

Curriculum Vitae
Frederick A. Heberle
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[Google Scholar](#) [PubMed](#)

EMPLOYMENT

University of Tennessee/Oak Ridge National Laboratory Research Scientist, The Bredesen Center	Knoxville/Oak Ridge, TN Oct 2017 – Oct 2018
University of Tennessee/Oak Ridge National Laboratory Research Scientist, Joint Institute for Biological Sciences	Knoxville/Oak Ridge, TN Oct 2015 – Oct 2017
Oak Ridge National Laboratory Postdoctoral Researcher, Neutron Sciences Directorate	Oak Ridge, TN Jan 2011 – Oct 2015
Cornell University Technician, Field of Biophysics	Ithaca, NY May 2003 – Aug 2005

EDUCATION

Cornell University Ph.D. in Biophysics, Minor in Physical Chemistry Thesis Advisor: Dr. Gerald W. Feigenson GPA: 4.11/4.3	Ithaca, NY Aug 2005 – Jan 2011
Cornell University B.A. in Chemistry with Distinction in All Subjects Dean's List (7), Phi Beta Kappa GPA: 3.96/4.3	Ithaca, NY Aug 1995 – May 2003

HONORS and AWARDS

UTK Bredesen Center Fellowship	2017 – 2018
ORNL/UTK Joint Institute for Biological Sciences Fellowship	2015 – 2017
ORAU Postdoctoral Fellowship	2011 – 2015
Cornell Graduate School Travel Award	2006, 2008, 2010
NIH Molecular Biophysics Training Grant	2005 – 2008

PEER REVIEWED ARTICLES

**Authors contributed equally †Corresponding author*

32. Doktorova M,* [Heberle FA](#),* Eicher B, Standaert RF, Katsaras J, London E, Pabst G, Marquardt D. **2018**. Preparation of asymmetric phospholipid vesicles: The next generation of cell membrane models. *Nature Protocols* (*in press*).
31. Wassall SR, Leng X, Canner SW, Pennington ER, Kinnun JJ, Cavazos AT, Dadoo S, Johnson D, DeSantis A, Zeczycki T, [Heberle FA](#), Katsaras J, Shaikh SR. **2018**. [Docosahexaenoic acid regulates the formation of lipid rafts: A unified view from experiment and simulation](#). *Biochimica et Biophysica Acta* DOI: 10.1016/j.bbamem.2018.04.016.

