

Linda S. Shimizu

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PROFESSIONAL PREPARATION

NIH Post-doctoral Fellow, Massachusetts Institute of Technology, Cambridge, MA 1997- 1998, Designed and synthesized novel therapeutics targeted towards prostate cancer.

Ph.D. in Organic Chemistry, Massachusetts Institute of Technology, Cambridge, MA, 1997

Dissertation: "Synthesis and Conformation of Peptides: I. Stability of Short Templated α -Helical Peptides. II. New Templates for Intramolecular Acyl Transfer."

BA in Chemistry and German Language and Literature, Magna Cum Laude, Wellesley College, MA, 1990.

HONORS AND AWARDS

SC Governor's Award for Scientific Awareness 2021; Fulbright U.S. Scholar grant 2017-2018; Michael J. Mungo Undergraduate Teaching Award 2016; Editorial Board, Journal of Photochemistry and Photobiology A: Chemistry 2014 – present; Editorial Board, Supramolecular Chemistry 2014 – present; SC ACS Outreach Volunteers of the Year 2014; ACS Women Chemists Committee 2013 Rising Star Award; USC Breakthrough Rising Star, 2011.

APPOINTMENTS

Professor, Chemistry and Biochemistry, University of South Carolina, Columbia SC, 2016 – present.

Fulbright US Scholar, University of Vienna Visiting Professor of Science, March 1, 2018 – June 30, 2018.

Associate Professor, Chemistry and Biochemistry, University of South Carolina, Columbia SC, 2011 – 2015.

Visiting Professor, Center for Nanosystems Chemistry and the Institute of Organic Chemistry, University of Würzburg, Germany, Summer 2015.

Assistant Professor, Chemistry and Biochemistry, University of South Carolina, Columbia SC, 2005 – 2011.

Research Assistant Professor (part-time), University of South Carolina, Columbia SC, June 1998-Jan 1999, 2000-2001, 2003-2005.

Consultant Abt Associates Inc. 2003 –2004

Research Interests: Supramolecular Chemistry, Nanomaterials, Bioorganic, Organic Photochemistry, Physical Organic Chemistry, Conjugated Polymers, and Crystal Engineering.

PUBLICATIONS / BOOK CHAPTERS *corresponding author

1. Helmers, Ingo; Hossain, Muhammad S.; Bäumer, Niles; Wesarg, Paul; Soberats, Bartolome; Shimizu, Linda S.*; Fernández, Gustavo* Anti-cooperative Self-Assembly with maintained Emissions Regulated by Conformational and Steric Effects. *Angew. Chem. Int. Ed.* **2022** Manuscript ID: 202200390.R1. <https://doi.org/10.1002/anie.202200390>
2. Daneshian, L.; Renggli, I.; Hanaway, R.; Offermann, L. R.; Schlacter, C. R.; Hernandez, R. A.; Henry, S.; Prakash, R.; Wybouw, N.; Dermauw, W.; Shimizu, L. S.; Van Leeuwen, T.; Makris, T.; Grbic, V.; Grbic, M.; Chruszcz, M.* Structural and Functional Characterization of β -Cyanoalanine Synthase from *Tetraychus urticae*. **2022**, *142*, 103722. <https://doi.org/10.1016/j.ibmb.2022.103722>
3. Goodlett, D. W.; Sindt, A. J.; Islam, M. F.; Smith, M. D.; Shimizu, L. S.* Selective Loading of Xylene Constitutional Isomers in a Self-Assembled Triphenylamine bis-Urea Macrocycle Host. *Cryst. Growth Des.* **2022**, *22*, 1017-1012. <https://doi.org/10.1021/acs.cgd.1c00846>.
4. Islam, Md. Faizul; Sindt, Ammon J.; Hossain, Muhammad Saddam; Ayare, Pooja, J.; Smith, Mark D.; Vannucci, Aaron K.; Garashchuk, Sophia; Shimizu, Linda S.* Assembled triphenylamine bis-urea macrocycles: Exploring photodriven electron transfer from host to guests. *Phys. Chem. Chem. Phys.*, **2021** *23*, 23952-23960. <https://doi.org/10.1039/D1CP03000K>
5. Hossain, M. S.; Sindt, A. J.; Goodlett, D. W.; Shields, D.; O'Connor, C. J.; Antevska, A.; Krakalos, S. G.; Smith, M. D.; Garashchuk, S.; Do, T. D.; Gudmundottir, A.; Shimizu, L. S.* Effects of self-assembly on

