

William M. Chirdon
wchirdon@louisiana.edu
Office: 216B Madison Hall
Ph#: (337) 482-6564

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

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.

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.

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.

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.

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.

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.

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>)

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.

Chirdon, W.M., Rozas, J.T. "Finite Element Modeling of the Nanoscratching of Polymer Surfaces" TMS Conference Proceedings, March 2012. Orlando, FL. (Invited paper).

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.

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.

Chirdon, W. M. "Determination of Structural Composite Thermal Properties Using an Oscillating Boundary Temperature." AICHE 2014 Spring Meeting & 10th Global Congress. New Orleans, LA.

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)

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

Chirdon, W. "The Chem-E-Car as a Vehicle for Service Learning" *Chemical Engineering Education* V. 51(1) Winter 2017.

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.

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>

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.

Cheng, Q., Chirdon, W., Lin, M., Mishra, K. Zhou, X. "Characterization, modeling, and optimization of a single-step process for leaching metallic ions from $\text{LiNi}_{1/3}\text{Co}_{1/3}\text{Mn}_{1/3}\text{O}_2$ cathodes for the recycling of spent lithium-ion batteries" *Hydrometallurgy, In-Press* 2019.

**Theses
Chaired**

Pothula, Ramnarayan, "Evaluation of Mechanical Properties of Algae-Based Composites" University of Louisiana at Lafayette. Fall 2016.

Katti, Kartik, "Assessment of the Mechanical Properties of Algae-Based Composites." University of Louisiana at Lafayette. Summer 2014.

Gandla, Deepthi, "Investigation of Transient Thermal Properties of Portland Cement Mortar: Effect of Water-to-Cement and Cement-to-Mortar Ratios on the Thermal Diffusivity, Thermal Conductivity, and Intrinsic Heat Generation" University of Louisiana at Lafayette. Fall 2008.

Nunna, Sandeep, "A Proposed Experimental Method for Determining Transient Thermal Properties of Reactive Solids" University of Louisiana at Lafayette. Fall 2008.

Patil, Abhijeet, "Development of a Method for the Determination of Transient Thermal Properties of Exothermic Cementitious Composites Using Finite Element Models" University of Louisiana at Lafayette. Fall 2008.

Andhare, Rucha "Effect of Time-Scale on the Thermal Properties of Cementitious Composites" University of Louisiana at Lafayette. Fall 2011.

**Posters
Presented**

Chirdon, W.M. "Teaching Philosophy" presented at the ASEE Conference. Pullman, WA. July 2007.

Chirdon, W. M., Aquino, W., Hover, K. C. "Remote Sensing of Concrete Structures." presented at IC Postdoctoral Research Colloquium. McLean, VA. April 2006.

Chirdon, W. M., O'Brien, W. J., Robertson, R. E. "Anisotropic Translucency in Composites Aligned by Dielectrophoresis." presented at Macromolecular Science and Engineering Symposium. Ann Arbor, MI. Oct. 2003.

Chirdon, W. M., O'Brien, W. J., Robertson, R. E. "Fraunhofer Diffraction of Composites Aligned by Dielectrophoresis." presented at Macromolecular Science and Engineering Symposium. Ann Arbor, MI. Oct. 2002.

Chirdon, W. M., O'Brien, W. J., Robertson, R. E. "Adsorption of Catechol and Comparative Solutes on Hydroxyapatite." presented at ACS Regional Meeting at Eastern Michigan University. Ypsilanti, MI. June 2002.

Conference Presentations

Speaker, "Production of adhesives from microalgae cakes" LAGCOE conference, October 2017. Lafayette, LA.

Speaker, "Determination of Structural Composite Thermal Properties Using an Oscillating Boundary Temperature." AIChE Conference: 2014 Spring Meeting and 10th Global Congress on Process Safety, April 2014. New Orleans, LA.

Speaker, "Increasing the Viability of Biofuels through Co-Product Development." AIChE Conference: 2014 Spring Meeting and 10th Global Congress on Process Safety, April 2014. New Orleans, LA.

Invited Speaker, "Finite Element Modeling of the Nanoscratching of Polymer Surfaces" TMS Conference, March 2012. Orlando, FL.

The Chemical Car as a Tool for the Promotion of Math, Science, and Environmental Awareness in Louisiana Schools. 5th Annual Service Learning Conference, Regional, Baton Rouge, LA. August 2010

Fundamentals of Heat Transfer with a Comparison of Novel and Conventional Methods for the Determination of Thermal Properties. International Week. Pole University, Paris, France, March 2009.

Panel Speaker, IC Postdoctoral Research Fellowship Program, April 28, 2008.

Presenter, ACBM/NIST Computer Modeling Workshop, June 16-18, 2008.

Invited Speaker, UL Physics Seminar Series, March 6, 2008.

Remote Sensing of Concrete Construction, Intelligence Community Postdoctoral Research Fellowship Colloquium, Chantilly, VA, April 30-May 3, 2007.

