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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:

- 2023-Present: Distinguished Research Scientist, SANS and Spin Echo Group Leader Neutron Scattering Division, Oak Ridge National Laboratory.
- 2020-2023: 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.
- 2009-2012: 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 Award (GHA) (2021)
- 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, the American Association for the Advancement of Science, the Neutron Scattering Society of America, and the American Chemical Society

Publications:

130. Chen, Z., Steinmetz, C., Hu, M., Coughlin, E. B., Wang, H., Heller, W. T., Bras, W. and Russell, T. P., “Star Block Copolymers at Homopolymer Interfaces: Conformation and Compatibilization,” *Macromolecules*, in press (2023).
129. Heller, W. T., “A Small-Angle Neutron Scattering Study of a Phosphatidylcholine-Phosphatidylethanolamine Lipid Mixture”, *ACS Omega*, in press (2023).
128. Fang, Y., Romyantsev, A. M., Neitzel, A. E., Liang, H., Heller, W. T., Nealy, P. F., Tirrell, M. V. and de Pablo, J. J., “Scattering Evidence of Positional Charge Correlations in Polyelectrolyte Complexes,” *Proc. Natl. Acad. Sci. USA* **120**: e2302151120 (2023).
127. Kim, M., Han, M. J., Lee, H., Flouda, P., Bukharina, D., Pierce, K. J., Adstedt, K. M., Buxton, M. L., Yoon, Y., Heller, W. T., Singamaneni, S. and Tsukruk, V. V., “Bio-Templated Chiral Zeolitic Imidazolate Framework-8 for Enantioselective Chemoresistive Sensing,” *Ang. Chemie.* **62**: e202305646 (2023).
126. Premadasa, U. I., Bocharova, V., Lin, L., Genix, A.-C., Heller, W. T., Sacci, R. L., Ma, Y.-Z., Thiele, N. A. and Doughty, B., “Tracking Molecular Transport Across Oil/Aqueous Interfaces: Insight into ‘Antagonistic’ Binding in Solvent Extraction,” *J. Phys. Chem. B* **127**: 4886-4895 (2023).
125. Ma, Y., Heil, C., Nagy, G., Heller, W. T., An, Y., Jayaraman, A. and Bharti, B., “Synergistic Role of Temperature and Salinity in Aggregation of Nonionic Surfactant Coated Silica Nanoparticles,” *Langmuir* **39**: 5917-5928 (2023).
124. Hu, M., Li, X., Heller, W., Bras, W., Rzyayev, J. and Russell, T. P., “Using Grazing-Incidence Small-Angle Neutron Scattering to Study the Orientation of Block Copolymer Morphologies in Thin Films,” *Macromolecules* **56**: 2418-2428 (2023).
123. Heller, W. T. and Zolnierczuk, P. A., “Investigation of the Impact of Lipid Acyl Chain Saturation on Fusion Peptide Interactions with Lipid Bilayers,” *Biophysica*, **3**: 121-138 (2023).
122. Goswami, M., Iyiola, O. O., Lu, W., Hong, K., Zolnierczuk, P., Stingaciu, L., Heller, W. T., Taleb, O., Sumpter, B. G. and Hallinan Jr., D. T., “Understanding Interfacial Block Copolymer Structure and Dynamics,” *Macromolecules* **56**: 762-771 (2023).
121. Heller, W. T., “Small-Angle Neutron Scattering for Studying Lipid Bilayer Membranes,” *Biomolecules* **12**: 1591 (2022).
120. Dautel, D. R., Heller, W. T. and Champion, J. A., “Protein Vesicles with pH Responsive Disassembly,” *Biomacromolecules* **23**: 3678-3687 (2022).
119. Qian, S., Heller, W., Chen, W.-R., Christianson, A., Do, C., Wang, Y., Lin, J., Huegle, T., Jiang, C., Boone, C., Hart, C. and Graves, V., “CENTAUR – the Small- and Wide-Angle Neutron Scattering Diffractometer/Spectrometer for the Second Target Station of the Spallation Neutron Source,” *Rev. Sci. Instrum.* **93**: 075104 (2022).
118. Heller, W. T. and Do, C., “The Temperature-Dependent Impact of Water-Miscible Ionic Liquids on the Self-Assembly of PEO-PPO-PEO Block Copolymers,” *ACS Omega* **7**: 19474-19483 (2022).
117. Heller, W. T., Hetrick, J., Bilheux, J., Borreguero Calvo, J. M., Chen, W.-R., DeBeer-Schmitt, L., Do, C., Doucet, M., Fitzsimmons, M. R., Godoy, W. F., Granroth, G. E., Hahn, S., He, L., Islam, F., Lin, J., Littrell, K. C., McDonnell, M., McGaha, J., Peterson, P. F., Pingali, S. V., Qian, S., Savici, A. T., Shang, Y., Stanley, C. B., Urban, V. S., Whitfield, R. E., Zhang, C., Zhou, W., Billings, J. J., Cuneo, M. J., Ferraz Leal, R. M., Wang, T. and Wu, B., “**drtsans**: the data reduction toolkit for small-angle neutron scattering at Oak Ridge National Laboratory,” *SoftwareX* **19**: 101101 (2022).

116. Motokawa, R., Kaneko, K., Oba, Y., Nagai, T., Okamoto, Y., Kobayashi, T., Kumada, T. and Heller, W. T., "Nanoscope Structure of Borosilicate Glass with Additives for Nuclear Waste Vitrification," *J. Non-Cryst. Solids* **578**: 121352 (2022).
115. Heller, W. T., Doucet, M. and Archibald, R. K., "Sas-temper: Software for Fitting Small-Angle Scattering Data that Provides Automated Reproducibility Characterization," *SoftwareX* **16**: 100849 (2021).
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.* **119**: e1905190 (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 Burgt, 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).
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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).
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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).
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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).
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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).
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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).
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83. Chen, Y., Cheng, Y., Li, J., Feygenson, M., Heller, W. T., Liang, C. and An, K., "Lattice-cell Orientation Disorder in Complex Oxides," *Adv. Energy Mater.* **7**: 1601950 (2017).

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Book Chapters:

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