

CURRICULUM VITAE

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Education

Institution	Degree	Year	Major
U. of Southern MS.	B.S.	1982	Microbiology/Chemistry

ADVISOR: R.D. Ellender, Dean, University of Southern MS (Ret.)

Directed study in Biochemistry: Reassociation and Hybridization properties of DNA

Professional Experience

Director, Analytics	University of Louisiana at Lafayette	7/2013 - Present
Director, AIT	Mississippi State University	7/2010 - 6/2013
	Dave C. Swalm School of Chemical Engineering	
Director, AIT	Mississippi State Chemical Laboratory	2/1998 - 6/2010
Application Chemist	Varian Instrument, Walnut Creek, CA	8/1985 - 1/1998
Research Assoc.	U. of Mississippi Medical Center,	1/1983 - 6/1985
	Dept. of Medicine, Jackson, MS	

Synergistic Activities

For over 40 years Bill Holmes has been involved with instrumentation used for analytical chemistry separation and identification of organic chemicals. He is co-inventor of 6 Patents and has published over 100 scientific papers and given lectures at both national and international conferences. His research has focused on method development of various analyses from life science, petroleum, pharmaceutical, environmental, food science and basic chemical. Before returning to academics his experiences at a leading instrument company, Varian Associates in Walnut Creek, CA allowed him to gain expertise in instrumental hardware design and modifications to adapt to new or changing methodologies. His current research projects at UL include analysis and instrumentation development for biotechnology such as on-line systems for rapid monitoring of reaction processes. He is a member of the American Chemical Society, American Society of Mass Spectrometry, American Oil Chemists Society, and the Association of Official Analytical Chemist and recipient of the MS State University's 2012 Bagely College of Engineering Research Award. Holmes is also the recipient of the University of Louisiana 2015 Research Award, 2016-2017, Research Innovator Award, and chairs the UL Biosafety Committee.

Patents and Inventions

1. Method of Manufacture for Hand-Sanitizing Lotion with Prolonged Effectiveness and Resulting Composition of Matter. International Appl. No.: PCT/US2018/048275, International Appl. No.: WO/2019/046254 (2019). ED Revellame, WE Holmes.
<https://patents.google.com/patent/WO2019046254A1/en>
2. Method of Manufacture for Hand-Sanitizing Lotion with Prolonged Effectiveness and Resulting Composition of Matter. US Patent Appl. No.: 16/114,651, Publication No.: US 2019/0060213 A1 (2019). ED Revellame, WE Holmes.
<https://patents.google.com/patent/US20190060213A1/en>
3. Integrated Biorefinery system and Method. US20220403423A1(2022). Mark E. Zappi, Rafael Hernandez, Dhan Lord Fortela, Prashanth Buchireddy, Emmanuel Revellame, Wayne Sharp, John Guillory, Daniel Gang, William Holmes.
<https://patents.google.com/patent/US20220403423A1/en>
4. Amorphous Cobalt-Inherent Silicon Oxide Catalyst. Daniel Gang, Qiyu Lian, Mark Zappi, William Holmes. [US Patent App.17/390,254](#). Published 2/16/23.
5. Rack for Treatment of Respiratory Masks. US20210308312A1 (2021). Mark E. Zappi, William Holmes, Andrei Chistoserdov, Wayne Sharp, Alex Zappi, Rafael Hernandez, William Chirdon, Don Begneaud, Thomas Broussard.
<https://patents.google.com/patent/US20210308312A1/en>
6. Device and Method for Recycling of Respiratory Masks and Other Personal Protective Equipment. US20210316029A1 (2022). Mark E. Zappi, William Holmes, Andrei Chistoserdov, Wayne Sharp, Alex Zappi, Rafael Hernandez, William Chirdon.
<https://patents.google.com/patent/US20210316029A1/en>
7. Optimized bench-scale, research-grade microalgae culturing system. A novel design for a microalgae photobioreactor was developed and built. This system appears to offer much more flexibility and potential ability to provide more design-oriented data than the simpler systems used in many bench-scale research efforts. Mark E. Zappi, William Holmes, and Sarah Simoneaux.
8. Novel activation catalyst for peroxymonosulfide oxidation systems. The first-time synthesis of an activation catalyst was developed. Daniel Gang, Qiyu Lian, William Holmes, and Mark E. Zappi.
9. Dynamic bench-scale anaerobic digester test systems. A novel design that provides a high-degree of process control coupled with numerous process performance evaluation testing points was invented that should out-performance currently used bench testing systems. Mark E. Zappi, William Holmes, Wayne Sharp and Bimi Shrestha.
10. Microcosms for anaerobic digestion screening. An improved design for screening candidate anaerobic digester operations conditions was designed that offers greatly improved performance over tradition shake-flask microcosms. Mark E. Zappi, William Holmes, Wayne Sharp and Bimi Shrestha.

Technology & Techniques

1. CHEE 697- Analytical Techniques in Process Chemistry. Course developed and taught to graduate students, who need process chemistry sample and standards preparation, proper use of

Analytical Chemistry Instrumentation and to develop critical thinking applied to method development.

2. Gel Permeation Chromatography (GPC) method for determining the molecular weight of Algal proteins to monitor health of population.
3. Polymerase Chain Reaction (PCR) analysis of DNA of proteins, including DNA fingerprinting, detection of bacteria or viruses (particularly COVID), and diagnosis of genetic disorders.
4. LC-MS/MS is a **tool for determining the amino acid sequence of proteins**. By first breaking the protein down into smaller peptides, and then using MS/MS to fragment the peptides, the sequence can be determined, and the identification of protein can be generated.
5. Automated Solvent Extraction (ASE) method for extraction of lipids, producing a high yield of lipids and an expedited rate of analysis.
6. Fatty Acid Methyl Esters (FAMES) analysis of lipids for identification and quantitation using Gas Chromatography / Mass Spectrometry (GC/MS).
7. Method for Total Organic Carbon (TOC) using combustion analysis of wastewater to track reduction of organics in reactor systems.
8. Method for Solid Phase Extraction (SPE) of inlet and outflow wastewater organics in reactor systems to determine the identification of organic compounds making up the Total Organic Carbon (TOC) load.
9. Organic analysis of SPE extracts using Gas Chromatography / Mass Spectrometry (GC/MS) and Liquid Chromatography / Mass Spectrometry (LC/MS) for positive identification of organic substitutes.

Publications

Anusha Imran, Xiaobo Lei, David Shoemaker, William Holmes, Hui Yan, Mark Zappi, Daniel Gang. Adsorption of PFCAs using polyethyleneimine modified Biochar: Role of chain length and effects of water matrices. *Chemosphere*. August 2025, 386:144650.

<http://dx.doi.org/10.1016/j.chemosphere.2025.144650>

Preprints. January 2025. <http://dx.doi.org/10.2139/ssrn.5202720>

Kristel Gatdula, Jalel Ben Hmida, August Gallo, William Holmes, Andrei Chistoserdov, Mark Zappi, Rafael Hernandez, Emmanuel Revellame. Evaluation of non-ionic surfactants for aqueous two-phase extraction of butyric acid. *Chemical Engineering Journal Advances*. August 2025, 23:100831. <http://dx.doi.org/10.1016/j.ceja.2025.100831>

Blake Foret, William Chirdon, Rafael Hernandez, Dahn Lord Fortela, Emmanuel Revellame, Daniel Gang, Jalel Ben Hmida, William Holmes, Mark Zappi. A Techno-Economic Analysis of Integrating an Urban Biorefinery Process Within a Wastewater Treatment Plant to Produce Sustainable Wood Adhesives. *Sustainability*. July 2025, 17(15), 6679.

<https://doi.org/10.3390/su17156679>

Chelsea Trahan, William Chirdon, Wayne Sharp, Daniel Gang, Ahmed Khattab, Rafael Hernandez, William Holmes, Mark Zappi. Production of green adhesives from sustainable proteins derived from municipal wastewater treatment plant sludges and potential enhancements from soy protein amending. *Journal of Environmental Management*. July 2025, 391:126497.

