

CURRICULUM VITAE

David H. Waldeck
Office: (412) 624-8430
FAX: (412) 624-8552

Department of Chemistry
University of Pittsburgh
Pittsburgh, PA 15260

Personal

Birthdate: September 5, 1956
Birthplace: Cincinnati, OH

Citizenship: U.S.A.
Family Status: Married, 2 children

Education

Ph.D. in Chemistry, University of Chicago, 1983
B.S. in Chemistry, University of Cincinnati, 1978

Professional Experience

2015 – present Academic Director, Petersen Institute of NanoScience & Engineering
1997 - present Professor in Chemistry; University of Pittsburgh
2005-2014 Chair of Chemistry, University of Pittsburgh
1991-1997 Associate Professor in Chemistry; University of Pittsburgh
1985-1991 Assistant Professor in Chemistry; University of Pittsburgh
1983-1985 Postdoctoral Fellow in Chemistry; University of California, Berkeley
1978-1983 Research Assistant in Chemistry; University of Chicago

Research Interests

Condensed phase dynamics; unimolecular reactions, electron transfer (heterogeneous and homogeneous); chiral-induced spin selectivity; nanotechnology; electron tunneling; solvation; binding and cooperativity; molecular information transfer, fluorescent sensors

Awards and Honors

ISE Bioelectrochemistry Prize, 2018
AAAS Fellow, 2017
ACS-WCC Award for Encouraging Women in Chemistry (Pittsburgh section), 2016
ACS Pittsburgh Award, 2014
Fellow of the American Physical Society, 2005
Belkin Visiting Professor, Weizmann Institute, 1998
Chancellors Distinguished Research Award (Junior Level), 1994
IBM Postdoctoral Fellowship 1983 - 1985

Affiliations

American Chemical Society, Physical Chemistry Division
American Physical Society
Electrochemical Society
Spectroscopy Society of Pittsburgh
American Association for the Advancement of Science
Society for Analytical Chemists of Pittsburgh
International Society of Electrochemistry

Publication Record

Books

Topics in Current Chemistry, Vol. 298: *Electronic and Magnetic Properties of Chiral Molecules and Supramolecular Architectures*; R. Naaman, D. N. Beratan, and D. H. Waldeck, eds. (2011) Springer-Verlag, ISBN 0340-1022.

D. H. Waldeck and J. Madura, *Solutions Manual for Principles of Physical Chemistry* (Wiley, New York, 2010) ISBN: 978-0-470-56197-3

H. Kuhn, H.-D. Foersterling, and D. H. Waldeck *Principles of Physical Chemistry* (Wiley, New York, 2009) ISBN: 978-0-470-08964-4.

Journal Articles

218. R. Naaman, D. H. Waldeck, and Y. Paltiel *Chiral molecules-ferromagnetic interfaces, an approach towards spin controlled interactions* Appl. Phys. Lett. **115** (2019) 133701.
217. J. M. Abendroth, D. M. Stemer, B.P. Bloom, P. Roy, R. Naaman, D. H. Waldeck, P. S. Weiss, and P. Chandra Mondal *Spin Selectivity in Photoinduced Charge-Transfer Mediated by Chiral Molecules* ACS Nano **13** (2019) 4928-4946.
216. R. Naaman, C. Fontanesi, and D. H. Waldeck *Current Opinion in Electrochemistry Chirality and Its Role in the Electronic Properties of Peptides: Spin Filtering and Spin Polarization* **14** (2019) 138-142.
215. K. Michaeli, D. N. Beratan, D. H. Waldeck, and R. Naaman *Voltage-induced long-range coherent electron transfer through organic molecules* Proceedings of the National Academy of Sciences **116** (2019) 5931-5936.
214. R. Naaman, Y. Paltiel, and D. H. Waldeck *Chiral Molecules and the Electron Spin* Nature Reviews, **3** (2019) 250-260.
213. K. B. Ghosh, W. Zhang, F. Tassinari, Y. Mastai, O. Lidor-Shalev, R. Naaman, P. Möllers, D. Nürenberg, H. Zacharias, J. Wei, E. Wierzbinski, and D. H. Waldeck *Controlling Chemical Selectivity in Electrocatalysis with Chiral CuO-Coated Electrodes* J. Phys. Chem. C **123** (2019) 3024-3031.
212. G. Koplovitz, G. Leituss, S. Ghosh, B. P. Bloom, S. Yochelis, D. Rotem, F. Vischio, M. Striccoli, E. Fanizza, R. Naaman, D. H. Waldeck, D. Porath and Y. Paltiel *Single Domain 10 nm Ferromagnetism Imprinted on Superparamagnetic Nanoparticles Using Chiral Molecules* Small **15** (2019) 1804557.
211. P. Manna, G. Debnath, D. H. Waldeck, and P. Mukherjee, *What Is Beyond Charge Trapping in Semiconductor Nanoparticle Sensitized Dopant Photoluminescence?* J. Phys. Chem. Lett **9** (2018) 6191-6197.

210. B. Bloom, R. Liu, P. Zhang, S. Ghosh, R. Naaman, D. Beratan, and D. H. Waldeck *Directing Charge Transfer in Quantum Dot Assemblies* *Accounts of Chemical Research* **51** (2018) 2565-2573.
209. R. Naaman, Y. Paltiel, and D. H. Waldeck *Chirality and Spin: A Different Perspective on Enantioselective Interactions* *Chimia* **72** (2018) 94-398.
208. C. Fontanesi, E. Capua, Y. Paltiel, D.H. Waldeck, and R. Naaman *Spin-Dependent Processes Measured without a Permanent Magnet* *Advanced Materials* (2018) 1707390-6
207. Z. N. Georgieva, B. P. Bloom, S. Ghosh, and D. H. Waldeck, *Imprinting Chirality onto the Electronic States of Colloidal Perovskite Nanoplatelets* *Advanced Materials* (2018) 1800097; DOI: 10.1002/adma.201800097.
206. E. Beall, A. Sargun, S. Ulku, Y. Bae, E. Wierzbinski, C. Clever, D. H. Waldeck, and C. Achim, *The Molecular Conductance of Stitched Nucleic Acid Duplexes* *J. Phys. Chem. C* **122** (2018) 7533-7540.
205. R. Liu, B. P. Bloom, D. H. Waldeck, P. Zhang, and D. N. Beratan, *Improving Solar Cell Performance Using Quantum Dot Triad Charge-separation Engines* *J. Phys Chem. C.* **122** (2018) 5924-5934.
204. Y. Liu, Z. Zeng, B. Bloom, D. H. Waldeck, and J. Wei, *Stable Low-Current Electrodeposition of α -MnO₂ on Superaligned Electrospun Carbon Nanofibers for High-Performance Energy Storage* *Small* **14** (2018) 1703237-7.
203. R. Naaman and D.H. Waldeck, Chapter 6: *The Chiral Induced Spin Selectivity (CISS) Effect*. Volume 4: ***Spin in Organics*** (World Scientific, 2018) 235-270.
202. V. Varade, T. Markus, K. Vankayala, N. Friedman, M. Sheves, D. H. Waldeck, and R. Naaman, *Bacteriorhodopsin based non-magnetic spin filters for biomolecular spintronics* *PCCP* **20** (2018) 1091- 1097.
201. W. Zhang, J. Chavez, Z. Zeng, B. Bloom, A. Sheardy, Z. Ji, Z. Yin, D. Waldeck, Z. Jia, Z. Zhenquan, and J. Wei, *Antioxidant Capacity of Nitrogen, Sulfur Co-doped Carbon Nanodots* *ACS Applied Nano Materials* **1** (2018) 2699-2708.
200. D. N. Beratan, R. Naaman, and D. H. Waldeck, Review Article: *Charge and spin transport through nucleic acids* *Current Opinion in Electrochemistry* **4** (2017) 175-181.
199. Z. Zeng, W. D. Zhang, D. M. Arvapalli, B. Bloom, A. Sheardy, T. Mabe, Y.Y. Liu, Z.W. Ji, H. Chevva, D. H. Waldeck, and J. J. Wei, *A fluorescence-electrochemical study of carbon nanodots (CNDs) in bio- and photoelectronic applications and energy gap investigation* *PCCP* **19** (2017) 20101-20109.
198. R. Naaman and D. Waldeck *Spin in Quantum Biology* *Inference* **3**, Issue 2 (2017) <http://inference-review.com/article/spin-in-quantum-biology>.
197. B. P. Bloom, B. M. Graff, S. Ghosh, D. N. Beratan, and D. H. Waldeck *Chirality Control of Electron Transfer in Quantum Dot Assemblies* *J. Am. Chem. Soc.* **139** (2017) 9038-9043.

