, Baton Rouge, LA.

50. Zappi, M., Boyd, E., Sharp, W., Zeringue, C., Fortela, D., Simon, G., and Holmes, S., 2023, An Assessment of Production Opportunities for Value-Added Co-Products from Selected Louisiana Seafood Processing Waste Sources, Report to the Department of Wildlife and Fisheries, UL Energy Institute of Louisiana, May 2023.

### **PUBLISHED JOURNAL EDITORIALS**

1. Zappi, M., 1997, “Demise of In-House Engineering Expertise Within the Federal Government”, Journal of Environmental Engineering, ASCE, V123, N12.

### **NEWSPAPER EDITORIAL COLUMNS**

1. Zappi, M., 2002, “Ethanol Makes Perfect Sense for Mississippi”, Guest Columnist for the Clarion Ledger Newspaper, Jackson, MS, August 12, 2002 Issue.

2. Zappi, M., 2007, “A Peek into the New Industrial Revolution – Bioprocessing”, Guest Columnist for the Daily Advertiser, Lafayette, LA, November 23, 2007 Issue.

### **PUBLISHED US CONGRESSIONAL TESTIMONY**

1. Zappi, M., 2004, Published Testimony before the Full Senate Committee on Agriculture, Nutrition, and Forestry, 180<sup>th</sup> Congress, Senate Hearing on Biomass Use in Energy Production: New Opportunities in Agriculture, Hart Senate Building, Washington DC, May 6<sup>th</sup>, 2004, Library of Congress, Washington DC.

2. Zappi, M., 2014, Published Testimony before the Quadrennial Energy Review on Energy Infrastructure Needs for the US Special Hearing (Jointly hosted by the DOE and US Senate Energy & Natural Resources Committee); Tulane University, New Orleans, LA; May 27<sup>th</sup>, 2014.

## GRADUATE STUDENT EDUCATION

### **Major Professor Role**

Major Professor - Steve Harvey, PhD-Department of Chemical Engineering, Mississippi State University; Dissertation Title: An Evaluation of Biotreatment for Explosives Contaminated Soils; Graduation Date: Fall 1997

Co-Major Professor - Qiu Yongqiang, PhD-Department of Chemical Engineering, Mississippi State University, Dissertation Subject: Study of the Mechanisms and Kinetics Associated with the Oxidation of Chlorinated Phenols using Ozone Processes; Graduated: Fall 1998

Major Professor - Yue Jing, MS-Department of Chemical Engineering, Mississippi State University, Thesis Subject: Biotreatment of Petroleum Hydrocarbon Contaminated Soil Using Enhanced Biotreatment Techniques; Graduated: Summer 1998

Major Professor - Yuan Wang, MS-Department of Chemical Engineering, Mississippi State University, Thesis Title: Chemically Enhanced Bioremediation of Petroleum Hydrocarbon Contaminated Soils; Graduated: Spring 1999

Major Professor - Leslie Henderson - MS-Department of Chemical Engineering, Mississippi State University; Thesis Title: Inductive Biofiltration of TCE Contaminated Air Streams Using Propane Oxidizing Bacteria; Graduated: Spring 2000.

Major Professor - Rafael Hernandez - PhD -Department of Chemical Engineering, Mississippi State University; Dissertation Topic: ReOX Treatment of TNT Contaminated Water; Graduated: Fall 2002.

Major Professor - An Nuygen- MS-Department of Chemical Engineering, Mississippi State University; Dissertation Topic: Modeling of Noxious Compounds Production and Abatement Emitted from Swine Raising Houses; Graduated: Fall 2003.

Major Professor - Fang Zhu Liu - MS-Department of Chemical Engineering, Mississippi State University; Thesis Topic: Bioslurry Treatment of TNT Contaminated Soil Using Chemical Priming Enhancement; Graduated: Fall 2003.

Major Professor - Arun Subramani - MS - Department of Chemical Engineering, Mississippi State University; Thesis Topic: Evaluation of Kenaf Fibers for Adsorption of Aqueous Pollutants; Graduated: Fall 2003.

Major Professor - Ian Tiang - MS - Department of Chemical Engineering, Mississippi State

University; Thesis Topic: Chemical Priming as a Means of Enhancing Aerobic Bioremediation of Heavy PAHs; Graduated: Fall 2003.

Major Professor - Katherine Taconi - PhD - Department of Chemical Engineering, Mississippi State University; Dissertation Topic: Production of Biogas from Fermentation Waste Streams; Graduated: Summer 2004.

Major Professor - Jack Ford - MS- Department of Chemical Engineering, Mississippi State University; Thesis Topic: Production of Acetic Acid from the Fermentation of Synthesis Gas; Graduated: Summer 2004.

