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Education:

- B.S. in Physics and Mathematics, 1993; University of Nebraska-Lincoln; Lincoln, NE
- M.A. in Physics, 1996; Rice University; Houston, TX; Thesis Advisor: Prof. H. W. Huang
- Ph.D. in Physics, 1999; Rice University; Houston, TX; Thesis Advisor: Prof. H. W. Huang

Positions Held:

- 2020-Present: Senior Research Scientist, SANS and Spin Echo Group Leader Neutron Scattering Division, Oak Ridge National Laboratory.
- 2019-2020: Senior Research Scientist, SANS/Spin Echo Team Lead, Neutron Scattering Division, Oak Ridge National Laboratory.
- 2017-2019: Senior Research Scientist, EQ-SANS Instrument Scientist, and LSS Suite Coordinator, Neutron Scattering Division, Oak Ridge National Laboratory.
- 2013-2017: Senior Research Scientist and Lead Instrument Scientist, EQ-SANS Instrument, Biology and Soft Matter Division, Oak Ridge National Laboratory.
- 2011-2013: Research Scientist and Lead Instrument Scientist, EQ-SANS Instrument, Neutron Scattering Sciences Division, Oak Ridge National Laboratory.
- 2009-2015: Adjunct Associate Professor, Department of Molecular & Structural Biochemistry, North Carolina State University.
- 2008-2011: Chemist/Biophysicist Research Scientist, Center for Structural Molecular Biology, Chemical Sciences Division and Neutron Scattering Sciences Division, Oak Ridge National Laboratory.
- 2009-2011: Team Leader for Low-Q Software Development Effort, Neutron Scattering Sciences Division, Oak Ridge National Laboratory
- 2004-2008: Chemist/Biophysicist Research Associate, Chemical Sciences Division and Center for Structural Molecular Biology, Oak Ridge National Laboratory.
- 2002-2004: Postdoctoral Research Associate, Condensed Matter Sciences Division and Center for Structural Molecular Biology, Oak Ridge National Laboratory.
- 1999-2002: Postdoctoral Research Associate, Bioscience Division, Los Alamos National Laboratory.

Honors and Awards:

- Oak Ridge National Laboratory Supplemental Performance Awards (X3) (PEMP) (2019)
- Oak Ridge National Laboratory Significant Event Award (SANS Science) (2017)
- Oak Ridge National Laboratory Supplemental Performance Award (PEMP) (2016)
- Oak Ridge National Laboratory Supplemental Performance Award (SDSM) (2012)
- Oak Ridge National Laboratory Incentivized Performance Award (EQ-SANS) (2011)
- Oak Ridge National Laboratory Incentivized Performance Award (Low-Q Software) (2010)
- Oak Ridge National Laboratory Significant Event Award (SANS Project) (2007)
- Oak Ridge National Laboratory Significant Event Award (SANS Project) (2006)
- Rice University Physics Department Umland Award (1998)
- NIH Houston Area Molecular Biophysics Traineeship (1995-1998)
- Texaco Fellowship (1997)
- Rice University Physics Department Chouke Award (1996)
- University of Nebraska Regents Scholarship (1989-1993)

Professional Societies:

- Member of the American Physical Society and the Neutron Scattering Society of America

Publications:

114. Ma, Y., Heller, W. T., He, L., Shelton, W. A., Rother, G. and Bharti, B., "Characterization of Nano-Assemblies inside Mesopores using Neutron Scattering," *Mol. Phys.*, in press (2021).
113. Urban, V., Heller, W. T., Katsaras, J. and Bras, W., "Soft Matter Sample Environments for Time-Resolved Small Angle Neutron Scattering Experiments: A Review," *Appl. Sci.* **11**: 5566 (2021).
112. Jafta, C. J., Sun, X.-G., Lyu, H., Chen, H., Thapaliya, B. P., Heller, W. T., Cuneo, M. J., Mayes, R. T., Paranthaman, M. P., Dai, S. and Bridges, C. A., "Insight into the High Voltage Formation of a Solid Electrolyte Interphase (SEI) in Bis(fluorosulfonyl)imide based Ionic Liquid Electrolytes," *Adv. Func. Mater.* **31**: 2170163 (2021).
111. Doucet, M., Archibald, R. and Heller, W. T., "Modeling of Neutron Reflectometry Data from Two-Layer Thin Films using Neural Networks," *Mach. Learn. Sci. Technol.* **2**: 035001 (2021).
110. Rother, G., Tumuluri, U., Huang, K., Heller, W. T. and Dai, S., "Interactions of Imine Polymer with Nanoporous Silica and Carbon in Hybrid Adsorbents for Carbon Capture," *Langmuir* **37**: 4622-4631 (2021).
109. Tao, Y., Teng, C., Musho, T. D., van de Burg, L. J., Lochner, E., Heller, W. T., Strouse, G., Dudley, G. B. and Stiegman, A. E., "Direct Measurement of the Selective Microwave-Induced Heating of Agglomerates of Dipolar Molecules: The Origin of and Parameters Controlling a Microwave Specific Superheating Effect," *J. Phys. Chem. B* **125**: 2146-2156 (2021).
108. Doucet, M., Samarakoon, A. M., Do, C., Heller, W. T., Archibald, R., Tennant, D. A., Proffen, T. and Granroth, G. E., "Machine Learning for Neutron Scattering at ORNL," *Mach. Learn. Sci. Technol.* **2**: 023001 (2021).
107. Heller, W. T., "A Small-Angle Neutron Scattering Study of the Physical Mechanism that Drives the Action of a Viral Fusion Peptide," *Chem. Phys. Lipids* **234**: 105022 (2021).
106. Jafta, C. J., Bridges, C. A., Bai, Y., Geng, L., Thapaliya, B. P., Meyer, H. M. III., Essehli, R., Heller, W. T. and Belharouk, I., "Probing of Li₄Ti₅O₁₂ Interface by Operando Small Angle Neutron Scattering upon Lithium Uptake," *Chem. Sus. Chem.* **13**: 3654-3661 (2020).
105. Li, M., Heller, W. T., Gao, C. Y., Cai, Y., Hou, Y. and Nieh, M.-P., "Effects of Fluidity and Charge Density on the Morphology of a Bicellar Mixture – A SANS Study," *Biochim. Biophys. Acta* **1862**: 183315 (2020).
104. Archibald, R. K., Doucet, M., Johnston, J. T., Young, S. R., Yang, E. and Heller, W. T., "Classifying and Analyzing Small-Angle Scattering Data using Weighted K-Nearest Neighbors Machine Learning Techniques," *J. Appl. Crystallogr.* **53**: 326-334 (2020).
103. Lee, D., Gao, X., Sun, L., Jee, Y., Poplawsky, J., Farmer, T. O., Fan, L., Guo, E.-J., Lu, Q., Heller, W. T., Haskel, D., Fitzsimmons, M. R., Chisholm, M. F., Huang, K., Yildiz, B. and Lee, H. N., "Colossal Oxygen Vacancy Formation at a (1 1 1) Fluorite-Bixbyite Interface," *Nat. Commun.* **11**: 1371 (2020).
102. Jiang, T., Hall, A., Eres, M., Hemmatian, Z., Qiao, B., Zhou, Y., Ruan, Z., Couse, A. D., Heller, W. T., Huang, H., Olvera de la Cruz, M., Rolandi, M and Xu, T., "Single Chain Heteropolymers Transport Proton Selectively and Rapidly," *Nature* **577**: 216-220 (2020).
101. Bush, M., Alhanshali, B. M., Qian, S., Stanley, C., Heller, W., Matsui, T., Weiss, T., Nicholl, I. D., Walz, T., Callaway, D. J. E. and Bu, Z., "An Ensemble of Flexible Conformations Underlies Mechanotransduction by the Cadherin-Catenin Adhesion Complex," *Proc. Natl. Acad. Sci. USA* **116**: 21545-21555 (2019).
100. Bhattacharya, S., Stanley, C., Heller, W. T., Friedman, P. A. and Bu, Z., "Dynamic Structure of the Full-Length NHERF1 Influences the Signaling Complex Assembly," *J. Biol. Chem.* **294**: 11297-11310 (2019).
99. Narita, H., Nicolson, R. M., Motokawa, R., Ito, F., Morisaku, K., Goto, M., Tanaka, M., Heller, W. T., Shiwaku, H., Yaita, T., Gordon, R. J., Love, J. B., Tasker, P. A., Schofield, E. R., Antonio, M. R. and