196. R. Liu, B. Bloom, D.H. Waldeck, P. Zhang and D. N. Beratan *Controlling the electron-transfer kinetics of quantum-dot assemblies* J. Phys. Chem. C **121** (2017) 14401–14412.
195. E. Beall, S. Ulku, C. Liu, E. Wierzbinski, Y. Zhang, Y. Bae, P. Zhang, C. Achim, D. N. Beratan, and D. H. Waldeck *Effects of the Backbone and Chemical Linker on the Molecular Conductance of Nucleic Acid Duplexes* J. Am. Chem. Soc. **139** (2017) 6726–6735.
194. A. Kumar, E. Capua, M. K. Kesharwani, J. M. L. Martin, E. Sitbon, D. H. Waldeck, and R. Naaman, *Spin Polarization Accompanies Charge Polarization in Chiral Molecules- Implication for Enantioselectivity and Bio-recognition*, PNAS **114** (2017) 2474–2478. doi: 10.1073/pnas.1611467114
193. K. Michaeli, V. Varade, R. Naaman, and D. H. Waldeck *A New Approach towards Spintronics-Spintronics with no Magnets* J. Phys.: Condens. Matter **29** (2016) 103002
192. P. C. Mondal, C. Fontanesi, D. H. Waldeck, and R. Naaman *Spin-dependent Transport through Chiral Molecules Studied by Spin-dependent Electrochemistry* Accts. Chem. Res **49** (2016) 2560–2568. DOI:10.1021/acs.accounts.6b00446
191. K. Michaeli, N. Kantor-Uriel, R. Naaman, and D. H. Waldeck *The electron's spin and molecular chirality- How are they related and how do they affect life processes?* Chem Soc. Reviews **45** (2016) 6478–6487 doi: 10.1039/C6CS00369A.
190. D. N. Beratan and D. H. Waldeck *Hot Holes Break the Speed Limit* Nature Chemistry **8** (2016) 992–993.
189. B. M. Graff, B.P. Bloom, E. Wierzbinski, and D. H. Waldeck *Electron Transfer in Nanoparticle Dyads Assembled on Colloidal Template* J. Am. Chem. Soc. **138** (2016) 13260—13270.
188. A. Chakraborty, G. H. Debnath, N. R. Saha, D. Chattopadhyay, D. H. Waldeck, and P. Mukherjee *Identifying the Correct Host - Guest Combination to Sensitize Trivalent Lanthanide (Guest) Luminescence: Titanium Dioxide Nanoparticles as a Model Host System* J. Phys. Chem. C **120** (2016) 23870–23882.
187. B. M. Graff, D. N. Lamont, M. F. L. Parker, B. P. Bloom, C. E. Schafmeister, and D.H. Waldeck *Through Solvent Tunneling in Donor-Bridge-Acceptor Molecules Containing a Molecular Cleft* J. Phys. Chem. A **120** (2016) 6004–6016.
186. B. P. Bloom, V. Kiran, V. Varade, R. Naaman, D.H. Waldeck *Spin Selective Charge Transport through Cysteine Capped CdSe Quantum Dots*, NanoLetters **16** (2016) 4583–4589.
185. Z. Zeng, M.N. Mendis, D.H. Waldeck, J. Wei *A semi-analytical decomposition analysis of surface plasmon generation and the optimal nanoledge plasmonic device*, RSC Advances **6** (2016) 17196 – 17203.
184. B. Bloom, M.N. Mendis, E. Wierzbinski, and D. H. Waldeck *Eliminating Fermi-Level Pinning in PbS Quantum Dots using an Alumina Interfacial Layer* J. Materials Chemistry C **4** (2016) 704 – 712.
183. N. Kantor-Uriel, P. Roy, S. Saris, V. Kiran, D. H. Waldeck, and R. Naaman *Evidence for Enhanced Electron Transfer by Multiple Contacts between Self-Assembled Organic Monolayers and Semiconductor Nanoparticles* J. Phys. Chem. C **119** (2015) 15839–15845.

182. E. Beall, X. Yin, D. H. Waldeck, and E. Wierzbinski *A Scanning Tunneling Microscope Break Junction Method with Continuous Bias Modulation* *Nanoscale* **7** (2015) 14965-14973.
181. X. Yin and D. H. Waldeck *Electron Transfer: Basic Theory, Experiments, and Computational Methods* *Adv. Science Engineering and Medicine* **7** (2015) 1093–1111.
180. P. C. Mondal, C. Fontanesi, D. H. Waldeck and R. Naaman *Magnetic Field and Chirality Effects on Electrochemical Charge Transfer Rates: Spin Dependent Electrochemistry* *ACS Nano* **9** (2015) 3377-3384
179. R. Naaman and D. H. Waldeck *Spintronics and Chirality: Spin Selectivity in Electron Transport through Chiral Molecules* *Ann Rev Phys Chem.* **66** (2015) 263-281.
178. M. Kettner, B. Gohler, H. Zacharias, D. Mishra, V. Kiran, R. Naaman, D. H. Waldeck, S. Sek, J. Pawlowski, and J. Juhaniwicz *Spin Filtering in Electron Transport through Chiral Oligopeptides* *J. Phys. Chem. C.* **119** (2015) 14542-14547.
177. R. Naaman and D. H. Waldeck *Chiral Supramolecular Structures as Spin Filters in Supramolecular Materials for Opto-Electronics* ; N. Koch, ed., **RSC Smart Materials 12** (2015) 203 – 225.
176. J. Wei, M. Kofke, S. Singhal, and D. H. Waldeck *A Study of Localised Surface Plasmon Resonance Nanoslit Array and Applications for Chip-based Protein Detection* *JSM Nanotechnology & Nanomedicine* **2** (2014) 1024.
175. R. Venkatramani, E. Wierzbinski, D.H Waldeck and D. N Beratan *FD 174: Breaking the simple proportionality between molecular conductances and charge transfer rates* *Faraday Discussions* **174** (2014) 57-78.
174. X. Yin, J. Kong, A. DeLeon, YL Li, Z. J. Ma, E. Wierzbinski, C. Achim, and D. H. Waldeck *Luminescence Quenching by Photoinduced Charge Transfer between Metal Complexes in Peptide Nucleic Acids* *J. Phys Chem. B* **118** (2014) 9037-9045.
173. B. Ding, Y. Wang, P.S. Huang, D. H. Waldeck, and J.-K. Lee, *Depleted Bulk Heterojunctions in Thermally Annealed PbS Quantum Dot Solar Cells* *J. Phys. Chem. C* **118** (2014) 14749-14758.
172. B. Ding, T. Gao, Y. Wang, D.H. Waldeck, P. Leu, and J.-K. Lee *Synergistic Effect of Surface Plasmonic Particles in PbS/TiO₂ Heterojunction Solar Cells* *Solar Energy Materials and Solar Cells* **128** (2014) 386-393.
171. X. Yin, E. Wierzbinski, H. Lu, S. Bezer, A. R. de Leon, K. L. Davis, C. Achim, and D. H. Waldeck *A Three-Step Kinetic Model for Electrochemical Charge Transfer in the Hopping Regime* *J. Phys. Chem. A* **118** (2014) 7579-7589
170. Y. Wang, K. Liu, P. Mukherjee, D. A. Hines, P. Santra, H. Y. Shen, P. Kamat, and D. H. Waldeck* *Driving Charge Separation for Hybrid Solar Cells: Photo-induced Hole Transfer in Conjugated Copolymer and Semiconductor Nanoparticle Assemblies* *Phys. Chem. Chem. Phys.* **16** (2014), 5066 - 5070
169. R. D. Harris, J. T. Auletta, S. A. M. Motlagh, M. J. Lawless, N. M. Perri, S. Saxena, L. M. Weiland,