- the photogeneration of radical cations in halogenated triphenylamines. *J. Phys. Chem. C* **2021**, *125*, 19991-20002. <https://doi.org/10.1021/acs.jpcc.1c04933>.
6. Som, B.; Smith, M. D.; Shimizu, L. S.* Multi-dimensional copper(I) and silver (I) coordination polymers assembled with a pyridyl bis-urea macrocycle ligand. *Polyhedron* **2021**, *201*, 115170 (1-7). <https://doi.org/10.1016/j.poly.2021.115170>
 7. Goodlett, D. W.; Sindt, A. J.; Hossain, M. S.; Merugu, R.; Smith, M. D.; Garashchuk, S.; Gudmundsdottir, A. D.; Shimizu, L. S.* From incident light to persistent and regenerable radicals of urea-assembled benzophenone frameworks: A structural investigation. *J. Phys. Chem. A* **2021**, *126*, 6, 1336-1344, DOI: 10.1021/acs.jpca.0c08953.
 8. Pote, S.; Kachhap, S.; Mank, N. J.; Daneshian, L.; Klapper, V.; Pye, S.; Arnett, A. K.; Shimizu, L. S.; Borowski, T.; Chruszcz, M.* Comparative structural and mechanistic studies of 4-hydroxy-tetrahydrodipicolinate reductases from *Mycobacterium tuberculosis* and *Vibrio vulnificus*. *Biochimica et Biophysica Acta – General subjects* **2021**, *1865*, 129750, DOI: [10.1016/j.bbagen.2020.129750](https://doi.org/10.1016/j.bbagen.2020.129750).
 9. Link, B. A.; Sindt, A. J.; Shimizu, L. S.; Do, T. D.* Selective host-guest chemistry: Self-assembly and conformational preferences of *m*-xylene macrocycles probed by ion-mobility mass spectrometry, *Phys. Chem. Chem. Phys.* **2020**, *22*, 9290-9300. DOI: [10.1039/C9CP06938K](https://doi.org/10.1039/C9CP06938K) *From University of Tennessee, Knoxville
 10. Benti, S.; Tiwari, P. B.; Goodlett, D. W.; Daneshian, L.; Kern, G. B.; Smith, M. D.; Uren, A.; Chruszcz, M.; Shimizu, L. S.; Upadhyay, G.* Small molecule binds with Lymphocyte antigen 6K to induce cancer cell death. *Cancers* **2020**, *12*, 509- DOI: [10.3390/cancers12020509](https://doi.org/10.3390/cancers12020509). *From Uniformed Services University of Health Sciences
 11. Sindt, A. J.; DeHaven, B. A.; Goodlett, D. J.; Hartel, J. O.; Ayare, P. J.; Du, Y.; Smith, M. D.; Brugh, A. M.; Forbes, M. D. E.; Bowers, C. R.; Vannucci, A. K.; Shimizu, L. S.* Guest inclusion modulates concentration and persistence of photogenerated radicals in assembled triphenylamine macrocycles. *J. Am. Chem. Soc.* **2020**, *142*, 502-511. DOI: 10.1021/jacs.9b11518
 12. DeHaven, B. A.; Chen, A. L.; Shimizu, E. A.; Smith, M. D.; Shimizu, L. S.* Interplay between hydrogen and halogen bonding in co-crystals of dipyridylmethyl oxalamides and tetrafluorodiodobenzenes. *Cryst. Growth Des.* **2019**, *19*, 5776-5783, doi: 10.1021/acs.cgd.9b00796.
 13. DeHaven, B. A.; Liberatore, H. K.; Greer, A.; Richardson, S. D.; Shimizu, L. S.* Probing the formation of reactive oxygen species by a porous self-assembled benzophenone bis-urea host. *ACS Omega* **2019**, *4*, 8290-8298, doi: 10.1021/acsomega.9b00831.
 14. Sindt, A. J.; Smith, M. D.; Berens, S.; Vasenkov, S.; Bowers, C. R.; Shimizu, L. S.* Single-crystal-to-single-crystal guest exchange in columnar assembled bromotriphenylamine bis-urea macrocycles. *Chem. Commun.* **2019**, *55*, 5619-5622, doi: 10.1039/C9CC01725A.
 15. Sindt, A. J.; DeHaven, B. A.; McEachern, D. F.; Dissanayake, M. M.; Smith, M. D.; Vannucci, A. K.; Shimizu, L. S.* UV-irradiation of self-assembled triphenylamines affords persistent and regenerable radicals. *Chem. Sci.* **2019**, *10*, 2670-2677 doi: 10.1039/C8SC04607G.
 16. DeHaven, B. A.; Goodlett, D. W.; Sindt, A. J.; Noll, N.; DeVetta, M.; Smith, M. D.; Martina, C. R.; González, L.; Shimizu, L. S.* Enhancing the stability of photogenerated benzophenone triplet radical pairs through supramolecular assembly. *J. Am. Chem. Soc.* **2018**, *140*, 13064-13070, doi 10/1021/jacs.8b08501.
 17. Sindt, A. J.; Smith, M. D.; Pellechia, P. J.; Shimizu, L. S.* Thioureas and Squaramides: A Comparison with Ureas as Assembly Directing Motifs for *m*-xylene macrocycles. *Cryst. Growth Des.* **2018**, *18*, 1602-1612, doi:10.1021/acs.cgd.7b01558.
 18. Som, B.; Shue, J.; Smith, M. D.; Shimizu, L. S.* Temperature induced polymorphism of salt co-crystal solvates from a Pyridyl Bis-urea Macrocycle with Naphthalene-1,5-disulfonic acid. *J. Chem. Crystallogr.*, **2018**, *C74*, 75-81, doi: 10.1107/S2053229617017600.
 19. DeHaven, B. A.; Chen, A. L.; Shimizu, E. A.; Salpage, S. R.; Smith, M. D.; Shimizu, L. S.* Synergistic Effects of Hydrogen and Halogen Bonding in Co-Crystals of Dipyridyl Ureas and Diiodotetrafluorobenzenes. *Supramol. Chem.* **2018**, *30*, 315-327, doi: 10.1080/10610278.2017.136480.
 20. Kittikhunnatham, P.; Som, B.; Rassolov, V.; Stolte, M.; Würthner, F.; Shimizu, L. S. Greytak, A. B.* Fluorescence Polarization Measurements to Probe Alignment of a Bithiophene Dye in 1D channels of Self-Assembled Bis-Urea Macrocycle Crystals. *J. Phys. Chem. C.* **2017**, *121*, 18102-18109. doi: 10.1021/acs.jpcc.7b07136.
 21. DeHaven, B. A.; Tokarski, J. T.; Korous, A. A.; Mentink-Vigier, F.; Makris, T. M.; Brugh, A. M.; Forbes, M. D. E.; van Tol, J.; Bowers, C. R.; Shimizu, L. S.* Endogenous radicals of self-assembled

