

Peter A. Wade

- Education:** B. S. (Chem.): University of Massachusetts, Lowell, 1968.
Ph. D. (Org. Chem., with N. Kornblum): Purdue University, 1973.
Postdoctoral Fellow (with H. Hogeveen): Rijksuniversiteit, Groningen, The Netherlands, 1973-1974.
IBM Postdoctoral Fellow (with R. B. Woodward): Harvard University, 1974-1976.
- Employment:**
- | | |
|-----------|-------------------------------------------------------------|
| 2017- | Emeritus Professor of Chemistry, Drexel University. |
| 1987-2017 | Assoc. Professor of Chemistry, Drexel University. |
| 2003-2006 | Interim Head, Chemistry Department, CoAS, Drexel University |
| 1976-1987 | Asst. Professor of Chemistry, Drexel University. |
| 2000-2009 | Liaison, Chemistry & Biology, GCoPS, Drexel University |
| 2002-2003 | Assoc. Head, Chemistry Department, CoAS, Drexel University |
| 2006-2007 | Assoc. Head, Chemistry Department, CoAS, Drexel University |
| 2021 | Adjunct Chemistry Faculty |
- Research:** β -Hydroxy- α -nitrosulfones as Hemiacetal Mimics; [3,3]-Sigmatropic Rearrangements; The Chemistry of α -Nitrosulfones, α -Nitrosulfoximines, and *N*-(β -nitroalkyl)amides; Strained-ring Nitro Compounds; Diels-Alder Reactions of Nitroalkenes; Novel Nitro Compounds; Reactive Intermediates, Especially Nitrile Oxides and Unsaturated α -Nitrosulfones; Heterocycles in Organic Synthesis; Cycloaddition Reactions of 1,3-Dipoles; New Synthetic Methodology.
- Affiliations:** American Chemical Society (formerly Alternate Councilor, Philadelphia Section); Philadelphia Organic Chemists' Club (POCC), Chairman, 1985; Phi Lambda Upsilon.
- Funded Proposals:**
1. "Heterocycle-based Synthesis of Polyhydroxylated Amines"; ACS-PRF No 24768-AC; 1991-1995; \$40,000.
 2. "Grants to attend 9th, 10th, 11th, 13th, and 14th Annual Working Group Meetings on Synthesis of High Energy Density Materials", ARDEC (provided by Geo-Centers, Inc); 1990-1992 and 1994-1997; \$3,200.
 3. "Energetic Compounds for Use in Shaped-Charge Follow Through Devices" ERDEC; (subcontract SSP93-54; prime: Battelle RTP); 1993-1994; \$61,196.
 4. "Isoxazoline Synthesis"; Eli Lilly & Co.; 1987-1990; \$1,000.

5. "Synthesis of 1,2-Dinitrocyclopropane, 1,3-Dinitrobicyclo[1.1.0]-butane, and Related Polynitropolyhedranes"; ARDEC (subcontract GC 1686-86-005, Geo-Centers, Inc; prime DAAAA21-86-C-0101); 1987-1990; \$63,500.
6. "Synthesis of Medicinally-interesting Compounds via Isoxazoline Intermediates"; NATO; 1987-1990; \$6,000.
7. "Synthesis of Isoxazolines with Antitumor Activity"; DHHS, NCI; 1980-1983; \$185,000.
8. "New Synthetic Procedures that Utilize Heterocyclic Compounds"; PRF No. 9708-G; 1977-1979; \$9,000.

Ph.D. Students:

1. Nayan V. Amin, B.S., 1976, M.S., 1978, University of Poona, India; Ph. D., 1984, Drexel University; Postdoctoral Fellow, 1984-1986, Brandeis University (with M. Rosenblum). Employed by Chem Design, Inc., 99 Development Road, Fitchburg, Mass.
2. James F. Berezna, B. S., 1982, Ursinus College; M.S., 1984, Ph. D., 1987, Drexel University; Postdoctoral Fellow, 1987-1989, University of Pennsylvania (with M. M. Joullié). Employed by DuPont Agricultural Products Division, Experimental Station, P.O. Box 80402, Wilmington, DE.
3. David T. Price, B.A., 1981, Cedarville College; Ph. D., 1989, Drexel University. High school science teacher, Upper Dublin, PA.
4. Paul A. Kondracki, B.S., 1987, Philadelphia College of Pharmacy & Science; Ph. D., 1994, Drexel University. Employed by Naval Research Labs, Arrowhead, MD.
5. Stephen G. D'Ambrosio, B.A., 1986, Temple University; Ph. D., 1996, Drexel University, Employed by Dixie Chemical Company.
6. Sharmila Shah-Patel, B.S., West Chester University, 1991; Ph. D., 1998, Drexel University. Employed by Johnson & Johnson Pharmaceutical.
7. James K. Murray, Jr., B.S., Drexel University, 1996; Ph. D. 2003. Department Head of Chemistry, Immaculata University.
8. Steven J. Kotowich, B. S., Temple, 1997; M. S., St. Joseph University, 2002; 2009, Ph. D. Instructor, Rowan College, Burlington County, NJ.
9. Alma Pipic, B.S., Drexel University, 2005; Ph. D., 2011. Employed by U.S. Patent Office, Washington, DC.
10. Christopher Castillo, B.A., Washington & Jefferson College, 2005; 2012, Ph. D. Employed by U.S. Department of the Navy.
11. Nicholas Papparoidamis, B. S., Drexel University, 2008. Ph. D., 2013. Employed by U.S. Department of the Navy.

