Curriculum Vitae
Frederick A. Heberle

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ACADEMIC APPOINTMENTS

University of Tennessee — Knoxville, TN
Assistant Professor, Department of Chemistry — Aug 2019 – present

Stockholm University — Stockholm, Sweden
Senior Researcher, Department of Biochemistry and Biophysics — Mar 2025 – present

University of Texas Health Science Center — Houston, TX
Research Asst. Professor, Dept. of Integrative Biology and Pharmacology — Oct 2018 – Aug 2019

University of Tennessee/Oak Ridge National Laboratory — Knoxville/Oak Ridge, TN
Research Scientist, The Bredesen Center Joint Research Activity Unit — Oct 2017 – Aug 2019

University of Tennessee/Oak Ridge National Laboratory — Knoxville/Oak Ridge, TN
Research Scientist, Joint Institute for Biological Sciences — Oct 2015 – Oct 2017

Oak Ridge National Laboratory — Oak Ridge, TN
Postdoctoral Researcher, Neutron Sciences Directorate — Jan 2011 – Oct 2015

Cornell University — Ithaca, NY
Technician, Field of Biophysics — May 2003 – Aug 2005

EDUCATION

Cornell University — Ithaca, NY
Ph.D. in Biophysics, Minor in Physical Chemistry — Aug 2005 – Jan 2011
Thesis Advisor: Dr. Gerald W. Feigenson
GPA: 4.11/4.3

Cornell University — Ithaca, NY
B.A. in Chemistry with Distinction in All Subjects — Aug 1995 – May 2003
Dean's List (7), Phi Beta Kappa
GPA: 3.96/4.3

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

CITATIONS

Google Scholar February 2026

Total citations	7170
h-index	44
i10-index	71

PEER REVIEWED ARTICLES

**Authors contributed equally †Corresponding author*

67. Mehta D, Chaisson EC, Cooper AM, Ahmed M, Waxham MN, Heberle FA. **2026.** Nanodomain formation in lipid bilayers II: The influence of mixed-chain saturated lipids. *Biochimica et Biophysica Acta Biomembranes* 1868:184507.

66. Chaisson EC, Mehta D, Heberle FA. **2026.** Nanodomain formation in lipid bilayers I: Quantifying the nanoscopic miscibility transition with FRET. *Biochimica et Biophysica Acta Biomembranes* 1868:184505.

65. Medina M, Chang Y-T, Rahmani H, Frank M, Khan Z, Fuentes D, Heberle FA, Waxham MN, Barad BA, Grotjahn DA. **2026.** Surface Morphometrics reveals local membrane thickness variation in organellar subcompartments. *Journal of Cell Biology* 225:e202505059.

64. Rodríguez-García T, Akakpo L, Nickles SL, Schuck RJ, Alves DS, Schaefer KG, Heberle FA, King GM, Barrera FN. **2025.** Engineering of lipid membranes asymmetrically functionalized with chondroitin sulfate. *Faraday Discussions* 259:168-181.

63. Heberle FA, Doktorova M. **2025.** Exploring the sensitivities of experimental techniques to various types of membrane asymmetry using atomistic simulations. *Faraday Discussions* 259:300-320.

62. Chaisson EH, Heberle FA,† Doktorova M.† **2025.** Quantifying acyl chain interdigitation in simulated bilayers via direct transbilayer interactions. *Journal of Chemical Information and Modeling* 65:3879-3885.

61. Doktorova M, Symons JL, Zhang X, Wang H-Y, Schlegel J, Lorent JH, Heberle FA, Sezgin E, Lyman E, Levental KR, Levental I. **2025.** Cell membranes sustain phospholipid imbalance via cholesterol asymmetry. *Cell* 188:2586-2602.e24.

60. Mehta D, Crumley EC, Lou J, Dzikovski B, Best MD, Waxham MN, Heberle FA.† **2025.** Halogenated cholesterol alters the phase behavior of ternary lipid membranes. *The Journal of Physical Chemistry B* 129:671-683.