30. Enoki TA, Heberle FA, Feigenson GW. **2018.** [FRET Detects the Size of Nanodomains for Coexisting Liquid-Disordered + Liquid-Ordered Phases.](#) *Biophysical Journal* 114:1921-1935.
29. Eicher B, Marquardt D, Heberle FA, Letofsky-Papst I, Rechberger GN, Appavou M-S, Katsaras J, Pabst G. **2018.** [Intrinsic Curvature-Mediated Transbilayer Coupling in Asymmetric Lipid Vesicles.](#) *Biophysical Journal* 114:146-157 (**Journal Cover**).
28. Doktorova M,* Heberle FA,* Kingston RL, Khelashvili G, Wen Y, Katsaras J, Feigenson GW, Vogt VM, Dick RD.* **2017.** [Cholesterol Promotes Protein Binding by Affecting Membrane Electrostatics and Solvation Properties.](#) *Biophysical Journal* 113:2004-2015.
27. Taylor GJ, Heberle FA, Seinfeld JS, Katsaras J, Collier CP, Sarles SA. **2017.** [Capacitive Detection of Low-Enthalpy, Higher Order Phase Transitions in Synthetic and Natural Composition Lipid Membranes.](#) *Langmuir* 33:10016-10026 (**Journal Cover**).
26. Usery RD, Enoki TA, Wickramasinghe SP, Weiner MD, Tsai W-C, Kim MB, Wang S, Torng TL, Ackerman DG, Heberle FA, Katsaras J, Feigenson GW. **2017.** [Line tension controls liquid-disordered + liquid-ordered domain size transition in lipid bilayers.](#) *Biophysical Journal* 112:1431-1443 (**Biophys. J. New and Notable**).
25. Marquardt D,* Heberle FA,* Miti T, Eicher B, London E, Katsaras J, Pabst G.† **2017.** [¹H NMR Shows Slow Phospholipid Flip-Flop in Gel and Fluid Bilayers.](#) *Langmuir* 33:3731-3741 (**Journal cover**).
24. Eicher B, Heberle FA, Marquardt D, Rechberger GN, Katsaras J, Pabst G. **2017.** [Joint small-angle X-ray and neutron scattering data analysis of asymmetric lipid vesicles.](#) *Journal of Applied Crystallography* 50:419-429 (**Journal cover**).
23. Marquardt D, Heberle FA, Greathouse DV, Koeppe RE III, Standaert RF, Van Oosten BJ, Harroun TA, Kučerka N, Kinnun JJ, Williams JA, Wassall SR, Katsaras J. **2016.** [Lipid bilayer thickness determines cholesterol's location in model membranes.](#) *Soft Matter* 12:9393-9594 (**Journal cover**).
22. Xia Y, Charubin K, Marquardt D, Heberle FA, Katsaras J, Tian J, Cheng X, Liu Y, Nieh M-P. **2016.** [Morphology-Induced Defects Enhance Lipid Transfer Rates.](#) *Langmuir* 32:9757-9764.
21. Heberle FA,* Marquardt D,* Doktorova M,* Geier B,* Standaert RF, Heftberger P, Kollmitzer B, Nickels JD, Feigenson GW, Katsaras J, London E, Pabst G.† **2016.** [Subnanometer Structure of an Asymmetric Model Membrane: Interleaflet Coupling Influences Domain Properties.](#) *Langmuir* 32:5195-5200 (**Journal cover**).
20. Xia Y, Li M, Charubin K, Liu Y, Heberle FA, Katsaras J, Jing B, Zhu Y, Nieh M-P. **2015.** [The Effects of Nanoparticle Morphology and Chain Length on Spontaneous Lipid Transfer Rates.](#) *Langmuir* 31:12920-12928.
19. Nickels JD, Cheng X, Mostofian B, Stanley C, Lindner B, Heberle FA, Perticaroli S, Feigenson M, Egami T, Standaert RF, Smith JC, Myles DAA, Ohl M, Katsaras J. **2015.** [Mechanical properties of nanoscopic lipid domains.](#) *Journal of the American Chemical Society* 137:15772-15780.
18. Heberle FA,† Anghel VNP,† Katsaras J. **2015.** [Scattering from phase-separated vesicles I. An analytical form factor for multiple static domains.](#) *Journal of Applied Crystallography* 48:1391-1404.
17. Kučerka N, Van Oosten B, Pan J, Heberle FA, Harroun TA, Katsaras J. **2015.** [Molecular Structures of Fluid Phosphatidylethanolamine Bilayers Obtained from Simulation-to-Experiment Comparisons and Experimental Scattering Density Profiles.](#) *The Journal of Physical Chemistry B* 119:1947-1956 (**Journal cover**).
16. Pan J, Marquardt D, Heberle FA, Kučerka N, Katsaras J. **2014.** [Revisiting the Bilayer Structures of Fluid Phase Phosphatidylglycerol Lipids: Accounting for Exchangeable Hydrogens.](#) *Biochimica et Biophysica Acta* 1838:2966-2969.
15. Pan J, Cheng X, Monticelli L, Heberle FA, Kučerka N, Tieleman P, Katsaras J. **2014.** [The Molecular Structure of a Phosphatidylserine Bilayer Determined by Scattering and Molecular Dynamics Simulations.](#) *Soft Matter* 10:3716-3725 (**Journal cover, Soft Matter Hot Papers**).
14. Heftberger P, Kollmitzer B, Heberle FA, Pan J, Rappolt M, Amenitsch H, Kučerka N, Katsaras J, Pabst G. **2014.** [Global SAXS data analysis for multilamellar vesicles: The evolution of the scattering density profile \(SDP\) model.](#) *Journal of Applied Crystallography* 47:173-180.