M. S. Students

A. Thesis option:

- 1) Chuan-Kui Yuan, 1988, employed by Smith-Kline-Glaxo Pharmaceutical Co., King of Prussia, PA.
- 2) Bruce A. Palfey, 1989. Ph. D., biochemistry (University of Michigan). Assoc. Professor of Biological Chemistry, University of Michigan, Ann Arbor, MI.
- 3) Panagiotta Tsetsakos, 2014, employed by NYC School System.
- 4) Stephanie Costa, 2016, attending Thomas Jefferson School of Medicine.

B. Non-thesis Option:

- 1) Stephen DiSanto, 1980; 2) Hwa-Kwo Yen, 1984; 3) James F. Berezna, 1984;
- 4) John E. Wentzell, 1986; 5) Paul A. Kondracki, 1990; 6) Stephen G. D'Ambrosio, 1991; 7) Damien Cole, 1992; 8) Truong Nguyen, 1994; 9) Lakshmi Govindarajan, 1995; 10) James K. Murray, Jr., 1998; 11) Ruchi Tandon, 1999; 12) Hung T. Le, 2000.
- 13) Parris Watson, 2001. 14) Daniel B. Woodall, 2001. 15) Poonam Rohilla, 2003.
- 15) C. Jared Miller, 2016.

B. S. Students:

William Eckert, B.S., 1979; Alan F. Richter, B.S. & M.S., 1981; Steven Hardinger, B.S. 1982 (Ph.D., Purdue University, 1985); Mallory S. Saft, B.S., 1981; Scott D. Morrow, B.S., 1982; Sandra J. Krajewski, B.S., 1982; Michael, S. Schwartz, B.S., 1983; Marlo S. Morgan, B.S., 1985; Stephen B. Mack, B.S., 1985; George, F. Huhn, B.S., 1985; Mark D. Hoinkis, B.S., 1986; Joseph Prol, B.S., 1989; Duncan M. McInnes, B.S., 1991; Teresa L. Kulp-Kromis, B.S., 1992; James Murray, Jr., B.S., 1996; Elaine Pennington, B.S., 1997; Mathew Zagorski, B.S., 2001; Lauren Beers, B.S., 2002; Amutha Jeyarajasingam, B.S. (Chem Eng.), 2005; Craig Paquette, B.S., 2005; Alma Pipic, 2005, Robert Arbaugh, 2005, Sujeet Govindan, B.S., 2006 (B.S./M.D. program); Igor Rusinov, B.S., 2007; Molly Mcstravick (Maryanoff Fellow, 2005) B.S., 2007, Elizabeth Dzwonek (Maryanoff Fellow, 2006) B.S., 2009, Ruoxue Feng (Maryanoff Fellow, 2007) B.S., 2010, Nicholas Pappas, B.S., 2008, Ryan Soliwoda (STAR Fellow, 2010), B.S., 2014. Neal Ryan, B.S., 2015. Jennie Liao (Maryanoff Fellow, 2012) B.S., 2015 (Ph.D., University of Delaware, 2019),

Research Publications

1. "A Mild, Nonacidic Method for Converting Secondary Nitro Compounds into Ketones": Kornblum, N.; Wade, P. A. *J. Org. Chem.* **1973**, *38*, 1418.