59. Fitzgerald JE III, Soloviov D, Cai YQ, Heberle FA, Ishikawa D, Baron AQR, Bolmatov D, Zhernenkov M, Lyman ER. **2024.** Phonons reveal coupled cholesterol-lipid dynamics in ternary membranes. *Biophysical Journal* 123:4042-4049.

58. Sharma K, Doktorova M, Waxham MN, Heberle FA.† **2024.** Cryo-EM images of phase separated lipid bilayer vesicles analyzed with a machine learning approach. *Biophysical Journal* 123:2877-2891.

57. Scott HL, Burns-Casamayor V, Dixson AC, Standaert RF, Stanley CB, Stingaciu L-R, Carillo J-MY, Sumpter BG, Katsaras J, Qiang W, Heberle FA, Mertz B, Ashkar R, Barrera FN. **2024.** Neutron spin echo shows pHLIP is capable of retarding membrane thickness fluctuations. *Biochimica et Biophysica Acta Biomembranes* 1866:184349.

56. Enoki TA, Heberle FA.† **2023.** Experimentally determined leaflet-leaflet phase diagram of an asymmetric lipid bilayer. *Proceedings of the National Academy of Sciences of the USA* 120:e2308723120.

55. Castello-Serrano I, Heberle FA, Diaz-Rohrer B, Ippolito R, Shurer CR, Lujan P, Campelo F, Levental KR , Levental I. **2023.** Partitioning to ordered membrane domains regulates the kinetics of secretory traffic. *eLife* 12:RP89306.

54. Ward AE, Sokovikova D, Waxham MN, Heberle FA, Levental I, Levental KR, Kiessling V, White JM, Tamm LK. **2023.** Serinc5 restricts HIV membrane fusion by altering lipid order and heterogeneity in the viral membrane. *ACS Infectious Diseases* 9:773-784.

53. Heberle FA,† Welsch D, Scott HL, Waxham MN.† **2023.** Optimization of cryo-electron microscopy for quantitative analysis of lipid bilayers. *Biophysical Reports* 3:100090.

52. Frewein MPK, Piller P, Semeraro EF, Batchu K, Heberle FA, Scott HL, Gerelli Y, Porcar L, Pabst G. **2022.** Interdigitation-induced Order and Disorder in Asymmetric Membranes. *The Journal of Membrane Biology* 255:407-421.

51. Koner S, Tawfik J, Mashali F, Kennison KB, McClintic WT, Heberle FA, Tu Y-M, Kumar M, Sarles SA. **2022.** Homogeneous hybrid droplet interface bilayers assembled from binary mixtures of DPhPC phospholipids and PB-*b*-PEO diblock copolymers. *Biochimica et Biophysica Acta Biomembranes* 1864:183997.

50. DiPasquale M, Deering TG, Desai D, Sharma AK, Amin S, Fox TE, Kester M, Katsaras J, Marquardt D, Heberle FA.† **2022.** Influence of ceramide on lipid domain stability studied with small-angle neutron scattering: The role of acyl chain length and unsaturation. *Chemistry and Physics of Lipids* 245:105205.

49. Lewis-Laurent A, Doktorova M, Heberle FA,† Marquardt D.† **2021.** Vesicle Viewer: Online visualization and analysis of small-angle scattering from lipid vesicles. *Biophysical Journal* 120:4639-4648.

48. Frewein MPK, Doktorova M, Heberle FA, Scott HL, Semeraro EF, Porcar L, Pabst G. **2021.** Structure and Interdigitation of Chain-Asymmetric Phosphatidylcholines and Milk Sphingomyelin in the Fluid Phase. *Symmetry* 13:1441.

47. Ashkar R, Doktorova M, Heberle FA, Scott HL, Barrera FN, Katsaras J, Khelashvili G, Brown M. **2021.** Reply to Nagle et al.: The universal stiffening effects of cholesterol on lipid membranes. *Proceedings of the National Academy of Sciences of the USA* 118:e2102845118.

