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A. Professional Preparation:

Postdoctoral Fellow in Chemical Physics, University of California at Berkeley	1998
Ph.D. in Physical Chemistry, Arizona State University	1996
B.S. in Chemistry, University of Arizona	1992

B. Appointments & Professional Experience:

Professor in the School of Molecular Sciences, Arizona State University	2015-present
Professor of Chemistry, Biochemistry & Physics, Arizona State University	2005-present
Director of the Magnetic Resonance Research Center, Arizona State University	2005-present
Adjunct Research Scientist, Argonne National Laboratory, IPNS / APS Division	2003-present
Adjunct Professor of Physics, Colorado State University	2003-2009
Associate Professor of Chemistry, University of Wyoming	2002-2005
Assistant Professor of Chemistry, University of Wyoming	1998-2002
Postdoctoral Fellow, National Science Foundation	1997-1998
Research Scientist, Lawrence Berkeley National Laboratory	1996-1997
Research Scientist, Dupont-Merck	1991-1992

C. Selected Honors & Awards:

International Agency for Standards and Ratings (IASR), Academic Excellence Award	2016
Advanced Materials Failure Analysis (OmniProbe) Award	2010
ASU Honor College Mentor Award	2009
W.M. Keck Foundation Award	2004
University of Wyoming, Extraordinary Merit in Research Award	2002
Research Corporation, Cottrell Scholar Award	2001
National Science Foundation, CAREER Award	2001
Dreyfus Foundation, Chemical Sciences Award	2000
National Science Foundation Postdoctoral Fellowship	1997

D. Synergistic Educational and Research Activities:

♦ Faculty mentor for a local 2nd - 7th grade science classroom; ♦ Advisor on several chemistry and physics undergraduate textbooks; ♦ Advisory board member for Lujan Center at Los Alamos National Laboratory; ♦ Advisory board member for the Nevada State EPSCoR Program; ♦ Scientific Advisor Board Member and Instrument Development Team member for the Spallation Neutron Source at Oak Ridge National Laboratory; ♦ Director of summer high-school teachers as part of the center for research on education in science, mathematics, engineering and technology (CRESMET) program at ASU (cresment.asu.edu); ♦ Advisory Board member for Green & Grow and AZ Natural Selections; ♦ Founding and current director of the Magnetic Resonance Research Center (MRRC) at ASU; ♦ I regularly referee papers for various chemistry and physics journals, including *Science, Nature, Nature Materials, Phys. Rev. Lett., Phys. Rev. B, J. Phys. Chem., J. Chem. Phys., Biomacromolecules, Chem Comm., Soft Matter, J. Am. Chem. Soc*., and *J. Magnetic Resonance*.; ♦ I regularly review proposals and serve on panels for National Science Foundation, Department of Energy, Department of Defense, Army Research Office, Research Corporation and the American Chemical Society; and ♦ I am the owner of Brillouin Solutions and optical Brillouin instrumentation company and BioSciTech LLC.

E. Collaborators and Advisees:

(i) Active Research Collaborators:

Prof. C.A. Angell, Arizona State University, Dept. Chemistry and Biochemistry.
Dr. C. Benmore, Argonne National Laboratory, IPNS.
Prof. G. Holland, San Diego State University, Dept of Chemistry and Biochemistry.
Prof. R. Lewis, Utah State University, Dept. Molecular Biology.

(ii) Current Undergraduate and Graduate Students:

Warner Weber, Graduate Student	ChengChen Gou, Graduate Student
Qiushi Mou, Graduate Student	Tom Izdebski, Graduate Student
Forrest Thompson, Undergrad. Student	Jacob Jordan, Undergrad. Student
Kaylyn Riggs, Undergrad. Student	Tej Hendel, Undergrad. Student

(iii) Current Postdoctoral Fellows:

Palash Mondal, Postdoctoral Fellow based in my group at Arizona State University
Lawrie Skinner, Postdoctoral Fellow based in my group at Argonne National Labs

(iv) Current Senior Scientists:

Samrat Amin, Research Scientists and Lab Coordinator.
Emmanuel Soignard, Assistant Research Professor.
Sujatha Sampath, Adjunct Professor and Senior Research Scientist.
Brian Cherry, MRRC Laboratory Manager.