Modeling of Heat Generation and Transfer in Concrete for Remote Sensing Applications, ACBM/NIST Computer Modeling Workshop, Gaithersburg, MD, June 2005.

Conference Attendance

(Fall 2006 - Present)

Collaborative Scientific Research in Relation to the Gulf Oil Spill Conference. Attendee. November 2010. New Orleans, LA.

5th Annual Service Learning Conference, Regional, Baton Rouge, LA. Speaker. "The Chemical Car as a Tool for the Promotion of Math, Science, and Environmental Awareness in Louisiana Schools." August 2010.

AIChE SW Regional Conference. (Attendee, Judge) April 10, 2010

AIChE National Student conference. Nashville, TN. (Attendee, Safety Training) November 2009.

Macromolecular Science and Engineering Symposium. University of Michigan, Ann Arbor. Attendee and Poster Judge. October 2009.

4th Annual Service Learning Conference, Regional, Baton Rouge, LA. Attendee. August 2009.

Fundamentals of Heat Transfer with a Comparison of Novel and Conventional Methods for the Determination of Thermal Properties. International Week. Pole University, Paris, France, March 2009.

Panel Speaker, IC Postdoctoral Research Fellowship Program, April 28, 2008.

ACBM/NIST Computer Modeling Workshop, Presenter, June 16-18, 2008.

Invited Speaker, UL Physics Seminar Series, March 6, 2008.

ASEE Summer School for Young Faculty. Presenter. "Teaching Philosophy" July 2007.

Remote Sensing of Concrete Construction, Intelligence Community Postdoctoral Research Fellowship Colloquium, Chantilly, VA, April 30-May 3, 2007.

Courses Taught

- ENGR 305: Transport Phenomena (undergraduate)
- CHEE 601: Transport Phenomena (graduate)
- CHEE 317: Materials of Engineering
- CHEE 400: Process Simulation
- CHEE 405(G): Process Heat Transfer
- CHEE 417(G): Polymer Engineering

Teaching Accomplishments

Created 1-credit service-learning course for Chem-E-Car and Outreach - 2009.

Organized tours of MEPOL and Westlake Chemical Co. for Polymer Engineering course. 2009.

Added interdisciplinary team projects and MatVis tutorial to help students visualize crystal structures by using this 3-D visualization software. 2008

Added Excel lectures to “Process Heat Transfer” course on heat exchanger design and 2-D heat conduction in a fin. 2008

Added Aspen heat exchanger design to “Process Heat Transfer” course - 2008

Created an Etomica molecular simulation of polymerization reactions to be used by “Materials of Engineering” and “Polymer Engineering” students.
Visit: <http://rheneas.eng.buffalo.edu/wiki/Polymerization> - Summer 2008.

Attended ASEE Summer School for Faculty in order to further develop teaching skills, techniques, and strategies. Summer 2007

Enriched “Process Heat Transfer” course with lecture on finite element analysis, partially funded by an educational mini-grant. Spring 2007.

Developed a new graduate course, “CHEE 417: Polymer Engineering,” from several textbooks and courses from graduate work. Spring 2007.

Demonstrated a polymerization reaction for “Materials of Engineering” and “Polymer Engineering” courses, funded by a mini-grant. Fall 2007.

Used mini-grant to purchase ABAQUS FEA software for demonstration of finite element analysis to heat transfer students. Spring 2007.

University Service

Elected to represent Assistant Professors in the Faculty Senate - Fall 2010

Safety Judge -AIChE Chem-E-Car Competition (SW Region) - F all 2010

AIChE Student Conference Poster Judge – Spring 2009

Graduate Student Poster Judge – Fall 2009

Graduate Advisory Committee – Fall 2009- present

Project Coordinator for ULS SERVES grant – Jan 2009 –Dec 2009

Faculty Advisory Committee, Fall 2008 – present.

Webmaster for AIChE local Chapter, 2008 - present.

Engineering Chairperson of Science Olympiad. Organized professors to conduct events and conducted the “Storm the Castle” and “Simple Machines” events as outreach to local mid thru high school students. Presented recruiting poster for the College of Engineering during the event. 2007 - present.

Faculty Advisor for AIChE student chapter from Spring 2007 - present.

Assisted Dr. Garber with ABET surveys, revision of educational objectives, and minor miscellaneous duties related to ABET visit.

Judge for the quiz bowl during Engineering Week.

Serve on all hiring committees for CHEE faculty

**Community
Service**

Area United Methodist Thanksgiving for the Homeless.

Science Lab for VBS at First United Methodist.

Family Promise of Acadiana.

**Service to
Engineering
Profession**

NSF Panelist for review of Thermal Transport Process program.

Reviewer for *International Journal of Thermal Sciences*.

Reviewer for *Industrial & Engineering Chemistry Research*

Reviewer for *Materials Technology: Advanced Performance Materials*