46. Enoki TA, Wu J, Heberle FA, Feigenson GW. **2021.** Dataset of asymmetric giant unilamellar vesicles prepared via hemifusion: Observation of anti-alignment of domains and modulated phases in asymmetric bilayers. *Data in Brief* 35:106927.

45. Enoki TA, Wu J, Heberle FA, Feigenson GW. **2021.** Investigation of the domain line tension in asymmetric vesicles prepared via hemifusion. *Biochimica et Biophysica Acta* 1863:183586.

44. Scott HL, Baker JR, Frederick AF, Kennison KB, Mendes K, Heberle FA.† **2020.** FRET from phase-separated vesicles: An analytical solution for a spherical geometry. *Chemistry and Physics of Lipids* 233:104982.

43. Chakraborty S, Doktorova M, Molugu TR, Heberle FA, Scott HL, Dzikovski B, Nagao M, Stingaciu L-R, Standaert RF, Barrera FN, Katsaras J, Khelashvili G, Brown M, Ashkar R. **2020.** How cholesterol stiffens unsaturated lipid membranes. *Proceedings of the National Academy of Sciences of the USA* 117:21896-21905 **(*400+ citations*)**.

42. Heberle FA,† Doktorova M, Scott HL, Skinkle A, Waxham MN,† Levental I.† **2020.** Direct label-free imaging of nanodomains in biomimetic and biological membranes by cryogenic electron microscopy. *Proceedings of the National Academy of Sciences of the USA* 117:19943-19952 **(*Journal Cover, 100+ citations*)**.

41. Dorrell MW, Heberle FA, Katsaras J, Maibaum L, Lyman E, Sodt AJ. **2020.** Laterally resolved small-angle scattering intensity from lipid bilayer simulations: an exact and a limited-range treatment. *Journal of Chemical Theory and Computation* 16:5287-5300.

40. Doktorova M, Kučerka N, Kinnun JJ, Pan J, Marquardt D, Scott HL, Venable RM, Pastor RW, Wassall SR, Katsaras J,† Heberle FA.† **2020.** Molecular Structure of Sphingomyelin in Fluid Phase Bilayers Determined by the Joint Analysis of Small-Angle X-ray and Neutron Scattering Data. *Journal of Physical Chemistry B* 124:5186-5200.

39. DiPasquale M, Nguyen MHL, Rickeard BW, Cesca N, Tannous C, Castillo SR, Katsaras J, Kelley EG, Heberle FA, Marquardt D. **2020**. The antioxidant vitamin E as a membrane raft modulator: Tocopherols do not abolish lipid domains. *Biochimica et Biophysica Acta* 1862:183189.

38. Marquardt D, Heberle FA, Pan J, Cheng X, Pabst G, Harroun TA, Kučerka N, Katsaras J. **2020.** The structures of polyunsaturated lipid bilayers by joint refinement of neutron and X-ray scattering data. *Chemistry and Physics of Lipids* 229:104892.

37. Rickeard BW, Nguyen MHL, DiPasquale M, Yip CG, Baker H, Heberle FA, Zuo X, Kelley EG, Nagao M, Marquardt D. **2020.** Transverse lipid organization dictates bending fluctuations in model plasma membranes. *Nanoscale* 12:1438-1447 **(*Journal Cover*)**.

36. Scott HL, Skinkle A, Kelley EG, Waxham MN, Levental I, Heberle FA.† **2019.** On the mechanism of bilayer separation by extrusion; or, why your LUVs are not really unilamellar. *Biophysical Journal* 117:1381-1386 **(*100+ citations*)**.

35. Nguyen MHL, DiPasquale M, Rickeard BW, Doktorova M, Heberle FA, Scott HL, Barrera FN, Taylor G, Collier CP, Stanley CB, Katsaras J, Marquardt D. **2019.** Peptide-Induced Lipid Flip-Flop in Asymmetric Liposomes Measured by Small Angle Neutron Scattering. *Langmuir* 35:11735-11744.

34. Scott HL, Heberle FA, Katsaras J, Barrera FN. **2019.** Phosphatidylserine asymmetry promotes the membrane insertion of a transmembrane helix. *Biophysical Journal* 116:1495-1506.