(v) Former Graduate Students and Postdoctoral Fellows (35 Total):

Postdocs

Wei Huang (U. Wash); Daniel Finkelstein Shapiro (Ec. Nom. Paris); Wei Huang (Univ. Wash.); Kristie Koski (Assist Professor, Brown University); Virgil Solomon (Assoc. Professor, Youngstown State Univ.); Nolene Byrne (Deakin Univ); Jean-Philippe Belieres (Bowing); Qiang Mei (Cornell Univ.); Robert Hart (Shepherd Chemical); Emmanuel Soignard (ASU CSSS); Xiaoguang Sun (Peking Univ.); Pallavi Teredesai (Indian Institute of Technology, Gandhinagar, India); Prasanna Ghalsasi (Maharaja Sayajirao University, Baroda, India); Zongwin Pi (Peking University, China); Kristina Kalita (UNLV, Physics Department, NV); Ernest Pascoe (Univ. Georgia); Rudi Michalak (Professor, University of Wyoming, Department of Physics); Daniel Grohol (Yale Univ.); Sujatha Sampath (Univ. Utah); Joerg Muller (WITEC, Ulm, Germany)

Graduate Students

Stephen Davidowski (Postdoc, U. Washington); Dian Xu (Az Production & Packaging); Xiangyan Shi (Ph.D., UIUC); Bennett Addison (Ph.D., UC-Davis); Diana Khusnutdinova (M.S., ASU); Samrat Amin (Ph.D., ASU); David Foster (M.S., Sun Health); Yang Liu (M.S., ASU); Janelle Jenkins (Ph.D., Eastern Washington University); Ramesh Sharma (Ph.D., Brookhaven National Labs); Erin Oelker (Ph.D., UI-Indianapolis); Jacob Agola (M.S., U. New Mexico); Melinda Creager (Ph.D., Univ. of Utah); Vince Martin (Ph.D., Union Carbide, CO); Sara Hubbard (M.S., UW Analytical); Kristina Lantzky (Ph.D., St. John Fischer College, NY); Greg Holland (Ph.D., Assist. Prof., SDSU);

F. Current Research Grants:

(i) Federal Grants:

2015 – 2017 *Department of Defense - ARO*, "Fundamental Studies of the Dynamics of Protic Ionic Liquids." PIs – C. Austen Angell, Ranko Richert and J.L. Yarger, $450,000

2013 – 2016 *Department of Defense - AFOSR*, "Spider's Silk: From Protein-rich Gland Fluids to Diverse Biopolymer Fibers." PIs – Greg Holland and J.L. Yarger, $596,184.

2013 – 2016 *National Science Foundation*, "Probing the Molecular Structure and Dynamics of Spider Silk Proteins." PI - J.L. Yarger, Division of Materials Research, $440,000.

2015 – 2016 *Argonne National Laboratory*, "Amorphous Pharmaceuticals" PI - J.L. Yarger, Department of Defense LDRD, ASU Subcontract $50,000, Total Award to group at Argonne National Labs - $1,000,000. (PI at ANL is Dr. Chris Benmore, Dr. Richard Weber and Prof. J.L. Yarger)

(ii) Selected Past Federal Grants:

DOD-ARO (2012-2015, $425,000, Angell/Richert); NSF CHE (2010-2014, $465,000); Argonne National Labs - LDRD (2012-2013, $500,000); DOD-AFOSR (2010-2013, $418,000); NSF-DMR-BMAT (2008-2012, $375,000); Carnegie/DOE Alliance Center (2008-2013, $500,000); DOE-Protic Salt Polymer Membranes (2006-2010, $1,500,000); NIH (Bioengineering, $1,000,000); DOE-CDAC (2004-2008, $500,000); NSF CHE (2005-2008, $350,000); NSF NIRT (2003-2005, $1,000,000); W.M. Keck Foundation (2003-2008, $800,000); DEPSCoR ARO (2001-2004, $500,000); DOD ARO (1999-2002, $750,000); NIH R01 ($750,000); NIH BRIN (1999-2000, $30,000); NSF EPSCoR (2002-2005, $2,300,000); DOE-BES (2001-2004, $195,000); ACS-PRF (1998-2000, $25,000); Dreyfus Foundation (2000-2001, $50,000); DOD-DURIP (1999-2000, $160,000); Research Corp. (2001-2006, $125,000); NSF-CRIF (1999-2000, $225,000) and NSF-PFSMETE (1996-1998, $55,000).