- D. H. Waldeck, W. W. Clark, and T. Y. Meyer, *Chemical and Electrochemical Manipulation of Mechanical Properties in Stimuli-Responsive Copper-Cross-Linked Hydrogels* ACS Macro Lett. **2** (2013) 1095-1099.
168. M. N. Mendis, H. S. Mandal, and D. H. Waldeck *Enhanced Sensitivity of Delocalized Plasmonic Nanostructures* J. Phys. Chem. C **117** (2013) 25693–25703.
167. L.B. Zhao, A. K. Mishra, and D. H. Waldeck *Voltammetry Can Reveal Differences between the Potential Energy Curve (pec) and Density of States (dos) Models for Heterogeneous Electron Transfer* J. Phys. Chem. C. **117** (2013) 20746-20761.
166. M. J. Kofke, E. Wierzbinski, D. H. Waldeck *Seedless CTAB mediated growth of anisotropic nanoparticles and nanoparticle clusters on nanostructured plasmonic templates* J. Mater. Chem. C, **1** (2013) 6774-6781.
165. B. P. Bloom, L.-B. Zhao, Y. Wang, D. H. Waldeck, D. N. Beratan, P. Zhang, and R. Liu *Ligand Induced Changes in the Characteristic Size Dependent Electronic Energies of CdSe Nanoparticles* J. Phys. Chem. C. **117** (2013) 22401–22411.
164. Dimitri E. Khoshtariya, Tina D. Dolidze, Tatyana Tretyakova, David H. Waldeck and Rudi van Eldik *Electron transfer with azurin at Au–SAM junctions in contact with a protic ionic melt: impact of glassy dynamics* PCCP **15** (2013) 16515-16526. DOI: 10.1039/c3cp51896e
163. Prasun Mukherjee, Robin F. Sloan, Chad M. Shade, David H. Waldeck, and Stéphane Petoud *A Postsynthetic Modification of II–VI Semiconductor Nanoparticles to Create Tb³⁺ and Eu³⁺ Luminophores* J. Phys. Chem. C **117** (2013) 14451–14460. DOI: 10.1021/jp404947x
162. E. Wierzbinski, R. Venkatramani, K.L. Davis, S. Bezer, J. Kong, Y. Xing, E. Borguet, C. Achim, D.N. Beratan, and D. H. Waldeck, *The single-molecule conductance and electrochemical electron-transfer rate are related by a power law.* ACS Nano **7** (2013) 5391-5401.
161. E. Wierzbinski, X. Yin, K. Werling, and D. H. Waldeck *The Effect of Oxygen Heteroatoms on the Single Molecule Conductance of Saturated Chains* J. Phys. Chem. B, **117** (2013) 4431–4441.
160. R. Naaman and D. H. Waldeck *Chiral-Induced Spin Selectivity Effect* J. Phys. Chem. Lett **3** (2012) 2178-2187.
159. J. F. Lemonnier, L. Babel, L. Guenee, P. Mukherjee, D. H. Waldeck, S. V. Eliseeva, S. Petoud, and C. Piguet *Perfluorinated Aromatic Spacers for Sensitizing Europium(III) Centers in Dinuclear Oligomers: Better than the Best by Chemical Design?* Angew. Chem. Intl. Ed **51** (2012) 11302-11305.
158. Y. Wang, Z. Xie, G. Gotesman, L. Wang, B.P. Bloom, T. Z. Markus, D. Oron, R. Naaman, and D. H. Waldeck *Determination of the Electronic Energetics of CdTe Nanoparticle Assemblies on Au Electrodes by Photoemission, Electrochemical, and Photocurrent Studies.* J. Phys. Chem. C **116** (2012) 17464-17472.
157. E. Wierzbinski, A. de Leon, X. Yin, A. Balaeff, K. L. Davis, S. Reppireddy, R. Venkatramani, S. Keinan, D. H. Ly, M. Madrid, D. N. Beratan, C. Achim, and D. H. Waldeck *The Effect of Backbone Flexibility on Charge Transfer Rates in Peptide Nucleic Acid Duplexes* J. Am. Chem. Soc. **134** (2012) 9335-9342; erratum **234** (2012) 13141.

156. E. Wierzbinski, A. de Leon, K. L. Davis, S. Bezer, M.A. Wolak, M.J. Kofke, R. Schlaf, C. Achim, D.H. Waldeck, *Charge Transfer through Modified Peptide Nucleic Acids* Langmuir **28** (2012) 1971-1981; 28 (2012) 14107.
155. P. Calvo-Marzal, M. P. Delaney, T. Pan, J. T. Auletta, N. Perri, L. M. Weiland, D. H. Waldeck, W. W. Clark, T. Y. Meyer *Manipulating Mechanical Properties with Electricity: Electroplastic Elastomer Hydrogels* ACS Macro Letters **1** (2012) 204-208. doi: 10.1021/mz2001548
154. J.-F. Lemonnier, L. Guénee, C. Beuchat, T. A. Wesolowski, P. Mukherjee, D. H. Waldeck, K.A. Gogick, S. Petoud, and C. Piguet *Optimizing Sensitization Processes in Dinuclear Luminescent Lanthanide Oligomers. Selection of Rigid Aromatic Spacers*. J. Am. Chem. Soc **133** (2011) 16219-16234.
153. A. K. Mishra and D. H. Waldeck *A Comparison of the Density of States (dos) and Potential Energy Curve (pec) Models for the Electrochemical Rate Constant*. J. Phys. Chem. C **115** (2011) 20662-20673.
152. S. S. Skourtis, D. N. Beratan, and D. H. Waldeck *Coherence in electron transfer pathways* Procedia Chemistry **61** (2011) 461-485.
151. D. H. Waldeck and D. E. Khoshtariya, *Fundamental studies of long- and short-range electron exchange mechanisms between electrodes and proteins* in 'Applications of Electrochemistry and Nanotechnology in Biology and Medicine I', edited by N.Eliaz., *Modern Aspects of Electrochemistry* **52** (Springer, New York, 2011). 105-238. ISBN: 978-1-4614-0346-3.
150. Y. Wang, L. Wang, and D. H. Waldeck *Electrochemically Guided Photovoltaic Devices: A Photocurrent Study of the Charge Transfer Directionality between CdTe and CdSe Nanoparticles* J. Phys. Chem. C **115** (2011) 18136-18141. doi: 10.1021/jp205615p
149. M. A. Wolak, A. Balaeff, S. Gutmann, H. J. Helmrich, R. Vosloo, M. M. Beerbom, E. Wierzbinski, D. H. Waldeck, S. Bezer, C. Achim, D. N. Beratan, and R. Schlaf *Electronic Structure of Self-Assembled Peptide Nucleic Acid Thin Films* J. Phys. Chem. C **115** (2011) 17123-17135.
148. P. Mukherjee, C.M. Shade, A. M. Yingling, D. N. Lamont, D. H. Waldeck and S. Petoud *Lanthanide Sensitization in II-VI Semiconductor Materials: A Case Study with Terbium (III) and Europium (III) in Zinc Sulfide Nanoparticles* J. Phys. Chem. A **115** (2011) 4031-4041.
147. G. O. Angheloiu, A. S. Haka, I. Georgakoudi, J. Arendt, M. G. Müller., O. R. Sceanovic, S. P. Evanko, T. N. Wight, P. Mukherjee, D. H. Waldeck, R. R. Dasari, M. Fitzmaurice, J. R. Kramer and M. S. Feld *Detection of coronary atherosclerotic plaques with superficial proteoglycans and foam cells using real-time intrinsic fluorescence spectroscopy* Atherosclerosis **215** (2011) 96-102
146. R. Venkatramani, K. L. Davis, E. Wierzbinski, S. Bezer, A. Balaeff, S. Keinan, A. Paul, L. Kocsis, D. N. Beratan, C. Achim, and D. H. Waldeck *Evidence for a Near-Resonant Charge Transfer Mechanism for Double-Stranded Peptide Nucleic Acid* J. Am. Chem. Soc. **133** (2011) 62-72.
145. M. J. Kofke, D. H. Waldeck, and G. C. Walker *Composite nanoparticle nanoslit arrays: a novel platform for LSPR mediated subwavelength optical transmission* Optics Express, **18** (2010) 7705-7713. doi:10.1364/OE.18.007705