33. Doktorova M, Heberle FA, Marquardt D, Rusinova R, Sanford RL, Peyear TA, Katsaras J, Feigenson GW, Weinstein H, Anderson OS. **2019.** Gramicidin Increases Lipid Flip-Flop in Symmetric and Asymmetric Lipid Vesicles. *Biophysical Journal* 116:860-873.

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* 13:2086-2101 **(*100+ citations*)**.

31. Wassall SR, Leng X, Canner SW, Pennington ER, Kinnun JJ, Cavazos AT, Dadoo S, Johnson D, 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* 1860:1985-1993.

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, Biophysical Journal Best of 2018, 100+ citations***).

28. Doktorova M,* Heberle FA,†* Kingston RL, Khelashvili G, Wen Y, Katsaras J, Feigenson GW, Vogt VM, Dick RA.†* **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*, *100+ citations***).

25. Marquardt D,†* Heberle FA,†* Miti T, Eicher B, London E, Katsaras J, Pabst G.† **2017.** ^{1}H NMR Shows Slow Phospholipid Flip-Flop in Gel and Fluid Bilayers. *Langmuir* 33:3731-3741 ***(Journal cover*, *100+ citations***).

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*, *100+ citations*)**.

20. Xia Y, Li M, Charubin K, Liu Y, Heberle FA, Katsaras J, Jing B, Zhu Y, Nieh M-P. **2015.** 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, Feygenson 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 **(*100+ citations*)**.

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***, ***100+ citations***).

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 (***100+ 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***, ***300+ 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 (***100+ 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 (***200+ 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 (***100+ 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 (***200+ 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 (***100+ 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 (***300+ 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 **(*400+ citations*)**.

REFEREED REVIEW ARTICLES AND COMMENTARIES

15. Doktorova M,† Levental I,† Heberle FA.† **2023.** Seeing the Membrane from Both Sides Now: Lipid Asymmetry and Its Strange Consequences. *Cold Spring Harbor Perspectives in Biology* 15:a041393.

14. Chaisson EH, Heberle FA, Doktorova M. **2023.** Building Asymmetric Lipid Bilayers for Molecular Dynamics Simulations: Which Methods Exist and How to Choose One? *Membranes* 13:629.

13. Sharma KD, Heberle FA,† Waxham MN.† **2023.** Visualizing lipid membrane structure with cryo-EM: past, present, and future. *Emerging Topics in Life Sciences* 7:55-65.

12. Kelley EG,† Heberle FA.† **2022.** Sensing a little friction. *Biophysical Journal* 121:2827-2829.

11. Scott HL, Kennison KB, Enoki TA, Doktorova M, Kinnun JJ, Heberle FA, Katsaras J. **2021.** Model membrane systems used to study plasma membrane lipid asymmetry. *Symmetry* 13:1356.

10. Levental I, Levental K, Heberle FA. **2020.** Lipid rafts: controversies solved, mysteries remain. *Trends in Cell Biology* 30:341-353 **(*600+ citations*)**.

9. Heberle FA.† **2019.** With lipid rafts, context is everything. *Biophysical Journal* 117:1549-1551. (***Biophysical Journal Spotlight on Early Career Investigators 2019***).

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.** Using small-angle neutron scattering to detect nanoscopic lipid domains. *Chemistry and Physics of Lipids* 170-171:19-32.

3. 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 **(*100+ citations*)**.

2. Heberle FA, Feigenson GW. **2011**. Phase Separation in Lipid Membranes. *Cold Spring Harbor Perspectives in Biology* 3:a004630 **(*300+ citations*)**.

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.

BOOK CHAPTERS

5. Sharma K, Heberle FA, Doktorova M. **2026**. From molecular dynamics to cryo-EM: Imaging liposomes in silico. *In* Methods in Enzymology (MIE) Vol. 728: Lipids and Membranes: Metabolism, Lipidation, and Lipid-Protein Interactions. J. Baskin, D. Christianson, and K. Allen, editors. Academic Press. Cambridge, MA (in press).

