

Stephen F. Swallen

University of Wisconsin-Platteville Baraboo Sauk County
Department of Chemistry
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Education:

Ph.D., Chemical Physics, Stanford University, Stanford, CA, 1996
Research Director: Michael D. Fayer
B.S., Bates College, Lewiston, ME, 1989
Majors: Chemistry, Physics

Professional Experience:

- 2018-present **Assistant Campus Dean**, UW-Platteville Baraboo Sauk County
Faculty and staff guidance and oversight. Curriculum development and planning. Instructional staff hiring and mentoring. Guidance of academic and administrative student services. Instructional and research budget management. Community instructional outreach and development.
- 2017-present **Assistant Professor of Chemistry**, UW-Platteville
- 2015 – 2017 **Associate Dean of Instruction**, University of Wisconsin-Baraboo/Sauk County
Curricular development and planning. Instructional staff hiring and mentoring.
- 2010 - 2017 **Senior Lecturer**, University of Wisconsin-Baraboo/Sauk County
Courses taught: First Year Seminar, Chemistry and Society (face-to-face, online, and blended formats), Introductory Chemistry (face-to-face and online), Allied Health Chemistry, General Chemistry I, General Chemistry II, Natural Resources and Sustainability, Chemistry Honors Research, College Algebra, Introduction to Algebra, Middle School U summer program
- 2009 – 2010 **Instructor**, Madison Area Technical College
Courses taught: Allied Health Chemistry, Introductory Chemistry
- 2003 – 2012 **Research Scientist**, University of Wisconsin-Madison
1999 – 2003 **Research Associate**, University of Wisconsin-Madison
Directed/mentored postdoctoral, graduate and undergraduate students and international scholars. Taught in UW's PEOPLE academic program for underserved high school students.
- 1996 – 1999 **Postdoctoral Associate**, University of Michigan

Courses taught: Thermodynamics

1989 – 1996 **Graduate Research Fellow** and **Teaching Assistant**, Stanford University

Courses taught: Quantum Chemistry, General Chemistry

Service:

- Committees (current):
 - Appointments (Chair)
 - Administrative Review and Policy
 - Behavioral Review and Response
 - Steering (campus leadership)
 - Curriculum (Chair)
 - Budget
 - AAS/BAAS Degree Development
 - Instructional Technology and Space
 - Environmental Health and Safety

- Community outreach groups:
 - Friends of the Campus
 - Friends of Devils Lake State Park

- Manuscript referee (last 3 years)
 - Journal of Chemical Physics
 - Journal of Physical Chemistry B
 - Physical Review Letters

- Society memberships
 - American Chemical Society, including topical groups:
 - Chemistry Education
 - Environmental Chemistry
 - American Physics Society

Grants and Awards:

- 2020 Etzweiler Award – Top campus award, to honor unique work on student success, faculty development and campus growth at UW-Platteville BSC.
- 2019 “Monitoring and Analysis of Seely Creek Watershed,” Sauk County Department of Agriculture. Collaborators: Serge Koenig (Sauk County CZD), Piotr Monaco (UWP-BSC). \$5400
- 2018 Wisconsin Water Research Fellowship. “Water Quality Studies of the Lower Baraboo River”. Collaborators: Austin Polebitski (UW-Platteville), Serge Koenig (Sauk County CZD), Paul Arellano (UW-Baraboo/Sauk County). \$10,000.

- 2010-2014 “Unusually Mobil Supercooled Liquids,” National Science Foundation-CHE. Collaborators: Mark Ediger (UW-Madison). \$506,000
- 2009 “Unusually Stable Glasses and Methods for Forming Same,” Patent, US Patent Office. Co-awardees: Mark Ediger, Ken Kearns, Lian Yu, Tian Wu (UW-Madison).
- 2008-2012 “Characterization of High Density/High Stability Glasses,” Department of Energy. Collaborators: Mark Ediger (UW-Madison). \$361,000.
- 2007 “Fickian Diffusion of TNB films,” National Institute Standards and Technology. Collaborators: Sunil Satija (NIST), Mark Ediger (UW-Madison). \$5,000
- 2006 “Thermodynamic Stability of Glasses,” National Institute Standards and Technology. Collaborators: Sunil Satija (NIST), Mark Ediger (UW-Madison). \$5,000
- 2005 “Measurement of Enhanced Surface Dynamics,” National Institute Standards and Technology. Collaborators: Sunil Satija (NIST), Mark Ediger (UW-Madison). \$5,000
- 2004 “Microscopic Relaxation at the Glass Transition,” National Institute Standards and Technology. Collaborators: Sunil Satija (NIST), Mark Ediger (UW-Madison). \$5,000