2. "Chemistry of the Aluminum Trichloride σ -Complex of Tetramethylcyclobutadiene": Hogeveen, H.; Jorritsma, H.; Wade, P. A.; van Rantwijk, F.; Koster, J. B.; Prooi, J. J.; Sinnema, A.; van Bekkum, H. *Tetrahedron Lett.* **1974**, 3915.
3. "Electrophilic Additions to Hexamethyl(Dewar Benzene) and Subsequent Cationic Rearrangements": Hogeveen, H.; Kwant, P. W.; Schudde, E. P.; Wade, P. A. *J. Am. Chem. Soc.* **1974**, *96*, 7518.
4. "Dynamic Behaviour of the Aluminum Trichloride σ -Complex of a 1,2-Tetramethylene- cyclobutadiene. Synthesis of 1,2- and 5,6-TetramethyleneDewarbenzene Derivatives": Grace, D.S.B.; Hogeveen, H.; Wade, P. A. *Tetrahedron Lett.* **1976**, 123.
5. "Displacement of the Nitro Group of Substituted Nitrobenzenes - a Synthetically Useful Process": Kornblum, N.; Cheng, L.; Kerber, R. C.; Kestner, M. M.; Newton, B. M.; Pinnick, H. W.; Smith, R. G.; Wade, P. A. *J. Org. Chem.* **1976**, *41*, 1560.
6. "Synthesis of 3-Substituted 2-Isoxazolines and 5,6-Dihydro-1,2,4*H*-oxazines": Wade, P. A. *J. Org. Chem.* **1978**, *43*, 2020.
7. "Benzenesulfonylnitrile Oxide. A 1,3-Dipole Exhibiting Modified Reactivity in Cycloaddition Reactions": Wade, P. A.; Hinney, H. R. *Tetrahedron Lett.* **1979**, 139.
8. "Benzenesulfonylnitrile Oxide: a Useful Intermediate for the *syn*-Cyanohydroxylation of Alkenes": Wade, P. A.; Hinney, H. R. *J. Am. Chem. Soc.* **1979**, *101*, 1319.
9. "C-Alkylation Reactions of Phenylsulfonylnitromethane. A Convenient New α -Nitro-sulphone Synthesis": Wade, P. A.; Morrow, S. D.; Hardinger, S. A.; Saft, M. S.; Hinney, H. R. *J. Chem. Soc., Chem. Commun.* **1980**, 287.
10. " α -Nitro Sulfones. 2. Convenient New Synthesis and Selected Functional Group Transformations", Wade, P. A.; Hinney, H. R.; Amin, N. V.; Vail, P. D.; Morrow, S. D.; Hardinger, S. A.; Saft, M. S. *J. Org. Chem.* **1981**, *46*, 765.
11. "Asymmetric Total Synthesis of Erythromycin. 1. Synthesis of an Erythronolide A Seco-acid Derivative *via* Asymmetric Induction": Woodward, R. B.; Logusch, E.; Nambiar, K. P.; Sakan, K.; Ward, D. E.; Au-Yeung, B. W.; Balaram, P.; Browne, L. J.; Card, P. J.; Chênevert, R. B.; Fliri, A.; Frobel, K.; Gais, H.-J.; Garratt, D. J.; Hayakawa, K.; Heggie, W.; Hesson, D. P.; Hoppe, D.; Hoppe, I.; Hyatt, J. A.; Ikeda, D.; Jacobi, P. J.; Kim, K. S.; Kobuke, Y.; Kojima, K.; Krowicki, K.; Lee, V. J.; Leutert, T.; Malchenko, S.; Martens, J.; Matthews, R. S.; Ong, B. S.; Press, J. B.; Rajan Babu, T. V.; Rousseau, G.; Sauter, H. M.; Suzuki, M.; Tatsuta, K.; Tolbert, L. M.; Uyehara, T.; Vasella, A. T.; Vladuchik, W. C.; Wade, P. A.; Williams, R. M.; Wong, H. N.-C. *J. Am. Chem. Soc.* **1981**, *103*, 3210.
12. "Asymmetric Total Synthesis of Erythromycin. 2. Synthesis of an Erythronolide A Lactone System": Woodward, R. B.; Logusch, E.; Nambiar, K. P.; Sakan, K.; Ward, D. E.; Au-Yeung, B. W.; Balaram, P.; Browne, L. J.; Card, P. J.; Chênevert, R. B.; Fliri, A.; Frobel, K.; Gais, H.-J.; Garratt, D. J.; Hayakawa, K.; Heggie, W.; Hesson, D. P.; Hoppe, D.; Hoppe, I.; Hyatt, J. A.; Ikeda, D.; Jacobi, P. J.; Kim, K. S.; Kobuke, Y.; Kojima, K.; Krowicki, K.; Lee, V. J.; Leutert, T.; Malchenko, S.; Martens, J.; Matthews, R. S.; Ong, B. S.;

Press, J. B.; Rajan Babu, T. V.; Rousseau, G.; Sauter, H. M.; Suzuki, M.; Tatsuta, K.; Tolbert, L. M.; Uyehara, T.; Vasella, A. T.; Vladuchik, W. C.; Wade, P. A.; Williams, R. M.; Wong, H. N.-C. *J. Am. Chem. Soc.* **1981**, *103*, 3213.

