

ADAM PHILLIP WILLARD

Curriculum Vitae

Massachusetts Institute of Technology
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Education:

- 2009 Ph.D., Chemistry, University of California, Berkeley
Thesis Advisor, Prof. David Chandler
- 2003 B.S., Chemistry and Mathematics, University of Puget Sound

Employment:

- 2013-Present Assistant Professor, Massachusetts Institute of Technology, Department of Chemistry
- 2009-2013 Postdoctoral Fellow, Department of Chemistry, University of Texas at Austin, Supervised by Prof. Peter Rossky

Honors and Awards:

- 2016 NSF CAREER Award

Independent Publications:

1. R.H. Gilmore, E.M.Y. Lee, M.C. Weidman, A.P. Willard, and W.A. Tisdale, "Charge Carrier Hopping Dynamics in Homogeneously Broadened PbS Quantum Dot Solids", *Nano Letters*, **in press**.
2. A.J. Mork, E.M.Y. Lee, N.S. Dahod, A.P. Willard, and W.A. Tisdale, "Modulation of Low-Frequency Acoustic Vibrations in Semiconductor Nanocrystals through Choice of Surface Ligand", *J. Phys. Chem. Lett.*, **7**, 4213–4216, (2016).
3. A.V. Zhukhovitskiy, J. Zhao, M. Zhong, E.G. Keeler, E.A. Alt, P.E. Teichen, R.G. Griffin, M.J. Hore, A.P. Willard, J.A. Johnson, "Polymer Structure Dependent Hierarchy in PolyMOC Gels", *Macromolecules*, **49**, 6896–6902, (2016).
4. C. K. Lee, L. Shi, and A.P. Willard, "A Model of Charge Transfer Excitons: Diffusion, Spin Dynamics, and Magnetic Field Effects", *J. Phys. Chem. Lett.*, **7**, 2246-2251, (2016).
5. A.V. Zhukhovitskiy, M. Zhong, E.G. Keeler, V.K. Michaelis, J.E.P. Sun, M.J. A. Hore, D.J. Pochan, R.G. Griffin, A.P. Willard, J.A. Johnson, "High branch functionality and loop-rich polymer metal-organic cage gels." *Nature Chemistry*, **8**, 33-41, (2016).
6. P. B. Deotare, W. Chang¹, E. Hontz, D. N. Congreve, L. Shi, P. D. Reusswig, B. Modtland, M. E. Bahlke, C. K. Lee, A. P. Willard, V. Bulović, T. Van Voorhis, and M. A. Baldo,

- “Nanoscale transport of charge transfer states in organic donor-acceptor blends.” *Nature Materials*, **14**, 1130-1134, (2015).
7. B. Reeja-Jayan, N. Chen, J. Lau, J.A. Kattirtzi, P. Moni, A. Liu, I.G. Miller, R. Kayser, A.P. Willard; B. Dunn; K.K. Gleason, “A group of cyclic siloxane and silazane polymer films as nanoscale electrolytes for microbattery architectures.” *Macromolecules*, **48**(15), 5222-5229, (2015).
 8. E.M.Y. Lee, W.A. Tisdale, and A.P. Willard, “Can disorder enhance incoherent exciton diffusion?” *J. Phys. Chem. B*, **119**,9501-9509, (2015).
 9. A.P. Willard, “Illuminating the Interactions between Small Solutes in Liquid Water.” *J. Phys. Chem. Lett.*, **6**(9), 1616-1617, (2015).
 10. D.T. Limmer and A.P. Willard, “Nanoscale heterogeneity at the aqueous electrolyte-electrode interface,” *J. Chem. Phys. Lett.*, **620**, 144-150, (2015).
 11. G.M. Akselrod, F. Prins, L.V. Poulidakos, E.M.Y. Lee, M.C. Weidman, A.J. Mork, A.P. Willard, V. Bulović, and W.A. Tisdale, “Subdiffusive Exciton Transport in Quantum Dot Solids,” *Nano Lett.*, **14**(6), 3556-3562, (2014).

Publications Prior to Independent Career:

12. D.T. Limmer, A.P. Willard, P.A. Madden, and D. Chandler, “Water Exchange at a Hydrated Platinum Electrode Is Rare and Collective”, *J. Phys. Chem. C*, (submitted), 2015.
13. Z. Hu, A.P. Willard, R.J. Ono, C.W. Bielawski, P.J. Rossky and D.A. Vanden Bout, “The nature of interchain excited states in polythiophene: excitonic vs. charge-transfer character.” *Nature Communications*, (accepted), 2015.
14. A.P. Willard and D. Chandler, “The molecular structure of the interface between water and a hydrophobic substrate is liquid-vapor like,” *J. Chem. Phys.* **141**(18), 18C519, (2014).
15. A.P. Willard, D.T. Limmer, P.A. Madden, and D. Chandler, “Characterizing heterogeneous dynamics at hydrated electrode surfaces,” *J. Chem. Phys.*, **138**, 184702, (2013).
16. D.T. Limmer, A.P. Willard, P.A. Madden, and D. Chandler, “Hydration of metal surfaces can be dynamically heterogeneous and hydrophobic,” *Proc. Nat. Acad. Sci.*, **110**, 4200-4205, (2013).
17. A.E. Jailaubekov, A.P. Willard, J.R. Tritzsch, W.-L. Chan, N. Sai, R. Gearba, L.G. Kaake, K.J. Williams, K. Leung, P.J. Rossky, and X.-Y. Zhu, “Hot Charge Transfer Excitons Set the Time Limit for Charge Separation at Donor/Acceptor Interfaces in Organic Photovoltaics,” *Nature Mat.*, **12**, 66-73, (2012).
18. R. Vacha, O. Marsalek, A.P. Willard, D.J. Bonhuis, R.R. Netz, and P. Jungwirth, “Charge Transfer between Water Molecules As the Possible Origin of the Observed Charging at the Surface of Pure Water,” *J. Phys. Chem. Lett.*, **3**, 107-111, (2012).
19. A.P. Willard, and D. Chandler, “Instantaneous Liquid Interfaces,” *J. Phys. Chem. B*, **114**, 1954-1958, (2010).
20. A.P. Willard, S.K. Reed, P.A. Madden, and D. Chandler, “Water at an Electrochemical Interface--a Simulation Study,” *Faraday Discussion*, **141**, 423-441, (2009).
21. A.P. Willard, and D. Chandler, “Coarse Grained Modeling of the Interface Between Water and Heterogeneous Surfaces,” *Faraday Discussion*, **141**, 209-220, (2009).

22. A.P. Willard, and D. Chandler, "The Role of Solvent Fluctuations in Hydrophobic Assembly," *J. Phys. Chem. B*, **112**, 6187-6192, (2008).