<http://dx.doi.org/10.1016/j.jenvman.2025.126497>

Kristel Gatdula, Lucile Fonseca, Peng Yin, William Holmes, Rafael Hernandez, Mark Zappi, Emmanuel Revellame. Utilizing *Chlorella vulgaris* and In Situ Resources for Biomineralization-Driven Fabrication of Mars Bricks. *ACS Earth and Space Chemistry*. February 2025, 9(4).

<http://dx.doi.org/10.1021/acsearthspacechem.4c00338>

Dhan Lord Fortela, Ashley Mikolajczyk, Rafael Hernandez, Emmanuel Revellame, Wayne Sharp, William Holmes, Daniel Gang, Mark Zappi. Dynamic Time Warping as Elementary Effects Metric for Morris-Based Global Sensitivity Analysis of High Dimension Dynamical Models. *Mathematical and Computational Applications (MCA)*. November 2024, 29(6):111.

<http://dx.doi.org/10.3390/mca29060111>

Preprint. October 2024. <http://dx.doi.org/10.20944/preprints202410.0502.v1>

Gerson Martinez-Zuniga, Samuel Antwi, Percival Soni-Castro, Olatunji Olayiwola, Maksym Chuprin, William Holmes, Prashanth Buchireddy, Daniel Gang, Emmanuel Revellame, Mark Zappi, Rafael Hernandez. Methyl Mercaptan Removal from Methane Using Metal-Oxides and Aluminosilicate Materials. *Catalysts*. December 2024, 14(12):907.

<http://dx.doi.org/10.3390/catal14120907>

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Chelsea Trahan Zeringue, William Chirdon, Wayne Sharp, Daniel Gang, Ahmed Khattab, Rafael Hernandez, William Holmes, Mark Zappi. Physical and Chemical Characterization of Sustainable Green Adhesives Derived from Municipal Treatment Plant Sludges. *Sustainability*. October 2024, 16(21):9346. <http://dx.doi.org/10.3390/su16219346>

Bimi Shrestha, Blake Foret, Wayne Sharp, Daniel Gang, Rafael Hernandez, Emmanuel Revellame, Dahn Lord Fortela, William Holmes, Mark Zappi. An Overview of the Potential for Municipal Wastewater Treatment Plants to Be Integrated into Urban Biorefineries for the Production of Sustainable Bio-Based Fuels and Other Chemicals. *Current Pollution Reports*. July 2024, 10(3):1-17. <http://dx.doi.org/10.1007/s40726-024-00318-6>

Devin Peck, Naresh Deoli, William E Holmes, Daniel Gang, Mark Zappi, Rafael Hernandez, Prashanth Buchireddy. Evaluation of a novel nickel ceramic filter prepared by urea precipitation method for removal of tars from biomass syngas using naphthalene as tar model compound. *Journal of the Energy Institute*. February 2024, 114(6):101563.

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Ted Joanen, Ashley Mikolajczyk, Mark Staton, Josh Kaplan, William Holmes, Mark Zappi. Impacts of Diet on Reproductive Performance of Captive American Alligators (*Alligator mississippiensis*). *Animals*. December 2023, 13(24):3797. <https://doi.org/10.3390/ani13243797>

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Emmanuel Revellame, Remil Aguda, Kristel Gatdula, William Holmes, Dhan Lord Fortela, Wayne Sharp, Daniel Gang, Andrei Chistoserdov, Rafael Hernandez, Mark Zappi. Microalgae in bioregenerative life support systems for space applications. *Algal Research*. November 2023, 77 (Suppl. 1):103332. <https://doi.org/10.1016/j.algal.2023.103332>

Fortela, D.L.B.; Travis, A.; Mikolajczyk, A.P.; Sharp, W.; Revellame, E.; Holmes, W.; Hernandez, R.; Zappi, M. Quantitating Wastewater Characteristic Parameters Using Neural Network Regression Modeling on Spectral Reflectance. *Clean Technologies*. September 2023, 5(4):1186-1202. <https://doi.org/10.3390/cleantechnol5040059>

Chelsea Trahan Zeringue, William Chirdon, Wayne Sharp, Daniel Gang, Ahmed Khattab, Rafael Hernandez, Emmanuel Revellame, William Holmes, Mark Zappi. Production of Sustainable Green Adhesives from Proteinaceous Biomass with an Emphasis on Waste-Derived Protein Residuals: A Review. *Industrial & Engineering Chemistry Research*. August 2023, 62(33). <https://doi.org/10.1021/acs.iecr.3c00963>

Fortela, D.L.B.; Mikolajczyk, A.P.; Carnes, M.R.; Sharp, W.; Revellame, E.; Holmes, W.; Hernandez, R.; Zappi, M. Predicting Molecular Docking Affinity of Per-and Polyfluoroalkyl Substances (PFAs) Towards Human Blood Proteins Using Generative AI Algorithm DiffDock. *Preprints*. August 2023. <http://dx.doi.org/10.1101/2023.08.03.551898>

Fortela, D.L.B.; Travis, A.; Mikolajczyk, A.P.; Sharp, W.; Revellame, E.; Holmes, W.; Hernandez, R.; Zappi, M. Quantitating Wastewater Characteristic Parameters Using Neural Network Regression Modeling on Spectral Reflectance. *Preprints*. July 2023, 2023071405. <https://doi.org/10.20944/preprints202307.1405.v1>

Devin Peck, William Holmes, Mark Zappi, Rafael Hernandez, Daniel Gang, Prashanth Buchireddy. Novel nickel ceramic filter for hot gas cleanup of tars from syngas. *Fuel Processing Technology* Volume 244. June 2023. <https://doi.org/10.1016/j.fuproc.2023.107708>

Percival Soni Castro, Gerson Martinez, William Holmes, Prashanth Buchireddy, Daniel Gang, Emmanuel Revellame, Mark Zappi, Rafael Hernandez. Review of the adsorbents/catalysts for the removal of sulfur compounds from natural gas. *Gas Science and Engineering*. May 2023. <http://dx.doi.org/10.1016/j.jgsce.2023.205004>

Dhan Lord B. Fortela, Ashton Fremin, Wayne Sharp, Ashley P. Mikolajczyk, Emmanuel Revellame, William E. Holmes, Rafael Hernandez, Mark E. Zappi. Unsupervised Machine Learning to Detect Impending Anomalies in Testing of Fuel Economy and Emissions of Light-Duty Vehicles. *Clean Technologies*. March 2023. 5(1):418-435.
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Dizon, L.S.H., Bertrand, R.S., Holmes, W.E., Hernandez, R.A., Fortela, D.L.B., Chistoserdov, A., Zappi, M.E., & Revellame, E.D. Analysis of Methanotroph Populations from Various Sources for Production of High-Value Products. *Engineering Proceedings*. January 2023. 31(1), 30. <https://www.mdpi.com/2673-4591/31/1/30>

Pubali Sarker, Xiaobo Lei, Kyle Taylor, William Holmes, Hui Yan, Dongmei Cao, Mark Zappi, Daniel Gang. Evaluation of the Adsorption of Sulfamethoxazole (SMX) within Aqueous Influent onto Customized Ordered Mesoporous Carbon (OMC) Adsorbents: Performance and Elucidation of Key Adsorption Mechanisms. *Chemical Engineering Journal*. October 2022. DOI: [10.1016/j.cej.2022.140082](https://doi.org/10.1016/j.cej.2022.140082)

Xiaobo Lei, Qiyu Lian, X. Zhang, T. Wang, M. Gee, W. Holmes, Shiwei Jing, Senthil Ponnusamyh, Daniel Gang, Mark Zappi. Removal of perfluorooctanoic acid via polyethyleneimine modified graphene oxide: Effects of water matrices and understanding mechanisms. *Chemosphere*. September 2022. 308, 136379. DOI: [10.1016/j.chemosphere.2022.136379](https://doi.org/10.1016/j.chemosphere.2022.136379)