- benzophenone *bis*-urea macrocycles: characterization and application as a polarizing agent for solid-state DNP MAS NMR spectroscopy. *Chem-Eur J.* **2017**, *23*, 8315-8319, doi: 10.1002/chem.201701705.
- 22.Som, B.; Salpage, S. R.; Son, J.-O.; Gu, B.; Karakalos, S. G.; Smith, M. D.; Shimizu, L. S.* Pillars of assembled pyridyl *bis*-urea macrocycles: A robust synthon to organize diiodotetrafluorobenzenes. *CrystEngComm*, **2017**, *19*, 484-491, doi 10.1039/C6CE02392D.
- 23.Salpage, S. R.; Xu, Y.; Som, B.; Sindt, A. J.; Smith, M. D.; Shimizu, L. S.* Pyridyl-phenylethynylene *Bis*-Urea Macrocycles: Self-Assembly and Utility as a Nanoreactor for the Selective Photoreaction of Isoprene. *RSC Advances* **2016**, *6*, 98350-98355, doi: 10.1039/C6RA18681E.
- 24.Salpage, S. R.; Paul, A.; Som, B.; Banerjee, T.; Hanson, K.; Smith, M. D.; Vannucci, A. K.; Shimizu, L. S.* Structure, electrochemistry and photophysical properties of an *exo* diruthenium complex using a macrocyclic bridging ligand and its application as a photosensitizer. *Dalton Trans.* **2016**, *45*, 9601-9607, doi: 10.1039/C6DT01377E.
- 25.Salpage, S. R.; Smith, M. D.; Shimizu, L. S.* Crystal Structures and Hirshfeld Surface Analyses of 6-Substituted Chromones. *J. Chem. Crystallogr.* **2016**, *46*, 170-180, doi: 10.1007/s10870-016-0642-2.
- 26.Salpage, S. R.; Donevant, L. S.; Smith, M. D.; Bick, A.; Shimizu, L. S.* Modulating the Reactivity of Chromone and Its Derivatives through Encapsulation in a Self-Assembled Phenylethynylene *Bis*-Urea Host. *J. Photochem. Photobio. A* **2016**, *315*, 14-24, doi: 10.1016/j.jphotochem.2015.09.003.
- 27.Bowers, C. R.*; Dvoyahshin, M.; Salpage, S. R.; Akel, C.; Bhasse, H.; Geer, M. F.; Shimizu, L. S.* Squeezing Xenon into Phenylether *bis*-Urea Nanochannels. *Can. J. Chem.* **2015**, *93*, 1031-1034, doi: dx.doi.org/10.1139/cjc-2015-0152.
- 28.Bowers, C. R.*; Dvoyahshin, M.; Salpage, S. R.; Akel, C.; Bhasse, H.; Geer, M. F.; Shimizu, L. S.* Crystalline *bis*-Urea Nanochannel Architectures Tailored for Single-File Diffusion Studies. *ACS Nano* **2015**, *9*, 6343-6353.
- 29.Dawn, S.; Salpage, S. R.; Koscher, B. A.; Wibowo, A. C.; Pellechia, P. J.; Shimizu, L. S.* Applications of a *bis*-urea phenylethynylene self-assembled nanoreactor for [2+2] photodimerizations. *J. Phys. Chem. A.* **2014**, *118*, 10563-10574.
- 30.Shimizu, L. S.*; Salpage, S. R.; Korous A. F. Functional Materials from Self-Assembled *bis*-Urea Macrocycles. *Acc. Chem. Res.* **2014**, *47*, 2116-2127.
- 31.Xu, W. L.; Smith, M. D.; Krause, J. A.; Greytak, A. B.; Ma, S.; Read, C. M.; Shimizu, L. S.* Single Crystal to Single Crystal Polymerization of a Self-Assembled Diacetylene Macrocycle Affords Columnar Polydiacetylenes. *Cryst. Grow. Des.* **2014**, *14*, 993-1002.
- 32.Xu, Y.; Xu, W. L.; Smith, M. D.; Shimizu, L. S.* Self-assembly and Ring-opening Metathesis Polymerization of a Bifunctional Carbonate Stilbene Macrocycle. *RSC Advances*, **2014**, *4*, 1675-1682.
- 33.Geer, M. F.; Mazzuca, J.; Smith, M. D.; Shimizu, L. S.* Strong, short halogen bonds in co-crystals of pyridyl *bis*-urea macrocycles with iodo-perfluorocarbons. *Cryst. Eng. Comm.* **2013**, *15*, 9923-9929.
- 34.Caricato, M.; Leza, N.; Roy, K.; Dondi, D.; Gattuso, G.; Shimizu, L. S.; Vander Griend D. A.; Pasini, D.* A Chiroptical Probe for Sensing Metal Ions in Physiological Conditions. *Eur. J. Org. Chem.* **2013**, 6078-6083.
- 35.Geer, M. F.; Walla, M. D.; Solntsev, K. M.; Strassert, C. A.; Shimizu, L. S.* Self-assembled benzophenone *bis*-urea macrocycles facilitate selective oxidations by singlet oxygen. *J. Org. Chem.* **2013**, *78*, 5568-5578.
- 36.Roy, K.; Wibowo, A. C.; Pellechia, P. J.; Ma, S.; Geer, M. F.; Shimizu, L. S.* Absorption of hydrogen bond donors by pyridyl *bis*-urea crystals. *Chem. Mater.* **2012**, *24*, 4773-4781.
- 37.Dawn, S.; Salpage, S. R.; Smith, M. D.; Sharma, S. K.; Shimizu, L. S.* A trinuclear silver coordination polymer from a bipyridine *bis*-urea macrocyclic ligand and silver triflate. *Inorg. Chem. Commun.* **2012**, *15*, 88-92.
- 38.Geer, M. F.; Shimizu, L. S.* "Self-Assembly and Self-Organization" Chapter in Volume 1: Concepts in Supramolecular Chemistry from Molecules to Nanomaterials Series Editors: Philip A. Gale, Jonathan, W. Steed, John Wiley & Sons, Ltd. United Kingdom, **2012**, *1*, 167-180.
- 39.Xu, Y.; Shimizu, L. S.* "Urea Capsules" In *The Encyclopedia of Supramolecular Chemistry*; Atwood, J. L.; Steed, J. W.; Wallace, K. J., Ed.; Taylor and Francis, CDC Press, **2012**, doi 10.1081/E-ESMC-120048280.
- 40.Dawn, S.; Dewal, M. B.; Sobransingh, D.; Paderes, M. C.; Wibowo, A. C.; Krause, J. A.; Smith, M. D.; Pellechia, P. J.; Shimizu, L. S.* Porous crystals from self-assembled phenylethynylene *bis*-urea macrocycles facilitate the selective photodimerization of coumarin. *J. Am. Chem. Soc.* **2011**, *133*, 7025-7032.