Major Professor - Christine Morrison - MS - Department of Chemical Engineering, Mississippi State University; Thesis Topic: Methanogenic Conversion of Carbon Dioxide and Hydrogen Into Methane; Graduated: Summer 2004.

Major Professor - W. Jeffrey Horne – MS – Department of Chemical Engineering, Mississippi State University; Thesis Topic: Evaluation and Optimization of Control Strategies for Management of Disinfection Byproduct Precursors Within the Northeast Mississippi Water District; Graduated: Summer 2005; Note: Student advised jointly with Dr. Rafael Hernandez, Chemical Engineering, MSU.

Major Professor - John Harden - PhD - Department of Chemical Engineering, Mississippi State University; Dissertation Topic: Optimizing of Ozone-Based Insitu Chemical Oxidation Treatment for Contaminated Aquifers; Graduation Date: May 2006.

CO-Major Professor – Imaobong Okafor – MS – Department of Chemical Engineering, University of Louisiana; Thesis Topic: Fermentation of Rice Starch; Graduation Date: Spring 2009

CO-Major Professor – Mark Kai – MS – Department of Chemical Engineering, University of Louisiana; Topic: Digestion of Algae and Poultry; Graduated: Summer 2009

CO-Major Professor – Aaron T Graham – MS – Department of Chemical Engineering – University of Louisiana; Thesis Topic: Extraction and Conversion of Algal Lipids to Biofuels; Graduated: Spring 2011.

CO-Major Professor – Jing Nie – MS – Department of Civil Engineering – University of Louisiana; Thesis Topic: Oxidation Treatment of Bio-Recalcitrant Landfill Leachates; Graduated: Spring 2014.

CO-Major Professor – Ndeloa Asonganyi – MS – Department of Chemical Engineering – University of Louisiana; Thesis Topic: Development of Gasifier Operation Parameters to Reduce Tar Formation in Syngas; Graduated: Spring 2022.

Major Professor – Ashley Mikolajczyk – PhD – Department of Chemical Engineering – University of Louisiana; Thesis Topic: Development of a Bio-Based Adsorptive System Coupled with Biotreatment Disposal of the Spent Adsorbents; Graduation: Anticipated Fall 2024.

Major Professor – John Trahan – MS – Department of Civil Engineering – University of Louisiana; Thesis Topic: Anaerobic Digestion of Food Wastes for Production of Biogas and Other Value-Added Products; Graduated: Summer 2021.

Major Professor – Bimi Shrestha – PhD – Department of Chemical Engineering – University of Louisiana; Dissertation Topic: Anaerobic Treatment of Space-Based Wastewaters to Produce Energy and Co-Products; Graduation: Anticipated Fall 2023.

Major Professor (Joint with Dr. William Chirdon, UL CHEE) – Chelsea Trahan - PhD - Department of Chemical Engineering – University of Louisiana; Dissertation Topic: Production of Green Adhesives from Wastewater Sludges; Graduation: Anticipated Fall 2023.

Major Professor – Sarah Simoneaux – PhD - Department of Chemical Engineering – University of Louisiana; Dissertation Topic: Removal of Carbon Dioxide from Aerobic Bioreactor Off-Gases Using Microalgae; Graduation: Anticipated Fall 2024.

Major Professor – Serenity Broussard – PhD – Department of Chemical Engineering – University of Louisiana; Dissertation Topic: Chemical Oxidation of 1,3-Dioxane Within Aqueous Solutions Using Irradiated and Non-Irradiated AOPs; Graduation: Anticipated Fall 2024.

Major Professor – Elizabeth Boyd – PhD – Department of Chemical Engineering – University of Louisiana; Dissertation Topic: Advanced Oxidation Processes for PFOA in Aqueous Solutions; Graduation: Anticipated Fall 2024.

Major Professor – Vanel Porter – PhD – Department of Chemical Engineering – University of Louisiana; Dissertation Topic: Conversion Mechanisms of Carboxylic Acids into Lipids Via Aerobic Microbial Synthesis Using Pure Isolates; Graduation – Anticipated Fall 2024.

Major Professor (Joint with Dr. Daniel Gang of Civil Engineering) – David Shoemaker – PhD – Department of Chemical Engineering – University of Louisiana; Dissertation Topic: Li Capture Using Ion Traps – Anticipated Graduation: Fall 2025.

Major Professor – Blake Foret – PhD – Department of Chemical Engineering – University of Louisiana; Dissertation Topic: Production of Protein-Based Adhesives – Anticipated Graduation: Spring 2025.

## **Committee Member**

Committee Member - Tom Wall, MS-Department of Civil Engineering, Mississippi State University; Non-Thesis Option; Graduated: Fall 1997.

Committee Member - Todd French, PhD-Department of Biological Sciences, Mississippi State University; Research Topic: Aerobic Co-Metabolic Biotreatment of Trichloroethylene; Graduated: Fall 2001.