144. S. S. Skourtis, D. H. Waldeck, and D. N. Beratan, *Fluctuations in Biological and Bioinspired Electron-Transfer Reactions* Ann. Rev. of Physical Chemistry **61** (2010) 461-485.
143. M. Wu, P. Mukherjee, D. N. Lamont, and D. H. Waldeck *Electron Transfer and Fluorescence Quenching of Nanoparticle Assemblies* J. Phys. Chem. C **114** (2010) 5751-5759. doi: 10.1021/jp9098667
142. D. E. Khoshtariya, T. D. Dolidze, M. Shushanyana, K. L. Davis, D. H. Waldeck and R. van Eldik *Fundamental signatures of short- and long-range electron transfer for the blue copper protein azurin at Au/SAM junctions* Proc. Nat. Acad. Sci. **107** (2010) 2757-2762. doi: 10.1073/pnas.0910837107
141. A. Paul, R. M. Watson, E. Wierzbinski, K. L. Davis, A. Sha, C. Achim, and D. H. Waldeck *Distance Dependence of the Charge Transfer Rate for Peptide Nucleic Acid Monolayers* J. Phys. Chem. B **114** (2010) 14140-14148. doi: 10.1021/jp906910h
140. A. K. Mishra and D. H. Waldeck, *A Unified Model for the Electrochemical Rate Constant That Incorporates Solvent Dynamics* J. Phys. Chem. C **113** (2009) 17904-17914. doi: 10.1021/jp9052659
139. Y. S. Jung, J. Wuenschell, H. K. Kim, P. Kaur, and D. H. Waldeck, *Blue-shift of surface plasmon resonance in a metal nanoslit array structure* Optics Express **17** (2009) 16081-16091. doi:10.1364/OE.17.016081.
138. T. Z. Markus, M. Wu, L. Wang, D. H. Waldeck, D. Oron, and R. Naaman, *Electronic Structure of CdSe Nanoparticles Adsorbed on Au Electrodes by an Organic Linker: Fermi Level Pinning of the HOMO* J. Phys. Chem. C **113** (2009) 14200. doi:10.1021/jp9041167.
137. A. Paul, S. Bezer, R. Venkatramani, L. Kocsis, E. Wierzbinski, A. Balaeff, S. Keinan, D. N. Beratan, C. Achim, and D. H. Waldeck, *Role of Nucleobase Energetics and Nucleobase Interactions in Single-Stranded Peptide Nucleic Acid Charge Transfer* J. Am. Chem. Soc. **131** (2009) 6498–6507. doi:10.1021/ja9000163
136. S. Chakrabarti, M. Liu, D. H. Waldeck, A. M. Oliver, and M. N. Paddon-Row, *Solvent Dynamical Effects on Electron Transfer in U-Shaped Donor-Bridge-Acceptor Molecules* J. Phys. Chem. A **113** (2009) 1040-1048. doi:10.1021/jp807412c
135. M. J. Kofke, D. H. Waldeck, A. Fakhraai, S. Ip, and G. C. Walker, *The effect of periodicity on the extraordinary optical transmission of annular aperture arrays* Appl. Phys. Lett. **94** (2009) 023104. doi: 10.1063/1.3067835
134. S. Chakrabarti, M. F. L. Parker, C. W. Morgan, C. E. Schafmeister, and D. H. Waldeck, *Experimental Evidence for Water Mediated Electron Transfer Through Bis-Amino Acid Donor-Bridge-Acceptor Oligomers* J. Am. Chem. Soc. **131** (2009) 2044-2045. doi:0.1021/ja8079324
133. G. Gotesman, D. H. Waldeck, and R. Naaman, *Self-Assembly of Nanoparticle Arrays on Semiconductor Substrate for Charge Transfer Cascade* J. Phys. Chem. A **113** (2009) 7213-7217. doi:10.1021/jp808803v

132. S. S. Skourtis, D. N. Beratan, R. Naaman, A. Nitzan, and D. H. Waldeck, *Chiral Control of Electron Transmission through Molecules* Phys. Rev. Lett. **101** (2008) 238103. doi:10.1103/PhysRevLett.101.238103
131. K. L. Davis and David H. Waldeck, *Effect of Deuterium Substitution on Electron Transfer at Cytochrome c/SAM Interfaces* J. Phys. Chem. B **112** (2008) 12498-12507. doi:10.1021/jp803006b
130. H. J. Yue, M. Y. Wu, C. H. Xue, S. Velayudham, H. Y. Liu, and D. H. Waldeck, *Evolution in the Supramolecular Complexes between Poly(phenylene ethynylene)-based Polyelectrolytes and Octadecyltrimethylammonium Bromide as Revealed by Fluorescence Correlation Spectroscopy* J. Phys. Chem. B **112** (2008) 8218-8226. doi:10.1021/jp710229a
129. K. L. Davis, B. J. Drews, H. Yue, D. H. Waldeck, K. Knorr, and R. A. Clark, *Electron Transfer Kinetics of Covalently Attached Cytochrome c/SAM/Au Electrode Assemblies* J. Phys. Chem. C **112** (2008) 6571-6576, doi:10.1021/jp711834t.
128. A. Paul, R. M. Watson, P. Lund, Y. Xing, K. Burke, Y. He, E. Borguet, C. Achim, and D. H. Waldeck, *Charge Transfer through Single-Stranded Peptide Nucleic Acid Composed of Thymine Nucleotides* J. Phys. Chem. C **112** (2008) 7233-7240. doi:[10.1021/jp711764q](https://doi.org/10.1021/jp711764q)
127. B. Pradhan, K. Setyowati, H. Liu, D. H. Waldeck, and J. Chen, *Carbon Nanotube–Polymer Nanocomposite Infrared Sensor* Nano Lett. **8** (2008) 1142-1146. doi:10.1021/nl0732880
126. H. Yue, D.H. Waldeck, K. Schrock, D. Kirby, K. Knorr, S. Switzer, J. Rosmus, R.A. Clark, *Multiple Sites for Electron Tunneling between Cytochrome c and Mixed Self-Assembled Monolayers*, J. Phys. Chem. C **112** (2008) 2514-2521. doi:10.1021/jp076769g
125. M. Wu, P. Kaur, H. Yue, A. M. Clemmens, D.H. Waldeck, C. Xue, and H. Liu, *Charge Density Effects on the Aggregation Properties of Poly(p-phenylene-ethynylene)-Based Anionic Polyelectrolytes* J. Phys. Chem. B. **112** (2008) 3300-3310. doi:10.1021/jp7099527
124. L. Wang and D. H. Waldeck, *Denaturation of Cytochrome c and its Peroxidase Activity when Immobilized on SAM films* J. Phys. Chem. C **112** (2008) 1351-1356. doi:10.1021/jp076807w
123. P. Kaur, M. Wu, L. Anzaldi, D. H. Waldeck, C. Yue, and H. Liu, *Dependence of Fluorescence Quenching of a Poly(p-phenylene ethynylene) Polyelectrolyte on the Electrostatic and Hydrophobic Properties of the Quencher* Langmuir **23** (2007) 13203-13208. doi:10.1021/la7023007.
122. T. D. Dolidze, S. Rondinini, A. Vertova, D. H. Waldeck, and D. E. Khoshtariya, *Impact of Self-Assembly Composition on the Alternate Interfacial Electron Transfer of Electrostatically Immobilized Cytochrome C* Biopolymers **87** (2007) 68-73. doi:10.1002/bip.20789
121. P. Kaur, H. Yue, M. Wu, M. Liu, J. Treece, D. H. Waldeck, *Solvation and Aggregation of Polyphenylethynylene Based Anionic Polyelectrolytes in Dilute Solutions*, J. Phys. Chem. B **111** (2007) 8589-8596. doi:10.1021/jp071307o
120. L. V. Basova, I. V. Kurnikov, L. Wang,, V.B. Ritov, N. A. Belikova, I. I. Vlasova, A.A. Pacheco, D. E. Winnica, J. Peterson, H. Bayir, D. H. Waldeck, and V.E. Kagan, *Cardiolipin Switch in Mitochondria: Shutting off the Reduction of Cytochrome c and Turning on the Peroxidase Activity* Biochemistry **46** (2007) 3423-3434. doi:10.1021/bi061854k