41. Roy, K.; Smith, M. D.; Shimizu, L. S.* 1D coordination network formed by a cadmium based pyridyl urea helical monomer. *Inorg. Chim. Acta* **2011**, *376*, 598-604.
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43. Roy, K.; Wang, C.; Smith, M. D.; Dewal, M. B.; Wibowo, A. C.; Brown, J. C.; Ma, S.; Shimizu, L. S.* Guest induced transformations of assembled pyridyl bis-urea macrocycles. *Chem. Commun.* **2011**, *47*, 277-279.
44. Roy, K.; Wang, C.; Smith, M. D.; Pellechia, P. J.; Shimizu, L. S.* Alkali metal ions as probes of structure and recognition properties of macrocyclic pyridyl urea hosts. *J. Org. Chem.* **2010**, *75*, 5453-5460, Featured Article.
45. Xu, Y.; Smith, M. D.; Geer, M. F.; Pellechia, P. J.; Brown, J. C.; Wibowo, A. C.; Shimizu, L. S.* Thermal reaction of a columnar assembled diacetylene macrocycle. *J. Am. Chem. Soc.* **2010**, *132*, 5334-5335. Highlighted by *Synfacts*.
46. Tian, L.; Wang, C.; Dawn, S.; Smith, M. D.; Krause, J. A.; Shimizu, L. S.* Macrocycles with switchable *exo/endo* metal binding sites. *J. Am. Chem. Soc.* **2009**, *131*, 17620-17629.
47. Yang, J.; Dewal, M. B.; Sobransingh, D.; Xu, Y.; Smith, M. D.; Shimizu, L. S.* An examination of the structural features that favor the columnar self-assembly of bis-urea macrocycles. *J. Org. Chem.* **2009**, *74*, 102-110.
48. Xu, Y.; Smith, M. D.; Krause, J.; Shimizu, L. S.* Control of the intramolecular [2+2] photocycloaddition of a bis-stilbene macrocycle. *J. Org. Chem.* **2009**, *74*, 4874-4877.
49. Dewal, M. B.; Xu, Y.; Yang, J.; Mohammed, F.; Smith, M. D.; Shimizu, L. S.* Manipulating the cavity of a porous material changes the photoreactivity of included guests. *Chem. Commun.* **2008**, 3909-3911. Highlighted by *Nature Chem.*, July 11, **2008**, doi:10.1038/nchem.36.
50. Yang, J.; Dewal, M. B.; Profeta, S.; Smith, M. D.; Li, Y.; Shimizu, L. S.* Origins of selectivity for the [2+2] cycloaddition of alpha, beta-unsaturated ketones within a porous self-assembled organic framework. *J. Am. Chem. Soc.* **2008**, *130*, 612-621.
51. Sobransingh, D.; Dewal, M. B.; Hiller, J.; Smith, M. D.; Shimizu, L. S.* Inclusion of electrochemically active guests by novel oxacalixarene hosts. *New. J. Chem.* **2008**, *32*, 24-27.
52. Shimizu, L. S.* Perspectives in main-chain hydrogen bonded supramolecular polymers. *Polymers International* **2007**, *56*, 444-452.
53. Dewal, M. B.; Lufaso, M. W.; Hughes, A. D.; Samuel, S. A.; Pellechia, P.; Shimizu, L. S.* Absorption properties of a porous organic crystalline apohost formed by a self-assembled bis-urea macrocycle. *Chem. Mater.* **2006**, *18*, 4855-4864.
54. Yang, J.; Dewal, M. B.; Shimizu, L. S.* Self-assembling bis-urea macrocycles used as an organic zeolite for a highly stereoselective photodimerization of 2-cyclohexenone. *J. Am. Chem. Soc.* **2006**, *128*, 8122-8123.
55. Shimizu, L. S.*; Smith, M. D.; Hughes, A. D.; Samuel, S.; Ciurtin-Smith, D. Assembled tubular structures from bis-urea macrocycles. *Supramolecular Chem.* **2005**, *17*, 27-30.
56. Ricks, H. L.; Shimizu, L. S.; Smith, M. D.; Bunz, U. H. F.; Shimizu, K. D.* An N,N'-diaryl urea based conjugated polymer model system. *Tetrahedron Lett.* **2004**, *45*, 3229-3232.
57. Shimizu, L. S.*; Hughes, A. D.; Smith, M. D.; Davis, M. J.; Zhang, P.; zur Loye, H. -C.; Shimizu, K. D. Self-assembled nanotubes that reversibly bind acetic acid guests. *J. Am. Chem. Soc.* **2003**, *125*, 14972-3.
58. Shimizu, L. S.*; Smith, M. D. Hughes, A. D.; Shimizu, K. D. Self-assembly of a bis-urea macrocycle into a columnar nanotube. *Chem. Commun.* **2001**, 1592-1593.
59. Renold, P.; Tsang, K. Y.; Shimizu, L. S.; Kemp, D. S.* For short alanine-lysine peptides the helical propensities of lysine residues (s Values) are strongly temperature dependent. *J. Am. Chem. Soc.* **1996**, *118*, 12234-12235.
60. Stanley, J. A.*; Dakin, S.; Szabo L. (Shimizu); Posaw, L.; Lee, C.; Hou, W. M. A convenient preparation of *trans*-3,4-dephenyl- and *trans, trans*-2,3,4-triphenylvalerolactones. *Org. Prep. Proc. Int.* **1991**, *23*, 193-195.
- Submitted**
61. Oluwatoba, Damilola S.; Islam, Md. Faizul; Som, Bozumeh; Sindt, Ammon J.; Mark, D. Smith, Shimizu, Linda S.; Do, Thanh D.* Metal Adduction and Charge Isomerism Investigated using *m*-Xylene Macrocycles as Model Systems. *J. Phys. Chem. A* submitted Jan 11, 2022, manuscript ID: jp-2022-001974. (U. of Tennessee)