13. Heberle FA,^{*} Doktorova M,^{*} Goh SL,^{*} Standaert RF, Katsaras J, Feigenson GW.[†] **2013.** [Hybrid and Nonhybrid Lipids Exert Common Effects on Membrane Raft Size and Morphology.](#) *Journal of the American Chemical Society* 135:14932-14935.
12. Konyakhina TM, Wu J, Mastroianni JD, Heberle FA, Feigenson GW. **2013.** [Phase Diagram of a 4-Component Lipid Mixture: DSPC/DOPC/POPC/chol.](#) *Biochimica et Biophysica Acta* 1828:2204-2214. **(50+ citations)**
11. Ackerman DG, Heberle FA, Feigenson GW. **2013.** [Limited Perturbation of a DPPC Bilayer by Fluorescent Lipid Probes: A Molecular Dynamics Study.](#) *The Journal of Physical Chemistry B* 117:4844-4852.
10. Heberle FA,[†] Petruzielo RS, Pan J, Drazba P, Kučerka N, Standaert RF, Feigenson GW, Katsaras J.[†] **2013.** [Bilayer Thickness Mismatch Controls Domain Size in Model Membranes.](#) *Journal of the American Chemical Society* 135:6853-6859 (**Journal cover, JACS Spotlight, 100+ citations**).
9. Petruzielo RS, Heberle FA, Drazba P, Katsaras J, Feigenson GW. **2013.** [Phase Behavior and Domain Size in Sphingomyelin-Containing Lipid Bilayers.](#) *Biochimica et Biophysica Acta* 1828:1302-1313. **(50+ citations)**
8. Pan J, Cheng X, Heberle FA, Mostofian B, Kučerka N, Drazba P, Katsaras J. **2012.** [Interactions between Ether Phospholipids and Cholesterol as Determined by Scattering and Molecular Dynamics Simulations.](#) *The Journal of Physical Chemistry B* 116:14829-14838.
7. Pan J, Heberle FA, Carmichael JR, Ankner JF, Katsaras J. **2012.** [Time-of-Flight Bragg Scattering from Aligned Stacks of Lipid Bilayers using the Liquids Reflectometer at the Spallation Neutron Source.](#) *Journal of Applied Crystallography* 45:1219-1227.
6. Pan J, Heberle FA, Tristram-Nagle S, Szymanski M, Koepfinger M, Katsaras J, Kučerka N. **2012.** [Molecular structures of fluid phase phosphatidylglycerol bilayers as determined by small-angle neutron and X-ray scattering.](#) *Biochimica et Biophysica Acta* 1818:2135-2148. **(50+ citations)**
5. Konyakhina TM,^{*} Goh SL,^{*} Amazon JA, Heberle FA, Wu J, Feigenson GW. **2011.** [Control of a Nanoscopic-to-Macroscopic Transition: Modulated Phases in 4-Component DSPC/DOPC/POPC/chol Giant Unilamellar Vesicles.](#) *Biophysical Journal* 101:L08-L10 **(50+ citations)**.
4. Heberle FA, Wu J, Goh SL, Petruzielo RS, Feigenson GW. **2010.** [Comparison of three ternary bilayer mixtures: FRET and ESR reveal nanodomains.](#) *Biophysical Journal* 99:3309-3318. **(100+ citations)**
3. Mills TT, Tristram-Nagle S, Heberle FA, Morales NF, Zhao J, Wu J, Toombes GES, Nagle JF, Feigenson GW. **2008.** [Liquid-Liquid Domains in Bilayers Detected by Wide Angle X-Ray Scattering.](#) *Biophysical Journal* 95:682-690. **(50+ citations)**
2. Zhao J, Wu J, Heberle FA, Mills TT, Klawitter P, Huang G, Costanza G, Feigenson GW. **2007.** [Phase studies of model biomembranes: Complex behavior of DSPC/DOPC/Cholesterol.](#) *Biochimica et Biophysica Acta* 1768:2764-2776. **(100+ citations)**
1. Hammond AT, Heberle FA, Baumgart T, Holowka D, Baird B, Feigenson GW. **2005.** [Crosslinking a lipid raft component triggers liquid ordered-liquid disordered phase separation in model plasma membranes.](#) *Proceedings of the National Academy of Sciences of the USA* 102(18):6320-6325. **(200+ citations)**