4. Heberle FA, Waxham MN. **2024**. Phase separation in model lipid membranes investigated with cryogenic electron microscopy. *In* Methods in Enzymology (MIE) Vol. 700: Biophysical Approaches for the Study of Membrane Structure Part A. T. Baumgart and M. Deserno, editors. Academic Press. Cambridge, MA, pp. 189-216.

3. DiPasquale M, Nguyen MHL, Castillo SR, Heberle FA, Marquardt D. **2022**. Identifying Membrane Lateral Organization by Contrast-Matched Small Angle Neutron Scattering. *In* Membrane Lipids: Methods and Protocols. Methods in Molecular Biology vol. 2402. C.G. Cranfield, editor. Humana, New York, NY.

2. 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.

1. 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.

ENCYLOPEDIA ENTRIES

1. 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.

EDITED VOLUMES and SPECIAL ISSUES

2. Nieh M-P, Heberle FA, Katsaras J. **2019**. Characterization of Biological Membranes: Structure and Dynamics. De Gruyter STEM Series. Walter De Gruyter GmbH & Co (ISBN 3110544687).

1. Katsaras J, Heberle FA, Myles DAA. **2015**. ORNL Workshop on Biomembranes. *Chemistry and Physics of Lipids* Vol. 192.

INVITED TALKS

26. "Visualizing lipid membrane structure with cryo-EM: Past, present, and future." Label-free Approaches to Characterizing Membranes and Membrane Assemblies Symposium, Biophysical Society 69th Annual Meeting, February 17 **2025**, Los Angeles, CA.

25. "Direct label-free imaging of nanodomains in biomimetic and biological membranes by cryogenic electron microscopy." Biochemistry & Cell Biology Seminar, October 12 **2023**, Stony Brook University, Stony Brook, NY.

24. "Looking at rafts from different perspectives: Four techniques to detect lipid domains." SNS/HFIR Neutron Sciences User Meeting, June 6 **2023**, Oak Ridge National Laboratory, Oak Ridge, TN.

23. "Phase diagram of an asymmetric lipid bilayer determined from asymmetric giant unilamellar vesicles." Biomembrane Synthesis, Structure, Mechanics, and Dynamics Symposium, Chemistry Seminar, ACS Spring 2023, March 28 **2023**, Indianapolis, IN.

22. "Portrait of a raft in vitro: Optimizing cryo-EM for imaging membrane domains." Biological Membranes and Membrane Proteins: Challenges for Theory and Experiment Workshop, June 19-24 **2022**, Santa Fe, NM.

21. "Looking at rafts from different perspectives: Four techniques to detect lipid domains." Large Scale Structures Seminar, May 17 **2022**, Oak Ridge National Laboratory, Oak Ridge, TN (virtual seminar).

20. "Portrait of a raft in vitro: The development of cryo-EM for imaging membrane domains." Chemistry Seminar, February 11 **2022**, University of North Carolina Wilmington, Wilmington, NC (virtual seminar).

19. "A picture worth a thousand words: Optimizing cryo-EM for membrane structural studies." Chemical and Biological Approaches to the Investigation of Lipid Membranes Symposium, 2021 Southeast Regional Meeting of the American Chemical Society (SERMACS), November 10 **2021**, Birmingham, AL.

18. "Direct label-free imaging of nanodomains in biomimetic and biological membranes by cryogenic electron microscopy." Institute of Molecular Biosciences Seminar, December 15 **2020**, University of Graz, Graz, Austria (virtual seminar).

17. "Direct label-free imaging of nanodomains in biomimetic and biological membranes by cryogenic electron microscopy." Center for Membrane and Cell Physiology Seminar, December 14 **2020**, University of Virginia, Charlottesville, VA (virtual seminar).

16. "Direct label-free imaging of nanodomains in biomimetic and biological membranes by cryogenic electron microscopy." Erdinc Sezgin's Online Journal Club, September 30 **2020** (virtual seminar).