- Morrison, C. A., "Proton Chelating Ligands Drive Improved Chemical Separations for Rhodium," *Inorg. Chem.* **58**: 8720-8734 (2019).
98. Kang, T. H., Compton, B. G., Heller, W. T., Qian, S., Smith, G. S., Urban, V. S., Duty, C. E. and Do, C., "Structure of 3D-Printed Acrylonitrile Butadiene Styrene (ABS)/Carbon Fiber Composite Investigated by Small-Angle Neutron Scattering," *Polym. Eng. Sci.* **59**: E65-E70 (2019).
97. Motokawa, R., Kobayashi, T., Endo, H., Mu, J., Williams, C. D., Masters, A. J., Antonio, M. R., Heller, W. T. and Nagao, M., "A Telescoping View of Solute Architectures in a Complex Fluid System," *ACS Cent. Sci.* **5**: 85-96 (2019).
96. Heller, W. T. and Zolnierczuk, P. A., "Changes in Membrane Dynamics Caused by the Active State of the HIV-1 Fusion Peptide," *Biochim. Biophys. Acta* **1861**: 565-572 (2019).
95. Plaza, N. Z., Jakes, J. E., Frihart, C. R., Hunt, C. G., Yelle, D. J., Lorenz, L. F., Heller, W. T., Pingali, S. V. and Stone, D. S., "Small-Angle Neutron Scattering as a New Tool to Evaluate Moisture-Induced Swelling in the Nanostructure of Chemically Modified Wood Cell Walls," *Forest Prod. J.* **68**: 349-352 (2018).
94. Cherpak, V., Korolovych, V. F., Geryak, R., Turiv, T., Nepal, D., Kelly, J., Bunning, T. J., Lavrentovich, O. D., Heller, W. T. and Tsukruk, V. V., "Uniform Chiral Organization of Cellulose Nanocrystals in Capillary Confinement," *Nano Lett.* **18**: 6770-6777 (2018).
93. Nicholl, I. D., Matsui, T., Weiss, T. M., Stanley, C. B., Heller, W. T., Martel, A., Farago, B., Callaway, D. J. E. and Bu, Z., " α -Catenin Structure and Nanoscale Dynamics in Solution and in Complex with F-Actin," *Biophys. J.* **115**: 642-654 (2018).
92. Korolovych, V., Erwin, A., Stryutsky, A., Lee, H., Heller, W. T., Shevchenko, V. V., Bulavin, L. A., Tsukruk, V. V., "Thermally Responsive Hyperbranched Poly(ionic liquid): Assembly and Phase Transformations," *Macromolecules* **51**: 4923-4937 (2018).
91. Heller, W. T., Cuneo, M. J., Debeer-Schmitt, L. M., Do, C., He, L., Heroux, L., Littrell, K. C., Pingali, S. V., Qian, S., Stanley, C. B., Urban, V. S., Wu, B. and Bras, W., "The Suite of Small-angle Neutron Scattering Instruments at Oak Ridge National Laboratory," *J. Appl. Crystallogr.* **51**: 242-248 (2018).
90. Dyatkin, B., Osti, N. C., Zhang, Y., Wang, H.-W., Mamontov, E., Heller, W. T., Zhang, P., Rother, G., Cummings, P. T., Wesolowski, D. J. and Gogtsi, Y., "Ionic Liquid Structure, Dynamics, and Electrosorption in Carbon Electrodes with Bimodal Pores and Heterogeneous Surfaces," *Carbon* **129**: 104-118 (2018).
89. Kang, T., Qian, S., Smith, G. S., Do, C. and Heller, W. T., "Small-Angle Neutron Scattering Study of a Dense Microemulsion System formed with an Ionic Liquid," *Soft Matter* **13**: 7154-7160 (2017).
88. Jang, Y., Choi, W. T., Heller, W. T., Ke, Z., Wright, E. R. and Champion, J. A., "Engineering Globular Protein Vesicles through Tunable Self-Assembly of Recombinant Proteins," *Small* **13**: 1700399 (2017).
87. Brown, P., Sresht, V., Eral, B. H., Fiore, A., de la Fuente-Núñez, C., O'Mahony, M., Mendes, G. P., Heller, W. T., Doyle, P. S., Blankschtein, D. and Hatton, T. A., "CO₂-Reactive Ionic Liquid Surfactants for the Control of Colloidal Morphology," *Langmuir* **33**: 7633-7641 (2017).
86. Bridges, C. A., Sun, X.-S., Guo, B., Heller, W. T., He, L., Paranthaman, M. P. and Dai, S., "Observing Framework Expansion of Ordered Mesoporous Hard Carbon Anodes with Ionic Liquid Electrolytes via In-Situ Small-Angle Neutron Scattering," *ACS Energy Lett.* **2**: 1698-1704 (2017).
85. Callaway, D. J. E., Matsui, T., Weiss, T. M., Stingaciu, L., Stanley, C., Heller, W. T. and Bu, Z., "Controllable Activation of Nanoscale Dynamics in Disordered Protein Alters Binding Kinetics," *J. Mol. Biol.* **429**: 987-998 (2017).
84. Srivastava, S., Andreev, M., Levi, A. E., Goldfeld, D. J., Mao, J., Heller, W. T., Prabhu, V. M., de Pablo, J. J. and Tirrell, M. V., "Gel Phase Formation in Dilute Triblock Copolyelectrolyte Complexes," *Nat. Commun.* **8**: 14131 (2017).
83. Chen, Y., Cheng, Y., Li, J., Feyngenson, M., Heller, W. T., Liang, C. and An, K., "Lattice-cell Orientation Disorder in Complex Oxides," *Adv. Energy Mater.* **7**: 1601950 (2017).