F. Publications in 2015: (120 Total Peer-Reviewed Publications)

- Xu, Dian; Shi, Xiangyan; Thompson, Forrest; Weber, Warner; Mou, Qiushi; Yarger, Jeffery L.; **Protein Secondary Structure of Green Lynx Spider Dragline Silk Investigated by Solid-State NMR and X-ray Diffraction.** *International Journal of Biological Macromolecules* 81, 171-179 (2015). [DOI: 10.1016/j.ijbiomac.2015.07.048]
- Sin, B.C.; Singh, L.; Lee, K.E.; Kim, M.; Cho, M.; Yarger, J.L.; Woo, S.K.; Lee, H.I.; Lee, Y.; **Enhanced Electrochemical Performance of $LiFe_{0.4}Mn_{0.6}(PO4)_{1-x}(BO3)_x$ as Cathode Material for Lithium Ion Batteries.** *J. Electroanalytical Chemistry*, 756, 56-60 (2015). [DOI: 10.1016/j.jelechem.2015.08.012]
- Chen, H.B.; Kelly, M.; Guo, C.C.; Yarger, J.L.; Dai, L.L.; **Adsorption and Release of Surfactant into and from Multifunctional Zwitterionic poly(NIPAm-co-DMAPMA-co-AAc) Microgel Particles.** *J. Colloid and Interface Science*, 449, 332-340 (2015).
- Mou, Q.; Benmore, C.J.; Yarger, J.L.; **X-ray Intermolecular Structure Factor (XISF): Separation of Intra- and Inter-molecular Interactions from Total X-ray Scattering Data.** *J. Appl. Crystallography*, 48, 950-952 (2015).
- Shi, Xiangyan; Holland, Gregory P.; Yarger, Jeffery L.; **Molecular Dynamics of Spider Dragline Silk Fiber Investigated by ^{2}H MAS NMR.** *Biomacromolecules* 16(3), 852-859 (2015).
- Sampath, Sujatha; Yarger, Jeffery L.; **Structural Hysteresis in Dragline Spider Silks Induced by Supercontraction: an X-ray Fiber Micro-Diffraction Study.** *RSC Advances*, 5, 1462-1473 (2015).
- Guo, Chengchen; Hall, Genevieve; Addison, John B.; Yarger, Jeffery L.; **Gold Nanoparticle-Doped Silk Film as Biocompatible SERS Substrate.** *RSC Advances*, 5, 1937-1942 (2015).

G. Publications: Between 1993-2014:

- Soignard, Emmanuel; Hochheimer, Hans, D.; Yarger, Jeff; Rishi, Raj; **Reversible Elastic Deformation of Functionalized sp^2 Carbon at Pressures of up to 33 GPa.** *Appl. Phys. Lett.,* 105, 141901 (2014).
- Tarakeshwar, Pilarisetty; Palma, Julio, L.; Holland, Gregory, P.; Fromme, Petra; Yarger, Jeffery L.; Mujica, Vladimiro; **Probing the Nature of Charge Transfer at Nano-Bio Interfaces: Peptides on Metal Oxide Nanoparticles.** *J. Phys. Chem. Lett.,* 5, 3555-3559 (2014).
- Addison, Bennett J.; Popp, Tom Osborne; Weber, Warner S.; Edgerly, Janice S.; Holland, Gregory P.; Yarger, Jeffery L.; **Structural Characterization of Nanofiber Silk Produced by Embiopterans (Webspinners).** *RSC Advances*, 4, 41301-41313 (2014).
- Addison, Bennett; Weber, Warner; Mou, Qiushi; Holland, Gregory P.; Yarger, Jeffery L.; **Structural Characterization of Caddisfly Silk with Solid-State NMR and X-Ray Diffraction.** *Biophysical Journal*, 106(2,S1), 227A (2014).
- Xu, Dian; Yarger, Jeffery L.; Holland, Gregory P.; **Are Spider Silk Proteins a New Class of Intrinsically Disordered Proteins?** *Biophysical Journal*, 106(2,S1), 686A (2014).
- Xu, Dian; Yarger, Jeffery L.; Holland, Gregory P.; **Exploring the Backbone Dynamics of Native Spider Silk Proteins in Black Widow Silk Glands with Solution-state NMR Spectroscopy.** *Polymer*, 55(16), 3879-3885 (2014).
- Addison, Bennett; Weber, Warner; Mou, Qiushi; Ashton, Nicholas N.; Stewart Russell J.; Holland, Gregory P.; Yarger, Jeffery L.; **Reversible Assembly of β-Sheet Nanocrystals within Caddisfly Silk.** *Biomacromolecules,* 15(4) 1269-1275 (2014).