Publications:

1. Sepulveda, A.; Swallen, Stephen F.; Kopff, Laura A.; McMahon, RJ; Ediger, MD, Stable glasses of indomethacin and alpha,alpha,beta-tris-naphthylbenzene transform into ordinary supercooled liquids, *J. Chem. Phys.* 2012, 137 (20) Article Number: 204508 DOI: 10.1063/1.4768168
2. Zhu, L.; Brian, C. W.; Swallen, S. F.; Ediger, MD, Surface Self-Diffusion of an Organic Glass, *Phys. Rev. Lett.*, 2011, 106 (25) Article Number: 256103 DOI: 10.1103/PhysRevLett.106.256103
3. Paeng, Keewook; Swallen, Stephen F.; Ediger, MD, Direct Measurement of Molecular Motion in Freestanding Polystyrene Thin Films, *J. Am. Chem. Soc.* 2011, 133, (22) 8444-8447 DOI: 10.1021/ja2022834
4. Paeng, Keewook; Lee, Hau-Nan; Swallen, Stephen F., Ediger, MD, Temperature-ramping measurement of dye reorientation to probe molecular motion in polymer glasses, *J. Chem. Phys.* 2011, 134 (2) Article Number: 024901 DOI: 10.1063/1.3507255
5. Swallen, S. F.; Ediger, M. D., Self-diffusion of the amorphous pharmaceutical indomethacin near T_g. *Soft Matter*, 2011, DOI: 10.1039/C1SM06283B
6. Zhu, L.; Brian, C. W.; Swallen, S. F.; Straus, P. T.; Ediger, M. D.; Yu, L., Surface self-diffusion of an organic glass. *Phys. Rev. Lett* 2011, 106, (25), 256103.
7. Paeng, K.; Swallen, S. F.; Ediger, M. D., Direct measurement of molecular motion in freestanding polystyrene thin films. *J. Am. Chem. Soc.* 2011, 133, (22), 8444-8447.

