CURRICULUM VITAE

1. Matthew Ben Zimmt

Professor
Chemistry Department, Brown University

2. Work Address:

Department of Chemistry
Brown University, Providence, Rhode Island 02912

3. Education:

B.Sc. (Chemistry)	Case Institute of Technology,	1981
M.A. (Chemistry)	Columbia University,	1982
M.Ph. (Photochemistry)	Columbia University,	1985
Ph.D. (Photochemistry)	Columbia University,	1985
Postdoctoral (Chemical Physics)	Stanford University,	1985-87

Dissertation Topic: I. Lifetimes of 2-phenyleycloalkanone derived triplet biradicals. The importance of spin orbit coupling, hyperfine and chain dynamics; II. The Kinetics and energetics of dibenzyl ketone derived triplets radical pair reactions in micelles.

4. Professional Appointments:

Stanford University	Research Associate,	1985-87
Brown University	Assistant Professor,	1987-93
Brown University	Associate Professor,	1993-99
Brown University	Professor	1999-
Brown University	Department Chair	2010-16

5. Scholarship

Publications:

1. N. J. Turro, M. B. Zimmt, I. R. Gould, 'Dynamics of Micellized Radical Pairs. Measurement of Micellar Exit Rates of Benzylic Radicals,' *J. Am. Chem. Soc*., **1983**, *105*, 6347.

2. M. B. Zimmt, C. Doubleday, Jr., N. J. Turro, 'Energetics and Dynamics of Radical Pairs in Micelles. Measurement of the Average Singlet-Triplet Energy Gap by Means of the Magnetic Field Dependence of Carbon-13 CIDNP,' *J. Am. Chem. Soc*., **1984**, *106*, 3363.

3. I. R. Gould, N. J. Turro, M. B. Zimmt, 'Magnetic Field and Magnetic Isotope Effects on the Products of Organic Reactions,' *Adv. Phys. Org. Chem*., **1984**, *20*, 1.

4. I. R. Gould, M. B. Zimmt, N. J. Turro, B. H. Baretz, G. F. Lehr, 'Dynamics of Radical Pair Reactions in Micelles,' *J. Am. Chem. Soc.*, **1984**, *107*, 4607.

5. N. J. Turro, M. A. Paczkowski, M. B. Zimmt, J. K. S. Wan, 'The Observation of CIDEP from the Photodecomposition of Dibenzyl Ketone in Micellar Solution,' *Chem. Phys. Lett*., **1985**, *114*, 561.

6. N. J. Turro, M. B. Zimmt, I. R. Gould, W. Mahler, 'Triplet Energy Transfer as a Probe of Surface Diffusion Rates: Time Resolved Diffuse Reflectance Transient Absorption Spectroscopy,' *J. Am. Chem. Soc.*, **1985**, *107*, 5826.

7. M. B. Zimmt, C. Doubleday Jr., N. J. Turro, 'Magnetic Field Effect on the Intersystem Crossing Rate Constants of Biradicals Measured by Nanosecond Transient UV Absorption,' *J. Am. Chem. Soc*., **1985**, *107*, 6726.

8. N. J. Turro, I. R. Gould, M. B. Zimmt, C. C. Cheng, 'Ketone Photochemistry on Solid Silica. A Diffuse Reflectance Laser Flash Photolysis Study,' *Chem. Phys. Lett*., **1985,** *119*, 484.

9. M.B. Zimmt, C. Doubleday, Jr., I.R. Gould, N.J. Turro, 'Nanosecond Flash Photolysis Studies of Intersystem Crossing Rate Constants in Biradicals: Structural Effects Brought About by Spin Orbit Coupling,' *J. Am. Chem. Soc.*, **1985,** *107*, 6724.

10. N. J. Turro, X. G. Lei, I. R. Gould, M. B. Zimmt, "External Magnetic Field Dependent Influence of Lanthanide Ions on the Chemistry of Radical Pairs in Micelles,' *Chem. Phys. Lett*., **1985**, *120*, 397.

