

# Christina M. Othon

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## Education

December 2005 PhD Physics, Univ. of Nebraska-Lincoln “*Switching Dynamics of Ferroelectric Langmuir-Blodgett Copolymer Films*”

May 2002 MS Physics, Univ. of Nebraska-Lincoln

May 2000 BS Double Major: Physics and Astronomy, Univ. of Iowa

## Employment

**Associate Professor of Physics**, Jan. 2018 – Present, Ripon College, Ripon WI.

**Visiting Professor of Physics**, Aug. 2017 to Dec. 2017, **Ripon** College, Ripon WI.

**Assistant Professor of Physics**, July 2010-July 2017, Wesleyan University, Middletown CT.

**Visiting Assistant Professor**, (March-July 2014) École Polytechnique Fédérale de Lausanne (EPFL) Lausanne, Switzerland.

**Postdoctoral Scholar**, 2007-2010 California Institute of Technology with Prof. Ahmed H. Zewail, Physical Biology Center for Ultrafast Science and Technology, Pasadena, CA.

**National Research Council Postdoctoral Research Associate**, 2006-2007 Naval Research Laboratory Dr. Bradley Ringeisen, Chemistry Department, Washington D.C.,

**Graduate Research Assistant**, 2001-2005 University of Nebraska-Lincoln  
Prof. Stephen Ducharme, Dept. Physics and Astronomy, Lincoln, NE.

## Honors and Awards

2022 Ripon College Student Senate Faculty/Staff Mentor Award

2015 Committee for the Status of Women in Physics Child Travel Award

2006 National Research Council Postdoctoral Research Associateship

2001 Student Assistantship in Research Scholarship (STARS)

2000 Richard H. Larson Fellowship

1996-2000 Opportunity at Iowa Scholar

## Professional Memberships

American Association of Physics Teachers - Member

National Mentoring Community – Mentor

American Physical Society

Biophysical Society

Materials Research Society

July 2016-Present

September 2016-2020

February 2002-Present

January 2012- July 2015

August 2005-July 2009

## **Teaching and Mentoring**

### *Ripon College Teaching:*

- PHY330 Classical Mechanics Fall 2019, Fall 2021
- PHY200 Topics: Structure of Materials Fall 2019
- PHY118/218/BIO200 Topics in Biophysics & Biomaterials Spring 2019
- PHY441 Experimental Laser Optics Spring 2019, Spring 2023
- PHY502 Senior Seminar Spring 2019, Spring 2022, Spring 2023
- PHY501 Senior Seminar Fall 2018, Fall 2020, Fall 2021, Fall 2022
- PHY440 Advanced Laboratory and Computational Physics Spring 2018
- CTL120 Life and Death in the Universe Fall 2018, Spring 2020, Fall 2021, Spring 2022
- PHY100 Topics in Biophysics & Biomaterials Spring 2018
- PHY120 Astronomy - Fall 2017
- PHY131/171/172 General Physics Labs Fall 2017, Spring 2018, Fall 2018, Spring 2019, Fall 2019, Spring 2020, Fall 2020, Fall 2021, Fall 2022
- PHY171/131 General Physics I - Fall 2017, Fall 2018, Fall 2019, Fall 2020, Fall 2021, Fall 2022
- PHY340 Electricity and Magnetism Fall 2017, Spring 2020, Spring 2022

### *Wesleyan University Teaching:*

- Phys313 Classical Dynamics-Spring 2015, 2016, 2017
- FGSS420 Women of Color in STEM Student Forum 2015
- Phys113 General Physics I- Fall 2013, 2014, 2015, 2016 implemented a course overhaul and the introduction of problem based learning sections.
- Phys316 Thermal and Statistical Physics- Spring 2011, 2012, 2013
- Phys217 Chaos-Fall 2011, 2012
- Phys342 Experimental Optics – Fall 2010, 2011
- Phys505 Advanced Topics in Condensed Matter Physics – Fall 2010
- Phys518 Molecular Biophysics Journal Club II Spring 2015
- Phys521 Physics Colloquium Fall 2016, 2015, 2013
- Phys550 Advanced Research Seminar, Grad Spring 2016, 2015
- Phys549 Advanced Research Seminar, Grad Fall 2016, 2015
- Phys421 Undergraduate Research Fall 2012
- Phys424 Advanced Research Seminar, Ugrad Spring 2016, 2015
- MBB410 Senior Thesis Tutorial Spring 2016
- Phys505 Condensed Matter Seminar Fall 2011
- Phys506 Condensed Matter Seminar Spring 2012
- Phys592 Individual Tutorial, Grad Spring 2011, 2013
- Phys502 Individual Tutorial, Grad Spring 2012
- Phys591 Advanced Research Seminar, Grad Fall 2010, 2011
- Phys592 Advanced Research Seminar, Grad Spring 2011

