Viviana Monje-Galvan, Ph.D.

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EDUCATION

University of Maryland, College Park, MD

PhD. in Chemical Engineering **2017**

Dissertation: "Computational Studies of Membrane Models and Their Interaction with a Peripheral Protein in Yeast, and Disruption of the Water-Oil Interface by a Hydrotrope"

Advisor: Jeffery B. Klauda

M.S. in Chemical Engineering **2014**

Thesis: "Computational Studies on Organelle-Specific Yeast Membrane Models"

Advisor: Jeffery B. Klauda

B.S. in Chemical Engineering and Minor in Project Management **2012**

RESEARCH EXPERIENCE

University at Buffalo, the State University of New York (SUNY)

Assistant Professor – Department of Chemical and Biological Engineering ***January, 2021***

The University of Chicago

Postdoctoral Scholar – Department of Chemistry **2017 – 2020**

PI: Gregory A. Voth

University of Maryland, College Park, MD

Graduate Research Assistant – Chemical and Biomolecular Engineering **2012 – 2017**

Advisor: Jeffery B. Klauda

Undergraduate Researcher – Chemical and Biomolecular Engineering **2010 – 2012**

Advisor: Jeffery B. Klauda

Student Assistant – Center for Minorities in Science and Engineering **2010**

Supervisor: Lawanda Kamalidiin

University of Alabama, Tuscaloosa, AL

REU participant – Chemical and Biological Engineering **2011**

Advisor: Heath Turner

TEACHING EXPERIENCE

The University of Chicago, Chicago, IL **2018**

Instructor (*as part of the Biophysical Research Immersion course for 1st year graduate students*)

Hands-on workshop on molecular dynamics simulations (September 2018)

Journal club / Communications in Biophysical Research (Autumn 2018)

College Teaching Certificate (*administered by the Center for Chicago Teaching*)

University of Maryland, College Park, MD **2010 – 2016**

Teaching Assistant

CHBE 440 (Process Engineering Economics & Design II: Spring 2016)

CHBE 468/648 (Molecular Dynamics Simulations: Spring 2015)

CHBE 410 (Statistics and Experimental Design: Fall 2011, Fall 2014)

ENCH 400 (Chemical and Biomolecular Engineering Thermodynamics II: Spring 2012)

ESTEEM Student Mentor (Center for Minorities in Science and Engineering: Summer 2010)

RESEARCH INTERESTS

Computational biophysics | all-atom and coarse-grain modeling of biomolecular interactions | interfacial structure and thermodynamics | high performance computing

AWARDS

Ann G. Wylie Dissertation Fellowship (*Univ. of MD*)	**Fall 2016**
LSAMP Bridge to the Doctorate Fellow (NSF)	**2012 – 2014**
LSAMP Undergraduate Program Fellow (NSF)	**2010 – 2012**
ACCESS Engineering Scholar (NSF)	**2009 – 2012**

PROFESSIONAL SERVICE

Panelist for several Minorities in Science discussions (Montgomery College & Univ. of MD)	**2009 – present**
Reviewer for: *EngineerGirl* Writing Contest & Ambassadors Program (Nat. Academy of Engineering)	**2014 – present**
Student Poster Judge at AIChE national meeting	**2019**

INVITED TALKS

1. "Computers and Cells – Biophysics of Lipid Membranes at the Atomic Scale." *2020 Seminar Series Grupo de Investigadores Latitud Cero* (Zoom seminar on July 2, 2020)
2. "Molecular interactions in cellular processes, a perspective from simulations." *XVI LAWNP (2019 – La Paz, Bolivia)*
3. "Mejorando el campo de fuerza para simulaciones moleculares de ácidos grasos poliinsaturados en membranas celulares." Universidad Mayor de San Andrés - Instituto de Investigaciones Físicas (La Paz, Bolivia) (2013).
4. "Modelos simétricos y asimétricos para membranas de la levadura, nociones sobre la interacción de lípidos." Universidad Mayor de San Andrés - Instituto de Investigaciones Físicas (La Paz, Bolivia) (3 de Mayo, 2017).
5. "Comportamiento de hidrotropos en la interface de soluciones aquosas." Universidad Mayor de San Andrés – Facultad de Ingeniería – Ingeniería Química (La Paz, Bolivia) (5 de Mayo, 2017)