Xu Zhang, Daniel Gang, Xiaobo Lei, T. Wang, Q. Lian, W. Holmes, Ling Fei, Mark Zappi, and Hong Yao. Surface-bound hydroxyl radical-dominated degradation of sulfamethoxazole in the amorphous FeOOH/ peroxy monosulfate system: The key role of amorphous structure enhancing electron transfer. *Environmental Research*. August 2022. 214, 113964. DOI: [10.1016/j.envres.2022.113964](https://doi.org/10.1016/j.envres.2022.113964)

Xu Zhang, Daniel Gang, Xiaobo Lei, Tiejun Wang, Qiyu Lian, William Holmes, Lin Fei, Mark Zappi, Hong Yao. Overcome the Low Reduction Efficiency of Fe (III) by Peroxymonosulfate Via Constructing the Iron Hydroxide with an Amorphous Structure: Insight into the Mechanism of Sulfamethoxazole Degradation and Electron Transfer. *SSRN Electronic Journal*. January 2022. DOI: [10.2139/ssrn.4060030](https://doi.org/10.2139/ssrn.4060030)

Xiaobo Lei, Lunguang Yao, Qiyu Lian, Xu Zhang, Tiejun Wang, Mark E. Zappi, William Holmes, Guoyu Ding, Daniel Dianchen Gang. Enhanced adsorption of perfluorooctanoate (PFOA) on low oxygen content ordered mesoporous carbon (OMC): adsorption behaviors and mechanisms. *Journal of Hazardous Materials*. January 2022. DOI: [10.1016/j.jhazmat.2021.126810](https://doi.org/10.1016/j.jhazmat.2021.126810)

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Donald Blue, Dhan Lord B. Fortela, Shayla LeBoeuf, Ramalingam Subramaniam, Rafael Hernandez, Mark Zappi, William Holmes, Emmanuel Revellame. Alkali pretreatment of industrial mixed vegetable waste for fermentable sugar production. *Biomass Conversion and Biorefinery*. July 2021. DOI: [10.1007/s13399-021-01608-5](https://doi.org/10.1007/s13399-021-01608-5)

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David Shoemaker*, William Holmes, Mark Zappi, Daniel Gang. Innovative Strategies and Current Practices for Meeting Lithium Demand via Direct Lithium Extraction With an Emphasis on Brines from the Gulf of America Region. *Engineering and Technology Week 2025 Graduate Poster Competition*. University of Louisiana at Lafayette. Lafayette, Louisiana. March 24-28, 2025.

Anna Blanchard*, Karlie Dufrene, Hayden Hulin, Timothy Boudreaux, William Holmes, Mark Zappi. Impact of Leaching from Torrefied Biochar used for Potential Coastal Restoration. *Engineering and Technology Week 2025 Undergraduate Poster Competition*. University of Louisiana at Lafayette. Lafayette, Louisiana. March 24-28, 2025.

Luke Chapman*, Robert Bertrand, Emmanuel Revellame, Rafael Hernandez, Andrei Chistoserdov, Dhan Lord Fortela, Mark Zappi, William Holmes. Iterative Design Process in Bioreactor Design. *Engineering and Technology Week 2025 Undergraduate Poster Competition*. University of Louisiana at Lafayette. Lafayette, Louisiana. March 24-28, 2025.

Karlie Dufrene*, Anna Blanchard, Hayden Hulin, William Holmes, Rafael Hernandez, Mark Zappi. Viability of Municipal Waste-Water for Production of Green Hydrogen. *Engineering and Technology Week 2025 Undergraduate Poster Competition*. University of Louisiana at Lafayette. Lafayette, Louisiana. March 24-28, 2025.

Kaleigh Jacks*, Chelsea Zeringue, Sarah Simoneaux, William Holmes, Mark Zappi. Carbon Dioxide Mitigation Via Water Adsorption in Freshwater Ecosystems and Simulated Cultivation of *Chlorella Vulgaris* and *Chlorella Pyrenoidosa*. *Engineering and Technology Week 2025 Undergraduate Poster Competition*. University of Louisiana at Lafayette. Lafayette, Louisiana. March 24-28, 2025.

Katherine Ashurst*, Elizabeth Boyd, William Holmes, Rafael Hernandez, Mark Zappi. Determination of the Effect of Hydrogen Peroxide Concentration and pH Adjustment on Treatment Efficiency of Perfluoro-Octanoic Acid Degradation Under Ultraviolet Irradiation. *Engineering and Technology Week 2025 Undergraduate Poster Competition*. University of Louisiana at Lafayette. Lafayette, Louisiana. March 24-28, 2025.

Serenity Broussard*, William Holmes, Daniel Gang, Rafael Hernandez, Mark Zappi. Decoding Degradation: Navigating the Optimal Ratio of Hydrogen Peroxide in Low-Pressure UV Photolysis for 1,4-Dioxane Degradation. *Engineering and Technology Week 2024 Graduate Poster Competition*. University of Louisiana at Lafayette. Lafayette, Louisiana. March 18-22, 2024.

Sarah Simoneaux*, Emily Minvielle, William Holmes, Emmanuel Revellame, Rafael Hernandez, Daniel Gang, Mark Zappi. Feasibility of Continuous *Chlorella vulgaris* Growth Under High Carbon Dioxide Conditions. *Engineering and Technology Week 2024 Graduate Poster Competition*. University of Louisiana at Lafayette. Lafayette, Louisiana. March 18-22, 2024.

Lisa Stephanie Dizon*, Robert Bertrand, William Holmes, Rafael Hernandez, Mark Zappi, Dhan Lord Fortela, Emmanuel Revellame. Effects of Ammonium and Copper on Methane Biocatalysis and Methanotrophs Growth for Lipid Production. *Engineering and Technology Week 2024 Graduate Poster Competition*. University of Louisiana at Lafayette. Lafayette, Louisiana. March 18-22, 2024.

Elizabeth Boyd*, Katherine Ashurst, Xiaobo Lei, William Holmes, Daniel Gang, Rafael Hernandez, Mark Zappi. Removal of Perfluorooctanoic Acid (PFOA) in Water Using Advanced Oxidation Processes. *Engineering and Technology Week 2024 Graduate Poster Competition*. University of Louisiana at Lafayette. Lafayette, Louisiana. March 18-22, 2024.

Robert Bertrand*, Luke Chapman, Lisa Dizon, William Holmes, Rafael Hernandez, Mark Zappi, Emmanuel Revellame. Effect of Non-Aqueous Phase Choice on Mass Transfer Properties of Two-Phase Partitioning Methanotrophic Bioreactors. *Engineering and Technology Week 2024 Graduate Poster Competition*. University of Louisiana at Lafayette. Lafayette, Louisiana. March 18-22, 2024.

Kristel Gatdula*, William Holmes, August Gallo, Emmanuel Revellame. Ionic Effects on Improved Separation of Butyric Acid by Aqueous Two-Phase System using Non-Ionic Surfactant (NIS) Ecosurf™EH-3. *Engineering and Technology Week 2024 Graduate Poster Competition*. University of Louisiana at Lafayette. Lafayette, Louisiana. March 18-22, 2024.

Blake Foret*, William Chirdon, Chelsea Zeringue, William Holmes, Rafael Hernandez, Jalel Ben Hmida, Mark Zappi. A Techno-Economic Analysis of an Integrated Biorefinery Process within Wastewater Treatment Plants to Valorize Biosolids as Sustainable, Wood Adhesives. *Engineering and Technology Week 2024 Graduate Poster Competition*. University of Louisiana at Lafayette. Lafayette, Louisiana. March 18-22, 2024.

Kory Trosclair*, David Shoemaker, Xiaobo Lei, William Holmes, Mark Zappi, Daniel Gang. Synthesis of Titanium-Based Lithium-Ion Sieves for the Selective Recovery of Lithium-ions from Brine. *Engineering and Technology Week 2024 Undergraduate Poster Competition*. University of Louisiana at Lafayette. Lafayette, Louisiana. March 18-22, 2024.