### *Mentoring at Ripon College*

- Number of Major Advisees 3
- Number of Pre-Major Advisees 22
- Undergraduate Thesis Supervision: Liam Peterman, Jacob Lange, John Poulakos, Lydia Wiley-Deal, Garrett Radke, Hunter Simmers, Emily Tetzlaff, Ryan Anthony-Ceres, Antony Gradillas, Jared Zeman, Jacob Thompson

- Undergraduate Research Students: Antony Gradillas '19; Julia Goeks '21; Emily Tetzlaff '20; Thomas Poulette '20, John Poulakos '22, Brianna Bembenek '22. Ian Murray '23, Ben Hildebrand '24, Emily Karvala '24, Alec Bartoletti '24

#### *Mentoring at Wesleyan*

- Number of Major Advisees 36
- Number of Pre-Major Advisees 20
- Number of Graduate Advisees 4
- Undergraduate Thesis Reader 5 student theses
- Graduate Thesis Committee: Hamed Emamy
- PhD Students mentored: Neda Dadshvand graduated December 2015, Nimesh Shukla graduated May 2018
- Past Undergraduate Research Students: Hanna Morales '17, Danielle Levinson '19, Emily Sinkler '19, Zhi Ming Gan '18, Gemma Shay '18, Wyatt Rees '18, Amardeep Keshari '18, Lee Chen '15, Inha Cho '15, LaNell Williams '15, Oscar Takabvwira '14, Nora Dumont '13, German Exchange Program Students: Philip Schmidt '14, Felix Schupp '12, Benjamin Merkt '11, and Julian Heusser '11.
- Faculty advisor for McNair Scholar-LaNell Williams '15 (Graduate program at Harvard '23), co-mentored Hanna Morales '17 (now enrolled in the Chemistry Graduate Program at Stony Brook University)

#### **External Research Grants**

*"RUI: Solubility and Dynamic Implications for Structurally Homologous Disaccharides"* NSF Chemical Structure, Dynamics, and Mechanisms A (CSDM-A), \$256,000. Funding Period 07/23-06/2027, Role: PI; status: recommended for funding 07/18/2023.

*"Quantum Optics and Quantum Entanglement Experiments"* Jonathan F. Reichert Foundation ALPhA Immersion Equipment Grant. \$6707. Funding Period 10/18/22-06/30/23, Role: PI. Status: Funded, ended.

*"Examining Hydration Mechanisms of Osmolytes for Food Stabilization"* Wisconsin Space Grant Consortium, external funding \$9,150, institutional cost match \$10,942 personnel time. Funding Period 01/01/21-05/30/21, Role: PI. Status: Funded, ended.

*"HAWKS Scholars Program: A Model for Supporting Student Success in STEM"* NSF S-STEM, \$648,156. Funding Period 09/01/19-07/2024, Role: PI; status: unfunded.

*"Water Structuring in the Presence of Compatible Osmolytes"* American Philosophical Society Franklin Research Grant, \$6000. Funding Period 02/01/2019-01/31/2020; status: unfunded.

*"Helping Anchor With Knowledge in STEM: A Model for Supporting Student Success in STEM"*, NSF S-STEM, \$649,485. Funding Period 08/2018-07/2023, Role: Co-PI; status: unfunded.

*Beckmann Scholars Program Application*, \$104,000. 07/2019-06/2022. Role: Senior Personnel unfunded.

**Unfunded proposals from my previous institution are not listed for brevity.**

*"Doctoral Studies in Molecular Biophysics"*, NIH 5T32GM008271-26, Beveridge (PI) 09/30/88-06/30/16, Role: Senior Personnel

*"Academy for Project Based Teaching and Learning"*, Deirker (PI) 07/01/15-08/31/18. Davis Educational Foundation, Role: Senior Personnel

Petit Family Foundation *"Support for the 2016 Northeast Conference for Undergraduate Women in Physics,"* \$8,768. Funding period: 07/01/2015 - 02/30/16 with Meredith Hughes, Wesleyan University. Role: Lead-PI

Petit Family Foundation *"Green Street Girls in Science Summer Camp,"* \$12,500. Funding period: 07/01/2015 - 06/30/16 with Sara MacSorley, Ruth Johnson, and Christina Othon, Wesleyan University. Role: Co-PI

CT Space Grant STEM Education Programming Grant *"Hosting the Conference for Undergraduate Women in Physics at Wesleyan"*, \$9,420. Funding Period: 09/01/2015-01/31/2016, with Meredith Hughes. Role: Co-PI

Petit Family Foundation *"Green Street Girls in Science Summer Camp (pilot),"* \$10,000. Funding period: 07/01/2014 - 06/30/2015 with Sara MacSorley, Ruth Johnson, and Christina Othon, Wesleyan University. Role: Co-PI

*"Regulating Protein Stability in Microgravity Environments"* Faculty Collaborative Grant, CT Space Grant Consortium, with Erika Taylor \$12,000 (2014). Ended 12/31/2014. Role: Lead PI.