82. Lee, D., Gao, X., Fan, L., Guo, E.-J., Farmer, T. O., Heller, W. T., Ward, T. Z., Eres, G., Fitzsimmons, M. R., Chisholm, M. F., Lee, H. N., "Non-equilibrium Synthesis of Highly Porous Single-Crystalline Oxide Nanostructures," *Adv. Mater. Interfaces* **4**: 1601034 (2017).
81. Heller, W. T. and Rai, D. K., "Changes in Lipid Bilayer Structure caused by the Helix-to-Sheet Transition of an HIV-1 gp41 Fusion Peptide Derivative," *Chem. Phys. Lipids* **203**: 46-53 (2017).
80. Pingali, S. V., Urban, V. S., Heller, W. T., McGaughey, J., O'Neill, H., Foston, M. B., Li, H., Wyman, C. E., Myles, D. A., Langan, P., Ragauskas, A., Davison, B. and Evans, B. R., "Understanding Multiscale Structural Changes During Dilute Acid Pretreatment of Switchgrass and Poplar," *ACS Sus. Chem. Engineer.* **5**: 426-435 (2017).
79. Etampawala, T., Aryal, D., Osti, N., He, L., Heller, W. T., Willis, C., Grest, G. and Perahia, D., "Associate of Multifunctional Ionic Block Copolymers in a Selective Solvent," *J. Chem. Phys.* **145**: 184903 (2016).
78. Rai, D. K., Qian, S. and Heller, W. T., "The Interaction of Melittin with Dimyristoyl Phosphatidylcholine-Dimyristoyl Phosphatidylserine Lipid Bilayer Membranes," *Biochim. Biophys. Acta* **1858**: 2788-2794 (2016).
77. Motokawa, R., Endo, H., Nagao, M. and Heller, W. T., "Neutron Polarization Analysis for Biphasic Solvent Extraction Systems," *Solvent Extr. Ion Exch.* **34**: 399-406 (2016).
76. Rai, D. K., Sharma, V. K., Anunciado, D., O'Neill, H., Mamontov, E., Urban, V., Heller, W. T. and Qian, S., "Interplay of Amyloid β Peptide(1-40) and an Anionic Lipid 1,2-dimyristoyl-sn-glycero-3-phosphoglycerol," *Sci. Rep.* **6**: 30983 (2016).
75. Motokawa, R., Kobayashi, T., Endo, H., Ikeda, T., Yaita, T., Suzuki, S., Narita, H. and Heller, W. T., "Small-Angle Neutron Scattering Study of Specific Interaction and Coordination Structure formed by Mono-acetyl Substituted Dibenzo-20-crown-6-ether and Cesium Ion," *J. Nucl. Sci. Technol.* **53**: 1205-1211 (2016).
74. Plaza, N. Z., Qian, S., Heller, W. T., Pingali, S. V. and Jakes, J. E., "Informing the Improvement of Forest Products' Durability using Small Angle Neutron Scattering," *Cellulose* **23**: 1593-1607 (2016).
73. Osti, N. C., Naguib, M., Ostadhossein, A., Xie, Y., Kent, P. R. C., Dyatkin, B., Rother, G., Heller, W. T., van Duin, A. C. T., Gogotsi, Y. and Mamontov, E., "Effect of Metal Ion Intercalation on the Structure of MXene and Water Dynamics on its Internal Surfaces," *ACS Appl. Mater. Interfaces* **8**: 8859-8863 (2016).
72. Vandavasi, V. G., Putnam, D. K., Zhang, Q., Petridis, L., Heller, W. T., Nixon, B. T., Haigler, C. H., Kalluri, U., Coates, L., Langan, P., Smith, J. C., Meiler, J. and O'Neill, H., "A Structural Study of Recombinant CESA1 Catalytic Domain of Arabidopsis thaliana Cellulose Synthase Complex: Evidence for CESA Trimers," *Plant Physiol.* **170**: 123-135 (2016).
71. Das, A., Gerlits, O., Parks, J. M., Langan, P., Kovalevsky, A. and Heller W. T., "Protein Kinase A Catalytic Subunit Primed for Action: Time-Lapse Crystallography of Michaelis Complex Formation," *Structure* **23**: 2331-2340 (2015).
70. Qian, S. and Heller, W. T., "Melittin-Induced Cholesterol Reorganization in Lipid Bilayer Membranes", *Biochim. Biophys. Acta* **1848**: 2253-2260 (2015).
69. Gerlits, O., Tian, J., Das, A., Langan, P., Heller, W. T. and Kovalevsky, A., "Phosphoryl Transfer Reaction Snapshot in Crystals: Insights into the Mechanism of Protein Kinase A Catalytic Subunit," *J. Biol. Chem.* **290**: 15538-15548 (2015).
68. Khajeh, J. A., Ju, J. H., Stanley, C. B., Do, C., Heller, W. T., Callaway, D. J. E. and Bu, Z., "Phosphatidylinositol 4,5-Bisphosphate Activates CD44 and Facilitates the Assembly of a CD44-Ezrin Heterotetramer Complex," *J. Biol. Chem.* **290**: 6639-6652 (2015).
67. Kumar, R., Lokitz, B. S., Sides, S. W., Chen, J., Heller, W. T., Ankner, J. F., Browning, J., Kilbey, S. M. II, Sumpter, B. G., "Microphase Separation in Thin Films of Lamellar Forming Polydisperse Di-Block Copolymers," *RSC Advances* **5**: 21336-21348 (2015).
66. He, L., Do, C., Qian, S., Wignall, G. D., Heller, W. T., Littrell, K. and Smith, G. S., "Corrections for the Geometric Distortions of the Tube Detectors on SANS Instruments at ORNL," *Nucl. Inst. Meth. Phys. Res. A* **775**: 63-70 (2015).