- Shi, Xiangyan; Yarger, Jeffery L.; Holland, Gregory P.; **Elucidating Proline Dynamics in Spider Dragline Silk Fibre Using ^{2}H-^{13}C HETCOR MAS NMR.** *Chem Commun.* 50(37), 4856-4859 (2014).
- Albertson, A.E.; Teulé, F.; Weber, W.; Yarger, J.L.; Lewis, R.V., **Effects of Different Post-Spin Stretching Conditions on the Mechanical Properties of Synthetic Spider Silk Fibers.** *Journal of the Mechanical Behavior of Biomedical Materials,* 29, 225-234 (2014).
- Adrianos, S.L.; Teulé, F.; Hinman, M.B; Jones, J.A.; Weber, W.; Yarger, J.L.; Lewis, R.V., ***Nephila clavipes* Flagelliform Silk-Like GGX Motifs Contribute to Extensibility and Spacer Motifs Contribute to Strength in Synthetic Spider Silk Fibers.** *Biomacromolecules* 14(6), 1751-1760 (2013). [DOI: 10.1021/bm400125w]
- Holland, Gregory P.; Mou, Qiushi; Yarger, Jeffery L., **Determining Hydrogen-Bond Interactions in Spider Silk with ^{1}H-^{13}C HETCOR Fast MAS Solid-State NMR and DFT Proton Chemical Shift Calculations.** *Chem. Comm.* 49(59) 6680-6682 (2013). [DOI: 10.1039/C3CC43737J]
- Asakura, Tetsuo; Suzuki, Yu; Nakazawa, Yasumoto; Holland, Gregory P.; Yarger, Jeffery L., **Elucidating Silk Structure Using Solid-State NMR**. *Soft Matter* 9, 11440-11450 (2013). [DOI: 10.1039/c3sm52187g]
- Sampath, Sujatha; Jenkins, Janelle; Butler, Emily; Kim, Jihyun; Henning, Robert; Holland, Gregory; Yarger, Jeffery, **Characterizing the Secondary Protein Structure of Black Widow Dragline Silk Using Solid-State NMR & X-ray Diffraction.** *Biomacromolecules* 14, 3472-3483 (2013). [DOI: dx.doi.org/10.1021/bm400791u]
- Weber, J.K.R.; Benmore, C.J.; Tailor, A.N.; Tumber, S.K.; Neuefeind, J.; Cherry, B.; Yarger, J.L.; Mou, Q.; Weber, W.; Byrn, S.R., **A Neutron-X-ray, NMR and Calorimetric Study of Glassy Probucol Synthesized Using Containerless Techniques.** *Chemical Physics* 424, 89-92 (2013).
- Huang, W.; Angell, A.; Yarger, Jeffery L.; Richert, R., **Measurement of Conductivity and Permittivity of Samples Sealed in Nuclear Magnetic Resonance Tubes.** *Review of Scientific Instrumentation* 84, 073906 (2013). [DOI: 10.1063/1.4816134]
- Shi, Xiangyan; Holland, Gregory P.; Yarger, Jeffery L., **Amino Acid Analysis of Spider Dragline Silk Using ^{1}H NMR.** *Analytical Biochemistry* 440, 150-157 (2013). [DOI: http://dx.doi.org/10.1016/j.ab.2013.05.006]
- Shi, Xiangyan; Yarger, Jeffery L; Holland, Gregory P., **Probing Site-Specific ^{13}C/^{15}N-Isotope Enrichment of Spider Silk with Liquid-State NMR Spectroscopy.** *Analytical and Bioanalytical Chemistry* 405(12), 3997-4008 (2013). [doi:10.1007/s00216-013-6802-8]
- Addison, Bennett; Ashton, Nicholas N.; Weber, Warner; Stewart Russell J.; Holland, Gregory P.; Yarger, Jeffery L., **β-Sheet Nanocrystalline Domains Formed from Phosphorylated Serine-Rich Motifs in Caddisfly Larval Silk: A Solid State NMR and XRD Study.** *Biomacromolecules* 14(4), 1140-1148 (2013). [DOI: 10.1021/bm400019d]
- Asakura, Tetsuo; Suzuki, Yu; Nakazawa, Yasumoto; Yazawa, Koji; Holland, Gregory P.; Yarger, Jeffery L., **Silk Structure Studied with Nuclear Magnetic Resonance**. *Progress in Nuclear Magnetic Resonance Spectroscopy* 69, 23-68 (2013). [http://dx.doi.org/10.1016/j.pnmrs.2012.08.001] [DOI: 10.1016/j.pnmrs.2012.08.001]
- Benmore, C.J.; Weber, J.K.R.; Tailor, A.N.; Cherry, B.R.; Yarger, J.L.; Mou, Q.; Weber, W.; Neuefeind, J.; Byrn, S.R., **Structural Characterization and Aging of Glassy Pharmaceuticals Made Using Acoustic Levitation.** *J. Pharmaceutical Sciences* 102(4), 1290-1300 (2013). [DOI: 10.1002/jps.23464]
- Koski, Kristie; Akhenblit, P.; McKiernan, K.; Yarger, Jeffery L., **Non-invasive determination of the complete elastic moduli of spider silks.** *Nature Materials* 12, 262-267 (2013). [DOI:10.1038/nmat3549]
- Shi, Xiangyan; Yarger, Jeffery L; Holland, Gregory P., **^{2}H-^{13}C HETCOR MAS NMR for Indirect Detection of ^{2}H Quadrupole Patterns and Spin-Lattice Relaxation Rates.** *J. Magnetic Resonance* 226, 1-12 (2013). [DOI: 10.1016/j.jmr.2012.10.013]
- An, Bo; Jenkins, Janelle E.; Sampath, Sujatha; Holland, Gregory P.; Hinman, Mike; Yarger, Jeffery L.; Lewis, Randolph V., **Reproducing Natural Spider Silks' Copolymer Behavior in Synthetic Silk Mimics.** *Biomacromolecules* 13, 3938-3948 (2012). [DOI: dx.doi.org/10.1021/bm301110s]
- Shi, Xiangyan; Yarger, Jeffery L; Holland, Gregory P., **^{2}H-^{13}C HETCOR MAS NMR for Indirect Detection of ^{2}H Quadrupole Patterns and Spin-Lattice Relaxation Rates.** *J. Magnetic Resonance* 226, 1-12 (2013).
- Koski, Kristie; McKiernan, K.; Akhenblit, P.; Yarger, Jeffery L., **Shear-induced rigidity in spider silk glands.** *Applied Physics Letters* 101, 103701 (2012). [DOI: http://dx.doi.org/10.1063/1.4751842]
- Blanchard, J. W.; Groy, T. L.; Yarger, J.L.; Holland G. P., **Investigating Hydrogen-Bonded Phosphonic Acids with Proton Ultrafast MAS NMR and DFT Calculations.** *J. Phys. Chem. C* 116, 18824-18830 (2012). [DOI: 10.1021/jz200357j]
- Benmore, C.J.; Izdebski, T.; Yarger, J.L., **Total X-Ray Scattering of Spider Dragline Silk.** *Phys. Rev. Lett.* 108, 178102 (2012).