*"Osmoregulation for Microgravity Environments"* CT Space Grant Consortium, \$20,000. (2012) Role: Lead PI

Ocean Optics Educational Grant, \$1800 for the purchase of a UV-vis/Fluorescence spectrometer. (2010) Role: PI

### **Institutionally Supported Projects**

*"Conference: Alpha Laboratory Immersions Experiments on Photon Quantum Mechanics"* Ripon College Travel Grant (June 2021). \$750

*"Conference: Frontiers in Water Biophysics"* Ripon College Travel Grant (April 2019). \$1200

*"Conference: American Association of Physics Teachers 2018 National Meeting"* Ripon College Travel Grant (Feb. 2018). \$700

*"Hands-On Activities for Biophysics"* Ripon College Curriculum Development Funds. (Oct. 2017) \$500

*"Regulating Protein Stability in Microgravity Environments"* Faculty Collaborative Grant, CT Space Grant Consortium, with Erika Taylor, Wesleyan contribution \$17,662 (2014). Ended 12/31/2014. Role: Lead PI.

*"Osmoregulation for Microgravity Environments"* CT Space Grant Consortium, Wesleyan contribution \$30,000. (2012) Role: Lead PI

*"Fluorescence Recovery After Photobleaching for Measurement of Lipid Lateral Diffusion",* Wesleyan Grants in Support of Scholarship Project Grant, amount approved \$3000. (2014) Role: PI

*"Imaging Detector for Fluorescence Microscope"* Wesleyan Grants in Support of Scholarship, amount approved \$2500. (2011) Role: PI

*"Wide-Field Fluorescence Microscope for the Study of Membrane Morphology and Dynamics"* Wesleyan Grants in Support of Scholarship, amount approved \$2500. (2010) Role: PI

*Departmental Start-up Grant*, Wesleyan University, Othon (PI) 07/01/2010 Research Initiation Funds. The purpose of this grant is to set up the PI's laboratory and fund preliminary studies needed to collect data in order to compete for extramural research support.

*"Improving Under-represented Minority and Women Participation in Physics",* Wesleyan Grants in Support of Scholarship Teaching and Pedagogy Grant, \$1000 (2013), enabled the hiring of 8 dedicated course assistants to lead problem based learning sessions. Role: PI

**Publications** (Ripon College Undergraduate student coauthors appear with a (\*) next to their name, whereas Wesleyan Undergraduate Students have a (\*\*) next to their name, Wesleyan Graduate students appear with a (+) next to their name). All Journals are peer reviewed unless otherwise noted, Book Chapters were invited and type of review is listed, and the patent underwent independent review.

25. **Othon, C. M.** *Capturing the Random Walk with Toys*. The Physics Teacher, **61** (2), 122-123. (2023). Online Featured Article February 01, 2023. <https://doi.org/10.1119/5.0055904>
24. Shukla, N.; Bembenek, B\*.; Taylor, E.A.; **Othon, C.M.** *Conformational Consequences for Compatible Osmolytes on Thermal Denaturation*. Life, **11**, 1394. (2021) Invited Article <https://doi.org/10.3390/life11121394>
23. N. Shukla<sup>+</sup>, C.J.S. Hect<sup>\*\*</sup>, J. Goeks\*, E. A. Taylor, **C. M. Othon** "Hydration Dynamics in Solutions of Cyclic Polyhydroxyl Osmolytes", Journal of Physical Chemistry B, **123** (40), 8472-8479. (2019)
22. N. Shukla<sup>+</sup>, E. Pomarico, C. J. S. Hecht<sup>\*\*</sup>, E. A. Taylor, M. Chergui, **C. M. Othon** "Hydrophobic interactions of sucralose with protein structures", Arch. Biochem. Biophys., **639**, 38-43. (2018)
21. N. Dadashvand<sup>+</sup> and **C. M. Othon** "Temperature Dependent Rotational Correlation in Lipids", Physical Biology, **13** (6), 066004 (2016).
20. N. Shukla<sup>+</sup>, E. Pomarico, L. Chen<sup>\*\*</sup>, M. Chergui, and **C. M. Othon** "Retardation of Bulk Water Dynamics by Disaccharide Osmolytes", J. Phys. Chem. B, 2016, **120** (35), pp 9477–9483. (2016)
19. L. Chen<sup>\*\*</sup>, N. Shukla<sup>+</sup>, I. Cho<sup>\*\*</sup>, E. Cohn<sup>+</sup>, E. A. Taylor, **C. M. Othon**, "Sucralose Destabilization of Protein Structure", J. Phys. Chem. Lett. **6**, 1441–1446 (2015). 10.1021/acs.jpclett.5b00442. Featured in November 2015 Issue of "Staying Current: Formulation of Biopharmaceuticals." Legacy BioDesign LLC