8. Paeng, K.; Lee, H.-N.; Swallen, S. F.; Ediger, M. D., Temperature-ramping measurement of dye reorientation to probe molecular motion in polymer glasses. *J. Chem. Phys.* 2011, 134, (2), 024901.
9. Swallen, S. F.; Windsor, K.; McMahon, R. J.; Ediger, M. D.; Mates, T. E., Transformation of stable glasses into supercooled liquids: Growth fronts and anomalously fast liquid diffusion. *J. Phys. Chem. B* 2010, 114, (8), 2635-2643.
10. Swallen, S. F.; Traynor, K.; McMahon, R. J.; Ediger, M. D.; Mates, T. E., Self-diffusion of supercooled tris-naphthylbenzene. *J. Phys. Chem. B* 2009, 113, (14), 4600-4608.
11. Lee, H.-N.; Paeng, K.; Swallen, S. F.; Ediger, M. D.; Stamm, R. A.; Medvedev, G. A.; Caruthers, J. M., Molecular mobility of poly(methyl methacrylate) glass during uniaxial tensile creep deformation. *J. Polym. Sci. B-Polym. Phys.* 2009, 47, (17), 1713-1727.
12. Lee, H.-N.; Paeng, K.; Swallen, S. F.; Ediger, M. D., Direct measurement of molecular mobility in actively deformed polymer glasses. *Science* 2009, 323, (5911), 231-234.
13. Kearns, K. L.; Swallen, S. F.; Ediger, M. D.; Sun, Y.; Yu, L., Calorimetric evidence for two distinct molecular packing arrangements in stable glasses of indomethacin. *J. Phys. Chem. B* 2009, 113, (6), 1579-1586.
14. Swallen, S. F.; Traynor, K.; McMahon, R. J.; Ediger, M. D.; Mates, T. E., Stable glass transformation to supercooled liquid via surface initiated growth front. *Phys. Rev. Lett.* 2009, 102, (6), 065503.
15. Lee, H.-N.; Paeng, K.; Swallen, S. F.; Ediger, M. D., Dye reorientation as a probe of stress-induced mobility in polymer glasses. *J. Chem. Phys.* 2008, 128, (13), 134902.
16. Swallen, S. F.; Kearns, K. L.; Satija, S.; Traynor, K.; McMahon, R. J.; Ediger, M. D., Molecular view of the isothermal transformation of a stable glass to a liquid. *J. Chem. Phys.* 2008, 128, 214514.
17. Kearns, K. L.; Swallen, S. F.; Ediger, M. D.; Wu, T.; Sun, Y.; Yu, L., Hiking down the energy landscape: Progress toward the kausmann temperature via vapor deposition. *J. Phys. Chem. B* 2007, 112, (16), 4934-4932.
18. Swallen, S. F.; Ediger, M. D. in *Extraordinarily stable organic glassers prepared by vapor deposition: Dependence of stability and dynamics upon deposition temperature*, IWCS V, Sendai, Japan; Tokuyama, M.; Oppenheim, I., Eds. AIP Press: 2007; AIP Conference Proceedings 982, pp 114-118.
19. Kearns, K. L.; Swallen, S. F.; Ediger, M. D.; Wu, T.; Yu, L., Influence of substrate temperature on the stability of glasses prepared by vapor deposition. *J. Chem. Phys.* 2007, 127, (15), 154702.
20. Swallen, S. F.; Kearns, K. L.; Mapes, M. K.; Kim, Y. S.; McMahon, R. J.; Ediger, M. D.; Yu, L.; Satija, S., Organic glasses with exceptional thermodynamic and kinetic stability. *Science* 2007, 315, 353-356.
21. Swallen, S. F.; Mapes, M. K.; Kim, Y. S.; McMahon, R. J.; Ediger, M. D.; Satija, S., Neutron reflectivity measurements of the translational motion of tris-naphthylbenzene at the glass transition temperature. *J. Chem. Phys.* 2006, 124, (18), 184501.
22. Mapes, M. K.; Swallen, S. F.; Ediger, M. D., Self-diffusion of supercooled o-terphenyl near the glass transition temperature. *J. Phys. Chem. B* 2006, 110, (1), 507-511.
23. Mapes, M. K.; Swallen, S. F.; Ediger, M. D., Isothermal desorption measurements of self-diffusion of supercooled o-terphenyl. *J. Chem. Phys.* 2006, 124, (5), 054710.