PUBLICATIONS. *GoogleScholar: 1065 citations (September 2020). h-Index: 9*

1. **Monje-Galvan, V**; Voth, G.A. Binding mechanism of the matrix domain of HIV-1 Gag on lipid membranes. *eLife*, 9:e58621 (2020)
2. **Monje-Galvan, V.**; Klauda, J.B. Interfacial properties of aqueous solutions of butanol isomers and cyclohexane. *Fluid Phase Equilib.*, 513: 112551 (2020)
3. Leonard, A.N.; Wang, E.; **Monje-Galvan, V.**; Klauda, J.B. Developing and testing of lipid force fields with applications to modeling cellular membranes. *Chem. Rev.*, 119(9): 6227-6269 (2019)
4. Wildermuth, K.; **Monje-Galvan, V.**; Klauda, J.B. Effect of membrane lipid packing on stable binding of the ALPS peptide. *J. Comp. Theo. Chem.*, 15(2):1418-1429 (2019)
5. **Monje-Galvan, V.**; Warburton, L; Klauda, J.B. Setting-up all-atom molecular dynamics simulations to study the interactions of peripheral membrane proteins with model lipid bilayers in *Methods in Molecular Biology Series. Intracellular Lipid Transport.* Guillaume Drin, Ed. Springer, (2019)
6. **Monje-Galvan, V**.; Klauda, J.B. Preferred binding mechanism of Osh4's amphipathic lipid-packing sensor motif, insights from molecular dynamics. *J. Phys. Chem. B.*, 122(42): 9713-9723 (2018)
7. Novikov, A; Semenov, A.; **Monje-Galvan, V**.; Kuryakov, V.; Klauda, J.B.; Anisimov, M. Dual action of hydrotropes at the water/oil interface. *J. Phys. Chem. C*, 121(30): 16423-16431. (2017)
8. **Monje-Galvan, V**.; Klauda, J.B. Two sterols, two bilayers: Insights on Membrane Structure from Molecular Dynamics. *Molecular Simulation*. DOI:10.1080/08927022.2017.1353690 (July, 2017)
9. Khakbaz, P; **Monje-Galvan, V**.; Zhuang, X.; Klauda, J.B. Modeling Lipid Membranes in *Handbook of Hydrocarbon and Lipid Microbiology Series*. *Biogenesis of Fatty Acids, Lipids and Membranes*. Otto Geiger, Ed. Springer, (2016)
10. Boughter, C.T.; **Monje-Galvan, V**.; Im, W.; Klauda, J.B. Influence of Cholesterol on Phospholipid Bilayer Structure and Dynamics. *J. Phys. Chem. B.*, 120(45): 11761-11772. (2016)
11. **Monje-Galvan, V.**; Klauda, J.B. 2016. Peripheral Membrane Proteins: Tying the Knot between Experiment and Computation. *BBA: Biomembranes*, 1858: 1584-1593 (2016).
12. **Monje-Galvan, V**.; Klauda, J.B. 2015. Modelling Yeast Organelle Membranes and How Lipid Diversity Influences Bilayer Properties. *Biochemistry*. 54(45), 6852-6861 (2015).
13. Wu, E.L.; Cheng, X.; Jo, S.; Rui, H.; Song, K.C.; Davila-Contreras, E.M.; Qi, Y.; Lee, J.; **Monje-Galvan, V**.; Venable, R.M.; Klauda, J.B.; Im, W. CHARMM_GUI Membrane Builder toward Realistic Biological Membrane Simulations. *J. Comput. Chem.* 35(27), 1997-2004 (2014).
14. Jeong, J.C.; Jo, S.; Wu, E.L.; Qi, Y.; **Monje-Galvan, V**.; Yeom, M.S.; Gorenstein, L.; Chen, F.; Klauda, J.B.; Im, W. ST-Analyzer: A web-based user interface for simulation trajectory analysis. *J. Comput. Chem.* 35(12), 957-963 (2014).

15. Klauda, J.B.; **Monje, V**.; Kim, T.; Im, W. Improving the CHARM Force Field for Polyunsaturated Fatty Acid Chains. *J. Phys. Chem. B.* 116(31), 9424-9431 (2012).