65. Blumenthal D. K., Copps, J., Smith-Nguyen, E. V., Zhang, P., Heller, W. T. and Taylor S. S., "The Roles of the RII β Linker and N-Terminal Cyclic Nucleotide Binding Domain in Determining the Unique Structures of the Type II β Protein Kinase A: A Small-Angle X-ray and Neutron Scattering Study," *J. Biol. Chem.* **289**: 28505-28512 (2014).
64. Qian, S., Rai, D. and Heller, W. T., "Alamethicin Disrupts the Cholesterol Distribution in Dimyristoyl Phosphatidylcholine-Cholesterol Lipid Bilayers," *J. Phys. Chem. B* **118**: 11200-11208 (2014).
63. Heller, W. T., Urban, V. S., Lynn, G. W., Weiss, K. L., O'Neill, H. M., Pingali, S. V., Qian, S., Littrell, K. C., Melnichenko, Y. B., Buchanan, M. V., Selby, D. L., Wignall, G. D., Butler, P. D. and Myles, D. A., "The Bio-SANS Small-Angle Neutron Scattering Instrument at the High Flux Isotope Reactor at Oak Ridge National Laboratory," *J. Appl. Crystallogr.* **47**: 1238-1246 (2014).
62. Khejeh, J. A., Ju, J. H., Atchiba, M., Allaire, M., Stanley, C., Heller, W. T., Callaway, D. J. E. and Bu, Z., "Molecular Conformation of the Full-Length Tumor Suppressor NF2/Merlin – A Small-Angle Neutron Scattering Study," *J. Mol. Biol.* **426**: 2755-2768 (2014).
61. Gerlits, O., Das, A., Keshwani, M. M., Taylor, S., Waltman, M. J., Langan, P., Heller, W. T. and Kovalevsky, A., "Metal-free cAMP-dependent Protein Kinase can Catalyze Phosphoryl Transfer," *Biochemistry* **53**: 3179-3186 (2014).
60. Le, R., Harris, B., Iwuchukwu, I., Bruce, B. D., Cheng, X., Qian, S., Heller, W. T., O'Neill, H. and Frymier, P., "Analysis of the Solution Structure of *Thermosynechococcus elongatus* Photosystem I in n-dodecyl- β -D-maltoside using Small-Angle Neutron Scattering and Molecular Dynamics Simulation," *Arch. Biochem. Biophys.* **550-551**: 50-57 (2014).
59. Wang, H., Gurau, G., Pingali, S. V., O'Neill, H. M., Evans, B. R., Urban, V. S., Heller, W. T. and Rogers, R. D., "Physical Insight into Switchgrass Dissolution in the Ionic Liquid 1-Ethyl-3-Methylimidazolium Acetate," *ACS Sus. Chem. Eng* **2**: 1264-1269 (2014).
58. Langan, P., Petridis, L., O'Neill, H. M., Pingali, S. V., Foston, M., Nishiyama, Y., Hanson, B. L., Harton, S., Heller, W. T., Urban, V., Evans, B. R., Gnanakaran, S., Ragauskas, A. J., Smith, J. C. and Davison, B., "The Physical Process Driving Biomass Pretreatment for Bioproducts," *Green Chem.* **16**: 63-68 (2014).
57. Do, C., Heller, W. T., Stanley, C., Gallmeier, F. X., Doucet, M. and Smith, G. S., "Understanding Inelastically Scattered Neutrons from Water on a Time-of-Flight Small-Angle Neutron Scattering (SANS) Instrument," *Nucl. Inst. Meth. Phys. Res. A* **737**: 42-46 (2014).
56. Yu, D., An, K., Gao, C. Y., Heller, W. T. and Chen, X., "A Portable Hydro-Thermo-Mechanical Loading Cell for in-situ Small Angle Neutron Scattering Studies of Proton Exchange Membranes," *Rev. Sci. Inst.* **84**: 105115 (2013).
55. Alonzo, J., Kochemba, W. M., Pickel, D. L., Ramanathan, M., Sumpter, B. G., Heller, W. T., Kilbey, S. M., II, "Assembly and Organization of Poly(3-Hexylthiophene) (P3HT) Brushes and Their Potential Use as Novel Anode Buffer Layers for Organic Photovoltaics," *Nanoscale* **5**: 9357-9364 (2013).
54. Martin, S. L., He, L. L., Meilleur F., Guenther, R. H., Sit, T. L., Lommel, S. A. and Heller, W. T., "Structure of the *Red Clover Necrotic Mosaic Virus* Probed by Small-Angle Neutron Scattering," *Arch. Virol.* **158**: 1661-1669 (2013).
53. Li, S., Zhao, X., Mo, Y., Cummings, P. T. and Heller, W. T., "Human Serum Albumin Interactions with C₆₀ Fullerene Studied by Spectroscopy, Small-Angle Neutron Scattering and Molecular Dynamics Simulations," *J. Nanopart. Res.* **15**: 1769 (2013).
52. McCulloch, B., Ho, V., Hoarfrost, M., Stanley, C., Do, C., Heller, W. T., Segalman, R. A., "Polymer Chain Shape of Poly(3-alkyl thiophenes) in Solution Using Small-Angle Neutron Scattering," *Macromolecules* **46**: 1899-1907 (2013).
51. Dyer, C., Jiang, Z., Bozell, J., Rials, T., Heller, W. T., Dadmun, M., "Effect of Chain Structure on the Miscibility of Cellulose Acetate Blends: A Small-Angle Neutron Scattering Study," *Soft Matter* **9**: 3402-3411 (2013).
50. Heller, W. T., "Comparison of the Thermal Denaturing of Human Serum Albumin in the Presence of Guanidine Hydrochloride and 1-Butyl-3-Methylimidazolium Ionic Liquids," *J. Phys. Chem. B* **117**: 2378-2383 (2013).

49. Choi, I., Malak, S. T., Xu, W., Heller, W. T., Tsitsilianis, C., and Tsukruk, V. V., "Multicompartmental Microcapsules from Star Copolymer Micelles," *Macromolecules* **46**: 1425-1436 (2013).
48. Brosey, C. A., Yan, C., Tsutakawa, S. E., Heller, W. T., Rambo, R. P., Tainer, J. A., Ivanov, I. and Chazin, W. J., "A New Structural Framework for Integrating Replication Protein A into DNA Processing Machinery," *Nuc. Acid Res.* **41**: 2313-2327 (2013).
47. Wignall, G. D., Littrell, K. C., Heller, W. T., Melnichenko, Y. B., Bailey, K. M., Lynn, G. W., Myles, D. A., Urban, V. S., Buchanan, M. V., Selby, D. L. and Butler, P. D., "The 40m General Purpose Small-Angle Neutron Scattering Instrument," *J. Appl. Crystallogr.* **45**: 990-998 (2012).
46. Langan, P., Evans, B. R., Foston, M., Heller, W. T., O'Neill, H., Petridis, L., Pingali, S. V., Ragauskas, A. J., Smith, J. C., Urban, V. S. and Davison, B., "Neutron Technologies for Bioenergy Research," *Industrial Biotechnol.* **8**: 209-216 (2012).
45. He, L. L., Piper, A., Meilleur, F., Hernandez, R., Heller, W. T., Brown, D. T., "Conformational Changes in *Sindbis* Virus Induced by Decreased pH Revealed by Small-Angle Neutron Scattering," *J. Virol.* **86**: 1982-1987 (2012).
44. Pingali, S. V., O'Neill, H. M., McGaughey, J., Urban, V. S., Rempe C. S., Petridis, L., Smith, J. C., Evans, B. R. and Heller, W. T., "Small-angle Neutron Scattering Reveals a pH-dependent Conformational Change in *Trichoderma reesei* Cellobiohydrolase I: Implications for Enzymatic Activity," *J. Biol. Chem.* **286**: 32801-32809 (2011).
43. Qian, S. and Heller, W. T., "Peptide-Induced Asymmetric Distribution of Charged Lipids in a Vesicle Bilayer Revealed by Small-Angle Neutron Scattering," *J. Phys. Chem. B* **115**: 9831-9837 (2011).
42. Petridis, L., Pingali, S. V., Urban, V., Heller, W. T., O'Neill, H. M., Foston, M., Ragauskas, A. and Smith, J. C., "Self-similar Multiscale Structure of Lignin Revealed by Neutron Scattering and Molecular Dynamics Simulation," *Phys. Rev. E* **83**: 061911 (2011).
41. Wang, C. H., Baker, S. N., Lumsden, M. D., Nagler, S. E., Heller, W. T., Baker, G. A., Deen, P. D., Cranswick, L. M. D., Su, Y. and Christianson, A. D., "Antiferromagnetic Order in MnO Spherical Nanoparticles," *Phys. Rev. B* **83**: 214418 (2011).
40. Baker, S. N., Zhao, H., Pandey, S., Heller, W. T., Bright, F. V. and Baker, G. A., "Fluorescence Energy Transfer Efficiency in Labeled Yeast Cytochrome *c*: A Rapid Screen for Ion Biocompatibility in Aqueous Ionic Liquids," *Phys. Chem. Chem. Phys.* **13**: 3642-3644 (2011).
39. Cardoso, M. B., Smolensky, D., Heller, W. T., Hong, K. and O'Neill, H., "Supramolecular Assembly of Biohybrid Photoconversion Systems," *Energy & Env. Sci.* **4**: 181-188 (2011).
38. Cardoso, M. B., Smolensky, D., Heller, W. T. and O'Neill, H., "Investigation of Detergent Effects on the Solution Structure of Spinach Light Harvesting Complex II," *J. Phys. Conf. Series* **251**: 012041 (2010).
37. Mo, Y. and Heller, W. T., "SANS with Contrast Variation Study of the Bacteriorhodopsin-Octyl Glucoside Complex," *J. Phys. Conf. Series* **251**: 012042 (2010).
36. Heller W. T., O'Neill, H. M., Zhang, Q. and Baker, G. A., "Characterization of the Influence of 1-butyl-3-methylimidazolium Chloride on the Structure and Thermal Stability of Green Fluorescent Protein," *J. Phys. Chem. B* **114**: 13866-13871 (2010).
35. Heller W. T., "Small-angle Neutron Scattering and Contrast Variation: A Powerful Combination for Studying Biological Structures" *Acta Crystallogr. D* **66**: 1213-1217 (2010).
34. Pingali, S. V., Urban, V. S., Heller, W. T., McGaughey, J., O'Neill, H. M., Foston, M., Myles D. A., Ragauskas, A. J. and Evans, B. R., "SANS Study of Cellulose Extracted from Switchgrass," *Acta Crystallogr. D* **66**: 1189-1193 (2010).
33. Pingali, S. V., Urban, V. S., Heller, W. T., McGaughey, J., O'Neill, H. M., Foston, M., Myles D. A., Ragauskas, A. and Evans, B. R., "Breakdown in Cell Wall Nanostructure in Dilute Acid Pretreated Biomass," *Biomacromolecules* **11**: 2329-2335 (2010).
32. He, L. L., Piper, A., Meilleur, F., Myles, D. A. A., Hernandez, R., Brown, D. T. and Heller, W. T., "The Structure of *Sindbis* Virus Produced from Vertebrate and Invertebrate Hosts Determined by Small-Angle Neutron Scattering," *J. Virol.* **84**: 5270-5276 (2010).