REFEREED REVIEW ARTICLES

8. Heberle FA, Pabst G. **2017.** [Complex Biomembrane Mimetics on the Sub-Nanometer Scale.](#) *Biophysical Reviews* 9:353-373.
7. Kučerka N, Heberle FA, Pan J, Katsaras J. **2015.** [Structural Significance of Lipid Diversity as Studied by Small Angle Neutron and X-ray Scattering.](#) *Membranes* 5:454-472.
6. Marquardt D, Heberle FA, Nickels JD, Pabst G, Katsaras J. **2015.** [On scattered waves and lipid domains: Detecting rafts with X-rays and neutrons.](#) *Soft Matter* 11:9055-9072 (**Journal cover**).
5. Heberle FA, Myles DAA, Katsaras J. **2015.** [Biomembranes Research Using Thermal and Cold Neutrons.](#) *Chemistry and Physics of Lipids* 192:41-50.

4. Pan J, Heberle FA, Petruzielo RS, Katsaras J. **2013**. [The Use of Small-Angle Neutron Scattering to Detect Nanoscopic Lipid Domains](#). *Chemistry and Physics of Lipids* 170-171:19-32.
3. Pabst G, Heberle FA, Katsaras J. Encyclopedia of Biophysics, 1st ed., s.v. "[X-ray Scattering of Lipid Membranes](#)." New York: Springer, **2013**, DOI:10.1007/978-3-642-16712-6_554.
2. Heberle FA, Pan J, Standaert RF, Drazba P, Kučerka N, Katsaras J. **2012**. [Model-based Approaches for the Determination of Lipid Bilayer Structure from Small-Angle neutron and X-ray Scattering Data](#). *European Biophysical Journal* 41:875-890.
1. Heberle FA, Buboltz JT, Stringer D, Feigenson GW. **2005**. [Fluorescence methods to detect phase boundaries in lipid bilayer mixtures](#). *Biochimica et Biophysica Acta* 1746:186-192. (**50+ citations**)

BOOK CHAPTERS

3. Heberle FA, Petruzielo RS, Goh SL, Konyakhina TM, Ackerman DG, Amazon JJ, Feigenson GW. **2014**. [Liposome-Based Models for Membrane Rafts: Methodology and Applications](#). In *Liposomes, Lipid Bilayers and Model Membranes: From Basic Research to Application*. G. Pabst, editor. CRC Press. Boca Raton, FL.
2. Pan J, Kučerka N, Nieh M-P, Heberle FA, Drazba P, Katsaras J. **2014**. [Lipid Diversity and Its Implications For Membrane Organization](#). In *Liposomes, Lipid Bilayers and Model Membranes: From Basic Research to Application*. G. Pabst, editor. CRC Press. Boca Raton, FL.
1. Heberle FA, Feigenson GW. **2011**. [Phase Separation in Lipid Membranes](#). In *The Biology of Lipids: Trafficking, Regulation, and Function*. K. Simons, editor. Cold Spring Harbor Laboratory Press. New York. 49-61. (**50+ citations**)