119. S. Chakrabarti, D. H. Waldeck, A. M. Oliver, and M. Paddon Row, *Electron Transfer Pathways in Hydrocarbon Frameworks: Short-Circuiting Through-Bond Tunneling by Tunneling Through Non-Bonded Contacts in Rigid U-Shaped Norbornylogous Systems Containing a Cavity-Bound Aromatic Pendant Group* J. Am. Chem. Soc. **129** (2007) 3247-3256. doi:10.1021/ja067266b
118. H. Yue, D. Khoshtariya, D. H. Waldeck, J. Grochol, P. Hildebrandt, and D. H. Murgida, *On the Electron Transfer Mechanism between Cytochrome c and Metal Electrodes. Evidence for Dynamic Control at Short Distances.* J. Phys. Chem. B **110** (2006) 19906-19913.
117. Y. S. Jung, Z. Sun, J. Wuenschell, H. K. Kim, P. Kaur, L. Wang, D. H. Waldeck, *High-Sensitivity Surface Plasmon Resonance Spectroscopy Based on Metal Nanoslit Arrays*, Applied Physics Letters, **88** (2006) 243105 to 243105-3.
116. M. Liu, S. Chakrabarti, D. H. Waldeck, A. M. Oliver, and M. N. Paddon-Row, *Pendant Unit Effect on Electron Tunneling in U-Shaped Molecules* Chemical Physics (Special Issue in Honor of N. S. Hush) **324** (2006) 72 - 84.
115. H. Yue and D. H. Waldeck, *Understanding Interfacial Electron Transfer to Monolayer Protein Assemblies* Current Opinion in Solid State and Materials Science **9** (2006) 28-36.
114. H. Yue, D. H. Waldeck, J. Petrovic, and R. A. Clark, *The Effect of Ionic strength on the Electron Transfer Rate of Surface Immobilized Cytochrome c* J. Phys. Chem. B **110** (2006) 5062-5072.
113. M. R. Goldsmith, C. B. George, G. Zuber, R. Naaman, D. H. Waldeck, P. Wipf, and D. N. Beratan, *The Chiroptical Signature of Achiral Metal Clusters Induced by Dissymmetric Adsorbates* PCCP **8** (2006) 6367.
112. J. J. Wei, C. Schafmeister, G. Bird, A. Paul, R. Naaman, and D. H. Waldeck, *Molecular Chirality and Charge Transfer through Self-Assembled Scaffold Monolayers* J. Phys. Chem. B. **110** (2006) 1301-1308.
111. M. Liu, N. Ito, M. Maroncelli, D. H. Waldeck, A. M. Oliver, and M. N. Paddon-Row, *Solvent Friction Effect on Intramolecular Electron Transfer* J. Am. Chem. Soc. **127** (2005) 17867-17876.
110. S. G. Ray, H. Cohen, R. Naaman, H. Liu, and D. H. Waldeck, *Organization induced charge redistribution in self-assembled organic monolayers on gold* J. Phys. Chem. B **109** (2005) 14064 - 14073.
109. A. V. Tivanski, Y. He, E. Borguet, H. Liu, G. C. Walker, and D.H. Waldeck, *Conjugated Thiol Linker for Enhanced Electrical Conduction of Gold-Molecule Contacts* J. Phys. Chem. B **109** (2005) 5398-5402.
108. J. Petrović, R. A. Clark, H. Yue, D. H. Waldeck, E. F. Bowden, *Impact of Surface Immobilization and Solution Ionic Strength on the Formal Potential of Immobilized Cytochrome c* Langmuir **21** (2005) 6308-6316.
107. Min Liu, P. Kaur, D.H. Waldeck, C. Xue, and Haiying Liu, *The fluorescence quenching mechanism of a polyphenylene polyelectrolyte with other macromolecules: cytochrome c and dendrimers.* Langmuir **21** (2005) 1687-1690.

106. D. H. Waldeck, *Protagonists in Chemistry* Inorganica Chimica Acta **358** (2005) 2841-2843.
105. J. J. Wei, H. Liu, K. Niki, E. Margoliash, and D. H. Waldeck, *Probing Electron Tunneling Pathways: Electrochemical Study of Rat Heart Cytochrome c and its Mutant on Pyridine-Terminated SAMs*, J. Phys. Chem. B, **108** (2004) 16912-16917.
104. M. Liu, D. H. Waldeck, A. M. Oliver, N. J. Head, and M. N. Paddon-Row, *Observation of dynamic solvent effect for electron tunneling in U-shaped molecules*, J. Am. Chem. Soc. **126** (2004) 10778-10786.
103. D. H. Murgida, P. Hildebrandt, J. Wei, Y.-F. He, Haiying Liu, and D. H. Waldeck, *SERR and electrochemical study of cytochrome c bound on electrodes through coordination with pyridinyl-terminated SAMs.*, J. Phys. Chem. B. **108** (2004) 2261-2269.
102. S. S. Skourtis, D. H. Waldeck, and D. N. Beratan, *Inelastic Electron Tunneling Erases Coupling-Pathway Interferences* J. Phys. Chem. B. **108** (2004) 15511-15518.
101. J.M. Nadeau, M. Liu, D.H. Waldeck, M. B. Zimmt, *Hole Transfer in a C-shaped Molecule: Conformational Freedom versus Solvent Mediated Coupling* J. Am. Chem. Soc. **125** (2003) 15964-15973.
100. T. D. Dolidze, D. E. Khoshtariya, D. H. Waldeck, J. Macyk, R. van Eldik, *Positive Activation Volume for a Cytochrome C Electrode Process: Evidence for a "Protein Friction" Mechanism from High-Pressure Studies.* J. Phys. Chem. B **107** (2003) 7172-7179.
99. D. Bodlaki, H. Yamamoto, D. H. Waldeck and E. Borguet, *Ambient Stability of Chemically Passivated Germanium Interfaces*, Surface Science **543** (2003) 63-74.
98. D. E. Khoshtariya, J. Wei, H. Liu, H. J. Yue, and D. H. Waldeck, *Charge Transfer Mechanism for Cytochrome C Adsorbed on Nanometer Thick Films. Distinguishing Friction Control from Conformational Gating.* J. Am. Chem. Soc., **125** (2003) 7704-7714.
97. M. B. Zimmt and D. H. Waldeck, *Exposing Solvent's Roles in Electron Transfer Reactions: Tunneling Pathway and Solvation* J. Phys. Chem. A, Feature Article, **107** (2003) 3580-3597.
96. H. Liu, H. Yamamoto, J. Wei, and D. H. Waldeck, *Control of the Electron Transfer Rate between Cytochrome c and Gold Electrodes by the Manipulation of the Electrode's Hydrogen Bonding Character* Langmuir, **19** (2003) 2378-2387.
95. A. M. Napper, H. Liu, H. Yamamoto, D. Khoshtariya, and D. H. Waldeck *Effect of Molecular Properties on Electron Transmission through Organic Monolayer Films* in ***Molecules as Electronic Devices*** ACS Symposium Series 844; Lieberman, M. eds. (2003), 62-75.
94. R. Kaplan, A. M. Napper, D. H. Waldeck, and M. B. Zimmt, *The Role Played by Orbital Energetics in Solvent Mediated Electronic Coupling*, J. Phys. Chem. A **106** (2002), 1917-1925.
93. H. Yamamoto and D. H. Waldeck, *Effect of Tilt-Angle on Electron Tunneling through Organic Monolayer Films.* J. Phys. Chem. B **106** (2002) 7469-7473.
92. A. M. Napper, I. Read, and D. H. Waldeck, R. W. Kaplan and M. B. Zimmt, *Electron Transfer Reactions of C-shaped Molecules in Alkylated Aromatic Solvents: Evidence that the Effective*