Julia Werther*, David Shoemaker, Xiaobo Lei, William Holmes, Mark Zappi, Daniel Gang. Synthesis of Titanium-Based Lithium-Ion Sieves for the Selective Recovery of Lithium-ions from Brine. *Engineering and Technology Week 2024 Undergraduate Poster Competition*. University of Louisiana at Lafayette. Lafayette, Louisiana. March 18-22, 2024.

Aubrey Tuten*, Anusha Imran, David Shoemaker, William Holmes, Mark Zappi, Daniel Gang. Removal of GenX from Water through Adsorption. *Engineering and Technology Week 2024 Undergraduate Poster Competition*. University of Louisiana at Lafayette. Lafayette, Louisiana. March 18-22, 2024.

Serenity Broussard*, Karlie, Dufrene, William E. Holmes, Daniel Gang, Rafael Hernandez, Mark E. Zappi. Investigating Chemical Oxidation for Remediation of Emerging Groundwater Contaminant 1,4-Dioxane. *Graduate Appreciation Week Poster Competition and Engineering and Technology Week 2023 Graduate Poster Competition*. University of Louisiana at Lafayette. Lafayette, Louisiana. March 27-31, 2023.

Robert Bertrand*, Christian McGovern, Lisa Dizon, William Holmes, Rafael Hernandez, Mark Zappi, Emmanuel Revellame. Methanotroph Bioreactor Efficiency: Improving the Mass Transfer Coefficient. *Graduate Appreciation Week Poster Competition*. University of Louisiana at Lafayette. Lafayette, Louisiana. March 27-31, 2023.

Sarah Simoneaux*, Emily Minvielle, William E. Holmes, Emmanuel Revellame, Rafael Hernandez, Daniel Gang, Mark E. Zappi. Varying harvesting rates to achieve maximum carbon dioxide utilization via *Chlorella vulgaris*. *Graduate Appreciation Week Poster Competition and Engineering and Technology Week 2023 Graduate Poster Competition*. University of Louisiana at Lafayette. Lafayette, Louisiana. March 27-31, 2023.

Lisa Stephanie Dizon*, Robert Bertrand, William E. Holmes, Rafael A. Hernandez, Mark E. Zappi, Dhan Lord B. Fortela, Emmanuel D. Revellame. Assessment of Methanotrophs Population Variation from Different Sources for Synthesis of Valuable Bio-Products. *Graduate Appreciation Week Poster Competition and Engineering and Technology Week 2023 Graduate Poster Competition*. University of Louisiana at Lafayette. Lafayette, Louisiana. March 27-31, 2023.

Kristel Gatdula*, William Holmes, Emmanuel Holmes. Effective Use and Selection of Non-ionic Surfactant: For Recovering Highly Valuable Acids. *Graduate Appreciation Week Poster Competition and Engineering and Technology Week 2023 Graduate Poster Competition*. University of Louisiana at Lafayette. Lafayette, Louisiana. March 27-31, 2023.

David Shoemaker*, William Holmes, Hui Yan, Daniel Gang, Mark Zappi. Synthesis and Performance valuation of Titanium-Based Lithium-Ion Sieves for Lithium Extraction from Aqueous Solutions. *Graduate Appreciation Week Poster Competition and Engineering and Technology Week 2023 Graduate Poster Competition*. University of Louisiana at Lafayette. Lafayette, Louisiana. March 27-31, 2023.

Cade M. Hontiveros*, David J. Shoemaker, William E. Holmes, Daniel D. Gang, Mark E. Zappi. Chemical Analysis Utilizing Inductively Coupled Plasma-Optical Emission Spectrometry for the Performance Evaluation of the Capture of Lithium from Process Waters Using H_2TiO_3 Adsorbent. *Engineering and Technology Week 2023 Undergraduate Poster Competition*. University of Louisiana at Lafayette. Lafayette, Louisiana. March 27-31, 2023.

Ava Welch*, William E. Holmes, Mark E. Zappi. Investigation Into Usage of Invasive Plant Giant salvinia (*Salvinia molesta*) for Production of Adhesives. *Engineering and Technology Week 2023 Undergraduate Poster Competition*. University of Louisiana at Lafayette. Lafayette, Louisiana. March 27-31, 2023.

Karlie Dufrene*, Serenity Broussard, William E. Holmes, Daniel Gang, Rafael Hernandez, Mark E. Zappi. Investigating Chemical Oxidation for Remediation of Emerging Groundwater Contaminant 1,4-Dioxane. *Engineering and Technology Week 2023 Undergraduate Poster Competition*. University of Louisiana at Lafayette. Lafayette, Louisiana. March 27-31, 2023.

Christian McGovern*, Robert Bertrand, Lissa Dizon, William Holmes, Rafael Hernandez, Mark Zappi, Emmanuel Revellame. Methanotroph Bioreactor Efficiency: Improving the Mass Transfer Coefficient. *Engineering and Technology Week 2023 Undergraduate Poster Competition*. University of Louisiana at Lafayette. Lafayette, Louisiana. March 27-31, 2023.

Seth Harden*, Lucile Fonseca, Gabriel Dimonde, William Holmes, Kristel Gatdula, Peng Yin, Emmanuel Revellame. Space Realty into Reality: Development of Bricks from Martian Regolith. *Engineering and Technology Week 2023 Undergraduate Poster Competition*. University of Louisiana at Lafayette. Lafayette, Louisiana. March 27-31, 2023.

Kyle Taylor*, Pubali Sarker, Xiaobo Lei, William Holmes, Mark Zappi, Hui Yan, Dongmei Cao, Daniel Gang. Investigation of the Adsorption of Sulfamethoxazole (SMX) onto Ordered Mesoporous Carbon OMC). *Engineering and Technology Week 2023 Undergraduate Poster Competition*. University of Louisiana at Lafayette. Lafayette, Louisiana. March 27-31, 2023.

Lucile Fonseca*, Seth Harden, William Holmes, Kristel Gatdula, Peng Yin, Emmanuel Revellame. Feasibility of Using Human Urine and Martian Regolith Simulants as Nutrient Media to Sustain Algal Growth in Space. *Engineering and Technology Week 2023 Undergraduate Poster Competition*. University of Louisiana at Lafayette. Lafayette, Louisiana. March 27-31, 2023.

Dizon LSH*, Bertrand RS, Holmes WE, Hernandez RA, Zappi ME, Fortela DLB, Revellame ED. Analysis of Methanotrophs Population from Various Sources for Production of High-Value Products. Poster presentation at the ASEC 2022 The 3rd International Electronic Conference on Applied Sciences. Online. December 1-15, 2022.

RS Bertrand*, LS Dizon, R Hernandez, M Zappi, WE Holmes, ED Revellame. Construction of a Sensor for Rapid and Online Measurement of Dissolved Methane in Bioreactor Systems. Poster Presentation at the *2022 AIChE Annual Meeting*. Phoenix, AZ, November 13 – 18, 2022.

Dizon LSH*, Bertrand RS, Holmes WE, Hernandez RA, Zappi ME, Fortela DLB, Revellame ED. Bacterial Conversion of Methane to Lipids: A Technical Assessment and Benefit-to-Cost Analysis as Methane Abatement Strategy. Poster at the *2022 AIChE Annual Meeting*. Phoenix, AR. November 13-18, 2022.

KM Gatdula*, ED Revellame, WE Holmes, Sustainable Recovery of Butyric Acid through Salt-induced Aqueous Two-Phase Extraction using Non-ionic Surfactants. Oral presentation at the *2022 AIChE Annual Meeting*. Phoenix, AZ. November 13 – 18, 2022.

Xiaobo Lei*, William Holmes, Mark Zappi, Daniel Gang (2022). Adsorption of perfluorooctanoic acid (PFOA) onto polyethyleneimine modified graphene oxide (GO-PEI).