INVITED TALKS

18. "SANS III: Contrast variation." Neutron Scattering Applications in Structural Biology Workshop, June 14 **2018**, Oak Ridge, TN.
17. "Lipid organization in complex biomimetic membranes: Insight from scattering and simulation." Institute for Biophysical Dynamics Interdisciplinary Research Seminar, September 19 **2017**, University of Chicago, Chicago, IL.
16. "Lateral lipid organization in complex biomimetic membranes: Insight from small-angle neutron scattering." Workshop on Inhomogeneous Membranes, September 14 **2017**, Oak Ridge, TN.
15. "Lipid organization in complex biomimetic membranes: Insight from scattering and simulation." Neutron Diffraction and the Nanoscale, Satellite Meeting of the International Conference on Neutron Scattering, July 7 **2017**, Daejeon, Republic of Korea.
14. "SANS III: Contrast variation." Neutron Scattering Applications in Structural Biology Workshop, June 8 **2017**, Oak Ridge, TN.
13. "Toward a Better Plasma Membrane Model: Probing Lipid Bilayer Asymmetry with SANS." 5th International Symposium on Diffraction Structural Biology, August 10 **2016**, Knoxville, TN.
12. "On scattered waves and lipid domains: Biomembrane spatial organization as seen by neutrons." Neutron Scattering Applications in Structural Biology Symposium, May 16 **2016**, Oak Ridge, TN.
11. "On scattered waves and lipid domains: Biomembrane spatial organization as seen by neutrons." Atomic, Molecular & Optical Physics Seminar, April 11 **2016**, University of Delaware, Newark, DE.
10. "New Tools for Probing the Spatial Organization of Biomimetic Membranes." 251st American Chemical Society National Meeting & Exposition, March 16 **2016**, San Diego, CA.
9. "On scattered waves and lipid domains: Biomembrane organization as seen by neutrons." Biochemistry & Cellular and Molecular Biology Seminar, March 9 **2016**, University of Tennessee, Knoxville, TN.
8. "Probing the spatial organization of lipid membranes with SANS." American Crystallographic Association 65th Annual Meeting, July 28 **2015**, Philadelphia, PA.
7. "Asymmetric liposomes: Developing a robust platform for structural studies." Biomembranes Review, May 26 **2015**, Oak Ridge, TN.

6. "Membrane raft mixtures investigated with fluorescence and SANS." Membrane Biophysics Workshop, March 3 **2015**, Telluride, CO.
5. "Asymmetric liposomes: Developing a robust platform." Biomembranes Workshop, January 28 **2015**, Oak Ridge, TN.
4. "How do cells control membrane raft size?" Cornell University Biophysics Colloquium, March 26 **2014**, Ithaca, NY.
3. "SANS studies of lateral organization in model membranes." Biomembranes Workshop, February 24 **2014**, Oak Ridge, TN.
2. "Membrane Raft Mixtures Investigated with Small-angle Neutron Scattering." Neutrons in Structural Biology Symposium, June 24 **2013**, Oak Ridge, TN.
1. "Membrane Raft Mixtures Investigated with Small-angle Neutron Scattering." 245th American Chemical Society National Meeting & Exposition, April 8 **2013**, New Orleans, LA.

CONFERENCE PRESENTATIONS

22. Heberle FA. Determining the transbilayer structure of asymmetric bilayer membranes using small-angle scattering. American Crystallographic Association 68th Annual Meeting, July 20-24 **2018**, Toronto, ON, Canada.
21. Heberle FA. Determining the Structure of Asymmetric Bilayers with Small-angle Scattering: Insight from Molecular Dynamics Simulations. 665 WE-Heraeus Seminar, March 25-28 **2018**, Physikzentrum Bad Honnef, Germany.
20. Heberle FA, Doktorova M, Marquardt D, Katsaras J. Determining the Structure of Asymmetric Bilayers with Small-angle Scattering: Insight from Molecular Dynamics Simulations. Biophysical Society 62nd Annual Meeting, February 17-21 **2018**, San Francisco, CA.
19. Marquardt D, Heberle FA, Miti T, Katsaras J, Pabst G. Bilayer Defects Facilitate DPPC Flip-Flop. Biophysical Society 61st Annual Meeting, February 11-15 **2017**, New Orleans, LA.
18. Heberle FA, Doktorova M, Pan J, Marquardt D, Pastor RW, Venable RM, Kučerka N, Katsaras J. The Molecular Structure of Sphingomyelin in Fluid Phase Bilayers Determined by the Joint Analysis of Neutron and X-ray Scattering Data. Biophysical Society 61st Annual Meeting, February 11-15 **2017**, New Orleans, LA.
17. Heberle FA, Doktorova M, Dick RA, Katsaras J, Feigenson GW, Vogt VM. A mechanism for enhanced RSV-MA membrane binding induced by cholesterol. Biophysical Society 60th Annual Meeting, February 27-March 2 **2016**, Los Angeles, CA.
16. Heberle FA, Anghel VNP, Katsaras J. Scattering from laterally heterogeneous vesicles: An analytical form factor for multiple domains. Biophysical Society 59th Annual Meeting, February 7-11 **2015**, Baltimore, MD.
15. Heberle FA, Petruzielo R, Pan J, Drazba P, Kučerka N, Standaert RF, Feigenson GW, Katsaras J. Bilayer Thickness Mismatch Controls Domain Size in Model Membranes. American Conference on Neutron Scattering, June 1-5 **2014**, Knoxville, TN.
14. Heberle FA, Petruzielo R, Pan J, Drazba P, Kučerka N, Standaert RF, Feigenson GW, Katsaras J. Bilayer Thickness Mismatch Controls Domain Size in Model Membranes. Biophysical Society 58th Annual Meeting, February 15-19 **2014**, San Francisco, CA.
13. Heberle FA, Drazba P, Pan J, He K, Weiss KL, O'Neill HM, Katsaras J, Standaert RF. Sterol transfer rates measured by small-angle neutron scattering (SANS) and fluorescence resonance energy transfer (FRET). 245th American Chemical Society National Meeting & Exposition, April 7-11 **2013**, New Orleans, LA.
12. Heberle FA, Petruzielo R, Pan J, Drazba P, Kučerka N, Standaert RF, Feigenson GW, Katsaras J. Bilayer thickness mismatch controls domain size in biomimetic membranes. American Physical Society March Meeting 2013, March 18-22 **2013**, Baltimore, MD.
11. Konyakhina TM, Mastroianni JD, Torng TL, Heberle FA, Wu J, Feigenson GW. Four-Component Phase Diagrams for DSPC/DOPC/POPC/Chol and DSPC/DOPC/SOPC/Chol Bilayer Mixtures. Biophysical Society 57th Annual Meeting, February 2-6 **2013**, Philadelphia, PA.