- Electronic Coupling Magnitude is Temperature Dependent.* J. Phys. Chem. A **106** (2002) 4784-4793.
91. J. Wei, H. Liu, A. Dick, H. Yamamoto, Y. He, and D. H. Waldeck, *Direct wiring of cytochrome c's heme unit to an electrode: Electrochemical Studies.* J. Am. Chem. Soc. **124** (2002) 9591-9599.
90. A.M. Napper, N. J. Head, A.M. Oliver, M. J. Shephard, M. N. Paddon-Row, I. Read, and D. H. Waldeck, *Use of U-shaped Donor-Bridge-Acceptor Molecules to Study Electron Tunneling Through Non-bonded Contacts* J. Am. Chem. Soc. **124** (2002) 10171-10181.
89. J. Wei, H. Liu, D. E. Khoshtariya, H. Yamamoto, A. Dick, and D. H. Waldeck, *Electron Transfer Dynamics of Cytochrome C. A Change in the Reaction Mechanism with Distance.* Angewandte Chem. **41** (2002) 4700-4703
88. A. M. Napper, I. Read, R. Kaplan, M. B. Zimmt and D.H. Waldeck, *Solvent Mediated Superexchange in a C-Clamp Shaped Donor-Bridge-Acceptor Molecule: The Correlation between Solvent Electron Affinity and Electronic Coupling.* J. Phys. Chem. A **106** (2002) 5288-5296.
87. J. Chen, H. Liu, W. A. Weimer, M. D. Halls, D. H. Waldeck, and G. C. Walker, *Noncovalent Engineering of Carbon Nanotube Surfaces by Rigid, Functional Conjugated Polymers* J. Am. Chem. Soc. **124** (2002) 9034-9036.
86. D. E. Khoshtariya, T. D. Dolidze, L. D. Zusman and D. H. Waldeck, *Observation of the Turnover of the Solvent Friction (Overdamped) and Tunneling (Nonadiabatic) Charge Transfer Mechanisms for a Au/Fe(CN)₆^{3-/4-} Electrode Process and Evidence for a Freezing Out of the Marcus Barrier,* J. Phys. Chem. **105** (2001) 1818-1829.
85. H. Yamamoto, H. Liu, and D. H. Waldeck, *Immobilization of Cytochrome C at Au Electrodes by Ligation between a Pyridine Terminated SAM and the Heme of Cytochrome* Chem. Commun. B (2001) 1032 - 1033.
84. A. M. Napper, H. Liu, and D. H. Waldeck, *The Nature of Electronic Coupling between Ferrocene and Gold through Alkanethiolate Monolayers on Electrodes. The Importance of Chain Composition, Interchain Coupling, and Quantum Interference.* J. Phys. Chem. B **105** (2001) 7699-7707.
83. T. D. Burleigh, Y. Gu, G. Donahey, M. Vida and D. H. Waldeck, *Tarnish Protection of Silver using a Hexadecanethiol Self-Assembled Monolayer and Descriptions of Accelerated Tarnish Tests.* Journal of Science and Engineering Corrosion **57** (2001) 1066 - 1074.
82. A M. Napper, I. Read, D. H. Waldeck, N. J. Head, A. M. Oliver and M. N. Paddon-Row, *An Unequivocal Demonstration of the Importance of Nonbonded Contacts in the Electronic Coupling between Electron Donor and Acceptor Units of Donor-Bridge-Acceptor Molecules* J. Am. Chem. Soc. **122** (2000) 5220-5221.
81. D. Farcasiu, M. Lezcano, P. Lukinskas and D. H. Waldeck, *Effects of Anions on the NMR Relaxation of Pyridinium and Di-tert-Butylpyridinium Ions in Acid Solution. Implications for Chemisorption on Solid Acids.,* J. Phys. Chem. **104** (2000) 5190-5196.

80. D. H. Waldeck, *The Role of Solute-Solvent Friction in Large Amplitude Motions* in ***Methods in Stereochemical Analysis: Conformational Analysis of Molecules in Excited States***, Chapter 3, J. Waluk ed., (Wiley, NY, 2000) 113-177.
79. R. A. Butera and D. H. Waldeck, *An EPR Experiment for the Undergraduate Physical Chemistry Laboratory* J. Chem. Ed., **77** (2000) 1489-1491.
78. I. Read, A. Napper, M. B. Zimmt and D. H. Waldeck, *Electron Transfer in Aromatic Solvents: The Importance of Quadrupolar Interactions*, J. Phys. Chem. A, **104** (2000) 9385-9394.
77. R. Kaplan, A. Napper, D. H. Waldeck, and M. B. Zimmt, *Solvent Mediated Electronic Coupling: Not a π Bond in Site* J. Am. Chem. Soc. **122** (2000) 12039-12040.
76. K. Ray, S. P. Ananthavel, D. H. Waldeck and R. Naaman, *Asymmetry in the Transmission of Polarized Electrons through Organized Organic Films of Chiral Molecules*, Science **283** (1999) 814-816.
75. Y. Gu, B. Akhremitchev, G. C. Walker and D. H. Waldeck, *Structural Characterization and Electron Tunneling at the n-Si/SiO₂/SAM/Liquid Interface*, J. Phys. Chem. B **103** (1999) 5220-5226. Erratum, *ibid*, 5612.
74. T. D. Burleigh and D. H. Waldeck, *The Effect of Several Elements on the Resistance of Copper-10% Nickel Alloys to Seawater Impingement*, Journal of Science and Engineering Corrosion **55** (1999) 800-804.
73. H. Yamamoto, R. A. Butera, Y.-P. Gu and D. H. Waldeck, *Characterization of the Surface to Thiol Bonding in Self-Assembled Monolayer Films on C₁₂H₂₅SH on InP(100) by Angle-Resolved X-Ray Photoelectron Spectroscopy*, Langmuir **15** (1999) 8640-8644.
72. I. Read, A. Napper, R. Kaplan, M. B. Zimmt and D. H. Waldeck, *Solvent Mediated Electronic Coupling: The Role of Solvent Placement* J. Am. Chem. Soc. **121** (1999) 10976-10986.
71. K. Ray, A. Shanzer, D. H. Waldeck and R. Naaman, *Resonances in Low-Energy Electron Transmission Through Organized Organic Films. Evidence for Molecular Quantum- Wells*, Phys Rev. B **60** (1999) 13347-13350.
70. A. P. Sukharevsky, I. Read, B. Linton, A. D. Hamilton and D. H. Waldeck, *Experimental Measurements of Low Frequency Intermolecular Host-Guest Dynamics* J. Phys. Chem. B **102** (1998) 5394-5403.
69. M. G. Kurnikova, N. Balabai, D. H. Waldeck and R. D. Coalson, *Rotational Relaxation in Polar Solvents: Molecular Dynamics Study of Solute-Solvent Interaction* J. Am. Chem. Soc. **120** (1998) 6121-6130.
68. N. Balabai, A. Sukharevsky, I. Read, B. Strazisar, M. Kurnikova, R. S. Hartman, R. D. Coalson and D. H. Waldeck, *Rotational Diffusion of Organic Solutes: The Role of Dielectric Friction in Polar Solvents and Electrolyte Solutions* J. Mol. Liq. **77** (1998) 37-60.
67. K. Kumar, I. Kurnikov, D. Beratan, D. H. Waldeck and M. B. Zimmt, *Use of Modern Electron Transfer Rate Theories to Determine Electronic Coupling Matrix Elements in Intramolecular Systems* J. Phys. Chem. A **102** (1998) 5529-5541.