31. Cardoso, M. B., Smolensky, D., Heller, W. T. and O'Neill, H., "Structural Characterization of Light Harvesting Complex II: A Small-Angle Neutron Scattering Study," *J. Phys. Chem. B* **113**: 16377-16383 (2009).
30. Qui, X., Howe, J. Y., Cardoso, M. B., Heller, W. T. and Paranthaman, M. P., "Controlled Synthesis of Highly Ordered Anodic HfO₂ Nanotube Arrays and a Possible Growth Mechanism," *Nanotechnology* **20**: 455601 (2009).
29. Baker, G. A. and Heller, W. T., "Small-angle neutron scattering studies of model protein denaturation in aqueous solutions of the ionic liquid 1-butyl-3-methylimidazolium chloride," *Chem. Eng. J.* **147**: 6-12 (2009).
28. Quiroz-Valenzuela, S., Sukuro, C., Hausinger, R. P., Kuhn, L. A. and Heller, W. T., "Urease Activation Complexes Examined by Flexibility Analysis, Mutagenesis and Small-angle X-ray Scattering Approaches," *Arch. Biochem. Biophys.* **480**: 51-57 (2008).
27. Mo, Y., Lee, B.-K., Ankner, J. F., Becker, J. M. and Heller, W. T., "Detergent-associated Solution Conformations of Helical and Beta-barrel Membrane Proteins," *J. Phys. Chem. B.* **112**: 13349-13354 (2008).
26. Teixeira, S. C. M., Ankner, J., Bellissent-Funel, M. C., Bewley, R., Blakeley, M. P., Coates, L., Dahint, R., Dalgliesh, R., Dencher, N., Dhont, J., Fischer, P., Forsyth, V. T., Fragneto, G., Frick, B., Geue, T., Gilles, R., Gutberlet, T., Haertlein, M., Hauß, T., Häußler, W., Heller, W. T., Herwig, K., Holderer, O., Juranyi, F., Kampmann, R., Knott, R., Kohlbrecher, J., Kreuger, S., Langan, P., Lechner, R., Lynn, G., Majkrzak, C., May, R., Meilleur, F., Mo, Y., Mortensen, K., Myles, D. A. A., Natali, F., Neylon, C., Niimura, N., Ollivier, J., Ostermann, A., Peters, J., Pieper, J., Rühm, A., Schwahn, D., Shibata, K., Soper, A.K., Straessle, T., Suzuki, U.-i., Tanaka, I., Tehei, M., Timmins, P., Torikai, N., Unruh, T., Urban, V., Vavrin, R., Weiss, K. and Zaccai, G. "New Sources and Instrumentation for Neutrons in Biology," *Chem. Phys.* **345**: 133-151 (2008).
25. Galea, C. A., Nourse, A., Wang, Y., Sivakolundu, S. G., Heller, W. T. and Kriwacki, R. W., "The Role of Intrinsic Flexibility in Signal Transduction Mediated by the Cell Cycle Regulator, p27^{Kip1}," *J. Mol. Biol.*, **376**: 827-838 (2008).
24. Tjioe, E. and Heller W. T., "ORNL_SAS: Software for Calculation of Small-angle Scattering Intensities from Bio-macromolecular Structures," *J. Appl. Crystallogr.* **40**: 782-785 (2007).
23. O'Neill, H., Helton, K. E., Heller, W. T., Urban V. S. and Greenbaum, E., "A Structural Study of Photosystem I-Detergent Complexes in Solution using Small-angle X-ray Scattering," *J. Phys. Chem. B.* **111**: 4211-4219 (2007).
22. Lynn, G. W., Heller, W., Urban, V., Wignall, G. D., Weiss, K., and Myles, D. A. A., "Bio-SANS-A Dedicated Facility for Neutron Structural Biology at Oak Ridge National Laboratory," *Physica B* **385-386**: 880-882 (2006).
21. Augustus, A. M., Reardon, P. N., Heller, W. T. and Spicer, L. D., "Structural Basis for the Differential Regulation of DNA by the Methionine Repressor MetJ," *J. Biol. Chem.* **281**: 34269-34276 (2006).
20. Woodward, J. D., Pickel, J. M., Anovitz, L. M., Heller, W. T. and Rondinone A. J., "Self-assembled Colloidal Crystals from ZrO₂ Nanoparticles," *J. Phys. Chem. B* **110**: 19456-19460 (2006).
19. Heller, W. T., "Ellstat: Shape Modelling for Solution Small-angle Scattering of Proteins and Protein Complexes with Automated Statistical Characterization," *J. Appl. Crystallogr.* **39**: 671-675 (2006).
18. Priddy, T. S., Macdonald, B. A., Heller W. T., Nadeau, O. W., Trewella, J. and Carlson, G. M., "Ca²⁺-induced Structural Changes in Phosphorylase Kinase Detected by Small-angle X-ray Scattering," *Protein Science* **14**: 1039-1048 (2005).
17. Lynn, G. W., Heller, W. T., Mayasundari, A. Minor, K. H. and Peterson, C. B., "A Model for the Three-dimensional Structure of Human Plasma Vitronectin from Small-angle Scattering Measurements," *Biochemistry* **44**: 565-574 (2005).
16. Heller W. T., "Influence of Multiple Well-defined Conformations on Small-angle Scattering of Proteins in Solution," *Acta Crystallogr. D* **61**: 33-44 (2005).