15. "The revolution will not be symmetrized: Lessons from asymmetric model membranes." Membrane Structure and Function Symposium, Biophysical Society 65th Annual Meeting, February 15 **2020**, San Diego, CA.

14. "Experimental tools for studying lipid organization in complex biomimetic membranes." 5th International Kyushu Colloid Colloquium, November 9 **2019**, Okinawa Institute for Science and Technology, Naha, Japan.

13. "Lipid organization in complex biomimetic membranes: Lessons from physical chemistry." Okinawa Colloids 2019, November 5 **2019**, Okinawa, Japan.

12. "Direct imaging of nanoscale lipid organization in probe-free biomimetic membranes." ORNL Workshop on Lateral Membrane Heterogeneity, October 16 **2019**, Oak Ridge National Laboratory, Oak Ridge, TN.

11. "Elucidating the structure of complex biomembranes with neutron scattering." Neutron Advisory Board, September 13 **2019**, Oak Ridge National Laboratory, Oak Ridge, TN.

10. "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.

9. "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.

8. "Toward a Better Plasma Membrane Model: Probing Lipid Bilayer Asymmetry with SANS." 5th International Symposium on Diffraction Structural Biology, August 10 **2016**, Knoxville, TN.

7. "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.

6. "New Tools for Probing the Spatial Organization of Biomimetic Membranes." 251st American Chemical Society National Meeting & Exposition, March 16 **2016**, San Diego, CA.

5. "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.

4. "Probing the spatial organization of lipid membranes with SANS." American Crystallographic Association 65th Annual Meeting, July 28 **2015**, Philadelphia, PA.

3. "Membrane raft mixtures investigated with fluorescence and SANS." Membrane Biophysics Workshop, March 3 **2015**, Telluride, CO.

2. "How do cells control membrane raft size?" Cornell University Biophysics Colloquium, March 26 **2014**, Ithaca, NY.

1. "Membrane Raft Mixtures Investigated with Small-angle Neutron Scattering." 245th American Chemical Society National Meeting & Exposition, April 8 **2013**, New Orleans, LA.

RECRUITING SEMINARS

Title: "A raft on stormy seas: Using physical chemistry to unlock the mysteries of cell membranes."

7. February 2 **2024**, Middle Tennessee State University, Murfreesboro, TN.

6. November 17 **2023**, University of North Carolina Asheville, Asheville, NC.

5. November 17 **2022**, Berea College, Berea, KY.

4. December 3 **2021**, University of St. Thomas, St. Paul, MN (virtual seminar).

3. September 24 **2021**, College of Saint Mary, Omaha, NE (virtual seminar).

2. March 5 **2021**, University of Wisconsin Oshkosh, Oshkosh, WI (virtual seminar).

1. October 30 **2019**, Lincoln Memorial University, Harrogate, TN.

DEPARTMENTAL TALKS

8. "SANS III: Contrast variation." Neutron Scattering Applications in Structural Biology Workshop, June 14 **2018**, Oak Ridge, TN.

7. "Lateral lipid organization in complex biomimetic membranes: Insight from small-angle neutron scattering." Workshop on Inhomogeneous Membranes, September 14 **2017**, Oak Ridge, TN.

6. "SANS III: Contrast variation." Neutron Scattering Applications in Structural Biology Workshop, June 8 **2017**, Oak Ridge, TN.

5. "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.

4. "Asymmetric liposomes: Developing a robust platform for structural studies." Biomembranes Review, May 26 **2015**, Oak Ridge, TN.

3. "Asymmetric liposomes: Developing a robust platform." Biomembranes Workshop, January 28 **2015**, Oak Ridge, TN.

2. "SANS studies of lateral organization in model membranes." Biomembranes Workshop, February 24 **2014**, Oak Ridge, TN.

1. "Membrane Raft Mixtures Investigated with Small-angle Neutron Scattering." Neutrons in Structural Biology Symposium, June 24 **2013**, Oak Ridge, TN.

CONTRIBUTED CONFERENCE PRESENTATIONS

29. Heberle FA. Investigating the influence of membrane dipole potential on Ld/Lo phase separation in model membranes. Biomembrane Days 2025, September 30 **2025**, Berlin, Germany (talk).