11. X. G. Lei, C. E. Doubleday, Jr., M. B. Zimmt, N. J. Turro, 'Photochemistry of 2-phenylcyclanones. Formation of Cyclophanes and Encapsulation by a Ship-in-Bottle and by a Reptation Strategy,' *J. Am*. *Chem. Soc.*, **1986**, *108*, 2444.

12. M. B. Zimmt, C. Doubleday, Jr., N. J. Turro, 'The Rate-Determining Step for Decay of Triplet Biradicals: Intersystem Crossing vs. Chain Dynamics,' *J. Am. Chem. Soc.*, **1986**, *108*, 3618.

13. K. A. Peterson, M. B. Zimmt, S. Linse, R. P. Domingue, M. D. Fayer,'Quantitative Determination of the Radius of Gyration of Poly(Methyl Methacrylate) in the Amorphous Solid State by Time-Resolved Fluorescence Depolarization Measurements of Excitation Transport, *Macromolecules*, **1987**, *20*, 168.

14. N.J. Turro, M.B. Zimmt, X. Lei, I.R. Gould, K.S. Nitsche, Y. Cha, 'Additive Effects of the CIDNP, Cage Effect and Exit Rate of Radical Pairs in Micelles,' *J. Phys. Chem.*, **1987,** *91*, 4544.

15. M. B. Zimmt, C. Doubleday Jr., N. J. Turro, ' Substituent and Solvent Effects on the Lifetimes of Hydrocarbon-based Biradicals,' *Chem. Phys. Lett.*, **1987***, 134*, 549.

16. N. J. Turro, M. B. Zimmt, I. R. Gould, 'Magnetic Field and Isotope Dependences of the Reaction Rates of Micellized Triplet Radical Pairs,' *J. Phys. Chem*., **1988**, *92*, 433.

17. R.C. Dorfman, Y. Lin, M.B. Zimmt, J. Baumann, R.P. Dominque and M.D. Fayer, 'Photo Induced Electron Transfer and Back Transfer in Systems of Randomly Distributed Donors and Acceptors: Picosecond Transient Grating Experiments,' *J. Phys. Chem.*, **1988,** *92*, 4258.

18. N. J. Turro, K. C. Waterman, K. M. Welsh, M. A. Paczkowski, M. B. Zimmt, C.-C. Cheng, W. Mahler, 'Use of Electron Spin Resonance to Study the Photochemistry of Absorbed Dibenzylketone on Pourous Silica,' *Langmuir*, **1988**, *4*, 677.

19. M. B. Zimmt, K. A. Peterson, M. D. Fayer, 'Short Polymer Chain Statistics and the Relationship to End to End Electronic Excitation Transport: Random Walks with Variable Step Lengths,' *Macromolecules*, **1988,** *21*, 1145.

20. K.A. Peterson, M.B. Zimmt, M.D. Fayer, Y.H. Jeng, C.W. Frank, 'Fluorescence Depolarization of Chromophores in Polymeric Solid', *Macromolecules*, **1989**, *22*, 874.

21. M.B. Zimmt, 'The Energy of the Twisted Excited Singlet State of Tetraphenylethylene: Picosecond Optically Detected Calorimetry', *Chem. Phys. Lett.*, **1989**, *160*, 564.

22. J.D. Farmer Jr., G.R. Gustafson, A. Conti, M.B. Zimmt, J. W. Suggs, 'DNA Binding Properties of a New Class of Linked Anthramycin Analogs', *Nucleic Acids Research*, **1991**, *19*, 899.

23. J. Morais, J. Ma, M.B. Zimmt, 'Solvent Dependence of the Twisted Excited Singlet State Energy of Tetraphenylethylene: Evidence for a Zwitterionic State from Picosecond Optical Calorimetry', *J. Phys. Chem.*, **1991**, *95*, 3885.