- Sampath, Sujatha.; Izdebski, Thomas.; Jenkins, Janelle; Ayon, Joel; Orgel, Joseph; Henning, Robert W.; Yarger, Jeffery L, **X-ray Diffraction Study of Nanocrystalline and Amorphous Structure within Major and Minor Ampullate Dragline Spider Silks.** *Soft Matter* 8(25), 2713-2722 (2012). [DOI: 10.1039/c2sm25373a]
- Amin, Samrat; Rissi, Erin N.; McKiernan, Keri; Yarger, Jeffery L., **Determining the Equation of State of Amorphous Solids at High Pressure Using Optical Microscopy.** *Review of Scientific Instrumentation* 83, 033702 (2012).
- Gnesa, Eric; Hsia, Yang; Yarger, Jeffery L.;Weber, Warner; Lin-Cereghino, Joan; Lin-Cereghino, Geoff; Tang, Simon; Agari, Kimiko; Vierra, Craig, **Conserved C-Terminal Domain of Spider Tubuliform Spidroin 1 Contributes to Extensibility in Synthetic Fibers.** *Biomacromolecules* 13, 304-312 (2012). [DOI: dx.doi.org/10.1021/bm201262n]
- Teulé, Florence; Addison, Bennett; Cooper, Alyssa; Ayon, Joel; Henning, Robert W.; Benmore, Chris J.; Holland, Gregory P.; Yarger, Jeffery L.; Lewis, Randolph V., **Combining Flagelliform and Dragline Spider Silk Motifs to Produce Tunable Synthetic Biopolymer Fibers.** *Biopolymers* 97(6) 418-431 (2012). [DOI: 10.1002/bip.21724]
- Jenkins, Janelle E.; Holland, Gregory P.; Yarger, Jeffery L., **High resolution magic angle spinning NMR investigation of silk protein structure within major ampullate glands of orb weaving spiders**. *Soft Matter* 8, 1947-1954 (2012). [DOI: 10.1039/C2SM06462F]
- Skinner, L.B..; Benmore, C.; Antao, S.; Soignard, E.; Amin, S.A.; Bychkov, E.; Rissi, E.; Parise, J.B.; Yarger, J.L., **Structural Changes in Vitreous $GeSe_4$ Under Pressure.** *J. Phys. Chem. C* 116, 2212-2217 (2012). [DOI: dx.doi.org/10.1021/jp206773x]
- Amin, Samrat A.; Leinenweber, Kurt; Benmore, Chris J.; Weber, Richard; Yarger, Jeffery L., **Characterizing Pressure Induced Coordination Changes in $CaAl_2O_4$ Glass Using ^{27}Al NMR.** *J. Phys. Chem. C* 116, 2068-2073 (2012). [DOI: dx.doi.org/10.1021/jp204840z]
- Oelker, Erin N.; Soignard, Emmanuel; McKiernan, K.A.; Benmore, C.J.; Yarger, J.L., **Pressure-Induced Crystallization of Amorphous Red Phosphorus.** *Solid State Communications* 152, 390-394 (2012). [DOI: 10.1016/j.ssc.2011.12.003]
- An, Bo; Hinman; M. B.; Holland, G. P.; Yarger, J.L.; Lewis, R. V., **Inducing β-sheets Formation in Synthetic Spider Silk Fibers by Aqueous Post-Spin Stretching.** *Biomacromolecules* 12, 2375-2381 (2011). [DOI: 10.1021/bm200463e]
- Benmore, C.J.; Soignard, E.; Guthrie, M.; Amin, S.A.; Weber, J.K.R.; McKiernan, K.; Wilding, M.C.; Yarger, J.L., **High Pressure X-ray Diffraction Measurements on Mg_2SiO_4 Glass.** *J. Non-Crystalline Solids* 357, 2632-2636 (2011). [DOI:10.1016/j.jnoncrysol.2010.12.064]
- Pizzarello, S.; Williams, L.B.; Lehman, J.; Holland, G.P.; Yarger, J.L., **Abundant Ammonia in Primitive Asteroids and the Case for Possible Exobiology.** *Proceedings of the National Academy of Sciences USA* 108(11), 4303-4306 (2011). [DOI:10.1073/pnas.1014961108]