66. Y. Gu and D. H. Waldeck, *Electron Tunneling at the Semiconductor-Insulator-Electrolyte Interface. Photocurrent Studies of the n-InP-Alkanethiol-Ferrocyanide System* J. Phys. Chem. B **102** (1998) 9015-9028.
65. N. Balabai, M. G. Kurnikova, R. D. Coalson and D. H. Waldeck, *Rotational Relaxation of Ionic Molecules in Electrolyte Solutions: Anisotropy Relaxation and Molecular Dynamics Study* J. Am. Chem. Soc. **120** (1998) 7944-7951.
64. N. Balabai, B. Linton, A. Napper, S. Priyadarshy, A. P. Sukharevsky and D. H. Waldeck, *Orientalional Dynamics of β -Cyclodextrin Inclusion Complexes* J. Phys. Chem. B **101** (1998) 9617-9624.
63. R. A. Butera and D. H. Waldeck, *X-Ray Diffraction Investigation of Alloys* J. Chem. Ed. **74** (1997) 115 - 119.
62. Y. Gu, K. Kumar, Z. Lin, I. Read, M. B. Zimmt and D. H. Waldeck, *Studies into the Character of Electronic Coupling in Electron Transfer Reactions* J. Photochem. and Photobiol. A. **105** (1997) 189 - 196.
61. N. Balabai and D. H. Waldeck, *Solute-Solvent Frictional Coupling in Electrolyte Solutions. The Role of Ion Pairs.* J. Phys. Chem. **101** (1997) 2339 - 2347.
60. R. S. Hartman, W. M. Konitsky, D. H. Waldeck, Y. J. Chang and E. W. Castner, Jr., *Probing Solute-Solvent Electrostatic Interactions. Rotational Diffusion Studies of 9,10-Disubstituted Anthracenes* J. Chem. Phys. **106** (1997) 7920 - 7930.
59. R. A. Butera and D. H. Waldeck, *The Dependence of Resistance on Temperature for Metals, Semiconductors and Superconductors* J. Chem. Ed. **74** (1997) 1090 - 1094.
58. Z. Lin, S. Priyadarshy, A. Bartko and D. H. Waldeck, *Photophysics and Intramolecular Excimer Formation in a Constrained Anthracenyl Diadduct* J. Photochem and Photobiol. A **110** (1997) 131-139.
57. K. Kumar, Z. Lin, D. H. Waldeck, and M. B. Zimmt, *Electronic Coupling in C-Clamp Shaped Molecules: Solvent Mediated Superexchange Pathways* J. Am. Chem. Soc. **118** (1996) 243-244.
56. M. Kurnikova, D. H. Waldeck, and R. D. Coalson, *A Molecular Dynamics Study of Dielectric Friction* J. Chem. Phys. **105** (1996) 628 - 638.
55. Y. Gu and D. H. Waldeck, *Studies of Electron Tunneling at Semiconductor Electrodes* J. Phys. Chem. **100** (1996) 9573 - 9576.
54. K. H. Liao and D. H. Waldeck, *A Photocapacitance Study of Chemically Sensitized TiO₂ Electrodes* J. Phys. Chem. **99** (1995) 4569 - 4576.
53. Y. Gu, Z. Lin, R. A. Butera, V. S. Smentkowski and D. H. Waldeck, *Preparation of Self Assembled Monolayers on InP* Langmuir **11** (1995) 1849 - 1851.
52. G. B. Dutt, W. Konitsky, and D. H. Waldeck, *Nonradiative Relaxation of 2-Phenylindene in Solution and Its Implications for Isomerization of Stilbenes* Chem. Phys. Lett. **245** (1995) 437-440.

51. D. S. Alavi and D. H. Waldeck, *Dielectric Continuum Models of Solute/Solvent Interactions* *Understanding Chemical Reactivity* (Kluwer, 1994, Amsterdam) 249-265.
50. A. Haran, D. H. Waldeck, R. Naaman, E. Moons and D. Cahen, *The Dependence of Electron Transfer Efficiency on Conformational Order in Organic Monolayers* *Science* **263** (1994) 948-950.
49. R. S. Hartman and D. H. Waldeck, *A Test of Dielectric Friction Models. Rotational Diffusion of Fluorenes in Dimethylsulfoxide.* *J. Phys. Chem.* **98** (1994) 1386-1393.
48. J. Ma, G. B. Dutt, D. H. Waldeck and M. B. Zimmt, *The Excited State Potential Energy Surface for the Photoisomerization of Tetraphenylethylene: A Fluorescence and Picosecond Optical Calorimetry Investigation.* *J. Am. Chem. Soc.* **116** (1994) 10619-10629.
47. J. Saltiel, A. S. Waller, D. F. Sears Jr., E. A. Hoburg, D. M. Zeglinski and D. H. Waldeck, *Fluorescence Quantum Yields and Lifetimes of Substituted Stilbenes in n-Alkanes. A Re-examination of the Relationship between Solute Size and Medium Effect on Torsional Relaxation* *J. Phys. Chem.* **98** (1994) 10689 - 10698.
46. W. J. Dollard, M. L. Shumaker and D. H. Waldeck, *Time-Resolved Studies of Charge Carrier Relaxation in Chemically Modified Semiconductor Electrodes: n-CdSe/Silane Interfaces* *J. Phys. Chem.* **97** (1993) 4141-4148.
45. R. Tenne, K. Eherman, M. Peisach, W. Kautek, A. Wold, R. Matson, D. Mahalu and D. Waldeck, *The WSe₂/Tungsten-Oxide Interface: Structure and Photoluminescence* *Ber. Bunsenges. Phys. Chem.* **97** (1993) 702-709.
44. D. H. Waldeck and D. N. Beratan, *Molecular Electronics: Observation of Molecular Rectification* *Science* **261** (1993) 576-577.
43. R. S. Hartman, D. S. Alavi and D. H. Waldeck, *Elucidating the Molecular Origins of Solute-Solvent Friction* *Israel J. Chem.* **33** (1993) 157-166.
42. R. S. Hartman, W. Konitsky and D. H. Waldeck, *Rotational Diffusion in Electrolyte Solutions* *J. Am. Chem. Soc.* **115** (1993) 9692-9700.
41. D. H. Waldeck *Photoisomerization Dynamics of Stilbenes in Polar Solvents* *J. Mol. Liq.* **57** (1993) 127-148.
40. D. S. Alavi and D. H. Waldeck, *Time Resolution Limits for Two Color Pump-Probe Spectroscopy* *Rev. Sci. Inst.* **63** (1992) 2913-2921.
39. R. J. Tepper, A. J. Hooper, D. H. Waldeck and M. B. Zimmt, *Photophysics of Polycycloalkane Xanthenylidene Compounds* *Chem. Phys. Lett.* **191** (1992) 411-418.
38. M. L. Shumaker, W. J. Dollard and D. H. Waldeck, *Carrier Relaxation at Semiconductor Interfaces and the Essential Features of a Quantitative Model* *J. Phys. Chem.* **96** (1992) 10371-10379.
37. R. C. Petter, C. T. Sikorski and D. H. Waldeck, *Inclusion Complexation by Bis-Cyclodextrins in the Presence of Phospholipid Vesicles* *J. Am. Chem. Soc.* **113** (1991) 2325-2327.

36. D. S. Alavi, R. S. Hartman and D. H. Waldeck, *A Test of Continuum Models for Dielectric Friction. Rotational Diffusion of Phenoxazine Dyes in Dimethylsulfoxide.* J. Chem. Phys. **94** (1991) 4509-4520.
35. D. S. Alavi and D. H. Waldeck, *Rotational Dielectric Friction on a Generalized Charge Distribution* J. Chem. Phys. **94** (1991) 6196-6202; J. Chem. Phys. **98** (1993) 3580.
34. D. H. Waldeck, *Photoisomerization Dynamics of Stilbenes* Chem. Reviews **91** (1991) 415-435.
33. D. S. Alavi and D. H. Waldeck, *A Test of Hydrodynamics in Binary Solvent Systems. Rotational Diffusion Studies of Oxazine 118.* J. Phys. Chem. **95** (1991) 4848-4852.
32. R. S. Hartman, D. S. Alavi and D. H. Waldeck, *An Experimental Test of Dielectric Friction Models Using the Rotational Diffusion of Aminoanthraquinones* J. Phys. Chem. **95** (1991) 7872-7880.
31. D. S. Alavi, R. S. Hartman and D. H. Waldeck, *The Influence of Wavevector Dependent Dielectric Properties on Rotational Friction. Rotational Diffusion of Phenoxazine Dyes.* J. Chem. Phys. **95** (1991) 6770-6783; J. Chem. Phys. **98** (1993) 3580.
30. M. L. Shumaker, W. J. Dollard, D. M. Zeglinski and D. H. Waldeck, *Time-Resolved Fluorescence Studies of Chemically Derivatized CdSe Electrodes* ***Proceedings of the Society for Imaging Science and Technology*** (IS&T, Springfield, VA, 1991) 231-238.
29. Y.-P. Sun, J. Saltiel, N. S. Park, A. E. Hoberg, and D. H. Waldeck, *Application of the Medium-Enhanced Barrier Model to the Photoisomerization Dynamics of Substituted Stilbenes in n-Alkane Solvents* J. Phys. Chem. **95** (1991) 10336-10344.
28. N. S. Park and D. H. Waldeck, *The Influence of Polar Solvents on Reaction Dynamics. Photoisomerization Studies of Dihydroxystilbene.* J. Phys. Chem. **94** (1990) 662-669.
27. D. S. Alavi, R. S. Hartman and D. H. Waldeck, *Optically Heterodyned Polarization Spectroscopy. Measurement of the Orientational Correlation Function.* J. Chem. Phys. **92** (1990) 4055-4066.
26. M. L. Shumaker, D. Burdelski and D. H. Waldeck, *Time-Resolved Studies of Surface Recombination in CdSe Electrodes* in ***Picosecond and Femtosecond Spectroscopy from Laboratory to Real World***, K. A. Nelson, ed. Vol. 1209 (SPIE, Bellingham, WA, 1990) 109-114.
25. N. S. Park and D. H. Waldeck, *On the Dimensionality of Stilbene Isomerization* Chem. Phys. Lett. **168** (1990) 379-384.
24. D. S. Alavi, R. S. Hartman and D. H. Waldeck, *Rotational Diffusion of Phenoxazine Dyes: Characterization of Molecular Friction* ***Ultrafast Phenomena VII***; C. B. Harris, E. P. Ippen, G. A. Mourou and A. H. Zewail, eds. (Springer, Berlin, 1990) 450-452.
23. N. S. Park and D. H. Waldeck, *Photoisomerization Dynamics of Methylstilbenes* ***Ultrafast Phenomena VII***; C. B. Harris, E. P. Ippen, G. A. Mourou and A. H. Zewail, eds. (Springer, Berlin, 1990) 465-467.