15. Heller, W. T., Vigil, D., Brown, S., Blumenthal, D. K., Taylor, S. S., and Trehwella, J., "C Subunits Binding to the Protein Kinase A RI α Dimer Induces a Large Conformational Change," *J. Biol. Chem.* **279**: 19084-19090 (2004).
14. Vigil, D., Blumenthal, D. K., Heller, W. T., Brown, S., Taylor, S. S., and Trehwella, J., "Solution Structures and Conformational Changes of the Type I α , II α and II β Protein Kinase A Regulatory Subunit Homodimers: Role of the Linker Regions," *J. Mol. Biol.* **337**: 1183-1194 (2004).
13. Heller, W. T., Krueger, J. K., and Trehwella, J., "Further Insights into Calmodulin-Myosin Light Chain Kinase Interaction from Solution Scattering and Shape Restoration," *Biochemistry* **42**: 10579-10588 (2003).
12. Heller, W. T., Finley, N., Dong, W.-J., Timmins, P., Cheung, H. C., Rosevear, P. R., and Trehwella, J., "Small-angle Neutron Scattering with Contrast Variation Reveals Spatial Relationships between the Three Subunits in the Ternary Cardiac Troponin Complex and the Effects of Troponin I Phosphorylation," *Biochemistry* **42**: 7790-7800 (2003).
11. Harris, S. P., Heller, W. T., Greaser, M. L., Moss, R. L., and Trehwella, J., "Solution Structure of Heavy Meromyosin by Small-angle Scattering," *J. Biol. Chem.* **278**: 6034-6040 (2003).
10. Heller, W. T., Abusamhadneh, E., Finley, N., Rosevear, P. R. and Trehwella, J., "The Solution Structure of a Cardiac Troponin C-Troponin I-Troponin T Complex Shows a Somewhat Compact Troponin C Interacting with an Extended Troponin I-Troponin T," *Biochemistry* **41**: 15654-15663 (2002).
9. Heller, W. T., Waring, A. J., Lehrer, R. I., Harroun, T. A., Weiss, T. M., Yang, L., and Huang, H. W., "Membrane Thinning Effect by the Beta-Sheet Antimicrobial Protegrin," *Biochemistry* **39**: 139-145 (2000).
8. Yang, L., Weiss, T. M., Harroun, T. A., Heller, W. T., and Huang, H. W., "Supramolecular Structures of Peptide Assemblies in Membranes by Neutron Off-Plane Scattering: Method of Analysis," *Biophys. J.* **77**: 2648-2656 (1999).
7. Harroun, T. A., Heller, W. T., Weiss, T. M., Yang, L., and Huang, H. W., "Theoretical Analysis of Hydrophobic Matching and Membrane-Mediated Interactions in Lipid Bilayers Containing Gramicidin," *Biophys. J.* **76**: 3176-3185 (1999).
6. Harroun, T. A., Heller, W. T., Weiss, T. M., Yang, L., and Huang, H. W., "Direct Observation of Hydrophobic Matching and Membrane-Mediated Interactions in Lipid Bilayers Containing Gramicidin," *Biophys. J.* **76**: 937-945 (1999).
5. Heller, W. T., Waring, A. J., Lehrer, R. I., and Huang, H. W., "Multiple States of Beta-sheet Peptide Protegrin in Lipid Bilayers," *Biochemistry* **37**: 17331-17338 (1998).
4. Yang, L., Harroun, T. A., Heller, W. T., Weiss, T. M., and Huang, H. W., "Neutron Off-plane Scattering of Aligned Membranes I: Method of Measurement," *Biophys. J.* **75**: 641-645 (1998).
3. Heller, W. T., He, K., Ludtke, S. J., Harroun, T. A., and Huang, H. W., "Effect of Changing the Size of Lipid Headgroup on Peptide Insertion into Membranes," *Biophys. J.* **73**: 239-244 (1997).
2. Ludtke, S. J., He, K., Heller, W. T., Harroun, T. A., Yang, L., and Huang, H. W., "Membrane Pores Induced by Magainin," *Biochemistry* **35**: 13723-13728 (1996).
1. He, K., Ludtke, S. J., Heller, W. T., and Huang, H. W., "Mechanism of Alamethicin Insertion into Lipid Bilayers," *Biophys. J.* **71**: 2669-2679 (1996).

Book Chapters:

6. Xu, W., Malak, S. T., Plamper, F. A., Synatschke, C. V., Muller, A. H. E., Heller, W. T., Melnichenko, Y. B. and Tsukruk, V. V., "Structural Study of Star Polyelectrolytes and their Porous Multilayer Assembly in Solution," in *Physics of Liquid Matter: Modern Problems* (eds. L. Bulavin and N. Lebovka), Springer, New York, NY, pp. 299-315 (2015).
5. Ankner J. F., Heller, W. T., Herwig, K. W., Meilleur, F. and Myles, D. A. A., "Neutron Scattering Techniques and Applications in Structural Biology," *Current Protocols in Protein Science*, **17.16**, DOI: 10.1002/0471140864.ps1716s72 (2013).

4. Heller, W. T. and Littrell, K. C., "Small-angle Neutron Scattering for Molecular Biology: Basics and Instrumentation," in *Methods in Molecular Biology* (v. 544): *Micro and Nanotechnologies in Separation, Detection and Analysis of Biomolecules*, Springer, New York, NY, pp. 293-305 (2009).
3. Heller, W. T. and Baker, G. A., "Visualizing Structures of Biological Macromolecules with Small-angle Neutron Scattering and Modeling," in *Neutron Imaging and Applications*, Springer, New York, NY, pp. 289-304 (2009).
2. Baker, S. N., McCarty, T. A., Bright, F. V., Heller, W. T. and Baker, G. A., "Ionic Liquid Advances in Optical, Electrochemical and Biochemical Sensor Technology," in *Ionic Liquids in Chemical Analysis* (ed. M. Koel), Taylor and Francis, New York, NY, pp. 99-138 (2008).
1. Huang, H. W., He, K., Heller, W., and Ludtke, S. J., "Interaction of Lipid Bilayer Membranes with Amphiphilic Helical Peptides," in *Short and Long Chains at Interfaces* (ed. J. Daillant) *Editions Frontières*, Paris, pp. 339-344 (1995).