18. N. Dadashvand<sup>+</sup>, L. A. Williams<sup>\*\*</sup>, **C. M. Othon**, “*Heterogeneous rotational diffusion of a fluorescent probe in lipid monolayers*”, *Structural Dynamics*, **1**, 054701 (2014); doi: 10.1063/1.4894379.
17. B. R. Ringeisen, **C. M. Othon**, U.S. Patent No. **8,101,247**, *Sub-Micron Laser Direct-Write*, (2012).
16. **C. M. Othon**, S. Ducharme, “*Polarization patterning by laser-induced phase change in ferroelectric polymer films*”, *Applied Physics A*, **104** 727-731 (2011).
15. B. R. Ringeisen, **C. M. Othon**, X. Wu, D. B. Krizman, M. M. Darfler, J. J. Anders, and P. K. Wu, “*Biological Laser Printing (BioLP) for High resolution Cell Deposition*”, *Cell and Organ Printing*, Springer, New York, Eds. B. R. Ringeisen, B. J. Spargo, and P. K. Wu (2010). (editorial review)
14. T. H. Yoo, O.-H. Kwon, **C. M. Othon**, J. Van Deventer, D. Tirrell, A. H. Zewail, *Hydration Dynamics at Fluorinated Protein Surfaces*, *Proceedings of the National Academy of Sciences* **107** 17101-17106 (2010).
13. **C. M. Othon**, O.-H. Kwon, M. M. Lin, A. H. Zewail, *Solvation in protein (un)folding: Effect of local and bulk dynamics in the melittin tetramer-monomer transition*, *Proceedings of the National Academy of Sciences* **106** 12593-12598 (2009).
12. O. F. Mohammed, O.-H. Kwon, **C. M. Othon**, A. H. Zewail, *Charge Transfer Assisted by Collective H-Bonding Network Dynamics*, *Angewandte Chemie International Edition* **48** 6251-6256 (2009).
11. B. Ringeisen, **C. Othon**, J. Barron, P. Wu, *The Evolution of Cell Printing*, *Fundamentals of Tissue Engineering and Regenerative Medicine*, Eds. Meyer, U., Meyer, Th., Handschel, J., Wiesmann, H.P. ; 613-631 (2009). (editorial review)
10. **C. M. Othon**, A. Laracuente, H. D. Ladoucuer, B. R. Ringeisen, *Sub-Micron Parallel Laser Direct-Write*, *Applied Surface Science* **255** 3407-3413 (2008).
9. **C. M. Othon**, J. Kim, S. Ducharme, V. M. Fridkin, *Switching Kinetics of Ferroelectric Nanomesas*, *Journal of Applied Physics* **104** 054109 (2008). Featured in the Virtual Journal of Nanoscale Science and Technology **18**, issue 12.
8. **C. M. Othon**, X. Wu, J. J. Anders, B. R. Ringeisen, *Single-cell printing to form three-dimensional lines of olfactory ensheathing cells*, *Biomedical Materials* **3** 034101 (2008).
7. B. R. Ringeisen, J. A. Barron, D. Young, **C. M. Othon**, H. D. Ladoucuer, P. K. Wu, B. J. Spargo. “*Laser Printing Cells*”, *Virtual Prototyping & Bio Manufacturing in Medical Applications*, Springer, New York, Eds. Bopaya Bidanda and Paulo Bartolo (2007). (editorial review)
6. B. R. Ringeisen, **C. M. Othon**, J. A. Barron, H. D. Young, and B. J. Spargo, *Jet-based methods to print living cells*, *Biotechnology Journal* **1**, 930-948 (2006).

5. K. Kraemer, A. Sorokin, **C. Othon**, S. Ducharme, and V. Fridkin, *The effects of humidity on the dielectric response in ferroelectric polymers made by Langmuir-Blodgett deposition*, *Ferroelectrics*, Letters Section **32**, 85-89 (2005).
4. S. Ducharme, T. J. Reece, **C. M. Othon**, and R. K. Rannow, *Ferroelectric Polymeric Langmuir-Blodgett Films for Non-Volatile Memory Applications*, *IEEE Transactions on Device and Materials Reliability*, **5**, 720-735 (2005).
3. **C. M. Othon**, F. B. Bateman, and S. Ducharme, *Effects of electron irradiation on the ferroelectric properties of Langmuir-Blodgett copolymer films*, *Journal of Applied Physics* **98**, 14106-14112 (2005).
2. **C. M. Othon** and S. Ducharme, *Electron Irradiation Effects on Ferroelectric Copolymer Langmuir-Blodgett Films*, *Ferroelectrics* **304**, 9-12 (2004). (conference proceedings paper, editorial review only).
1. P. A. Jacobson, L. G. Rosa, **C. M. Othon**, K. Kraemer. A. V. Sorokin, S. Ducharme, and P. A. Dowben, *Water absorption and dielectric changes in crystalline poly(vinylidene fluoride-trifluoroethylene) copolymer films*, *Applied Physics Letters* **84**, 88-92 (2004).