- Yang, G.; Bureau, B.; Rouxel, T.; Gueguen, Y.; Gulbiten, O.; Roiland, C.; Soignard, E.; Yarger, J.L.; Troles, J.; Sangleboeuf, J.C.; Lucus, P., **Correlation Between Structure and Physical Properties of Chalcogenide Glasses in the As_xSe_{1-x} system.** *Physical Review B* 82, 195206 (2010). [DOI: 10.1103/PhysRevB.82.195206]
- Jenkins, J.E.; Creager, M.S.; Butler, E.B.; Lewis, R.V.; Yarger, J.L.; Holland, G.P., **Solid-state NMR evidence for elastin-like β-turn structure in spider dragline silk.** *Chem. Commun., 46,* 6714-6716 (2010). [DOI: 10.1039/c0cc00829j]
- Creager, M.S.; Jenkins, Janelle E.; Thagard-Yeaman, Leigh; Brooks, A.; Jones, J.A.; Lewis, R.V.; Holland, Gregory P.; Yarger, Jeffery L., **Solid-State NMR Comparison of Various Spiders' Dragline Silk Fiber.** *Biomacromolecules* 11, 2039-2043 (2010). [DOI: 10.1021/bm100399x]
- Soignard, Emmanuel; Benmore, Chris J.; Yarger, Jeffery L., **Perforated Diamond Anvil Cell for High-Energy X-Ray Diffraction (XRD) of Liquids and Amorphous Solids at High Pressure.** *Review of Scientific Instrumentation* 81, 035110 (2010). [DOI: :10.1063/1.3356977]
- Benmore, C.J.; Soignard, E.; Amin, S.A.; Guthrie, M.; Shastri, S.D.; Lee, P.L.; Yarger, J.L., **Structural and Topological Changes in Silica Glass at Pressure.** *Physical Review B* 81, 054105 (2010). [DOI: 10.1103/PhysRevB.81.054105]
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- Lucas, Pierre; King, Ellyn A.; Gulbiten, O.; Yarger, Jeffery L.; Soignard, Emmanuel; Bureau, Bruno, **Bimodal phase percolation model for the structure of Ge-Se glasses and the existence of the intermediate phase.** *Physical Review B* 80, 214114 (2009). [DOI: 10.1103/PhysRevB.80.214114]
- Oelker, Erin N.; Bhat, Harish; Soignard, Emmanuel; Yarger, Jeffery L., **Pressure-Induced Transformations in Crystalline and Vitreous $PbGeO_3$.** *Solid State Communications* 149, 1940-1943 (2009). [DOI:10.1016/j.ssc.2009.07.052]
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- Mei, Q.; Benmore, C.J.; Sharma, R..; Sen, S.; and Yarger, J.L. **Intermediate Range Order in Vitreous Silica from a Partial Structure Factor Analysis.** *Physical Review B* 78, 144204 (2008).
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- Holland, G.P.; Jenkins, J.E.; Creager, M.S.; Lewis, R.V.; Yarger, J.L. **Solid-State NMR Investigation of Major and Minor Ampullate Spider Silk in the Native and Hydrated States.** *Biomacromolecules* 9, 651-657 (2008).
- Mei, Q.; Benmore, C.J.; Soignard, E.; Amin, S.; and Yarger, J.L. **Comment on 'Microscopic Structure Evolution During the Liquid-Liquid Transition in Triphenyl Phosphite' by R Kurita, Y Shinohara, Y Anemiya and H Tanaka J. Phsy.: Condens. Matter 19 (2007) 152101.** *Journal of Physics: Condensed Matter* 19, 408001 (2007).
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H. Book Editor:

Hochheimer, Hans D.; Kuchta, Bogdan; Dorhout, Peter K.; Yarger, Jeffery L.. **Frontiers of High Pressure Research II: Application of High Pressure to Low-Dimensional Novel Electronic Materials.** (2001).

I. Book Contributor:

Yarger, J.L.; Buttry, D.A.; and Holland, G.P. **Solid State NMR of Xerogels**. *Modern Magnetic Resonance*; Graham A. Webb (ed.) Kluwer Pubs., (2007).

J. Research Presentations:

Invited Presentations in 2015:

1) Spallation Neutron Source, ORNL, 'XRD and Neutron Scattering of Glasses and Polymers', Feb. 2015.

2) Experimental NMR Conference, 'Proton Detected HETCOR for Disordered Solids', April 2015.
3) National MRS Conference, 'Structure-Solubility Relations of Amorphous Pharmaceuticals', San Francisco, CA., April 2015.
4) Scripps Research Institute, 'Solid State NMR of Biopolymers', May 2015.
5) Utah State University, 'Spider Silk Proteins', Logan, UT, July 2015.
6) Cottrell Scholar Conference, "Online Pchem Lab." July 2015.
7) National ACS Conference, 'Characterization of mixed-ligand phosphonic acid functionalized fumed silica nanoparticles using solid-state NMR.' Boston, MA, Aug. 2015.
8) Pacifichem, 'Using NMR to Elucidate the Structure and Dynamics in Spider Silks and Related Protein Based Biopolymers', Dec. 2015.

Invited Presentations in 2014:
9) Utah State University, 'Spider Silk Proteins', Logan, UT, Jan 2014.
10) Los Alamos National Laboratory, 'MR Magnetics', Los Alamos, NM, Jan 2014.
11) 58th Annual Meeting of the Biophysical Society, 'Are Spider Silk Proteins a New Class of Intrinsically Disordered Proteins?' San Francisco, CA, Feb 2014.
12) 58th Annual Meeting of the Biophysical Society, 'Structural Characterization of Caddisfly Silk with Solid-State NMR and X-Ray Diffraction.' San Francisco, CA, Feb 2014.
13) BIT'S 3rd Annual Conference and Expo of AnalytiX, 'Avances in NMR of Biopolymers.' Dalian, China, April 2014.
14) Az Natural Science Museum, "Speed Dating with Scientists." May 2013.
15) Cottrell Scholar Conference, "Computational 'Experiments' for Pchem Lab." July 2014.
16) DOD AFOSR Meeting, "Spider Silk Gland Material." December 2014.

Invited University Presentations 1998-2013 (>65 Total): Univ. Akron (2013); Univ. Az (2013); ASU-Poly (2012); Brooklyn College (2012); Santa Clara University (2011); Utah State University (2012); University of Utah (2011); University of California – Davis (2011); University of Nevada, Las Vegas – UNLV (2010); University of Akron (2013, 2010); Magill University (2010); University of California, San Francisco (2009); University of California at Berkeley (2009); University of Quebec (2009); Southern Illinois University (2008); Washington University (2008); University of California – Davis (2008); Carnegie Institute (2008, 2006); University of Arizona (2008); UC Irvine (2007), U. Connecticut (2006), Colorado State University (2006), Florida State University (2005), Arizona State University (2004), Cornell University (2004), Harvard University (2004), University of Montana (2004), Oklahoma State University (2004), Tulsa University (2004), Colorado State University (2004), Stanford University (2003), University of Nevada - Reno (2000), University of North Carolina (1999), University of Missouri - Rolla (1998), University of New Mexico (1998), Colorado School of Mines (1998), Georgia Institute of Technology (1998) and Washington University (1998).

Invited Scientific Conference Presentations 1998-2012 (>80 Total): Fiber Society Symposium (Clemson, SC 2013); National ACS Meeting (2013, 2012, 2011); Experimental NMR Conference - ENC (2013, 2012, 2011, 2009, 2008 & 2003, 2001); NY Academy of Sciences (2012); Carnegie Institute of Washington (2012); RUSTEC (2012, 2011, 2010); Air Force Office of Scientific Research: Natural Materials, Systems and Extremophiles Program (2011); Bruker BioSpin (2011); Cottrell Scholars Conference (2013, 2011, 2005); American Arachnological Society Conference (2011); EFRC Conference (2011); DFG-NSF Research Conference (2011); Dynamic Phenomena Under Extremes (2011); Advanced Materials Failure Analysis, AMFA (2010); SSAA CDAC Symposium (2011, 2010); 9^{th} International Symposium on Crystallization in Glasses and Liquids (2009); ACS Southwest Regional Meeting (2009); Workshop on Brillouin Spectroscopy at Argonne National Laboratory (2009); Conference on the Physics of Non-Crystalline Solids (2009); NNSA Stockpile Stewardship Symposium (2011, 2009); COMPRES Workshop (2009); Alpine Conference on Solid State NMR (2009); Study of Matter at Extreme Conditions, SMEC (2009); High Pressure Synchrotron Science (HiPreSS) Workshop (2009); Spallation

Neutrons at Pressure (SNAP) Workshop (2009); American Ceramic Society and the Glass and Optical Materials Division (GOMD) ACerS Conference (2009); Gordon Conference on Magnetic Resonance (2009); Neutron Scattering Workshop – Lujan Center, (2009); ACeRS PacRim Conference (2009); Gordon Conference on High Pressure (2008); SMEC Confererence (2008, 2007); SNAP Conference (2008, 2007); Carnegie DOE Alliance Conference (2008, 2007); American Chemical Society (2001-2008); American Ceramic Society Meeting (2009, 2006, 2005 & 2004); ISMAR NMR Meeting (2004); Corning Glass Conference (2004); Materials Research Society Meeting (2003-2008); Gordon Conference on Order/Disorder (2000); Gordon Conference on Ionic Liquids (2001); Four-Corners American Physical Society Meeting (2000); Research Corporation Cottrell Conference (2002, 2006); NATO Frontiers of High Pressure (2001); European Experimental NMR Conference (2002); Solid-State NMR of Materials (2003); and the Rocky Mountain Research Conference (2008, 2004 & 2001).