Presentations:

57. "Characterizing Neutron Scattering Data using Deep Learning Networks," Machine Learning in Science and Engineering," Carnegie Mellon University, Pittsburgh, PA, June, 2018.
56. "Changes in Lipid Bilayer Dynamics caused by the HIV-1 Fusion Peptide," American Physical Society March Meeting, Los Angeles, CA, March, 2018.
55. "Study of the Interaction of the HIV-1 Fusion Peptide with Lipid Bilayer Membranes," American Physical Society March Meeting, New Orleans, LA, March, 2017.
54. "Studies of Multicomponent Lipid Bilayers by Small-Angle Neutron Scattering," American Conference on Neutron Scattering, July, 2016.
53. "Small-Angle Neutron Scattering for Biomembranes," ORNL-Georgia Tech Joint Workshop in Neutron Science and Scattering, Georgia Institute of Technology, January, 2016.
52. "Neutron Scattering for Biopolymers and Biomembranes," ORNL-Duke Joint Workshop in Neutron Science and Scattering, Duke University, September, 2015.
51. "Membrane Structural Biology and Biophysics using Neutron Scattering", Department of Molecular & Structural Biochemistry, North Carolina State University, September, 2015.
50. "Applications of Small-Angle Neutron Scattering to Membrane Structural Biology," The 2015 Meeting of the American Crystallographic Association, Philadelphia, PA, July, 2015.
49. "Neutron Scattering for Soft Matter Science and Biology at Oak Ridge National Laboratory," Neutron Scattering in Soft Matter Workshop, Louisiana Consortium for Neutron Scattering, Louisiana State University, Baton Rouge, LA, December, 2014.
48. "The EQ-SANS Instrument at the Spallation Neutron Source," American Conference on Neutron Scattering, Knoxville, TN, June, 2014.
47. "Hydrophobic matching between melittin and phosphocholine lipid bilayers having different thicknesses," American Physical Society March Meeting, Denver, CO, March, 2014.
46. "Redistribution of Cholesterol in Model Lipid Membranes in Response to the Membrane-Active Peptide Alamethicin," American Physical Society March Meeting, Baltimore, MD, March, 2013.
45. "The EQ-SANS Instrument at the Spallation Neutron Source at Oak Ridge National Laboratory," The 2012 Meeting of the American Crystallographic Association, Boston, MA, July 2012.
44. "Peptide-Induced Asymmetric Distribution of Charged Lipids in a Vesicle Bilayer Revealed by Small-Angle Neutron Scattering," American Physical Society March Meeting, Boston, MA, March, 2012.
43. "Neutron Scattering for Investigating the Structures of Biological Systems," Center for Structural Biology, Vanderbilt University, January, 2012.
42. "SANS Studies of Virus Structure and Membrane-Protein Interactions," ORNL Neutron Scattering User Meeting, Oak Ridge National Laboratory, Oak Ridge, TN, November, 2011.
41. "Neutron Scattering for Probing Structure and Dynamics in Biological Systems," COBRE for Protein Structure and Function, University of Kansas, Lawrence, KS, October, 2010.
40. "Small-angle Scattering: A Powerful Tool for Structural Biology," Department of Molecular & Structural Biology, North Carolina State University, Raleigh, NC, April, 2010.

39. "An Introduction to Small-angle Neutron Scattering for Structural Biology," 7th Annual SER-CAT Symposium, Oak Ridge National Laboratory, Oak Ridge, TN, March, 2010.
38. "Small-angle Neutron Scattering: A Powerful Probe for Structural Biology," Center for Molecular Biophysics, Oak Ridge National Laboratory, Oak Ridge, TN, February, 2010.
37. "Small-angle Neutron Scattering and Contrast Variation: A Powerful Combination for Studying Biological Structures," International Conference on Neutrons in Biology 2009, Santa Fe, NM, October, 2009.
36. "The Center for Structural Molecular Biology at Oak Ridge National Laboratory," Fourth Virginia Tech Structural Biology Symposium, Virginia Technical University, Blacksburg, VA, March, 2009.
35. "Small-angle Scattering for Biological Systems in the ORNL Center for Structural Molecular Biology," Biochemistry & Molecular Biology Department, Michigan State University, East Lansing, MI, February, 2009.
34. "Small-angle X-ray and Neutron Scattering for Biological Systems," Biological Chemistry and Molecular Biology Department, University of Tennessee, Knoxville, TN, October, 2008.
33. "SANS for Biology: A Tutorial," SNS-HFIR Users Group Meeting, Oak Ridge National Laboratory, October 2007.
32. "The Center for Structural Molecular Biology at Oak Ridge National Laboratory," The 2007 Meeting of the American Crystallographic Association, Salt Lake City, UT, June 2007.
31. "Neutron Scattering in Structural Biology and Dynamics," Specific Needs in Characterization and Modeling of Nanomaterial: Biomedical and EHS Applications Workshop, National Cancer Institute/Frederick, Frederick, MD, June 2007.
30. "Visualizing Protein-Protein and Protein-Nucleic Acid Interactions by Small-angle Scattering," Small-angle X-ray Scattering (SAXS) in Biological Sciences Workshop, Fort Collins, CO, May 2007.
29. "Visualizing Protein-Protein and Protein-Nucleic Acid Interactions by Small-angle Scattering," The 3rd Annual Tennessee Structural Biology Symposium, Knoxville/Oak Ridge, TN, September 2006.
28. "Visualizing Protein-Protein and Protein-Nucleic Acid Interactions by Small-angle Scattering," The 2006 Meeting of the American Crystallographic Association, Honolulu, HI, July 2006.
27. "The Center for Structural Molecular Biology at Oak Ridge National Laboratory," American Conference on Neutron Scattering, St. Charles, IL, June 2006.
26. "SANS with Contrast Variation Study of the Cooperative Assembly of the Methionine Repressor MetJ-DNA Complex," International Conference on Neutron Scattering, Sydney, Australia, November 2005.
25. "SANS and Modeling of Bio-macromolecular Complexes," SNS-HFIR Users Group Meeting, Oak Ridge National Laboratory, October 2005.
24. "Determining the Structure of Proteins and Protein Complexes by Small-angle Scattering," Chemical Science Division, Oak Ridge National Laboratory, September 2004.
23. "Protein Complex Structure by Small-angle Scattering: Cardiac Troponin and Protein Kinase A," Genome Research Institute, University of Cincinnati, Cincinnati, OH, May 2004.
22. "Protein Complex Structure by Small-angle Scattering: Cardiac Troponin and Protein Kinase A," School of Physics and Astronomy, University of Minnesota, Minneapolis, MN, March 2004.
21. "Protein Complex Structure by Small-angle Scattering: Cardiac Troponin and Protein Kinase A," Department of Physics and Astronomy, University of Georgia, Athens, GA, March 2004.
20. "Protein Complex Structure by Small-angle Scattering: Cardiac Troponin and Protein Kinase A," Department of Physics, Indiana University, Bloomington, IN, March 2004.
19. "Protein Complex Structure by Small-angle Scattering: Cardiac Troponin and Protein Kinase A," Department of Physics, University of Florida, Gainesville, FL, February 2004.
18. "Protein Complex Structure by Small-angle Scattering: Cardiac Troponin and Protein Kinase A," Department of Physics, University of Buffalo, Buffalo, NY, January 2004.
17. "Protein Complex Structure by Small-angle Scattering: Cardiac Troponin and Protein Kinase A," Advanced Light Source, Lawrence Berkeley National Laboratory, Berkeley, CA, January 2004.
16. "SANS Reveals the Influence of Phosphorylation on the Structure of the Cardiac Troponin Complex," Intense Pulsed Neutron Source, Argonne National Laboratory, Argonne, IL, October 2003.