## College Service and Community Outreach

### *Ripon College Service, Committees and Faculty Development:*

- Peer Reviewer for Erin Munroe-Krull Tenure Evaluation
- Admissions open house panel member April 15, 2023
- External Tenure Reviewer for Merideth Frey, Sarah Lawrence College January 3, 2023
- University of Wisconsin, K Delta teaching certificate mentor to Kevin Stindt PhD Candidate in Biophysics
- Science Center Renovation, Co-Chair Summer 2022-present
- Educational Policy Committee Member Fall 2021-present.
- Physics Department Chair – Fall 2022.
- Ripon SOAR Program – Faculty Co-coordinator Summer 2021, 2022
- Business-Exercise Science Faculty Search in Sports Management Fall 2021
- Ripon College Summer Research Program – Faculty Coordinator Summer 2019, 2020
- NSF sponsored: Living Physics Portal, Introductory Physics for the Life Sciences Curriculum Exchange, Spring May 2020, role participant.
- NSF sponsored eAlliance ADVANCE project, “*Resonant Phenomena: Mutual Mentoring to Combat Isolation in Physics*”, Spring 2020-present role participant.
- Higher Learning Commission accreditation working group Core 1 Spring 2019
- FLC Faculty Learning Community on Quantitative Reasoning Spring 2019 to Fall 2019
- Senior Showcase faculty committee Spring 2019, 2020
- Classroom Redesign Committee Spring 2019
- Mark & Janice Franzen Professorship in Applied Mathematics Search 2018 & 2019
- Catalyst 120 Assessment Team Summer 2018
- Private College Preview Day July 9<sup>th</sup> 2018
- Ripon College Recruiting Spring Reception in Oak Brook, IL March 11, 2018

- FLC Faculty Learning Community on Active Learning Spring 2018
- Ripon Society of Physics Students Faculty Advisor Fall 2017 to Present
- Laser Safety Officer: Provided training sessions for Ripon Staff on the potential hazards lasers operated on Campus; provide annual training for summer research students and students enrolled in PHY441 Experimental Laser Optics, Fall 2017 to Present

*Ripon Community Outreach:*

- Collaboration with Nick Goeldi, Ripon High School Physics Teacher, for deployment of Magnetometer
- Industry 4.0 Conference and Tour at Lambeau Field May 20, 2022
- Discovery Pre-school Science Day Campus Tour participant Spring 2018 & 2019
- Organized and Edited Poster Presentations for “Silent Skies” performances October 2018
- Invited Opinion “Is Sucralose Safe?” Thinkable.org & MetaFact December 2018
- Murray Park Elementary 5th grade Science classroom Visit – Presentation on The Search for Life on the Outer Planets April 2019
- Markesan Girl Scouts Women In Science Panel Discussion December 2017
- The “Great American Eclipse” Celebration in Ripon Wisconsin, Monday August 21, 2017. Lead organizer.

*Journal Reviewer:*

- Journal of Physical Chemistry
- Journal of American Chemical Society
- Journal of Applied Physics
- Applied Physics Letters
- Proceedings of the National Academy of Sciences
- Journal of Molecular Liquids
- Physical Chemistry Chemical Physics
- Food Research International
- Journal of Thermal Biology

*Service and Outreach at Wesleyan University*

- 2018 Site Selection Committee member for APS 2018 Conference for Undergraduate Women in Physics
- National Organizing Committee member for APS 2016 Conference for Undergraduate Women in Physics
- Local Organizing Committee Chair for Wesleyan APS 2016 Conference for Undergraduate Women in Physics being held January 15-17, 2016
- Co-Founder and faculty participant in *Girls in Science Summer Camp* at Green Street Arts Center (2014 & 2015)
- Search Committee for Center for Pedagogical Innovation Instructional Technologist (April 2015)
- Member of the Academy for Project Based Learning (2015, 2016)
- WesMASS Summer Physics Short Course Facilitator and Student Mentor (2014, 2015, 2016)
- Women of Color in STEM student forum Faculty Advisor FGSS420 (Spring 15)
- Wesleyan University Laser Safety Officer and Chair of the Laser Safety Committee (2010-2017)



- Member of Biophysics Program
- Member of College of Integrative Sciences
- Physics Graduate Recruitment and Admissions Committee (2014, 2015, 2016)

### **Research Student Awards and Recognitions:**

Hanna Morales Wesleyan '17 - Received Directed Campus Scholarship from the Connecticut Space Grant College Consortium for Summer of 2017.