TEACHING EXPERIENCE

Undergraduate: Chem 333 Organic Chemistry 1

Chem 334 Organic Chemistry 2

Chem 533 Organic Chemistry 3

Chem 101 Fundamental Chemistry 1

Chem 102 Fundamental Chemistry 2

Graduate: Chem 735 Structural/Mechanistic Organic Chemistry

Chem 739 Special Topics in Organic Chemistry

Organic and Supramolecular Photochemistry

FUNDED GRANTS

L. S. Shimizu, PI

1. NSF, Functional nanotubes from self-assembled *bis*-urea macrocycles, **\$460,000**, 8/1/19-7/31/22.
2. NSF, Functional organic nanotubes from self-assembled *bis*-urea macrocycles, **\$460,056**, 8/1/16-7/31/19.
3. NSF, Self-assembled organic nanotubes from cyclic urea, **\$390,000**, 8/15/13 – 7/31/16.
4. USC Office of the Vice President of Research, Aspire I, track 4: Development of Templates for Enantioselective Photooxidations, Co-PI: Sheryl Wiskur, **\$15,000**, 5/16/15-8/15/16.
5. NSF, Self-assembled organic nanotubes from cyclic urea, **\$375,000**, 7/15/10-9/30/13.
6. USC College of Arts and Sciences, Small Research Instrumentation Proposal for a Fluorescence Lifetime Spectroscopy System, **\$45,661**, 2/7/13-6/30/13.
7. USC Office of Research and Graduate Education, Promising Investigator Research Award, Functional Coordination Polymers, **\$19,000**, 4/15/10-07/15/11.
8. NSF, Self-assembled organic nanotubes from cyclic urea, **\$360,000**, 9/1/07-8/31/10.
9. American Chemical Society, Petroleum Research Fund, type G, Functional zippers to organize synthetic and biological polymers, **\$35,000**, 9/1/06-8/31/08.
10. University of South Carolina, Office of Research and Health Sciences, Research Council and Research Opportunity Program, Porous crystals as confined environments for selective reactions, **\$17,600**, 04/01/07-06/30/08.
11. USC Nanocenter Bionano Thrust Area, Biomedical Applications of self-assembled cycloureas **\$10,000**, 12/15/07-6/15/08.
12. NSF, Self-assembled organic nanotubes from cyclic urea, **\$213,000**, 8/1/03-7/31/06.
13. NSF, POWRE: Self-assembling cyclic ureas, **\$74,933**, 12/1/99-1/31/02.

L. S. Shimizu, Co-PI

1. NIH, PI: Geeta Upadhyay, F Edward Hebert School of Medicine, Uniformed Services University of the Health Sciences, Role of Ly6K in TGF β and immune escape pathways of triple negative breast cancer, Co-PIs: Subda Madhavan, Maksymilian Chruszcz and Linda Shimizu, (Shimizu subcontract total: **\$174,579**) 8/3/2018-7/31/2021.
2. DOE, Data-enabled approaches for investigating multiscale ion transport mechanisms in functional electrolytes. PI: Qi Wang, Co-PIs: Sophya Garashchuk, Jianjun Hu, Linda Shimizu, and Chuanbing Tang, Sept 15, 2019-Sept 14, 2022, Total awarded: **\$750,000** (Shimizu total per year: **\$13,984** direct & **\$6,015** indirect)
3. Office of the Vice President for Research, University of South Carolina, COVID-19 Research Initiative, Role of human Ly6E in protection against SARS-CoV-2 infection – molecular bases PI: Maksymilian Chruszcz, Total award **\$25,000**, May 15 – Dec 31, 2020.
4. Aspire III, Office of the Vice President for Research, University of South Carolina, Acquisition of Steady State Fluorimeter Equipped with and Integrating Sphere, PI: Natalia Shustova, **\$45,000**, 5/16/2014 – 8/15/2015.
5. Aspire III, Office of the Vice President for Research, University of South Carolina, Purchase of a Bruker D8 Quest Single Crystal Diffractometer for the Multi-User Facility. PI Hans-Conrad zur Loye, Co-PIs: Ken Shimizu Mark Smith and Linda Shimizu, **\$100,000**, 5/16/2014 – 8/15/2015.