15. "SANS Reveals the Influence of Phosphorylation on the Structure of the Cardiac Troponin Complex," American Crystallographic Association 2003 Meeting, Covington, KY, July 2003.
14. "Shape Restoration Applied to the Cardiac Troponin Complex," Department of Physics Colloquium, University of Central Florida, April 2002
13. "Using Neutrons and X-rays to Probe the Structure of the Cardiac Troponin Complex: A Physicist's Perspective on Structural Biology," Solid State Division, Oak Ridge National Laboratory, March 2002.
12. "Shape Restoration by Small-angle X-ray and Neutron Scattering Applied to the Cardiac Troponin Complex," Life Science Division, Oak Ridge National Laboratory, March 2002.
11. "Shape Restoration Applied to the Cardiac Troponin Complex," Department of Physics Colloquium, University of Alabama-Birmingham, March 2002.
10. "Structure of the Ternary Cardiac Troponin Complex Determined by Small-angle Scattering," Forty-sixth Annual Meeting of the Biophysical Society, San Francisco, CA, February 23-27, 2002
9. "Shape Restoration Applied to the Cardiac Troponin Complex," Department of Physics Colloquium, Oklahoma State University, February 2002.
8. "Shape Restoration Applied to the Cardiac Troponin Complex," Indiana University Low Energy Neutron Source Workshop, Indiana University Cyclotron Facility, Indiana University, November 2001.
7. "Shape Restoration Applied to the Cardiac Troponin Complex," LANL/UCSD Workshop: Strategies for Building Multi-scale Structural Models of Cell Signaling Complexes, San Diego Supercomputer Center, University of California-San Diego, September 2001.
6. "Investigating the Membrane-Protein Interaction: Membrane-active Peptides and Future Directions," Department of Physics and Astronomy, University of Missouri-Columbia, April 2001.
5. "Investigating the Membrane-Protein Interaction: Membrane-active Peptides and Future Directions," Department of Physics and Astronomy, University of Texas-El Paso, March 2001.
4. "Investigating the Membrane-Protein Interaction: Membrane-active Peptides and Future Directions," Department of Physics, Purdue University, March 2001.
3. "A Physicists Adventures in Biophysics," U.S. Genomics, Woburn, MA, February 2001.
2. "A Comparative Study of the Membrane-active Beta-sheet Peptide Protegrin with the Alpha-helical Peptide Alamethicin," Department of Physics and Astronomy, University of Maine, August 1999.
1. "A Comparative Study of the Membrane-active Beta-sheet Peptide Protegrin with the Alpha-helical Peptide Alamethicin," C-4, Los Alamos National Laboratory, May 1999.

Posters:

17. He, L. L., Piper, A., Meilleur, F., Myles, D. A. A., Hernandez, R., Brown, D. T. and Heller, W. T., "Small-angle neutron scattering study of Sindbis virus produced from vertebrate and invertebrate hosts." American Crystallographic Association Annual Meeting, Chicago, IL. July 24-29, 2010.
16. Heller, W. T., O'Neill, H. M., Cardoso, M. B., Urban, V. S., Smolensky, D. and Greenbaum E, "Small-angle scattering studies of membrane proteins involved in photosynthesis." International Conference on Small-angle Scattering 2009, Oxford, United Kingdom, September 13-18, 2009.
15. Heller, W. T. and Mo, Y., "SANS with contrast variation study of the bacteriorhodopsin-octyl glucoside complex." International Conference on Neutron Scattering 2009, Knoxville, TN. May 3-7, 2009.
14. Heller, W. T., Mo, Y., Lee, B.-K. and Becker, J. M., "Detergent-associated solution conformations of membrane proteins studied by small-angle x-ray scattering." American Crystallographic Association Annual Meeting, Knoxville, TN. May 31-June 5, 2008.
13. Heller, W. T. and Baker, G. A., "Aqueous solutions of the ionic liquid 1-butyl-3-methylimidazolium chloride denature proteins." American Conference on Neutron Scattering, Santa Fe, NM. May 11-15, 2008.
12. Heller, W. T., "SANS with Contrast Variation Enables the Visualization of Biomacromolecular Assemblies," American Conference on Neutron Scattering, St. Charles, IL. June 18-23, 2006.

11. Heller, W. T., Baker, S. N. and Baker G. A., "Structural and Spectroscopic Studies of Covalently Modified Proteins in Ionic Liquids: Hemoglobin and Cytochrome c," Forty-ninth Annual Meeting of the Biophysical Society, Long Beach, CA. February 13-16, 2005.
10. Heller, W. T., Vigil, D., Brown, S., Blumenthal, D. K., Taylor, S. S., and Trehwella, J., "SANS Reveals that Protein Kinase A R1a Dimer Undergoes a Large Conformational Change upon Binding C Subunits," American Crystallographic Association Annual Meeting, Chicago, IL, July 17-22, 2004.
9. Heller, W. T., Vigil, D., Brown, S., Blumenthal, D. K., Taylor, S. S., and Trehwella, J., "SANS Reveals that Protein Kinase A R1a Dimer Undergoes a Large Conformational Change upon Binding C Subunits," American Conference on Neutron Scattering, Adelphi, MD, June 6-10, 2004.
8. Heller, W. T., Finley, N. L., Dong, W.-J., Timmins, P., Cheung, H. C., Rosevear, P. R. and Trehwella J., "SANS Reveals the Influence of Phosphorylation on the Structure of the Cardiac Troponin Complex," Forty-eight Annual Meeting of the Biophysical Society, Baltimore, MD, February 14-18, 2004.
7. Heller, W. T., Baird, G. S., Tsien, R. Y., and Trehwella, J., "Shape Restoration by Small-angle Scattering and its Application to Cameleon Proteins," Forty-fifth Annual Meeting of the Biophysical Society, Boston, MA, February 17-21, 2001.
6. Heller, W. T., Harroun, T., Weiss, T., Yang, L., Waring, A., Lehrer, R. I., Huang, H. W., "X-ray Diffraction Clarifies the Nature of the Two States of Protegrin-1," Forty-fourth Annual Meeting of the Biophysical Society, New Orleans, LA, February 12-16, 2000.
5. Heller, W. T., Harroun, T. A., Weiss, T. M., Yang, L., Waring, A. J., Lehrer, R. I., Huang, H. W., "Membrane Thinning Induced by Protegrin-1: Clues to the Mode of Antibacterial Action," Forty-third Annual Meeting of the Biophysical Society, Baltimore, MD, February 13-17, 1999.
4. Heller, W. T., Waring, A. J., Lehrer, R. I., Huang, H. W., "Orientation Change of Beta-Sheet Peptide Protegrin in Lipid Bilayers," Forty-second Annual Meeting of the Biophysical Society, Kansas City, MO, February 22-26, 1998.
3. Heller, W. T., He, K., Ludtke, S. J., Harroun, T., Huang, H. W., "Altering Alamethicin-Lipid Bilayer Interactions by Changing the Size of the Lipid Head Group," Forty-first Annual Meeting of the Biophysical Society, New Orleans, LA, March 2-6, 1997.
2. Heller, W. T., He, K., Ludtke, S. J., Harroun, T., Huang, H. W., "The Effect of the Size of the Lipid Head Group on Alamethicin-Lipid Bilayer Interactions," Fortieth Annual Meeting of the Biophysical Society, Baltimore, MD, February 17-21, 1996.
1. Heller, W. T., He, K., Harroun, T., Ludtke, S. J., Huang, H. W., "Hydration Dependence of Alamethicin's Phase Transition in Aligned Lipid Bilayers," Thirty-ninth Annual Meeting of the Biophysical Society, San Francisco, CA, February 12-16, 1995.