William M. Chirdon
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Education

University of Michigan, Ann Arbor
Combined Ph.D., Macromolecular Science and Engineering/Biologic and Materials Science,
December 2004
Thesis: Diffuse and Goniochromatic Reflectance of Translucent Materials

University of Michigan, Ann Arbor
Master of Science, Macromolecular Science and Engineering,
December 2000
Master Project: Adsorption of Catechol and Comparative Solutes on Hydroxyapatite

University of Delaware, Newark
Bachelor of Science, Chemical Engineering, Minor in Biology
May 1998
Senior Project: Synthesis, Characterization of Polyurethane Copolymers

Professional Experience

University of Louisiana at Lafayette
Graduate Coordinator for Chemical Engineering, Apr 2013 – present

University of Louisiana at Lafayette
Associate Professor of Chemical Engineering, Aug 2012 – present

University of Louisiana at Lafayette
Assistant Professor of Chemical Engineering, Aug 2006 – Aug 2012

Cornell University, Ithaca, NY
Post-doctoral Research Associate, June 2005 – August 2006

University of Michigan, Ann Arbor
Graduate Research Assistant, Fall 1999 - Spring 2002

University of Delaware, Newark, DE
Undergraduate Research Assistant, Summer 1996- Summer 1997

Honors/ Awards

- UL-Lafayette's Faculty Exceptional Service-Learning Award, May 2013
- College of Engineering's Distinguished Achievement Award, Mar 2004
- Outstanding Poster in Polymer Engineering, Fall 2003
- Award for Research Excellence from Dow Chemical Co., Fall 2002
- Sigma Xi, Research Honor Society, Spring 2002
- Omega Chi Epsilon, member
- AIChE, member

Peer-Reviewed Publications

1. Nikaeen, P, Samadi-Dooki, A, Voyiadjis, G., Zhang, P. Chirdon, W, Khattab, A. "Effect of plastic deformation on the nanomechanical properties of glassy polymers: An experimental study." Mechanics of Materials. 156: May 2021.
2. Schexnayder, P., Baudoin, N., Chirdon, W. "Enhanced oil recovery from denatured algal biomass: Synergy between conventional and emergent fuels." Fuel 287:1 March 2021.
3. Vu, T.; Nikaeen, P.; Chirdon, W.; Khattab, A.; Depan, D. "Improved Weathering Performance of Poly⟨Lactic Acid⟩ through Carbon Nanotubes Addition: Thermal, Microstructural, and Nanomechanical Analyses." Biomimetics 2020, 5, 61.
4. Vu, T., Nikaeen, P, Akobi, M., Depan, D., Chirdon, W. "Enhanced Nucleation and Crystallization in PLA/CNT Composites via Disperse Orange 3 with Corresponding Improvement in Nanomechanical Properties" Polymers for Advanced Technologies. 31:3 Dec 2019
5. Go, L., Fortella, D, Revellame, E, Zappi, M, Chirdon, W, Holmes, W, Hernandez, R. "Biobased chemical and energy recovered from waste microbial matrices" Current Opinion in Chemical Engineering. 26: 65-71. Dec 2019.
6. Zappi, M, Bajpai, R, Hernandez, R, Mikolajczyk, A, Fortela, D, Sharp, W, Chirdon, W, Zappi, K, Gang, D, Nigam, K, Revellame, E. "Microalgae Culturing To Produce Biobased Diesel Fuels: An Overview of the Basics, Challenges, and a Look toward a True Biorefinery Future." Ind. Eng. Chem. Res. 2019, 58, 35, 15724-15746.
7. Cheng, Q., Chirdon, W., Lin, M., Mishra, K. Zhou, X. "Characterization, modeling, and optimization of a single-step process for leaching metallic ions from LiNi1/3Co1/3Mn1/3O2 cathodes for the recycling of spent lithium-ion batteries" Hydrometallurgy 185: May 2019.
8. Depan, D. Khattab, A., Simoneaux, A. Chirdon, W. "Crystallization kinetics of high-density and low-density polyethylene on carbon nanotubes." Polymer Crystallization 2:4 Feb 2019.
9. Vu, T., Katti, K., Chirdon, W. "A Digital Image Flow Meter for Granular Flows with a Comparison of Direct Regression and Neural Network Computational Methods" Flow Measurement and Instrumentation. Jan 2019 https://doi.org/10.1016/j.flowmeasinst.2019.01.014