Eduardo Vega Lozada (Wesleyan Grad Student) – Molecular Biophysics Training Grant Research Fellow 2015

Inha Cho Wesleyan '15 - awarded the Bertmann Prize for physics in 2015, the top physics undergraduate recognized for both her scholarship and leadership within the department.

Neda Dadashvand (Wesleyan Grad Student) - awarded the Shirley Chan Student Travel Award from the Division of Biological Physics (DBIO) of the American Physical Society 2015

LaNell Williams Wesleyan '15 - awarded the Edward Beckham Excellence in Science Award in 2014. McNair Scholar 2014-2015. Named at 2016 NSF Graduate Fellow.

Lee Chen Wesleyan '15- Received Directed Campus Scholarship from the Connecticut Space Grant College Consortium for Summer of 2013.

### **Dissertation and Honors Theses Advised**

Nimesh Shukla “*Hydration Dynamics and its Impact on Osmoprotection by Disaccharide Osmolytes.*” Ph.D. Physics Wesleyan University, May 2018.

Hanna Morales (co-mentored), “*Syntheses of Fluorinated Trehalose Derivatives to Test Their Impact on Protein Stability*” Awarded Honors in Chemistry, May 2017. Currently enrolled at Stony Brook University in the Chemistry Graduate Program.

Neda Dadashvand, “*Heterogeneous Rotational Diffusion in Lipid Monolayers*” Ph.D. Physics Wesleyan University, December 2015.

Inha Cho, “*Investigating Disaccharide Hydration Dynamics by Nanosecond- and Femtosecond-resolved Fluorescence Spectroscopy*” Awarded High Honors in Physics, May 2015. Currently Enrolled in the Biophysics Graduate Program at Caltech.

Lee Chen, “*Bio-preservation Properties of Disaccharide Osmolytes on Protein Structure*” awarded Honors in Molecular Biology and Biochemistry, May 2015.

### **Invited Talks:**

16. *“Preferential Exclusion and Hydration Dynamics in Compatible Osmolyte Solutions”* APS March Meeting Invited Session (March, 2022)
15. *“Hydration Dynamics in Osmolyte Biopreservation”*, 5<sup>th</sup> International Frontiers in Water Biophysics Conference, Erice Italy July 21, 2019.
14. *“Collective Dynamics and Hydration in Biological Self-Assembly”* Ripon College (March 2017)
13. *“Collective Dynamics and Hydration in Biological Self-Assembly”* Eastern Connecticut State University (January 2017)
12. *“Collective Dynamics and Hydration in Biological Self-Assembly”* University of Rhode Island (March 2016)
11. *“Sucralose Destabilization of Protein Structure”* APS March Meeting Press Conference and Webcast (March 2015)
10. *“Manipulating Protein Stability Through Solvent Dynamics”* École polytechnique fédérale de Lausanne (March 2014)
9. *“Solvent Dynamics: Governing Structure in Biological Systems”* Queens College (March 2012)
8. *“Solvent Dynamics: Governing Structure in Biological Systems”* Southern Connecticut State University (November 2011)
7. *“Solvent Dynamics: Governing Structure in Biological Systems”* University of Iowa (October 2011)
6. *“Ultrafast Solvation: Investigating Molecular Forces in Protein Folding”* Trinity College (November 2010)
5. *“Investigating Molecular Forces at the Protein Surface”*, University of Wisconsin-Eau Claire (February, 2010)
4. *“Ultrafast Solvation: Investigating Molecular Forces in Protein Folding”* Wesleyan University (January, 2010)
3. *“Laser Processing From Nanotech to Neurology”* University of Nebraska Lincoln MRSEC Symposium (February 2007)
2. *“Laser Processing From Nanotech to Neurology”* Wayne State University (February 2007)
1. *“Laser Processing From Nanotech to Neurology”* University of Wisconsin-Stevens Point (March 2007)

**Contributed Research Presentations** Presenting author listed first. (Ripon College Undergraduate student coauthors appear with a (\*) next to their name, whereas Wesleyan Undergraduate Students have a (\*\*) next to their name, Wesleyan Graduate students appear with a (+) next to their name):