Committee Member - Rhonda Feters, MS-Department of Chemical Engineering, Mississippi State University; Dissertation Topic: Management of Heavy Metal Wastestreams Generated During Soil Washing Activities; Graduated: Spring 2004.

Committee Member - Jeffrey Jones - MS - Department of Agricultural and Biological Engineering, Mississippi State University; Thesis Topic: Treatment of Swine Wastewaters to Control Odor; Graduated: Fall 2000.

Committee Member - Allison Kirkpatrick - MS - Department of Agricultural and Biological Engineering, Mississippi State University; Thesis Topic: Pilot-Scale SORBS Treatment of Swine Wastewaters to Control Odor; Graduated: Spring 2001.

Committee Member - Shannon McCarty - MS - Department of Agricultural and Biological Engineering, Mississippi State University; Thesis Topic: Biofiltration Treatment of Odor Components from Air Streams Exiting Swine Raising Facilities; Graduated: Fall 2000.

Committee Member - Rajeev Gupta - MS - Department of Chemical Engineering, Mississippi State University; Thesis Topic: Biological Treatment of Commercial Laundry Wastewaters; Graduated: Summer 2000

Committee Member - Tracy Benson - MS - Department of Chemical Engineering, Mississippi State University; Thesis Topic: Separation of Ethanol from Fermentation Broths; Graduated: Spring 2004.

Committee Member - Karen Taquino - MS - Department of Biosciences , Mississippi State University; Department of Biosciences , Mississippi State University; Thesis Topic: Maintenance and Growth of Aliphatic Gas Utilizing Microorganisms; Graduated: Fall 2002.

Committee Member - Robin Kuntz - MS - Department of Biosciences , Mississippi State University; Thesis Topic: Maintenance and Growth of Aliphatic Gas Utilizing Microorganisms; Graduated: Summer 2001.

Committee Member - Michael Begonia - MS - Department of Biosciences , Mississippi State University; Thesis Topic: Biotreatment of Chlorinated Solvents Using Various Induction Agents; Graduated: Spring 2003.

Committee Member - Tracy Benson - PhD - Department of Chemical Engineering, Mississippi State University; Dissertation Topic: Production of Fatty Acid Methyl Esters Using Lipids from Meat Packing Waste; Graduation: Fall 2006

Committee Member - Stephen Dufreche - PhD - Department of Chemical Engineering - Mississippi State University; Dissertation Topic: Production of Fatty Acid Methyl Esters from Lipids Captured from Wastewater Systems; Graduation: Fall 2006

Committee Member - Darrell Sparks - PhD - Department of Chemical Engineering, Mississippi State University - Mississippi State University; Dissertation Topic: Development of Propane Extraction for Capture of Lipids and Fermentable Products from Rice Bran; Graduated: Fall 2006.

Committee member – Kwei Yap – MS – Department of Chemical Engineering, University of Louisiana; Thesis Topic: Carbon Dioxide and Hydrogen Sulfide Pitting Corrosion Rate Model; Graduated: May 2006.

Committee Member - David Neaves - MS - Department of Chemical Engineering, Mississippi State University - Mississippi State University; Thesis Topic: Design and Testing of a Mobile Biodiesel Pilot Production Plant; Graduated: Spring 2007.

Committee Member – Venkata Boyapati – MS – Department of Mechanical Engineering; University of Louisiana; Thesis Topic: Optimization of Job Shop Processing Activities; Graduated: Spring 2010

Committee Member – Prashanth Buchireddy – PhD – Department of Chemical Engineering; Mississippi State University; Dissertation Topic: Optimization of Syngas Production; Graduated: Spring 2014.

Committee Member – Stan Barskov – MS – Department of Chemical Engineering, University of Louisiana; Thesis Topic: Utilization of Protein from Waste Shrimp Media; Graduated: Spring 2015.

Committee member – Gerald Hebert – MS – Department of Earth and Environmental Science, University of New Orleans; Thesis Topic: Arsenic, Cadmium, Copper, and Zinc Levels in Crayfish from Southwest Louisiana and the Atchafalaya Basin; Graduated: Fall 2015.

Committee member – Dhan Lord Fortela – PhD – Department of Chemical Engineering, University of Louisiana; Dissertation Topic: Production Volatile Fatty Acids Through Integrated Biosystems; Graduated: May 2016.

Committee member – Rahul Ukey – PhD – Department of Biology; University of Louisiana;

Dissertation Topic: Genetic Manipulation of *Actinetobacter baylyi* ADPI to Enhance Biodiesel Precursor Production; Graduated: May 2016.