24. V. P. Rao, M. B. Zimmt, N. J. Turro, 'Photo-Production of Remarkably Stable Benzylic Radicals in Cyclodextrin Inclusion Complexes', *J. Photochem. Photobiol. A*, **1991**, *60*, 355.

25. Y. Zeng, M. B. Zimmt, ' Symmetry Effects in Photoinduced Electron Transfer Reactions', *J. Am. Chem. Soc.*, **1991**, *113*, 5107.

26. M. B. Zimmt, ' Kinetics and Energetics of Photochemical Reactions Using Picosecond Optical Calorimetry', *SPIE Proceedings*, **1991**, *1599*, 115.

27. R. J. Tepper, A. J. Hooper, D. H. Waldeck, M. B. Zimmt, 'Photophysics of Polycycloalkane Xanthenylidene Compounds', *Chem. Phys. Lett.*, **1992**, *191*, 411.

28. Y. Zeng, M. B. Zimmt, 'Symmetry Effects on Electron Transfer Reactions: Temperature Dependence as a Diagnostic Tool', *J. Phys. Chem.*, **1992**, *96*, 8395.

29. T. Sun, J. Morais, G. J. Diebold, M. B. Zimmt, 'Investigation of Viscosity and Heat Conduction Effects on the Evolution of a Transient Picosecond Photoacoustic Grating', *J. Chem. Phys.*, **1992**, *97*, 9324.

30. J. Ma, M. B. Zimmt, 'Equilibration Between the Fluorescent and Zwitterionic Phantom States in Alkyl Substituted Tetraphenylethylenes', *J. Am. Chem. Soc.*, **1992**, *114*, 9723.

31. J. Morais, R. R. Hung, J. J. Grabowski, M. B. Zimmt, 'Charge Transfer State Photophysics in a Rigid Molecule: Competition Between Electron Transfer Processes in the Marcus Normal and Inverted Region', *J. Phys. Chem.*, **1993**, *97*, 13138.

32. R. J. Lavallee, M. B. Zimmt, ' Interactions Between Electrolyte and Charge Transfer States: Evidence for Complex Formation,' *J. Phys. Chem.*, **1994**, *98*, 4254.

33. Y. N. Cao, H. X. Chen, T. Sun, G. J. Diebold, M. B. Zimmt, ' Thermally Launced Photoacoustic Waves,' *J. de Physique IV*, **1994**, C7-713.

34. J. Ma, B. G. Dutt, D. H. Waldeck, 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.* **1994**, *116*, 10619.

35. J. Morais, M. B. Zimmt, 'The Thermodynamics of Intramolecular Electron Transfer in Alkane Solvents,' *J. Phys. Chem.*, **1995**, *99*, 8863.

36. R. J. Tepper, M. B. Zimmt, 'Thermochromism of Intramolecular Charge Transfer Emission Bands: Probing the Temperature Dependence of Franck Condon Factors,' *Chem. Phys. Lett*. **1995**, 241, 566.

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39. K.Kumar, Z. Lin, D. H. Waldeck, M. B. Zimmt, 'Electronic Coupling in C-Clamp Shaped Molecules: Solvent Mediated Superexchange Pathways,' *J. Am. Chem. Soc.* **1996**, *118*, 243.

40. J. P. Toscano, M. S. Platz, V. Nikolaev, Y. Cao, M. B. Zimmt, 'Confirmation of the Absolute Rate Constant for Pyridine Reaction with Formylcarbenes by Transient Absorption and Transient Grating Spectroscopies,' *J. Am. Chem. Soc*. **1996**, *118*, 3527.

41. M. B. Zimmt, P. A. Vath, 'Separating Enthalpy and Volume Contributions in Photothermal Experiments: A Perspective,' *Photochem. Photobio*. **1997**, *65*, 10 - 14.

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43. M. B. Zimmt, 'Intramolecular Electron Transfer Studies as a Function of Bridge Topology: The Importance of Solvent Mediated, Donor-Acceptor Electronic Coupling,' *Chimia*, **1997**, *51*, 82-89.