Presentation at *Fall 2022 American Chemical Society (ACS) National Meeting*, Chicago, IL. Aug 20 - 24, 2022.

Dizon LSH*, Bertrand RS, Holmes WE, Hernandez RA, Zappi ME, Fortela DLB, Revellame ED. Assessing the Influence of Methanotrophic Growth Conditions on Methane Biocatalysis for Lipid Production: An Initiative towards Climate Change Mitigation. Oral presentation at *ACS Fall 2022 Meeting*. Chicago, IL. August 20-24, 2022.

Taskina Jui*, Sarah Simoneaux, William Holmes, Mark E. Zappi. Comparing growth of *Chlorella vulgaris* in NaHCO₃ and CaCO₃ solutions. REU undergraduate Taskina Jui (University of Florida) poster at the AIM-REU Research Symposium, University of Louisiana at Lafayette, July 29, 2022.

Dizon LSH*, Bertrand RS, Holmes WE, Hernandez RA, Zappi ME, Fortela DLB, Revellame ED. Effects of Growth Conditions on the Bacterial Conversion of Methane to Lipids. Poster at *2022 AOCS Annual Meeting and Expo*. Atlanta, GA. May 1-4, 2022.

Lei X*, Holmes WE, Zappi ME, Daniel Gang (2022). The role of amine and amide I functional groups in the adsorption of perfluorooctanoic acid (PFOA) onto polyethyleneimine modified graphene oxide. Oral presentation at *2022 AOAC Southern Section Annual Meeting*. Atlanta, Georgia. April 19-20, 2022 and the 7th Annual Regional Student Scholars Forum at Louisiana State University Shreveport, Louisiana, March 11, 2022.

Dizon LSH*, Bertrand RS, Holmes WE, Hernandez RA, Zappi ME, Fortela DLB, Revellame ED. Assessment of the Effects of Methanotrophic Growth Conditions on Methane Biocatalysis for Lipid Production. Oral presentation at the *35th AOAC Southern Section Annual Meeting*. Atlanta, GA. April 19-20.

Pubali Sarker, Xiaobo Lei, Kyle Taylor, William Holmes, Hui Yan, Dongmei Cao, Mark E. Zappi Daniel Gang. Adsorption of an antibiotic (Sulfamethoxazole) onto OMC: Morphology and kinetic study. Graduate Pubali Sarker poster at the AOAC Southern Section Annual Meeting, Atlanta, Georgia, April 19-20, 2022.

Hayden Hulin*, William Holmes. Applications in 3D Printing in Laboratory Research. Undergraduate Hayden Hulin poster at the AOAC Southern Section Annual Meeting, Atlanta, Georgia, April 19-20, 2022.

Lei X*, Holmes WE, Zappi ME, Daniel Gang (2022). Like a magnet - Adsorption of perfluorooctanoic acid (PFOA) onto polyethyleneimine modified graphene oxide (GO-PEI). *Engineering and Technology Week 2022 Graduate Poster Competition*. University of Louisiana at Lafayette, Lafayette Louisiana, USA. April 4-8, 2022.

Bimi Shrestha*, Rafael Hernandez, Dhan Lord B. Fortela, Wayne Sharp, Andrei Chistoserdov, Daniel Gang, Emmanuel Revellame, William Holmes, and Mark E. Zappi. Comparison of pretreatment methods on anaerobic digestion of low-strength wastewater for enhanced COD removal and biosolids reduction dedicated for space exploration. *Engineering and Technology Week 2022 Graduate Poster Competition*. University of Louisiana at Lafayette, Lafayette Louisiana, USA. April 4-8, 2022.

Eugenia A. Ndieze*, Drew D. Sikat, Bimi Shrestha, Rafael Hernandez, Dhan Lord B. Fortela, Wayne Sharp, Andrei Chistoserdov, Daniel Gang, Emmanuel Revellame, William Holmes, and Mark E. Zappi. A preliminary study on the use of plastic bioballs as attached growth media for the optimized anaerobic treatment of wastewaters to ultra-low effluent standards. *Engineering and Technology Week 2022 Undergraduate Poster Competition*. University of Louisiana at Lafayette, Lafayette Louisiana, USA. April 4-8, 2022.

Drew D. Sikat*, Eugenia A. Ndieze, Bimi Shrestha, Rafael Hernandez, Dhan Lord B. Fortela, Wayne Sharp, Andrei Chistoserdov, Daniel Gang, Emmanuel Revellame, William Holmes, and Mark E. Zappi. Leaching of Tygon tubing into synthetic wastewater inoculated with anaerobic seed and the identification of the compounds in the leachate using GC/MS. *Engineering and Technology Week 2022 Undergraduate Poster Competition*. University of Louisiana at Lafayette, Lafayette Louisiana, USA. April 4-8, 2022.

Sarah Simoneaux*, William Holmes, Emmanuel Revellame, Rafael Hernandez, Daniel Gang, Mark E. Zappi. Changing operational parameters of a photobioreactor system to culture *Chlorella vulgaris* to maximize carbon dioxide fixation. *Engineering and Technology Week 2022 Graduate Poster Competition*. University of Louisiana at Lafayette, Lafayette Louisiana, USA. April 4-8, 2022.

Emily Minvielle*, Taskin Zaman Jui, Sarah Simoneaux, William E. Holmes, Mark E. Zappi. Cultivation of *Chlorella vulgaris* using CO₂ derived NaCO₃ and CaCO₃ as a carbon source. *Engineering and Technology Week 2022 Undergraduate Poster Competition*. University of Louisiana at Lafayette, Lafayette Louisiana, USA. April 4-8, 2022.

Kyle Taylor*, Xiaobo Lei, William Holmes, Mark E. Zappi, Daniel Gang. Investigation of the Adsorption of Perfluorooctanoic Acid (PFOA) onto Ordered Mesoporous Caron (OMC). *Engineering and Technology Week 2022 Undergraduate Poster Competition*. University of Louisiana at Lafayette, Lafayette Louisiana, USA. April 4-8, 2022.

Dizon LSH*, Bertrand RS, Holmes WE, Hernandez RA, Zappi ME, Fortela DLB, Revellame ED. Evaluation of the Effects of Methanotrophic Growth Conditions on Methane Biocatalysis for Lipid Production: An Initiative towards Climate Change Mitigation. *Engineering and Technology Week 2022 Graduate Presentation Competition*. University of Louisiana at Lafayette, Lafayette LA. April 4-8, 2022.

Aguda R*, Fonseca L, Ho Y, Holmes W, Hernandez R, Zappi M, Revellame E. Challenges and Potential Solutions in Microalgae Cultivation in a Space-based Biorefinery System. *2022 Engineering and Technology Week Graduate Poster Competition*. University of Louisiana at Lafayette, Lafayette, LA. April 4-8, 2022.

Bertrand RS*, Dizon LSH, McGovern C, Hernandez RA, Zappi ME, Revellame ED. Mass transfer in methanotrophic bioreactors: is there a diminishing-returns point for coefficient based on critical factors of operation? *Engineering and Technology Week 2022 Graduate Poster Competition*. University of Louisiana at Lafayette, Lafayette Louisiana, USA. April 4-8, 2022.

Dizon LSH*, Bertrand RS, Holmes WE, Hernandez RA, Zappi ME, Fortela DLB, Revellame ED. Evaluation of the Effects of Methanotrophic Growth Conditions on Methane Biocatalysis for Lipid Production: An Initiative towards Climate Change Mitigation. *Engineering and Technology Week 2022 Graduate Poster Competition*. University of Louisiana at Lafayette, Lafayette, LA. April 4-8, 2022.