Contributed Scientific Conference Presentations 1992-2012 (>150 Total): Experimental NMR Conference - ENC (2013, 2012, 2011, 2009, 2008 & 2003, 2001, 1998, 1996, 1992); DOD AFOSR Contractors Meeting (2011, 2012); Beckman Scholars Conference (2010); Biophysical Society Meeting (2010); Agilent MR Conference (2009); American Chemical Society National Meetings (2011, 2002-2009, 1996); National Materials Research Society Meeting (2002, 2006); American Physical Society (2004); Gordon Conference on Chemical Education (2000); American Physical Society Meeting (2000, 2005); Gordon Conference on Magnetic Resonance (2003, 2009); Rocky Mountain Research Conference (1998, 2003, 2009); Ampere NMR Conference (2002); Electrochemical Society Meeting (2001); DOE EPSCoR Meeting (2003); and the NSF EPSCoR Nano-Materials Conference (2003).

K. Teaching & Instruction:

Arizona State University (2005-present)

- BCH 392 - Independent Research in Biochemistry – 55+ undergraduate students.
- BCH 501 - Biochemistry Seminar; Fall 2005
- BCH 792 - Biochemistry Ph.D. Research Mentoring; Fall 2005-Present.
- BCH 799 - Biochemistry Ph.D. Dissertation; Fall 2010-Present.
- MBB 494 - Independent Biology Research; Fall 2009, Spring 2013, Fall 2015, Spring 2016
- CHM 113 - Introductory Chemistry; Fall 2008.
- CHM 191 - Introduction to Chemistry, NMR Lab Tour and Intro.; Fall 2010-Spring 2015.
- CHM 341 - Elementary Physical Chemistry; Fall 2006, Fall 2007, Spring 2008, Spring 2009.
- CHM 343 - Elementary Physical Chemistry Lab; Fall 2007-2013, Spring/Fall 2015, Spring 2016
- CHM 392 – Independent Research in Chemistry – 25+ undergraduate students.
- CHM 494 – Practical NMR Spectroscopy; Fall 2014-Fall 2015. Created/Designed This Course.
- BCH 501 - Biochemistry Seminar; Fall 2005
- CHM 541 - Advanced Thermodynamics and Statistical Mechanics; Fall 2009.
- CHM 598 – Advanced Nuclear Magnetic Resonance Spectroscopy; Spring 2007, 2009, 2012.
- CHM 792 - Chemistry Ph.D. Research Mentoring; Fall 2005-Present.
- CHM 799 - Chemistry Ph.D. Dissertation; Fall 2010-Present.
- PHY 792 - Physics Ph.D. Research Mentoring; Fall 2010-Present.
- PHS 799 - Physics Dissertation; Spring 2014-2015.

University of Wyoming (1998-2005)

- *General Chemistry, Physical Chemistry Classes and Labs between 1998 and 2005, Including Adv. Thermodynamics, Adv. Statistical Mechanics, Adv. Quantum Mechanics, General Chemistry, Physical Chemistry Laboratory and Undergraduate level Physical Chemistry Class.*

L. Service:

Arizona State University, Department of Chemistry and Biochemistry

- Director of the Magnetic Resonance Research Center, 2006-Present
- Committee on School of Molecular Sciences Formation, 2014-present

- Personnel & Budget Committee, 2007-2009, 2010-2014 (Chair for 2 years 2012-2014).
- Ad Hoc Committee on Biophysical Chemistry Offerings, 2014-2015
- University Senate Representative, 2010-2012
- Chair Search Committee, 2006-2007, 2012
- Chair for Faculty Search Committees, 2010, 2011, 2013
- Online Course Materials & Course Development Committee, 2014-present
- Committee on Computing Resources, 2014- present
- Instrumentation Committee (Chair), 2006-2010
- ABC Downtown Building Committee, 2009-2010
- ASU-Mayo Medical Imaging Committee, 2014-2015
- Chemistry School Steering Committee, 2011-2015
- School of Materials Advisory Committee, 2008-2010
- Septennial Review Committee, 2006
- Physics Chair Committee, 2005.

University of Wyoming, Served on numerous department of chemistry and university committees between 1998-2005, most notably 3 faculty search committees and the graduate admissions committee for 5+ years.