44. Y. N. Cao, H. X. Chen, G. J Diebold, M. B. Zimmt, ' Generation of the Photoacoustic Effect through Heat Diffusion: Transient Grating Measurements in Reverse Micellar Solutions,' *J. Phys. Chem. B*, **1997**, 101, 3005 - 3011.

45. Y. N. Cao, G. Diebold, M. B. Zimmt, 'Transient Grating Studies of Ultrasonic Attenuation in Reverse Micellar Solutions,' *Chem. Phys. Lett.*, **1997**, *276*, 388 -392.

46. M. B. Zimmt, "Solvent Mediated Donor-Acceptor Electronic Coupling in Intramolecular Electron Transfer Reactions,' Grammatikakis-Neumann Prize Lecture: 1996, *EPA Newsletter*, **1997**, *59*, 42 - 53.

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48. P. A. Vath, M. B. Zimmt, 'Calibrating Picosecond Time Resolved Optical Calorimetry: Absolute Enthalpies from Investigations of Mixtures,' *Isr. J. Chem.*, **1998**, *38*, 207 - 211.

49. H. Han, M. B. Zimmt, 'Solvent Mediated Electron Transfer: Correlation Between Coupling Magnitude and Solvent Vertical Electron Affinities,' *J. Am. Chem. Soc.,* **1998**, *120*, 8001 - 8002.

50. P. Vath, M. B. Zimmt, D. V. Matyushov, G. A. Voth, "A Failure of Continuum Theory: Temperature Dependence of the Solvent Reorganization Energy of Electron Transfer in Highly Polar Solvents,' *J. Phys. Chem. B.*, **1999**, *103*, 9130-9140.

51. I. Read, A. Napper, R. Kaplan, M. B. Zimmt, D. H. Waldeck, " Solvent-Mediated Electronic Coupling: The Role of Solvent Placement," *J. Am. Chem. Soc.*, **1999**, *121*, 10976-10986.

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55. R. W. Kaplan, A. M. Napper, D. H. Waldeck, M. B. Zimmt "The Role Played by Orbital Energetics in Solvent Mediated Electronic Coupling," *J. Phys. Chem. A,* **2001**, 106, 1917 – 1925.

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61. P. Kapusta, O. Machalicky, R. Hrdina, M. Nepras, M. B. Zimmt, V. Fidler, "Photophysics of 3-Substituted Benzanthrones: Substituent and Solvent Control of Intersystem Crossing," *J. Phys. Chem. A.* **2003**, *107*, 9740-46.

62. 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.* **2003**, *125*, 15964-73.

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Soc., *J. Am. Chem. Soc*. **2004**, *126*, 2215-24.

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65. J. I. Yeh, M. B. Zimmt, A. L .Zimmerman, "Nanowiring of a redox enzyme by metallized peptides," *Biosens. Bioelec.* **2005**, *21*, 973-78.

66. M. Koebel, M. B. Zimmt, "Photothermal Readout of Surface-Arrayed Proteins: Attomole Detection Levels with Gold Nanoparticle Visualization," *J. Phys. Chem.* **2005**, *109*, 16736-43.

67. M. Koebel, M. B. Zimmt, "Temporal position encoding photoacoustics: A technique for surface absorber mapping,' *J. Appl. Phys.* **2005**, *98*, 116104-6.

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69. Y. Wei, W. Tong, M. B. Zimmt, "Self-Assembly of Patterned Monolayers with Nanometer Features: Molecular Selection Based on Dipole Interactions and Chain Length," *J. Am. Chem. Soc.* **2008**, *130*, 3399-3405.

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72. Y. Wang, J. C. Gildersleeve, A. Basu, M. B. Zimmt "Photo- and Biophysical Studies of Lectin-Conjuated Fluorescent: Nanoparticles: Reduced Sensitivity in High Density Assays," *J. Phys. Chem. B.* **2010**, *114*, 14487-94.