Fonseca L*, Aguda R, Ho Y, Massiha S, Holmes W, Hernandez R, Zappi M, Revellame E. Photobioreactors in Series for Air Revitalization and Wastewater Treatment in a Space Station. *2022 Engineering and Technology Week Undergraduate Poster Competition*, April 4-8, 2022. University of Louisiana at Lafayette, Lafayette, LA. April 4-8, 2022. Awarded 1st place for the Engineering and Technology Week Undergraduate Research Poster Competition.

Lei X*, Holmes WE, Zappi ME, Daniel Gang (2022). Like a magnet - Adsorption of perfluorooctanoic acid (PFOA) onto polyethyleneimine modified graphene oxide (GO-PEI). *Graduate Appreciation Week 2022 Poster Competition*. University of Louisiana at Lafayette, Lafayette Louisiana, USA. March 30-31, 2022.

Dizon LSH*, Bertrand RS, Holmes WE, Hernandez RA, Zappi ME, Fortela DLB, Revellame ED. Assessing the Influence of Methanotrophic Growth Conditions on Methane Biocatalysis for Lipid Production: An Initiative towards Climate Change Mitigation. *Graduate Appreciation Week 2022 Poster Competition*. University of Louisiana at Lafayette, Lafayette, LA. March 30-31, 2022.

Lei X*, Holmes WE, Zappi ME, Daniel Gang. The role of amine and amide I functional groups in the adsorption of perfluorooctanoic acid (PFOA) onto polyethyleneimine modified graphene oxide. Presentation at the *7th Annual Regional Student Scholars Forum*. Louisiana State University Shreveport, Louisiana, USA. March 11, 2022.

Dizon LSH*, Bertrand RS, Holmes WE, Hernandez RA, Zappi ME, Fortela DLB, Revellame ED. Assessing the Influence of Methanotrophic Growth Conditions on Methane Biocatalysis for Lipid Production. Poster presentation at the *7th Annual Regional Student Scholars Forum*. Louisiana State University Shreveport, LA. March 11, 2022.

Andrew Schofield*, Alex Zappi, Sarah Simoneaux, William Holmes, Mark Zappi. *Chlorella vulgaris* growth from Sodium Bicarbonate produced via Carbon Dioxide adsorption using Sodium Hydroxide. Poster at the *AIM-REU Research Symposium*, University of Louisiana at Lafayette, LA, July 2021 and at the *2021 AIChE Annual Meeting*, Boston, MA. November 2021.

N Marcil*, M Zappi, DL Fortela, E Revellame, D Gang, W Sharp, W Holmes, R Hernandez. How Low Can It Go?: Survivability of Aerobic Activated Sludge Fed Dilute-Strength Wastes for Space Applications. Poster presentation at the *2021 AIChE Annual Meeting*. Boston, MA. November 7 – 11, 2021.

S Simoneaux*, D Schofield, W Holmes, E Revellame, R Hernandez, D Gang, ME Zappi. Cultivation of *Chlorella vulgaris* in a photobioreactor system for conversion of carbon dioxide into oxygen. Poster presentation at the *LaSPACE Fall 2021 Council Meeting*. Baton Rouge, LA. October 29 – 30, 2021.

A Chistoserdov, S Ahmed*, W Holmes, ED Revellame, M Zappi, R Hernandez. Utilization of human feces and urine with concomitant production of biogas in confined environments. Poster presentation at the *LaSPACE Fall 2021 Council Meeting*. Baton Rouge, LA. October 29 – 30, 2021.

R Aguda*, L Fonseca, S Massiha, Y Ho, S Simoneaux, W Holmes, A Chistoserdov, ED Revellame, R Hernandez, ME Zappi. Algae Cultivation in a Space-based Biorefinery System. Poster presentation at the *LaSPACE Fall 2021 Council Meeting*. Baton Rouge, LA. October 29 – 30, 2021.

S Massiha*, R Aguda, L Fonseca, W Holmes, ED Revellame, R Hernandez, ME Zappi. Lipid and Fatty Acid Analysis of Microalgal Biomass as a Potential Life Support Product for Space Exploration. Poster presentation at the *LaSPACE Fall 2021 Council Meeting*. Baton Rouge, LA. October 29 – 30, 2021.

Xiaobo Lei*, Qiyu Lian, William Holmes, Daniel Gang, Mark E. Zappi. Enhanced adsorption of perfluorooctanoic acid (PFOA) onto low oxygen content ordered mesoporous carbon (OM): Adsorption behaviors and mechanisms. Poster presentation at the *LaSPACE Fall 2021 Council Meeting*. Baton Rouge, LA. October 29 – 30, 2021.

R Aguda*, W Holmes, R Hernandez, M Zappi, D Gang, A Chistoserdov, ED Revellame. Effect of Macronutrients Levels on the Growth of *Chlorella vulgaris*: Implications on Microalgal Cultivation for Long Duration Spaceflights and Planetary Colonization. Oral presentation at the *4th Space Travel: Adaptive Research and Technologies from Biological and Chemical Engineering (STAR Tech)*. Virtual. October 25 – 26, 2021.

Michael Gee*, Xiaobo Lei, William Holmes, Pubali Sarker, Mark Zappi, Daniel Gang. Enhanced Adsorption of Perfluorooctanoic Acid (PFOA) from Aqueous Solution by Oak Sawdust Derived Activated Carbon (OSAC). Poster presentation at the *Gulf Coast Undergraduate Research Symposium*. Rice University, TX. October 2021.

Michael Gee*, Xiaobo Lei, William Holmes, Pubali Sarker, Mark Zappi, Daniel Gang. Enhanced Adsorption of Perfluorooctanoic Acid (PFOA) from Aqueous Solution by Oak Sawdust Derived Activated Carbon (OSAC). Poster presentation at the *Australian Conference of Undergraduate Research*. Australia, Australian National University. September 2021.

Andrei Chistoserdov, Saleh Ahmed*, William Holmes, Emmanuel Revellame, Mark Zappi, Rafael Hernandez. Utilization of human feces and urine with concomitant production of biogas in confined environments. Poster presentation at the *Society for Industrial Microbiology and Biotechnology Meeting*. Austin, TX. August 2021.

Andrew Schofield, Alex Zappi, Sarah Simoneaux, William Holmes, Mark Zappi. *Chlorella vulgaris* growth from Sodium Bicarbonate produced via Carbon Dioxide adsorption using Sodium Hydroxide. REU Undergraduate Drew Schofield (University of Kentucky) poster presentation at the *AIM-REU Research Symposium*. University of Louisiana at Lafayette, Lafayette, LA. July 2021.

Michael Gee, Xiaobo Lei, William Holmes, Pubali Sarker, Mark Zappi, Daniel Gang. Enhanced Adsorption of Perfluorooctanoic Acid (PFOA) from Aqueous Solution by Oak Sawdust Derived Activated Carbon (OSAC). REU Undergraduate Michael Gee (University of California, Berkeley) poster presentation at the *AIM-REU Research Symposium*. University of Louisiana at Lafayette, Lafayette, LA. July 2021.

Eugenia Ndieze*, Bimi Shrestha, Mark E. Zappi, Rafel Hernandez, William Holmes, Dhan Lord B. Fortela, Wayne Sharp, Andrei Chistoserdov, Daniel Gang, Emmanuel Revellame. Anaerobic Digestion of Synthetic Wastewater Dedicated for a Biochemical Waste Conversion System for Outer Space Exploration. *Engineering and Technology Week 2021 Undergraduate Poster Competition*. University of Louisiana at Lafayette, Lafayette, LA. April 5-9, 2021.

S LeBoeuf*, R Aguda, W Holmes, R Hernandez, M Zappi, E Revellame. Cryopreservation of the microalgae *Chlorella vulgaris*, for space explorations. *Engineering and Technology Week 2021 Undergraduate Poster Competition*. University of Louisiana at Lafayette, Lafayette, LA. April 5-9, 2021.

R Boudreaux*, W Holmes, E Revellame. Reactive In-situ Fractionation of Lignocellulosic Biomass. *Engineering and Technology Week 2021 Undergraduate Poster Competition*. University of Louisiana at Lafayette, Lafayette, LA. April 5-9, 2021.