PRESENTATIONS

1. Monje-Galvan, V.; Voth, G.A. "The role of lipids on transmembrane protein interactions in viral infections." *AIChE National Meeting* (2020, *scheduled*)
2. Monje-Galvan, V.; Swanson, J.; Lippincott-Schwartz, J.; Sengupta, P.; Voth, G.A. "Modeling protein-lipid sorting at the HIV-1 viral assembly site." *AIChE National Meeting* (2019)
3. Monje-Galvan, V.; Voth, G.A. "Lipid-lipid and lipid-protein interactions of the matric domain of HIV-1 Gag at the viral assembly site." *Biophysical Society* (2019)
4. Monje-Galvan, V.; Pak, A.; Voth, G.A. "Computational modeling of protein interactions of the matrix domain of HIV-1 Gag." *AIChE National Meeting* (2018)
5. Monje-Galvan, V. & Voth, G.A. "Protein aggregation and protein-membrane interactions of the matrix domain of HIV1- Gag." *EuriSciCon, Structural Biology Conference* (2018)
6. Monje-Galvan, V. & Voth, G.A. "Molecular interactions of the Matrix domain of HIV-1 Gag protein at the membrane interface." *Biophysical Society* (2018)
7. Monje-Galvan, V. & Klauda, J.B. "Asymmetric models for the trans-Golgi Network and plasma membranes of S. cerevisiae, insights from molecular dynamics." *American Chemical Society* (2017)
8. Novikov, A; Semenov, A.; Monje-Galvan, V.; Kuryakov, V.; Klauda, J.B.; Anisimov, M. "Interfacial behavior of hydrotropes in aqueous solutions." *American Chemical Society* (2017)
9. Monje-Galvan, V. & Klauda, J.B. "Asymmetric membrane models for the PM and TGN of yeast, an all-atom molecular dynamics study." *Biophysical Society* (2017)
10. Monje-Galvan, V. & Klauda, J.B. "L_o/L_d Phase Coexistence and Interaction in Model Membranes with IPC Lipids." *Biophysical Society* (2016)
11. Monje-Galvan, V. & Klauda, J.B. "Interfacial Properties of Aqueous Solutions of TBA and Cyclohexane." *Congress of Theoretical Chemists of the Latin Expression, Chitel* (2015, Poster in Spanish)
12. Monje-Galvan, V. & Klauda, J.B. "Membrane binding of the Osh4 curvature-sensing peptide." *Biophysical Society* (2015)
13. Monje-Galvan, V. & Klauda, J.B. "Binding studies of a *Saccharomyces Cerevisiae* peripheral protein Osh4" *American Chemical Society* (2015)
14. Monje-Galvan, V. & Klauda, J.B. "Membrane binding of a curvature-sensing peptide of a lipid transport protein in yeast." *XL Congress of Theoretical Chemists of the Latin Expression QUITEL* (2014, Talk in Spanish).
15. Monje-Galvan, V. & Klauda, J.B. "Molecular dynamic studies on organelle-specific yeast membrane models and amphipathic lipid packing sensor motif binding mechanism." *Biophysical Society* (2014).
16. Monje-Galvan, V. & Klauda, J.B. "Simulation studies on organelle-specific yeast membrane models and amphipathic lipid packing sensor motif binding mechanism." *AIChE National Meeting* (2013).
17. Monje-Galvan, V. & Klauda, J.B. "Improved CHARMM Force Field for Polyunsaturated Fatty Acid Chains, a Study on DAPC Membranes." *Biophysical Society* (2013)

COMPUTER SKILLS

LINUX environment | Simulations Packages: CHARMM, NAMD, VMD, Gromacs, Plumed | Python programming | High Performance Computing (XSEDE, Anton/Anton2@PittsburgSupercomputing center resources)

PROFESSIONAL AFFILIATIONS

American Institute of Chemical Engineers (AIChE), Biophysical Society (BPS), American Chemical Society (ACS), and Society of Latin-American Biophysicist (SOBLA), consultant with the *Complex Systems Group* at the Physics Researh Institute of UMSA (La Paz, Bolivia)

LANGUAGES

Spanish, English, and French