44. Lisa Zeman and Christina Othon “*Is Active Learning Accessible?*” Brown Bag Lunch Series Ripon College, oral presentation (February 2023).
43. Benjamin Hildebrand\*, “*Stabilization of Proteins Against Thermal Denaturation*” SOAR Research Symposium poster presentation (2022)
42. Christina Othon, “*The Sweet Life: Survival, Adaptation, and Sugar*”, Faculty Scholarship Series Sabbatical Presentation, Ripon College February 22, 2022
41. John Poulakos\*, “*Alignment and Testing of a Non-linear Optical System*” SOAR Research Symposium poster presentation (2021)
40. Christina Othon, Wisconsin Space Grant Consortium, “*Examining Hydration Mechanisms of Osmolytes for Food Stabilization*” Oral Presentation (Aug. 13, 2021) Milwaukee MSOE
39. Ian Murray\*, Wisconsin Space Grant Consortium- Student Poster Presentation “*Automation of Hydration Dynamics Data Collection*” (Aug. 13, 2021) Milwaukee MSOE
38. C. M. Othon, “*An Inquiry Based Biophysics Course for Non-Majors*” Wisconsin Association of Physics Teachers Conference, poster presentation (November 2019).
37. Julia Goeks\*, “*Effects of Sugar Concentration on Thermal Denaturation*”, PhysCon, Providence RI, poster presentation (November 2019)
36. Emily Tetzlaff\*, “*Constructing a Fluorescence Up-conversion Apparatus*” Summer Research Symposium poster presentation (2019)
35. Thomas Poulette\*, “*Protein Stabilization by Disaccharide Sugars*” Summer Research Symposium poster presentation (2019)
34. **C. M. Othon**, “*Sugars and Surviving the Extreme*” Alumni Weekend Ripon College, oral presentation (June 2019).
33. **C. M. Othon**, “*Biophysics and Biomaterials: The Soft and Squishy Side of Physics*” Brown Bag Lunch Series Ripon College, oral presentation (September 2018).
32. **C. M. Othon**, “*An Inquiry Based Biophysics Course for Non-Majors*” American Association of Physics Teachers Conference, poster presentation (July 2018).
31. Julia Goeks\*, “*Effects of Sugar Concentration on Thermal Denaturation*” Summer Research Symposium poster presentation (2018)
30. Antony Gradillas\*, “*Techniques for Measuring Lipid Droplet Size Distribution*” Summer Research Symposium, poster presentation (2018)

29. Shukla N.<sup>+</sup>, Pomarico E, Chen L.<sup>\*\*</sup>, Chergui M, E.A. Taylor, **Othon C.M.** American Physical Society Conference New England Section, “*Sucralose Interaction with Protein Structures*”. Kingston, RI, oral presentation (2017)
28. **C. M. Othon**, Wesleyan NSM Lunch Series, “*Hydration in Biopreservation*” Middletown, CT; oral presentation (November 2016)
27. **C. M. Othon**, N. Dadashvand<sup>+</sup>, E. Vega-Lozada<sup>+</sup>, American Physical Society March Meeting, “*Temperature Dependent Rotational Correlation in Lipids*”, Baltimore MD, oral presentation (2016)
26. Shukla N.<sup>+</sup>, Pomarico E, Chen L.<sup>+</sup>, Chergui M, **Othon C.M.** American Physical Society Conference New England Section, “*Retardation of Hydration Dynamics in the Bulk by Disaccharide Osmolytes*”. Norton, MA, oral presentation (2016)
24. Shukla N.<sup>+</sup>, Pomarico E., Chen L.<sup>\*\*</sup>, Chergui M., **Othon C.M.** Biophysics Retreat Wesleyan University, “*Retardation of Bulk Water Dynamics by Disaccharide Osmolytes*”. Middletown, CT, poster presentation (2016)
23. **C. M. Othon**, Wesleyan University College of Integrative Sciences Seminar, “*What the Hell does sugar have to do with protein stability?*” Middletown CT, (2015)
22. Shukla N.<sup>+</sup>, Chen L.<sup>\*\*</sup>, Cho I.<sup>\*\*</sup>, Cohn E., Taylor E.A., **Othon C.M.** Biophysics Retreat Wesleyan University, “*Sucralose Destabilization of Protein Structure*” Middletown, CT, poster presentation, (2015)
21. **C. M. Othon**, N. Dadashvand<sup>+</sup>, E. Vega-Lozada<sup>+</sup>, American Physical Society March Meeting, “*Heterogeneous Rotational Diffusion in Lipid Structures*”, San Antonio TX, oral presentation (2015).
20. I. Cho<sup>\*\*</sup>, L. Chen<sup>\*\*</sup>, N. Shukla<sup>+</sup>, E. Cohn<sup>+</sup>, E. A. Taylor, **C. M. Othon**, “*Sucralose Destabilization of Protein Structure*” American Physical Society March Meeting, San Antonio TX, poster presentation (2015).
19. N. Dadashvand<sup>+</sup>, **C. M. Othon**, “*Heterogeneous Rotational Diffusion in Lipid Monolayers*”, American Physical Society March Meeting, San Antonio TX, oral presentation (2015).
18. **C. M. Othon**, Neda Dadashvand<sup>+</sup>, L. Williams<sup>\*\*</sup>, 2nd International Conference on Physics and Biological Systems, “*Heterogeneous Rotational Diffusion in Lipid Monolayers*”, Gif-Sur-Yvette France, poster presentation (2014).
17. L. Williams<sup>\*\*</sup>, **C.M. Othon**, Wesleyan Physical Science and Mathematics Scholars Program, “*An Introduction to Lipid Dynamics / Life as a Science Major at Wesleyan*” Middletown CT, oral presentation (2014).
16. I. Cho<sup>\*\*</sup>, L. Chen<sup>\*\*</sup>, N. Shukla<sup>+</sup>, E. A. Taylor, **C. M. Othon** Annual Biophysics Retreat ‘*Understanding Disaccharide Biopreservation through Structural Dynamics*’, Middletown CT poster presentation (2014).