24. Urakawa, O.; Swallen, S. F.; Ediger, M. D.; von Meerwall, E. D., Self-diffusion and viscosity of low molecular weight polystyrene over a wide range of temperature. *Macromol.* 2004, 37, (4), 1558-64.
25. Swallen, S. F.; Urakawa, O.; Mapes, M. K.; Ediger, M. D. in Self-diffusion and spatially heterogeneous dynamics in supercooled liquids near T_g , IWCS III, Sendai, Japan; Tokuyama, M.; Oppenheim, I., Eds. AIP Press: 2004; AIP Conference Proceedings 708, pp 491-5.
26. Swallen, S. F.; Bonvallet, P. A.; McMahon, R. J.; Ediger, M. D., Self diffusion of tris-naphthylbenzene near the glass transition temperature. *Phys. Rev. Lett.* 2003, 90, (1), 015901.
27. Swallen, S. F.; Zhu, Z. G.; Moore, J. S.; Kopelman, R., Correlated excimer formation and molecular rotational dynamics in phenylacetylene dendrimers. *J. Phys. Chem. B* 2000, 104, (16), 3988-3995.
28. Barker, S. L. R.; Clark, H. A.; Swallen, S. F.; Kopelman, R.; Tsang, A. W.; Swanson, J. A., Ratiometric and fluorescence lifetime-based biosensors incorporating cytochrome c' and the detection of extra- and intracellular macrophage nitric oxide. *Analyt. Chem.* 1999, 71, (9), 1767-1772.
29. Swallen, S. F.; Kopelman, R.; Moore, J. S.; Devadoss, C., Dendrimer photoantenna supermolecules: Energetic funnels, exciton hopping and correlated excimer formation. *J. Molec. Struct.* 1999, 486, 585-597.
30. Kopelman, R.; Swallen, S. F.; Moore, J. S.; Zhu, Z., Dendrimer photoantenna supermolecules: Energetic funnels, exciton hopping, and unusual excimer formation. *Abstr. Amer. Chem. Soc.* 1999, 218, U280-U280.
31. Swallen, S. F.; Shortreed, M. R.; Shi, Z. Y.; Tan, W. H.; Xu, Z. F.; Devadoss, C.; Moore, J. S.; Kopelman, R., *Molec. Cryst. Liq. Cryst.* 1998, 314, 37-46.
32. Swallen, S. F.; Shortreed, M. R.; Shi, Z. Y.; Tan, W. H.; Xu, Z. F.; Devadoss, C.; Moore, J. S.; Kopelman, R., Dendrimeric antenna supermolecules with multistep directed energy transfer. in Prasad, P., Ed. Plenum Press: New York, 1998.
33. Swallen, S. F.; Kopelman, R.; Xu, Z. F.; Moore, J. S. in *Proc. Electrochem. Soc.*, 1998; 98, pp 85-92.
34. Swallen, S. F.; Shi, Z. Y.; Tan, W. H.; Xu, Z. F.; Moore, J. S.; Kopelman, R., Exciton localization hierarchy and directed energy transfer in conjugated linear aromatic chains and dendrimeric supermolecules. *J. Luminesc.* 1998, 76-7, 193-196.
35. Weidemaier, K.; Tavernier, H. L.; Swallen, S. F.; Fayer, M. D., Photoinduced electron transfer and geminate recombination in liquids. *J. Phys. Chem. A* 1997, 101, (10), 1887-1902.
36. Shortreed, M. R.; Swallen, S. F.; Shi, Z. Y.; Tan, W. H.; Xu, Z. F.; Devadoss, C.; Moore, J. S.; Kopelman, R., Directed energy transfer funnels in dendrimeric antenna supermolecules. *J. Phys. Chem. B* 1997, 101, (33), 6318-6322.
37. Swallen, S. F.; Weidemaier, K.; Fayer, M. D., Solvent structure and hydrodynamic effects in photoinduced electron transfer. *J. Chem. Phys.* 1996, 104, (8), 2976-2986.
38. Swallen, S. F.; Weidemaier, K.; Tavernier, H. L.; Fayer, M. D., Experimental and theoretical analysis of photoinduced electron transfer: Including the role of liquid structure. *J. Phys. Chem.* 1996, 100, (20), 8106-8117.

39. Swallen, S. F.; Weidemaier, K.; Fayer, M. D., Excluded-volume effects in photoinduced electron-transfer and geminate recombination - analytical theory and simulations. *J. Phys. Chem.* 1995, 99, (7), 1856-1866.
40. Swallen, S. F.; Fayer, M. D., Photoinduced electron-transfer and geminate recombination in liquids - analytical theory and monte-carlo simulations. *J. Chem. Phys.* 1995, 103, (20), 8864-8872.
41. Song, L.; Swallen, S. F.; Dorfman, R. C.; Weidemaier, K.; Fayer, M. D., Photoinduced electron-transfer and geminate recombination in solution. *J. Phys. Chem.* 1993, 97, (7), 1374-1382.
42. Song, L.; Dorfman, R. C.; Swallen, S. F.; Fayer, M. D., Influence of diffusion on photoinduced electron-transfer. *J. Phys. Chem.* 1991, 95, (9), 3454-3457.
43. Kang, T. J.; Kahlow, M. A.; Giser, D.; Swallen, S. F.; Nagarajan, V.; Jarzeba, W.; Barbara, P. F., Dynamic solvent effects in the electron-transfer kinetics of s-1 bianthryls. *J. Phys. Chem.* 1988, 92, (23), 6800-6807.