10. Petruzielo R, [Heberle FA](#), Drazba P, Katsaras J, Feigenson GW. SANS, FRET, and ESR Reveal < 6 nm Domains in Brain Sphingomyelin-Containing Membrane Models. Biophysical Society 57th Annual Meeting, February 2-6 **2013**, Philadelphia, PA.
9. Pan J, [Heberle FA](#), Tristram-Nagle S, Szymanski M, Koepfinger M, Katsaras J, Kučerka N. Molecular Structure of Fluid Phase Phosphatidylglycerol Bilayers As Determined By Small-Angle Neutron and X-ray Scattering. American Conference on Neutron Scattering, June 24-28 **2012**, Washington, D.C.
8. [Heberle FA](#), Petruzielo R, Pan J, Drazba P, Kučerka N, Feigenson GW, Standaert RF, Katsaras J. The Dependence of Membrane Raft Size on Lipid Composition: A Small-Angle Neutron Scattering Study. Biophysical Society 56th Annual Meeting, February 25-29 **2012**, San Diego, CA.
7. Pan J, [Heberle FA](#), Kučerka N, Tristram-Nagle S, Szymanski M, Koepfinger M, Katsaras J. Molecular structure of phosphatidylglycerol bilayers: Fluid phase lipid areas and bilayer thicknesses as a function of temperature. Biophysical Society 56th Annual Meeting, February 25-29 **2012**, San Diego, CA.
6. Ackerman D, Amazon J, [Heberle FA](#), Feigenson GW. Assessing perturbations of a fluorescent lipid in a DPPC bilayer with Molecular Dynamics. Biophysical Society 55th Annual Meeting, March 5-9 **2011**, Baltimore, MD.
5. [Heberle FA](#), Wu J, Zhao J, Goh SL, Feigenson GW. FRET reveals coexisting nanoscopic fluid phases in POPC/DSPC/Cholesterol. Biophysical Society 54th Annual Meeting, February 20-24 **2010**, San Francisco, CA.
4. [Heberle FA](#), Wu J, Goh SL, Zhao J, Smith RL, Feigenson GW. FRET reveals nanoscopic phase separation in DSPC/POPC/Cholesterol. 8th Keck Biomembrane Symposium, June 18-21 **2008**, Ithaca, NY.
3. [Heberle FA](#), Wu J, Goh SL, Zhao J, Feigenson GW. The use of steady-state FRET to determine phase boundaries in 3-component lipid bilayer mixtures. Biophysical Society 52nd Annual Meeting, February 2-7 **2008**, Long Beach, CA.
2. [Heberle FA](#), Stringer D, Feigenson GW. Use of self-quenching of a fluorescent lipid analog to characterize miscibility transitions in binary PC mixtures. Biophysical Society 50th Annual Meeting, February 18-22 **2006**, Salt Lake City, UT.
1. Feigenson GW, [Heberle FA](#), Stringer D. Use of 4-color FRET to determine phase diagrams of 3-component lipid bilayer mixtures. Biophysical Society 48th Annual Meeting, February 14-18 **2004**, Baltimore MD.