6. Dept. of Education, Graduate Assistance in Areas of National Need (GAANN) CFDA84.200A Fellowship Program PR# P200A120075, PI: Hans-Conrad zur Loye, Co-PI with Qian Wang and Thomas Bryson, **\$399,793**, 8/12-8/16.
7. NSF, Acquisition of a Computer Cluster for wide range chemical applications and education, Co-PI with John Dawson, Richard Adams, Sophya Garashchuk, and Vitaly Rassolov, **\$220,555**, 1/1/11-12/31/13.
8. ACS Project Seed, Co-PI with Chuanbing Tang, Brian Benicewicz, Qian Wang, and Ken Shimizu, **\$8600**, 6/1/12 – 8/15/12.
9. SC Magellan Scholar, MGS: Effects of a confined environment on photochemical reactions, Co-PI with Rohail Rashid Kazi, **\$3000**, 05/01/10-4/31/11.

SERVICE (selected examples since 2010)

Councilor, SC-American Chemical Society, local section 2020-2022.
Past Chair, SC-American Chemical Society, local section 2019.
Chair, SC-American Chemical Society, local section 2018.
Chair-Elect, SC-American Chemical Society, local section 2017.
Co-Organizer, ORGN Symposium on Functional Organic Assemblies Fall 2020 ACS National Meeting.
Co-Organizer, Inter-American Photochemical Society Winter Meeting, Jan 2-5, 2014 Sarasota FL.
Director, University of SC Department of Chemistry & Biochemistry Outreach Program, 2000-present.
 Elected Member, Advisory Board for the Inter-American Photochemical Society (I-APS), 2012 –2016.
 Organizer, Organic Division Summer Seminar Series 2005-present.
 Co-Chair, Provost's Advisory Committee on Women's Issues (PACWI), 2014 – 2016.
 Chair, Graduate Recruiting Committee, Chemistry and Biochemistry, 2019-2021.
 Member, Graduate Recruiting Committee, Chemistry and Biochemistry, 2019-present.
 Member, USC's Diversity and Inclusion Advisory Committee, 2016 – 2018.
 Member, USC's Garnet Apple Award Selection Committee, 2019-2020.
 Member, USC's Mungo Undergraduate Award Selection Committee, 2017, 2019.
 Member, Provost's Advisory Committee on Women's Issues (PACWI), 2013 – 2016.
 Member, USC Faculty Senate, 2013-2016.
 Member, Faculty Committee on Instructional Development, 2011-2014.
 Co-Organizer and Moderator, Graduate Panel on Transitions to Industry, April 20, 2015.
 Member, Focus on Learning, Innovation and Pedagogy Community at USC 2014-2017.
 Research Mentor, Project Seed Program at USC, 2011-2014, 2017, 2018
 Member, I-APS Awards Committee, 2012-2016.
 Chair, GAANN Advisory Committee, Chemistry and Biochemistry, 2012-2016.
 Committee Member, Chemistry Computing, 2012 – present.
 Member, Department Safety Committee, 2009 – present.
 Faculty Advisor, Student ACS Organization, 2009-present.
 Committee Member, Bioorganic Faculty Search Committee, 2017.
 Committee Member and Chair, College of Arts & Science Stockroom, 2009 – present.

COLLABORATORS & OTHER AFFILIATIONS

Collaborators

Christopher Akel (Southwest Laboratory CA); Andreas Bick (Scienomics Inc.); C. Russ Bowers (U. FL); Maksymilian Chruszcz (University of South Carolina (UofSC)); Thanh Do (U. Tenn. Knoxville); Pablo DoCampo (U. Glasgow); Muslim Dvoyashkin (U. Leipzig, Germany); Malcolm Forbes (Bowling Green SU); Sophya Garashchuk (UofSC); Giuseppe Gattuso (U. Messina, Italy); Alexander Greer (Brooklyn College of CUNY); Anna Gudmundsdottir (U. Cincinnati) Andrew B. Greytak (UofSC); Kenneth Hanson (FSU); Stavros Krakalos (UofSC); Jeanette Krause (U. Cincinnati); Shuguo Ma (Roche Carolina, SC); Tom Makris (NCSU); James Mazzuca (Alma College, MI); Anil K. Mehta (U. FL); Dario Pasini (Pavia, Italy); Avishek Paul (UofSC); Perry J. Pellechia (UofSC); Cory Reed (UofSC); Vitaly Rassolov (UofSC); Susan Richardson (UofSC); Ken D. Shimizu (UofSC); Mark D. Smith (UofSC); Kyril Solntsev (Georgia Tech); Cristian Strassert (Univ Munster, Germany); D. A. Van der Griend (Calvin College, MI); Aaron Vannucci (UofSC); Sergey Vasenkov (U. FL), Michael Walla (UofSC); Arief Wibowo (U. Malaya, Malaysia); Frank Würthner (U. Würzburg, Germany); and Hans-Conrad zur Loye (UofSC).