L Fonseca*, R Aguda, W Holmes, R Hernandez, M Zappi, E Revellame. Effect of Light Intensity on the Growth of *Chlorella vulgaris*. *Engineering and Technology Week 2021 Undergraduate Poster Competition*. University of Louisiana at Lafayette, Lafayette, LA. April 5-9, 2021.

Hayden Hulin, William Holmes. Applications in 3D Printing in Laboratory Research. *Engineering and Technology Week 2021 Undergraduate Poster Competition*. University of Louisiana at Lafayette, Lafayette, LA. April 5-9, 2021.

Drew LeBoeuf, Xiaobo Lei, William Holmes, Mark Zappi, Qiyu Lian, Xu Zhang, Daniel Gang. Enhanced adsorption of perfluorooctanoate (PFOA) on low oxygen content ordered mesoporous carbon (OMC): adsorption behaviors and mechanisms. *Engineering and Technology Week 2021 Undergraduate Poster Competition*. University of Louisiana at Lafayette, Lafayette, LA. April 5-9, 2021.

Eugenia Ndieze*, Bimi Shrestha, Mark E. Zappi, Rafel Hernandez, William Holmes, Dhan Lord B. Fortela, Wayne Sharp, Andrei Chistoserdov, Daniel Gang, Emmanuel Revellame. Anaerobic digestion of synthetic wastewater for a biochemical waste conversion system. Oral presentation at the *Association of Official Analytical Collaboration (AOAC) International Mid-Year Conference*. March 2021.

Remil Aguda*, Lucile Fonseca, Shahrzad Massiha, Y Ho, Sarah Simoneaux, William Holmes, Andrei Chistoserdov, Emmanuel Revellame, Rafael Hernandez, Mark E. Zappi. Algae

Cultivation in a Space-based Biorefinery System. Oral presentation at the *2020 Virtual AIChE Annual Meeting* held virtually November 16-20, 2020.

R Aguda*, H Hulin, C Orgeron, Y Ho, W Holmes, R Hernandez, M Zappi, E Revellame. Algae Turf Filter Photobioreactor Designs, Operation and Testing for Algae Cultivation for Space Explorations. Presented at the *2020 Virtual AIChE Annual Meeting*. November 16 – 20, 2020.

R Aguda*, C Stelly, B LeBlanc, C Orgeron, W Holmes, R Hernandez, Mark Zappi, E Revellame. Maintenance of *Chlorella vulgaris* in high and low levels of carbon, nitrogen and phosphate in suspended growth photobioreactors. *2020 Engineering & Technology Week Graduate Poster Competition*, University of Louisiana at Lafayette. Lafayette, LA. March 16-20, 2020.

Nicholas Marcil*, Brandon Plaisance, Rafael Hernandez, Dhan Lord Fortela, William Holmes, Mark Zappi. Effect of Operating Condition on the Extent of Contaminant Removal with an Activated Sludge System. *2020 Engineering & Technology Week Graduate Poster Competition*, University of Louisiana at Lafayette. Lafayette, LA. March 16-20, 2020.

C Stelly*, R Aguda, W Holmes, R Hernandez, Mark Zappi, E Revellame. Comparison of 3 media formulations for optimal growth of *Chlorella vulgaris*. *2020 Engineering & Technology Week Undergraduate Poster Competition*, University of Louisiana at Lafayette. Lafayette, LA. March 16-20, 2020. [**Won 1st place in the Undergraduate Student category**]

C Orgeron*, R Aguda, C Stelly, W Holmes, R Hernandez, M Zappi, E Revellame. Design, Operation, and Testing of Attached Growth Photobioreactors for Cultivation of Algae. *2020 Engineering & Technology Week Undergraduate Poster Competition*. University of Louisiana at Lafayette. Lafayette, LA. March 16-20, 2020.

R Aguda*, B LeBlanc, C Stelly, W Holmes, R Hernandez, M Zappi, E Revellame. Algae Species on Turf Filter Reactor for Space Explorations. Poster presentation at the *2019 AIChE Annual Meeting*. Orlando, FL. November 10 – 15, 2019.

R Aguda*, C Stelly, W Holmes, S LeBeouf, E Revellame. Cloud Point Temperature Purification of Butyric Acid from Aqueous Solutions Using Non-Ionic Surfactant. Oral presentation at the *2019 AIChE Annual Meeting*. Orlando, FL. November 10 – 15, 2019.

Elizabeth Boyd*, William Holmes, Mark Zappi. Comparison of Different Methodologies for Rapid Analysis of Volatile Organic Acids in Fermentation Broth using GC/MS. Poster presentation at the *2019 AIChE Annual Meeting*. Orlando, FL. November 10 – 15, 2019.

B Shrestha*, J Trahan, M Zappi, DL Fortela, D Gang, R Hernandez, W Sharp, E Revellame, W Holmes, A Chistoserdov. Anaerobic Digestion of Wastewater for Producing Life Support Resources, within a Mars-based Space Camp. Poster presentation at the *LaSPACE Fall 2019 Council Meeting*. Baton Rouge, LA. October 18 – 19, 2019.

Brandon Plaisance*, Nicholas Marcil, Rafael Hernandez, Dhan Lord B. Fortela, William Holmes, Mark E. Zappi. Effect of Operating Conditions on the Extent of Contaminant Removal and Biomass Lipid Enhancement with an Activated Sludge System. Poster presentation at the *LaSPACE Fall 2019 Council Meeting*. Baton Rouge, LA. October 18 – 19, 2019.

W Sharp*, M Zappi, R Hernandez, E Revellame, DL Fortela, W Holmes, A Chistoserdov, S Holmes. The Future of Wastes to Green Products from Urban Areas – Envisioning Biorefineries of the Future. Oral presentation at the *2019 IEEE Green Technologies Conference*. Lafayette, LA. April 3 – 6, 2019.

E Revellame*, DL Fortela, R Hernandez, W Holmes, ME Zappi. Volatile Acid Platform Using a Combination of Anaerobic and Aerobic Bioprocessing for Microbial Lipids Production. Oral presentation at the *2019 IEEE Green Technologies Conference*. Lafayette, LA. April 3 – 6, 2019.

ME Zappi*, E Revellame, DL Fortela, W Sharp, R Hernandez, W Holmes, D Gang, A Picou-Mikolajczyk, R Bajpai. Production of Energy Products from the Digestion of Shrimp Processing Wastewaters. Oral presentation at the *2019 IEEE Green Technologies Conference*. Lafayette, LA. April 3 – 6, 2019.

C Stelly*, S LeBeouf, R Aguda, W Holmes, E Revellame. Separation of Butyric Acid from a Non-ionic Surfactant Above its Cloud Point Temperature. *2019 Engineering & Technology Week Undergraduate Poster Competition*, University of Louisiana at Lafayette. Lafayette, LA. March 25-29, 2019.

J LeBlanc*, DL Fortela, W Sharp, S Bonilla, W Holmes, ED Revellame. Microbial Fuel Cells for Production of BioPower and BioProducts. *2019 Engineering & Technology Week Graduate Poster Competition*, University of Louisiana at Lafayette. Lafayette, LA. March 25-29, 2019.

Remil Aguda, Cody Stelly, Brandon LeBlanc, Emmanuel Revellame, William Holmes, Rafael Hernandez, Mark Zappi. Algae Species and Algae Reactors Design for Space Explorations. *2019 Engineering & Technology Week Graduate Poster Competition*, University of Louisiana at Lafayette. Lafayette, LA. March 25-29, 2019.

R Bertrand*, B Holmes, C Orgeron, E Revellame. Determination of the Excess Water Conditions for the Gelatinization of Waxy Corn Starch, *2018 Engineering & Technology Week Graduate Poster Competition*. University of Louisiana at Lafayette. Lafayette, LA. March 2018. **[Won 3rd place in the Graduate Student category]**

E Revellame*, R Hernandez, T French, W Holmes, M Zappi. Developing Co-Products from Tomorrow's Biorefinery: Municipal Wastewater Plants. Presentation at the *2017 Louisiana Energy Research and Development Forum*. University of Louisiana at Lafayette, Lafayette LA. October 24 – 26, 2017.