15. L. Williams<sup>\*\*</sup>, Neda Dadashvand<sup>+</sup>, **C.M. Othon**, Ronald E. McNair U.C. Symposium, “*Lipid Dynamics: Interaction Between DPPC and Cholesterol Mixed Monolayers*” Berkeley, CA oral presentation (2014).
14. I. Cho<sup>\*\*</sup>, L. Chen<sup>\*\*</sup>, N. Shukla<sup>+</sup>, E. Cohn, E. A. Taylor, **C. M. Othon**, CT Space Grant Symposium ‘*Regulating Protein Stability in Microgravity Environments*’, Hartford CT, poster presentation (2014).
13. L. Williams<sup>\*</sup>, N. Dadashvand<sup>\*\*</sup>, **C.M. Othon**, Undergraduate Spectroscopy Research Conference, “*Lipid Dynamics: Interaction Between DPPC and Cholesterol Mixed Monolayers*”, Wesleyan University Middletown CT oral presentation (2014).
12. I. Cho<sup>\*\*</sup>, L. Chen<sup>\*\*</sup>, N. Shukla<sup>+</sup>, E. A. Taylor, **C. M. Othon** Undergraduate Research Symposium for High Resolution Molecular Spectroscopy and Structure “*Disaccharide Hydration Dynamics: Trehalose as an Osmoprotectant*”, Middletown CT, oral presentation (2014).
11. L. Williams<sup>\*\*</sup>, N. Dadashvand<sup>+</sup>, **C.M. Othon**, Ronald E. McNair National Conference, “*Lipid Dynamics: Interaction Between DPPC and Cholesterol Mixed Monolayers*”, Madison, WI oral presentation (2013).
10. I. Cho<sup>\*\*</sup>, L. Chen<sup>\*\*</sup>, N. Shukla<sup>+</sup>, E. A. Taylor, **C. M. Othon** Annual Biophysics Retreat “*Investigating Hydration Dynamics of Disaccharide Fluorinated Derivatives*”, Middletown CT poster presentation (2013).
9. **C. M. Othon**, N. Dadashvand<sup>+</sup>, Soft Condensed Matter Gordon Research Conference, “Time-Resolved Fluorescence Anisotropy Microscopy as a Probe of Lipid Domain Dynamics and In-Plane Ordering”, New London NH, poster presentation (2013).
8. L. Williams<sup>\*\*</sup>, N. Dadashvand<sup>+</sup>, **C.M. Othon**, Ronald E. McNair National Conference, “Lipid Dynamics: Interaction Between DPPC and Cholesterol Mixed Monolayers” Buffalo, NY oral presentation (2013).
7. Neda Dadashvand<sup>+</sup>, **C.M. Othon**, “*Measuring In-Plane Lipid Phase Dynamics*” Biophysics society annual meeting, Poster Session, Philadelphia, PA, poster presentation (2013).
6. **C. M. Othon**, N. Dadashvand<sup>+</sup>, F. Schupp<sup>\*\*</sup>, Biophysical Society Meeting, “*Wide-field Time Resolved Anisotropy for In-Situ Lipid Phase Dynamics*” San Diego CA, poster presentation (2013).
5. L. Chen<sup>\*\*</sup>, **C. M. Othon**, CT Space Grant Consortium, “*Solvent Dynamics and the Effectivity of the Osmolytes Trehalose and Sucrose*” Hartford CT, poster presentation (2013).
4. Neda Dadashvand<sup>+</sup>, **C.M. Othon**, Biophysics Retreat Wesleyan University, “*Wide-field Time Resolved Microscopy for in-situ Lipid Phase Dynamics*”, poster presentation (2012) .
3. Neda Dadashvand<sup>+</sup>, **C.M. Othon**, “*Dynamics in a Membrane Model*”, Biophysics Retreat, Wesleyan University, poster presentation (2011).

2. **C. M. Othon**, Biophysics Retreat “*Phase Transitions in Biological Membranes*”, Middletown CT, oral presentation (2011).

1. **C. M. Othon**, NSM Lunch Series Wesleyan University “*Time-resolved Spectroscopic Techniques for Probing Protein Interactions*”, Middletown CT, oral presentation (2010).

Contributed Research Presentations for the periods of my graduate and postdoctoral research are not included. These include 9 poster and oral presentations from national and regional conferences. The details are available upon request.