28. Sharma K, Waxham MN, Heberle FA. "Investigating the influence of membrane dipole potential on liquid-ordered/liquid-disordered phase separation in model membranes." Biomembrane Synthesis, Structure, Mechanics, and Dynamics Symposium, ACS Spring 2024, March 17 **2024**, New Orleans, LA (virtual talk).

27. Enoki TA, Heberle FA. Experimentally determined leaflet-leaflet phase diagram of an asymmetric lipid bilayer. Biophysical Society 2024 Annual Meeting, February 10-14 **2024**, Philadelphia, PA (talk).

26. Heberle FA. Portrait of a raft *in vitro*: Developing cryo-EM for imaging membrane domains. Biomembrane Days 2022, September 19-21 **2022**, Berlin, Germany (talk).

25. Heberle FA, Doktorova M, Welsch DA, Waxham MN. Development of cryo-EM for probing lateral organization in biomembranes. ACS Spring 2022, March 20-24 **2022**, San Diego, CA (virtual talk).

24. Heberle FA, Doktorova M, Scott HL, Skinkle A, Waxham MN, Levental I. Direct label-free imaging of nanodomains in biomimetic and biological membranes by cryogenic electron microscopy. 64th Annual Biophysical Society Meeting, February 15-19 **2020**, San Diego, CA.

23. Heberle FA, DiPasquale M, Deering T, Kester M, Katsaras J, Marquardt D. The role of ceramide structure in regulating the stability of membrane domains. 63rd Annual Biophysical Society Meeting, March 2-6 **2019**, Baltimore, MD.

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.

TEACHING

9. Foundations of Physical Chemistry (CHEM 370), Fall 2024, 22 students
8. Thermodynamics and Statistical Mechanics (CHEM 572), Spring 2024, 21 students
7. Foundations of Physical Chemistry (CHEM 370), Fall 2023, 17 students
6. General Chemistry II (CHEM 132), Spring 2023, 149 students
5. Foundations of Physical Chemistry (CHEM 370), Fall 2022, 18 students
4. Thermodynamics and Statistical Mechanics (Chem 572), Spring 2022, 18 students
3. Foundations of Physical Chemistry (CHEM 370), Spring 2021, 12 students
2. General Chemistry I (CHEM 120), Fall 2020, 140 students
1. Thermodynamics and Statistical Mechanics (CHEM 572), Spring 2020, 12 students

SUPPORT

Current

Funding Organization: National Institutes of Health
Title: Development of a model for determining fluid bilayer structure from cryo-EM images of biomembranes
Award Number: R21 GM160845
Funding period: 9/01/2025-8/31/2027
Amount: $436,547
Role: Principal Investigator

Funding Organization: National Science Foundation
Title: Development of cryogenic electron microscopy for probing phase separation in lipid membranes
Award Number: CHE-2204126
Funding period: 7/01/2022-6/30/2026
Amount: $684,211
Role: Principal Investigator

Past

Funding Organization: National Institutes of Health
Title: Coupling of lateral and transverse organization in complex biomebranes
Award Number: R01 GM138887
Funding period: 9/01/2020-8/31/2025
Amount: $1,736,000
Role: Principal Investigator

Funding Organization: National Science Foundation
Title: Mechanisms of interleaflet coupling in asymmetric lipid membranes
Award Number: MCB-1817929
Funding period: 7/01/2018-6/30/2023
Amount: $749,632
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

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

SERVICE ACTIVITIES (National/International)