22. P. Tecilla, R. P. Dixon, G. Slobodkin, D. S. Alavi, D. H. Waldeck and A. D. Hamilton, *Hydrogen Bonding Self-Assembly of Multichromophore Structures* J. Am. Chem. Soc. **112** (1990) 9408-9410.
21. F. Mendicuti, B. Patel, D. H. Waldeck, and W. L. Mattice, *Intramolecular Excimer Formation by Phthaloyl, Isophthaloyl, and Terephthaloyl Groups in Polyesters with Different Numbers of Methylene and Ethylene Oxide Spacers* Polymer **30** (1989) 1680-1684.
20. N. Sivakumar, E. A. Hoberg and D. H. Waldeck, *Solvent Dielectric Effects on Isomerization Dynamics: Photoisomerization of 4,4'-Dimethoxystilbene and t-Stilbene in n-Alkyl Nitriles* J. Chem. Phys. **90** (1989) 2305-2316.
19. N. S. Park and D. H. Waldeck, *Implications for Multidimensional Effects on Isomerization Dynamics: Photoisomerization Study of 4,4'-Dimethylstilbene in n-Alkane Solvents* J. Chem. Phys. **91** (1989) 943-952.
18. D. M. Zeglinski and D. H. Waldeck, *Evidence for Dynamical Solvent Effects on the Photoisomerization of 4,4'-Dimethoxystilbene* J. Phys. Chem. **92** (1988) 692-701.
17. N. S. Park, N. Sivakumar, E. A. Hoberg and D. H. Waldeck, *Influence of Functional Groups and Solvent on the Photoisomerization of Stilbenes* Ultrafast Phenomena VI (Springer Verlag, Berlin, 1988) 551-554.
16. A. P. Alivisatos, M. F. Arndt, S. Efrima, D. H. Waldeck, and C. B. Harris, *Electronic Energy Transfer at Semiconductor Interfaces: I. Energy Transfer from Two Dimensional Molecular Films to Si(111)*, J. Chem. Phys. **86**, (1987) 6540-6549.
15. D. M. Zeglinski and D. H. Waldeck, *Evidence for Dynamical Solvent Dielectric Effects: Photoisomerization of Stilbene* Advances in Laser Science 3 **172** (1987) 634-636.
14. D. M. Zeglinski and D. H. Waldeck, *Photoisomerization Studies of Substituted Stilbene: 4,4'-Dihydroxystilbene and 4,4'-Dimethoxystilbene* Ultrafast Phenomena V (Springer-Verlag, Berlin, 1986) A. Siegman and G. R. Fleming, eds., 347-349.
13. A. P. Alivisatos, D. H. Waldeck, and C. B. Harris, *Non-Classical Behaviour of Energy Transfer from Molecules to Metal Surfaces: Biacetyl ($3n\pi^*$)/Ag(111)* J. Chem. Phys. **82** (1985) 541-547.
12. D. H. Waldeck, A. P. Alivisatos, and C. B. Harris, *Nonradiative Damping of Molecular Excited States by Solid Surfaces* Surface Science **158** (1985) 103-125.
11. G. R. Fleming, D. H. Waldeck, K. M. Keery, and S. P. Velsko, *Photochemical Isomerization Viewed as a Model for Activated Barrier Crossing in Solution* Application of Picosecond Spectroscopy to Chemistry K. B. Eisenthal, ed. (Reidel, Dordrecht, 1984) 67-78.
10. S. P. Velsko, D. H. Waldeck, and G. R. Fleming, *Breakdown of Kramers Theory Description of Photochemical Isomerization and the Possible Involvement of Frequency Dependent Friction* J. Chem. Phys. **78** (1983) 249-258.
9. A. J. Cross, D. H. Waldeck, and G. R. Fleming, *Time Resolved Polarization Spectroscopy: Orientational Motion and Level Kinetics* J. Chem. Phys. **78** (1983) 6455-6466; erratum, J. Chem. Phys. **79** (1983) 3173.

8. D. H. Waldeck, W. T. Lotshaw, D. B. McDonald, and G. R. Fleming, *Ultraviolet Picosecond Pump-Probe Spectroscopy with a Synchronously Pumped Dye Laser. Rotational Diffusion of Diphenylbutadiene*. Chem. Phys. Lett. **88** (1982) 297-300.
7. G. R. Fleming, S. P. Velsko, and D. H. Waldeck, *Dynamics of Photoisomerization* in ***Picosecond Phenomena III*** (Springer-Verlag, Berlin, 1982) K. B. Eisenthal, R. Hochstrasser, W. Kaiser, and A. Laubereau, eds.
6. D. Waldeck, A. J. Cross, D. B. McDonald, and G. R. Fleming, *Picosecond Pulse Induced Transient Molecular Birefringence and Dichroism* J. Chem. Phys. **74** (1981) 3381-3387.
5. D. H. Waldeck, and G. R. Fleming, *Influence of Viscosity and Temperature on Rotational Reorientation, Anisotropic Absorption Studies of 3,3'-Diethyloxycarbocyanine Iodide* J. Phys. Chem. **85** (1981) 2614-2617.
4. G. R. Fleming, D. H. Waldeck, and G. S. Beddard, *Applications of Synchronously Pumped Dye Lasers to Time Resolved Emission and Absorption Spectroscopy* Il Nuovo Cemento **63B** (1981) 151-172.
3. G. R. Fleming, W. T. Lotshaw, D. B. McDonald, and D. H. Waldeck, *Picosecond Laser Studies of Molecular Dynamics in Liquids* ***Proceedings of the International Conference on Lasers '81*** (1981) 882-885.
2. D. B. McDonald, D. H. Waldeck, and G. R. Fleming, *Pulse Structure Studies and Absolute Cavity Length Determination for a Synchronously Pumped Picosecond Dye Laser* Optics Communications **34** (1980) 127-132.
1. G. S. Beddard, G. R. Fleming, D. B. McDonald, G. Porter, D. H. Waldeck, and M. Westby, *Anisotropic Absorption Studies of Orientational Motion* in ***Picosecond Phenomena II***, R. Hochstrasser, W. Kaiser, and C. V. Shank, eds. (Springer-Verlag, Berlin, 1980) 101-105.

Patents

- ‘Nanoscale surface plasmonics sensor with nanofluidic control’. The inventors are J. J. Wei, S. Sameer, D. H. Waldeck, and M.J. Kofke. The patent was issued on April 17, 2012.
- ‘Redox Stimulated Variable-Modulus Material’. The inventors are T.Y. Meyer, W. W. Clark, D.H. Waldeck, L. M. Weiland, P. Calvo-Marzal, T. Pan, R.D. Harris, and H. Liu. The patent was issued on April 17, 2018.