Graduate and Postdoctoral Advisors

BA.:	Prof. David Haines	Wellesley College
Ph.D.:	Prof. Daniel S. Kemp	Mass. Institute of Technology
Postdoctoral Sponsor	Prof. John Essigmann	Mass. Institute of Technology

Students Mentored

Post-doctoral Scientists

Delia Ciurtin Smith, Sept 2003-May 2004.
Jun Yang, July, 1 2005 – Aug. 15, 2008.
David Sobransingh, Aug. 1, 2006 – Dec. 14, 2007.
Sheri Strickland, Summer 2007, PRF Summer Research Fellowship.
Chun Wang, Feb. 11, 2008 – Sept 30, 2008.
Leilei Tian, July 15, 2008 – June 21, 2009.

Graduate students (Subsequent positions)

Mahender Dewal, July 2004 - Dec 2008, Ph.D. (Post-doc Wayne State, post-doc MIT).
Monissa Paderes, April 2005 – December 2006, M. S. (SUNY Buffalo, graduate program).
Avneesh Saini, Nov. 2005 – Sep. 15, 2006 (W Outten lab, Univ. South Carolina).
Yuewen Xu June 16, 2007 – August 2011, Ph.D. (Post-doc, Chemistry, Univ. of Minnesota).
Kinkini Roy, June 2, 2008 – May 15, 2012, Ph.D. (Post-doc, Polymer Science & Engineering, Univ. Mass. Amherst, currently at Lubrizol Advanced Materials)
Sandipan Dawn, June 2, 2008 – May 15, 2012, Ph.D. (Post-doc, Polymer Science & Engineering, Univ. Mass. Amherst, currently at Lubrizol Advanced Materials).
Michael Geer, June 2, 2008 – June 30, 2013, Ph.D. (Michelin Corp).
Wei-Wei Xu, Nov. 1, 2010 – Aug 2013, M. S. (Ph.D. program in Chem. Eng.).
Sahan Salpage, Nov. 1, 2011 – May 7, 2016, Ph.D. (Post-doc FSU, now at TCG Green Chem, Inc.)
Arthur Korous, June 3, 2013 – April 2016. M. S. (Teaching in Republic of Korea).
Bozume Som, June 2, 2014 – June 30, 2018, Ph.D. (Teaching, Francis-Marion Univ.)
Baillie DeHaven, Oct. 1, 2014 – Feb. 28, 2019, Ph.D. (Post-doc, Northwestern Univ.)
Sheree Rudolph, Jan 1, 2015 – May 15, 2015.
Ammon Sindt, Oct. 1, 2015 – Dec. 31, 2019, Ph.D. (Eurofins Sci.)
Dustin Goodlett, Copenhaver Fellow, summer 2016, Oct. 15, 2016 – Jan 11, 2021. (Post-doc, UofSC)
Niklas Noll, visiting M.S. student from Univ of Wuerzburg, Germany, May 16, 2017 – Sept. 22, 2017.
Mohammad S. Hossain, Oct 15, 2017 – present.
Paul Wesarg, Visiting M. S. student from Univ. of Muenster, Germany, Feb – May 2018
Johannes Hartel, Visiting M. S. student from Univ. of Muenster, Germany, Oct. 15, 2018 – Jan 15, 2019.
Jyoti Aggarwal, Oct. 15, 2018 – May 17, 2019.
Md. Faizul Islam, Oct. 15, 2018– present.
Devan Buchanan, Oct. 15, 2019 – present.
Rahul Prakash, Dec. 11, 2019– present.
Micah McIlhenny, Oct. 15, 2020 – Dec. 31, 2021.
Gamage Isuri Pramodya Wijesekera, Oct. 15, 2021 – present.
Fahidat Gbadamosi, Oct. 15, 2021 – present.

Undergraduates (Subsequent school/position if known)

Andrew D. Hughes, USC honors college, summer 2000, 2002-2003 (Univ. of Texas at Austin).
Adam Meyer, USC honors college, Summer - Fall 2001 (Washington Univ. School of Medicine).
Stevan A. Samuel, Benedict college, 2003-4 (Univ. of Texas at Austin).
Elizabeth Tucker June 1, 2005 – Aug. 2005. (Univ. of South Carolina).
Fiaz Mohammed, Benedict College, Summer 2006 (Clemson University).
Kate E. Niehaus, Stanford University, June 15, 2007 – Aug 15, 2007 (Stanford, then a Rhodes Scholar).
Eleanor Gillette Univ. of Pittsburgh, summer 2007, summer 2008 (Univ Maryland College Park).
Shade McCurry, Sept. 2007 – Aug 31, 2008, PRF Supplement for underrep. minority research.
Malissa Wilson, USC honors college, July 21, 2008 – 12/31/08.
Caitlyn Smith, USC honors college, Jan 2009 – 7/31/09 (Mercer Univ. School of Medicine).
Maria Waller, REU student, Morris College (HBCU), June 1-July 1, 2009.
Job Grant USC honors college fellowship, July 2009-Aug. 2010. (Univ. of South Carolina)

Rohail Rashid Kazi, Magellan Scholar Award, USC honors, May 1, 2010-April 2011. (Teach for America, then MUSC Medical School).