SUPPORT

Current

Funding Organization: National Science Foundation

Title: [Mechanisms of interleaflet coupling in asymmetric lipid membranes](#)

Award Number: MCB-1817929

Funding period: 7/2018-7/2021

Amount: \$750,000

Role: Principal Investigator

Funding Organization: Department of Energy/Oak Ridge National Laboratory

Award Number: 4000158732

Funding period: 10/2017-10/2018

Amount: \$146,000

Role: Principal Investigator

Past

Funding Organization: Department of Energy/Oak Ridge National Laboratory

Title: Atomic Resolution of a Protein using X-ray Fluorescence Holography

Project Number: 8221

Funding period: 10/2016-10/2018

Amount: \$212,000

Role: Other Investigator

Funding Organization: Department of Energy/Oak Ridge National Laboratory
Title: Functional domains in model membranes and protocells probed with high-performance simulation and neutron scattering

Project Number: 7394

Funding period: 10/2016-10/2018

Amount: \$1,052,000

Role: Other Investigator

Funding Organization: Department of Energy/Oak Ridge National Laboratory
Title: Revealing the structural organization of membranes in living cells by small-angle neutron scattering

Project Number: 6988

Funding period: 10/2015-4/2017

Amount: \$770,000

Role: Other Investigator

OUTREACH and EDUCATION

5. Presented small-angle neutron scattering lecture in Neutron Scattering Applications in Structural Biology Workshop, June 14 **2018**, Oak Ridge, TN.
4. Presented small-angle neutron scattering lecture to University of Chicago biophysics students, September 22 **2017**, Chicago, IL.
3. Presented small-angle neutron scattering lecture to visiting University of Windsor biophysics students, September 10 **2017**, Oak Ridge, TN.
2. Presented small-angle neutron scattering lecture in Neutron Scattering Applications in Structural Biology Workshop, June 8 **2017**, Oak Ridge, TN.
1. Judge for oral presentations at Third Annual Women in STEM Research Symposium, March 21 **2017**, University of Tennessee, Knoxville, TN.

PROFESSIONAL DEVELOPMENT

Principles of Fluorescence Techniques, Chicago, IL

April 7 – 9, 2010

11th Canadian Neutron Scattering Summer School, Chalk River, ON

May 9 –13, 2011

PROFESSIONAL ACTIVITIES

Conferences

5. Co-organizer and co-chair for session “Scattering Strategies in Biomembranes Research.” American Crystallographic Association 68th Annual Meeting, July 20-24 **2018**, Toronto, ON, Canada.
4. Co-organizer and co-chair for session “SAS with Membranes and Membrane Proteins.” American Crystallographic Association 65th Annual Meeting, July 25-29 **2015**, Philadelphia, PA.
3. Chair for opening session of Biomembranes Workshop, July 8-9 **2014**, Oak Ridge National Laboratory, Oak Ridge, TN.
2. Moderator for Workshop “Proposal Preparation for SNS, HFIR and CNMS.” Neutrons and Nano User Meeting 2013, August 12-25 **2013**, Oak Ridge National Laboratory, Oak Ridge, TN.
1. Chair for session “Structure and Dynamics of Biomembranes.” American Physical Society March Meeting 2013, March 18-22 **2013**, Baltimore, MD.

Committees

Secretary, SNS and HFIR User Group (SHUG) Executive Committee

Dec. 2011–June 2013

Peer Review

Proceedings of the National Academy of Sciences of the USA, Journal of the American Chemical Society, Biophysical Journal, Langmuir, Journal of Physical Chemistry B, European Biophysics Journal, Scientific Reports, Journal of Visualized Experiments