A. JOURNAL REVIEW

ACS Applied Materials and Interfaces, ACS Nano, ACS Omega, ACS Sensors, Analytical Chemistry, Archives of Biochemistry and Biophysics, Biochimica et Biophysica Acta Biomembranes, Biophysical Chemistry, Biophysical Journal, Biophysical Reports, Chemistry and Physics of Lipids, Communications Chemistry, Current Opinion in Colloid & Interface Science, Current Opinion in Structural Biology, Emerging Topics in Life Sciences, European Biophysics Journal, FEBS Letters, iScience, Journal of the American Chemical Society, Journal of Biological Physics, Journal of Colloid and Interface Science, Journal of Physical Chemistry B, Journal of Physical Chemistry Letters, Journal of Liposome Research, Journal of Steroid Biochemistry and Molecular Biology, Journal of Visualized Experiments, Langmuir, Membranes, PNAS, Science Advances, Scientific Reports, Small Methods, Soft Matter

B. JOURNAL EDITORSHIP

Editorial Board member/Handling Editor for Biophysical Journal, Membranes section, **2023-present**

C. PROPOSAL REVIEW

NIH NIGMS Biochemistry and Biophysics of Membranes study section temporary reviewer **2024**
NIH NIGMS General Council ad hoc councilor **2022**
NSF panel reviewer **2022**
NIH NIGMS Biochemistry and Biophysics of Membranes study section temporary reviewer **2022**
NSF panel reviewer **2021**
NSF ad hoc reviewer **2019**

D. PROFESSIONAL SOCIETIES

Biophysical Society member
American Chemical Society member
Neutron Scattering Society of America member

E. CONFERENCE and WORKSHOP ORGANIZATION

Co-chair for virtual symposium “Biomembrane Synthesis, Structure, Mechanics, and Dynamics”, ACS Spring 2024, March 17 **2024**, New Orleans, LA.
Co-chair for session “Membrane Physical Chemistry.” Biophysical Society Annual Meeting 2024, February 10-24 **2024**, Philadelphia, PA.
Co-organizer and co-chair for symposium “Chemical and Biological Approaches to the Investigation of Lipid Membranes”, 2021 Southeast Regional Meeting of the American Chemical Society (SERMACS), November 10 **2021**, Birmingham, AL.
Co-chair for session “Surfactants and Self-Assembly.” Okinawa Colloids 2019, November 4-8 **2019**, Okinawa, Japan.

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.
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.
Chair for opening session of Biomembranes Workshop, July 8-9 **2014**, Oak Ridge National Laboratory, Oak Ridge, TN.
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.
Chair for session "Structure and Dynamics of Biomembranes." American Physical Society March Meeting 2013, March 18-22 **2013**, Baltimore, MD.

F. COMMITTEES

Secretary, SNS and HFIR User Group (SHUG) Executive Committee Dec. **2011–June 2013**

G. MENTORING and OUTREACH

Presented small-angle neutron scattering lecture in HFIR/SNS Advanced Neutron Diffraction and Scattering Workshop, June 2 **2020**, virtual.
Presented small-angle neutron scattering lecture in Neutron Scattering Applications in Structural Biology Workshop, June 13 **2019**, Oak Ridge, TN.
Judge for graduate student poster competition at 63rd Annual Biophysical Society Annual Meeting, March 3 **2019**, Baltimore, MD.
Presented small-angle neutron scattering lecture in Neutron Scattering Applications in Structural Biology Workshop, June 14 **2018**, Oak Ridge, TN.
Presented small-angle neutron scattering lecture to University of Chicago biophysics students, September 22 **2017**, Chicago, IL.
Presented small-angle neutron scattering lecture to visiting University of Windsor biophysics students, September 10 **2017**, Oak Ridge, TN.
Presented small-angle neutron scattering lecture in Neutron Scattering Applications in Structural Biology Workshop, June 8 **2017**, Oak Ridge, TN.
Judge for oral presentations at Third Annual Women in STEM Research Symposium, March 21 **2017**, University of Tennessee, Knoxville, TN.

SERVICE ACTIVITIES (within UTK)

A. UNIVERSITY COMMITTEES

University of Tennessee Undergraduate Research Advisory Council **2023-2025**

B. DEPARTMENTAL COMMITTEES

Chemistry Dept. Undergraduate Engagement and Recruiting Committee (Chair) **2021-2025**
Chemistry Dept. Graduate Selection Committee **2019-2025**
Chemistry Dept. Instrumentation Needs Committee **2019-2025**

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