Andrew Farag, University of South Carolina, Nov. 18, 2010 – May 1, 2011. (Siemens Energy)

Mark Wilkerson, University of South Carolina, December 10, 2010 – May 2011. (Aegis Science Corp.)

Sahan Salpage, Nov. 18, 2010 – Aug. 15, 2011. (Univ. of South Carolina).

Michelle Barton, Midlands Tech. May 28, 2012 – Aug 3, 2012.

John Ricely, University of South Carolina, Aug 17, 2012 – 12/14/12.

Brent Koscher, University of South Carolina, 1/07/13 – 5/15/14 (U. California Berkeley)

Zachary Rhines, University of South Carolina, 1/14/13 – 5/8/14 (Wake Forest University Law School).

Emily Kennell, Converse College, 6/3/13 – 8/1/14 (Pharmacy, Medical Univ. of South Carolina).

Logan Donevant, University of South Carolina 1/13/14 – 12/4/15. (South University, P.A. Anesthesiology)

Talior Martin, University of South Carolina 1/13/14 – 5/1/15.

Luke Elbert, University of South Carolina, 5/6/14 – 5/1/15 (Pharmacy School, MUSC).

Jun O Son, University of South Carolina, 9/2/14 – 5/1/16. (RiteDose Corp., then NCSU)

Trey Nettles, University of South Carolina, 8/21/15 – 5/1/16. (US Army, then Medical School USUHS)

Aaron Cleverly, University of South Carolina, 8/21/15 – 12/5/15.

Craig Conklin, University of South Carolina, 1/30/16 – 5/1/17. (Milliken Corp.)

Anna Chen, University of South Carolina, 1/30/16 – 5/1/18. (Medical School, MUSC)

Jessica Shue, University of South Carolina, 5/1/16-5/1/17 (Pharmacy School, UofSC).

Marisa Rasnick, University of South Carolina, 5/15/17-9/1/17 (Emergency Medical Technician)

Julia K Raffetto, University of South Carolina, 9/1/17– 5/1/19.

Emily Souza, University of South Carolina, 7/20/17 – 5/1/19. (U. Alabama)

David F. McEachern Jr. University of South Carolina, 1/16/18-5/1/19. (U. Alabama)

Maggie Harmon, University of South Carolina, 2/1/18-5/1/19.

Colin O'Connor, University of South Carolina, 8/28/18-5/1/19.

Justin Hunter Cox, University of South Carolina Honors College, 6/4/19-12/1/19.

Hailey Areheart, University of South Carolina Honors College, 9/16/19-5/1/20. (Georgia Tech)

April Nick, University of South Carolina, 11/11/19-5/1/20.

Nicholas Wynn, University of South Carolina, 11/11/19-present.

Morgan Perryman, University of South Carolina, Honors College, 11/15/19-7/15/21 (Ohio State Med. School).

Christopher Antwine, University of South Carolina, 1/11/21 – 5/1/21

Emely Adame-Ramirez, University of South Carolina, 3/24/21- present.

Ronald Jack Faust, University of South Carolina, 3/31/21 – 5/1/21, Fall 2021.

Lindsay Carney, University of South Carolina, 8/23/21-present.

Lillie Catherine Hyman, University of South Carolina, 1/11/21-present.

High School Students (Subsequent School if known)

Katie Abole, SC Governors School, SPRI program June-July, 2001 (Clemson Univ.).

David Gray, Irmo High School, June-August, 2001 (Duke University).

Whitney Jordon, SC Governors School, SPRI program June 7 – July 16, 2004 (U. of Pittsburgh).

Eleanor Gillette, SC Governors School, SPRI program June 6 – July 15, 2005. (U. of Pittsburgh).

Jacob Hiller, Irmo High School, June 11 – July 23, 2004, Summer 2006 (Princeton University).

Mark Kalata SC Governors School, SPRI program June 9, 2008 – July 18, 2008. (Clemson Univ.)

June Lee, SC Governors School, SPRI program June 8, 2009 – July 10, 2009 (UNC Chapel Hill).

Colleen Cohn, SC Governors School, SPRI program June 7, 2010 – July 16, 2010.

Amber Laird, SC Governors School, SPRI program June 6, 2011 – July 15, 2011. (Clemson Univ)

Lupita Garcia, AC Flora High School, ACS project SEED, June 6 – Aug. 3, 2011.

Ashaki George, SC Governors School, SPRI program, June 11 – July 20, 2012. (West Point)

Cody Maddox, Ridgeview High School, ACS project Seed, June 11 – Aug 3, 2012. (UofSC)

Graham Tindall, SC Governors School, SPRI program June 10 – July 19, 2013. (Clemson Univ.)

Cody Maddox, Ridgeview High School, ACS project Seed, June 10 – Aug 2, 2013. (UofSC)

William Rivers, SC Governors School, SPRI program, June 9 – July 17, 2014. (UofSC Honors College)

Briana Abraham, W. J. Keenan HS, ACS project seed June 9 – Aug 1, 2014. (George Mason University)

Jack Orlandi, SC Governors School, SPRI program June 6 – July 15, 2016. (Vanderbilt University)

Julia Ladson, SC Governors School, SPRI program June 6 – July 15, 2016.

Emily Shimizu, Dreher HS graduated May 2016, July 18, 2016 – Aug 18, 2016. (Harvey Mudd College)

Thomas Richburg, SC Governors School, SPRI program June 5 – July 14, 2017.

Gyubin Shin, Gyeonggi Science High School Republic of Korea, SPRI program June 12 – July 14, 2017.

Joshua Fuqua, SC Governors School, SPRI program June 7 – July 16, 2021