10. Morshed S. Young, T., Chirdon, W., Zhang, Q, Tatar, J. "Durability of wet lay-up FRP bonded to concrete with nanomodified epoxy adhesives" J Adhesion. DOI: 10.1080/00218464.2018.1556647, Dec 2018.
11. Xu, N., Cai, Y., Peng, L. Qiao, J. Wang, Y., Chirdon, W. Zhou, X. "Superior stability of a bifunctional oxygen electrode for primary, rechargeable and flexible Zn–air batteries" Nanoscale 10: 13626-13637. 2018.
12. Chirdon, W. "The Chem-E-Car as a Vehicle for Service Learning" Chemical Engineering Education V. 51(1) Winter 2017.
13. Depan, D., Hebert, B., Conlin, A., Chirdon, W. and Khattab, A. (2016), Pressure-induced crystallization of low density polyethylene on carbon nanotubes and carbon nanofibers. Polymer Composites. doi: 10.1002/pc.23919
14. Chirdon, W.M. "Utilization of Biorefinery Waste Proteins as Feed, Glues, Composites, and Other Co-Products" Algal Biorefineries, Vol 2: Products and Refinery Design. In press Oct 2015. (Book Chapter)
15. Chirdon, W. M. "Determination of Structural Composite Thermal Properties Using an Oscillating Boundary Temperature." AICHE 2014 Spring Meeting & 10th Global Congress. New Orleans, LA.
16. Chirdon, W. M., Katti, K. "Increasing the Viability of Algae-Based Bio-Fuels through Co-Product Development." AICHE 2014 Spring Meeting & 10th Global Congress. New Orleans, LA.
17. Khattab, A., Liu, C. Chirdon, W. Hebert, C. "Mechanical and thermal characterization of carbon nanofiber reinforced low-density polyethylene composites." J of Thermoplastic Composite Materials, Jan 2012.
18. Chirdon, W.M., Rozas, J.T. "Finite Element Modeling of the Nanoscratching of Polymer Surfaces" TMS Conference Proceedings, March 2012. Orlando, FL.
19. Chirdon, W.M., Patil, A. P. "An oscillating boundary temperature method for the determination of transient thermal conductivity and internal heat generation with a comparison to a transient hot-wire method." *Int J Thermophys*, Vol. 32(10):2010-2026, August 2011.
20. Chirdon, W.M. "POLYMERIZATION SIMULATOR: For Introductory Polymer and Material Science Courses." *Chemical Engineering Education*, Vol. 44, No. 3, Summer 2010. (reprinted by CACHE, summer 2011 http://cache.org/summer-2011-newsletter)
21. Chirdon, W. M., O'Brien, W. J., Robertson, R. E. "Mechanisms of goniochromism: translucent layering, filler alignment, and specular reflection." *Dental Materials*, 25(6): 802-809, June 2009.
22. Phillips, S. H., Aquino, W. A., Chirdon, W. M. "Simultaneous Inverse Identification of Transient Thermal Properties and Heat Sources Using Sparse Sensor Information." *Journal of Engineering Mechanics*. 133 (12) 1341-1351 December 2007.
23. Chirdon, W. M., Aquino, W. A., Hover, K. H. "Measurement of thermal diffusivity of hydrating mortars" *Cement and Concrete Research*. 37 (5): 680-690 May 2007.
24. Chirdon, W. M., O'Brien, W. J., Robertson, R. E. "Fraunhofer diffraction of short-fiber-reinforced composites aligned by an electric field." *Dental Materials*, 22(2): 107-111, Feb 2006.
25. Chirdon, W. M., O'Brien, W. J., Robertson, R. E. "Diffuse reflectance of short-fiber-reinforced composites aligned by an electric field." *Dental Materials*, 22(1): 57-62, Jan 2006.

26. Chirdon, W. M., O'Brien, W. J., Robertson, R. E. "Adsorption of catechol and comparative solutes on hydroxyapatite." *J Biomed Mater Res.*, Part B: 66(2): 532-538, Aug 2003.

US Patent: Chirdon, W. "System and method for treatment of biomass products or residues and resulting composition" US#10,023,778 July 17, 2018.

PhD Students:
Vu Vu, 2020, Sustainable Nanocomposites, Digital Flowmeter using Neural Networks
Peter Schexnayder, current, Enhanced Oil Recovery using Algal Proteins
Nicholas Baudoin, current, Rheology of Algae Proteins and Biopolymers
Chelsea Trahan, current, Adhesives from Wastewater Proteins
Ibrahim Isa, current, Enhanced Oil Recovery using Algal Proteins

MS Students (thesis):
Sandeep Nunna, 2008, Novel Method of Transient Thermal Property Measurment
Deepthi Gandla, 2008, Thermal Properties of Portland Cement Mortars
Abhijeet Patil, 2008, Modeling of Thermal Property Measurement
Rucha Andhare, 2011, Effect of Oscillation Temperature on Mortar Thermal Properties
Richel Carlus, 2011, Enhanced Oil Recovery
Joshua Rozas, 2012, FEM of Nanoscratching of Polymer Surfaces
Ramanarayana Pothula, 2016, Sustainable composites of Sugarcane Bagasse and Algae
Kartik Katti, 2014, Algae-based Cementitious Composites
Garret Thibodeaux, 2018, Algae Protein-Based Drilling Fluids
Alana Guillory, current, Algae-Based Composites using Conventional Wood Fillers

UG Students: (Spring 2021)
Zoe Perez
Emma-Evelyn Armato
Riley Andrus
Hailey Mohammed
Chandler Durio
Joelle Chauhan