Emmanuel Revellame, William Holmes, Dhan Lord Fortela, Donald Blue*. Pretreatment of Solid Wastes from Vegetable Processing. Poster presentation at the *2017 AIChE Annual Meeting*, Minneapolis, MN. October 29-November 3, 2017.

William Gardner*, William Holmes. Development of a High-Resolution GC Separation for Identification and BTU Heating Value Calculations for Torrefaction VOC Emissions. Oral presentation at the *31st Annual Meeting of the Southern Section of AOAC International*. Atlanta, GA. April 17-20, 2017

Ben Boone*, Matthew Crawford, Maci Gauthreaux, William Holmes, Emmanuel Revellame, Andro Mondala. Renewable Fuels from Plastic Medical Wastes. Oral presentation at the *31st Annual Meeting of the Southern Section of AOAC International*. Atlanta, GA. April 17-20, 2017

Maci Gauthreaux*, William Holmes, Rafael Hernandez, Mark Zappi, Jay Turner, Tre Bertrand, Danny Cormier. Extraction of Amines in Petroleum Drilling Fluids by Rapid GC/MS Method. Poster presentation at the *31st Annual Meeting of the Southern Section of AOAC International*. Atlanta, GA. April 17-20, 2017

Hannah Hymel*, Robert Bertrand, William Holmes, Emmanuel Revellame. Novel Process to Enhance Essential Oils, as Natural Chemical Insect Repellents. Poster presentation at the *31st Annual Meeting of the Southern Section of AOAC International*. Atlanta, GA. April 17-20, 2017

Kyle Zappi*, Kyle Leleux, William Holmes, Dhan Lord Fortela, Emmanuel Revellame. Development of a Microbial Fuel Cell for Waste to Electricity Conversion. Poster presentation at the *31st Annual Meeting of the Southern Section of AOAC International*. Atlanta, GA. April 17-20, 2017 **[Won 1st place]**

David LaCour Jr.*, Emmanuel Revellame, Mark Zappi, William Holmes. Microbial Digestion of Waste Materials for Biogas Production. Poster presentation at the *31st Annual Meeting of the Southern Section of AOAC International*. Atlanta, GA. April 17-20, 2017

D Blue*, D LaCour, S LeBoeuf, W Holmes, E Revellame. Acid Pretreatment of Solid Wastes from Vegetable Processing: Effect of Temperature and Acid Concentration. *2017 Engineering & Technology Week Graduate Poster Competition*. University of Louisiana at Lafayette. Lafayette, LA. March 2017. **[Won 2nd place in the Graduate Student category]**

K Leleux*, K Zappi, D Fortela, M Zappi, W Holmes, ED Revellame. Development and Testing of a Microbial Fuel Cell Prototype. *2017 Engineering & Technology Week Graduate Poster Competition*. University of Louisiana at Lafayette. Lafayette, LA. March 2017. **[Won 1st place in the Undergraduate Student category]**

K Zappi*, DF LaCour, ME Zappi, W Holmes, ED Revellame. Ozonation of Solid Wastes from Vegetable Processing Plants for Biohydrogen and Volatile fatty acid production. Poster presentation at the *Honors Program and Undergraduate Research Council Undergraduate Research Conference*, University of Louisiana at Lafayette. Lafayette, LA. November 18 – 19, 2016.

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Dhan Lord Fortela*, William Holmes. The Dynamics of Biodiesel Profile and Fungal Diversity of Activated Sludge during Lipid Accumulation on Acetic Acid. Oral presentation at the *2016 AIChE Annual Meeting*, San Francisco, CA. November 13-18, 2016.

Obakore Agbroko*, Keyvan Mollaeian, William E. Holmes, Tracy J Benson. in Situ Raman Analysis for the Production of Biofuel Using a Heterogeneous Layered Double Hydroxide Catalyst. *2016 AIChE Annual Meeting*, San Francisco, CA. November 13-18, 2016.

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William Holmes, Dhan Lord Fortela, Emmanuel Revellame*. Surfactant-Aided Extraction of Volatile Organic Acids from Aqueous Solution. Poster presentation at the *2016 AIChE Annual Meeting*, San Francisco, CA. November 13-18, 2016.

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M. Crawford*, J Belgodere, ED Revellame, W Holmes, R Hernandez. Determination of Cloud Point Temperature of Nonionic Surfactant. *2016 Engineering & Technology Week Undergraduate Poster Competition*. University of Louisiana at Lafayette. Lafayette, LA. March 2016.

J Belgodere*, R Hernandez, W Holmes, M Zappi, R Bajpai, E Revellame. Liquid-liquid Extraction of Volatile Fatty Acids (VFAs) using Surfactants. Oral presentation at the *2015 AIChE Annual Meeting*. Salt Lake City, UT. November 8 – 13, 2015.

Ashley Mikolajczyk*, William Holmes. Evaluation of the Effect of Commercially Manufactured Feeds with Different Fat Compositions on Fatty Acid Composition of Captive Breeding Alligator Eggs. Poster presentation at the 29th *Annual Meeting of the Southern Section of AOAC International*. Atlanta, GA. April 2015.

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Troy Manuel*, Claire Maraist, Timothy Boudreaux, William Holmes, Prashanth Buchireddy. Char It! Black is the New Green, Using Mass Spectrometry to Analyze Compositions and BTU Content of Off-Gas from Torrefaction Process. Poster presentation at the 29th *Annual Meeting of the Southern Section of AOAC International*. Atlanta, GA. April 2015.

Maci Gauthreaux*, Whitney Melancon, William Holmes, Troy Primeaux, Mark Zappi. Ask Me About My Pepper, Y'all! Analytical Determination of Scoville Heat Units Using High Pressure Liquid Chromatography. Poster presentation at the 29th *Annual Meeting of the Southern Section of AOAC International*. Atlanta, GA. April 2015.

J Belgodere*, L Collazos, ED Revellame, M Zappi, W Holmes, R Hernandez. Experimental Measurement and Modeling of Ternary Systems Containing Surfactant-Water-VFAs. 2015 *Engineering & Technology Week Graduate Poster Competition*. University of Louisiana at Lafayette. Lafayette, LA. March 2015. [**Won 3rd place in the Graduate Student category**]

Stanislav Barskov*, Stephen Dufreche, William Holmes, Rafael Hernandez, Rakesh Bajpai, Mark Zappi, Ramalingam Subramaniam. 388012 Biological Isolation of Protein from Shrimp Waste. 2014 *AIChE Annual Meeting, Atlanta, GA*. November 16-21, 2014.

Dhan Ford Fortela*, Rafael Hernandez, Mark Zappi, William Holmes, Emmanuel Revellame, Stephen Dufreche, Ramalingam Subramaniam, Todd French. Refining the Concept of Integrating Anaerobic-Aerobic Microbial Systems to Produce Chemicals and Lipids for Fuels. Oral presentation at the 2014 *AIChE Annual Meeting, Atlanta, GA*. November 16-21, 2014.

Christopher Giorgio*, Stephen Dufreche, William Holmes, Rafael Hernandez, Mark Zappi, Rakesh Bajpai, Ramalingam Subramaniam. Effect of C/N Ratio on Microbial Lipid Production with the Oleaginous Yeast *Lipomyces Starkeyi*. 2014 *AIChE Annual Meeting, Atlanta, GA*. November 16-21, 2014.

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ED Revellame*, WE Holmes, R. Hernandez, WT French, LA Estévez. Experimental Measurement and Modeling of Type 3 Ternary System Containing *n*-Decane + Water + Triacetin. Oral presentation at the *2013 AIChE Annual Meeting*. San Francisco, CA. November 3 – 8, 2013.

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