Committee member – Jorge Belgodere - MS – Department of Chemical Engineering. University of Louisiana; Thesis Topic: Liquid-Liquid Equilibria for Volatile Fatty Acids + Water + Alcohol Ethoxylate: Experimental Measurement of Pseudo-Ternary Systems; Graduated: July 2016.

Committee Member – Shariff Rahman – MS – Department of Chemical Engineering: University of Louisiana; Thesis Topic: Economical Lipid Production of *Lipomyces starkeyi*; Graduated: May 2016.

Committee Member - Prithvi Morampudi – MS – Department of Chemical Engineering: University of Louisiana; Thesis Topic: Pilot Development of a Torrefaction System; Graduated: Summer 2019.

Committee Member - Qiyu Lian – PhD – Department of Civil Engineering; University of Louisiana; Thesis Topic: Advanced Adsorption of Pollutants Using a Novel Adsorbent; Graduated: Spring 2020.

Committee Member – Erick Knezek – PhD – Department of Civil Engineering, University of Louisiana; Dissertation Topic: Development and Optimization of Emergency Response Systems Using Integrated Management Systems; Graduation: May 2021.

Committee Member – Remil Aguda – PhD – Department of Chemical Engineering, University of Louisiana; Dissertation Topic: Treatment of Cabin Air-Based Carbon Dioxide While Producing Lipids for Use in Mars-Based Human Camps; Graduated: Spring 2023.

Committee Member – Olivia LaHaye – MS Department of Civil Engineering , University of Louisiana; Thesis Topic: Implementing an Aquifer Storage and Recovery Management System for Sustainable Utilization of Aquifer Systems; Graduated: December 2020.

Committee Member – Devin Peck – PhD – Department of Chemical Engineering , University of Louisiana; Dissertation Topic: Catalytic Conversion of Tars Within Syngas Matrices Using a Process Integrated Reactive Filter Dosed With Nickel Catalysts; Graduated: Fall 2022.

Committee Member – Nicholas Marcil – MS – Department of Chemical Engineering, University of Louisiana; Report Topic (Non-Thesis MS): Aerobic Biotreatment of Low-Level Wastewater Influent from Planetary Space Camps; Graduated: Fall 2021.

Committee Member – Robert Bertrand – PhD – Department of Chemical Engineering, University of Louisiana; Dissertation Topic: Production of Lipids from Methane-Fed Methanotrophs; Graduation: Spring 2024.

Committee Member – Lisa Dizon – PhD – Department of Chemical Engineering, University of Louisiana; Dissertation Topic: Optimization and Modeling of Methane Utilization and Application; Graduation: Spring 2024.

Committee Member – Percival Sony Castro – MS – Department of Chemical Engineering, University of Louisiana; Dissertation Topic: Removal of Sulfur from Natural Gas; Graduation: Spring 2024.

Committee Member - Timothy Boudreaux - MS – Department of Chemical Engineering; Thesis Topics: Evaluation of sewage sludge as a potential substitute for coal; Graduation – Spring 2024.

Committee Member - Joseph Vutukuri - Ph.D. – Department of Chemical Engineering; Dissertation Topic: Evaluation of the catalytic effect of ash on torrefaction process; Graduation – Fall 2024.

Committee Member – Qiyu Lian – PhD – Department of Civil Engineering; Dissertation Topic: Synthesis and Characterization of Carbon Disulfide Functionalized Graphene Oxide (GOCS) for Pb(II) Adsorption and Amorphous Cobalt-Inherent Silicon Oxide (Co-SiO<sub>x</sub>) for 2,4-Dichlorophenols Oxidation; Graduated – Spring 2021.

Committee Member – Angel Badewole – MS – Department of Chemical Engineering; Thesis: TEA of Methanotroph Conversion of Natural Gas to Lipids; Graduated – Spring 2022

Committee Member – Pubali Sarker – MS – Department of Civil Engineering; Thesis: Adsorptive Removal of SMX Using OMCs; Graduated – Fall 2022.

Committee Member – Lingyigian Luo – PhD – Department of Chemical Engineering; Dissertation Topic - Water-Gas Shift Reaction over Mesoporous CeO<sub>2</sub>-Supported Pt Catalysts Using in Situ Spectroscopy; Graduated – Fall 2022.

Committee Member – Xiaobo Lei – PhD – Department of Civil Engineering; Dissertation Topic – Advanced Adsorbent Development; Graduated – Summer 2023.

Committee Member – Matluck Afolabi – MS – Department of Chemical Engineering; Thesis Topic: Optimization of the Aerobic Biotreatment Polishing of Anaerobic Digester Effluents; Graduated: Spring 2023.

Committee Member – Gerson Martinez Zuniga – MS - Department of Chemical Engineering; Thesis Topic: Development of Catalysts for Natural Gas Treatment; Graduated: Fall 2023.