73. W. Tong, Y. Xue, M. B. Zimmt "Morphology Control and Monolayer Patterning with CF_2 Groups: An STM Study," *J. Phys. Chem. C.* **2010**, *114*, 20783-92.

74. Y. Xue, M. B. Zimmt, "Tetris in Monolayers: Patterned Self-Assembly Using Side Chain Shape," *Chem. Commun.* **2011**, *47*, 8832-34.

75. Y. Xue, M. B. Zimmt, "Patterned Monolayer Self-Assembly Programmed by Side Chain Shape: Four-Component Gratings," *J. Am. Chem. Soc.* **2012**, *134*, 4513-16.

76. X. Wei, W. Tong, V. Fidler, M. B. Zimmt, "Reactive Capture of Gold Nanoparticles by Strongly Physisorbed Monolayers on Graphite," *J. Coll. Inter. Sci.* **2012**, *387*, 221-27.

77. M.-K. Kim, Y. Xue, T. Pašková, M. B. Zimmt, "Monolayer patterning using ketone dipoles," *Phys. Chem. Chem. Phys*. **2013**, *15*, 12466-74. (DOI:10.1039/C3CP50808K)

78. Y. Xue, M.-K. Kim, T. Pašková, M. B. Zimmt, "Odd or even? Monolayer domain size depends on diyne position in alkadiynylanthracenes," *J. Phys. Chem. B,* **2013**, *117*, 15856-65.

79. Y. Yang, M. B. Zimmt, "Shape Amphiphiles in 2-D: Assembly of 1-D Stripes and Control of Their Surface Density," *J. Phys. Chem. B,* **2015**, *119*, 7740-7748.

80. Y. Yang., M. B. Zimmt, "Shape-Directed Patterning and Surface Reaction of Tetradiacetylene Monolayers: Formation of Linear and Two-Dimensional Grid Polydiacetylene Alternating Copolymers," *Langmuir*, **2015**, *31*, 12408-12416.

81. J. He, C. Fang, R. A. Shelp, M. B. Zimmt, "Tracking Invisible Transformations of Physisorbed Monolayers: LDI-TOF and MALDI-TOF Mass Spectrometry as Complements to STM Imaging," *Langmuir*, **2017**, *33*, 459-467.

82. J. He, K. J. Myerson, M. B. Zimmt, "Zipping and Unzipping Monolayers: Switchable Monolayer Oligomerization and Adhesion via Thiol - Disulfide Interconversion," *Chemical Communications,* **2018**, *54*, 3636-3639.

83. C. Fang, H. Zhu, O. Chen, M. B. Zimmt, "Reactive two-component monolayers template bottom-up assembly of nanoparticle arrays on HOPG," *Chemical Communications,* **2018**, *54*, 8056-8059.

84. L. A. Wilczek, J. D. Geiser, C. Fang, E. G. Hicks, L. Dube, K. W. Hipps, M. B. Zimmt, "Polymerization of Physisorbed Molecular Monolayers via Overhanging Alkynyl Chains: Characterization of Polymerization Kinetics and Monolayer Durability," *Langmuir*, **2023**, *39*, 16457-16471.

6. Academic Honors: (since 1987)

Camille and Henry Dreyfus Distinguished New Faculty Awardee	1987-92
Presidential Young Investigator Award	1989-95
Camille and Henry Dreyfus Teacher Scholar Awardee	1993-98
Phillip T. Bray Award for Excellence in Teaching, Brown University	1994, 2005
National Science Foundation Grant Extension for Special Creativity	1995
Grammaticakis-Neumann Prize: Swiss Section, European Photochemical Assoc.	1996
Barrett Hazeltine Citation for Teaching Excellence from the Senior Class	1998, 2005
Electron Donor-Acceptor Gordon Conference, Chair 2006	2003
UCS Award for Teaching Excellence	2004, 2006
Royce Professor for Teaching Excellence	2011-14
Harriet W. Sheridan Award	2012

7. Updated: May 2026