13. "Asymmetric Total Synthesis of Erythromycin. 3. Total Synthesis of Erythromycin": Woodward, R. B.; Logusch, E.; Nambiar, K. P.; Sakan, K.; Ward, D. E.; Au-Yeung, B. W.; Balaram, P.; Browne, L. J.; Card, P. J.; Chênevert, R. B.; Fliri, A.; Frobels, K.; Gais, H.-J.; Garratt, D. J.; Hayakawa, K.; Heggie, W.; Hesson, D. P.; Hoppe, D.; Hoppe, I.; Hyatt, J. A.; Ikeda, D.; Jacobi, P. J.; Kim, K. S.; Kobuke, Y.; Kojima, K.; Krowicki, K.; Lee, V. J.; Leutert, T.; Malchenko, S.; Martens, J.; Matthews, R. S.; Ong, B. S.; Press, J. B.; Rajan Babu, T. V.; Rousseau, G.; Sauter, H. M.; Suzuki, M.; Tatsuta, K.; Tolbert, L. M.; Uyehara, T.; Vasella, A. T.; Vladuchik, W. C.; Wade, P. A.; Williams, R. M.; Wong, H. N.-C. *J. Am. Chem. Soc.* **1981**, *103*, 3215.

14. "Benzenesulfonylcarbonitrile Oxide. 3. Useful New Procedures for Generation": Wade, P. A.; Pillay, M. K. *J. Org. Chem.* **1981**, *46*, 5425.

15. "Palladium-catalysis as a Means for Promoting the Allylic C-Alkylation of Nitro Compounds": Wade, P. A.; Morrow, S. D.; Hardinger, S. A. *J. Org. Chem.* **1982**, *47*, 365.

16. "Alkene Reductions Employing Ethyl Acetate-Hydroxylamine, a Useful New Source of Diimide": Wade, P. A.; Amin, N. V. *Synth. Commun.* **1982**, *12*, 287.

17. "Cyanogen Chloride N-Oxide Cycloadditions. A Simple, Short Route to AT-125": Wade, P. A.; Pillay, M. K.; Singh, S. M. *Tetrahedron Lett.* **1982**, *23*, 4563.

18. "Benzenesulfonylcarbonitrile Oxide. 4. Substitution Reactions of 3-Phenylsulfonyl Isoxazolines": Wade, P. A.; Yen, H.-K.; Hardinger, S. A.; Pillay, M. K.; Vail, P. D.; Morrow, S. D. *J. Org. Chem.* **1983**, *48*, 1796.

19. "Benzenesulfonylcarbonitrile Oxide. 5. Face Selectivity of Cycloaddition to Chiral Terminal Alkenes": Wade, P. A.; Singh, S. M.; Pillay, M. K. *Tetrahedron* **1984**, *40*, 601.

20. "Benzenesulfonylcarbonitrile Oxide. 6. Preparation and Reactions of Heterocyclic Sulphonyl Oximes": Wade, P. A.; Pillay, M. K. *Gazz. Chim. Ital.* **1984**, *114*, 239.

21. "Acid-catalyzed Nitronate Cycloaddition Reactions. Useful Syntheses and Simple Transformations of 3-Acyl- and 3-Alkenylisoxazolines": Wade, P. A.; Amin, N. V.; Yen, Y.-K.; Price, D. T.; Huhn, G. F. *J. Org. Chem.* **1984**, *49*, 4595.

22. "Heterodiene Conformational Control of 1,3-Asymmetric Induction. Opposite High Diastereoselectivity for Organolithium and Grignard Reagents in Carbonyl Addition to 3-Acylisoxazolines": Wade, P. A.; Price, D. T.; McCauley, J. P. *J. Org. Chem.* **1985**, *50*, 2804.

23. "Metal-hydride Reduction of Isoxazoline-3-carboxylate Esters": Caldirola, P.; De Amici, M.; De Micheli*, C.; Wade*, P. A.; Price, D. T.; Bereznak, J. F. *Tetrahedron* **1986**, *42*, 5267.

24. "*trans*-1,2-Dinitrocyclopropanes. Synthesis, Structure, and Chemical Reactivity": Wade, P. A.; Dailey, W. P.; Carroll, P. J. In *Report of the 5th Annual Working Group Institute on Synthesis of High Energy Density Materials*; ARDEC, Dover, NJ; May 20-22, 1986; pp 526-539.

25. "The Effect of Light on Electron Transfer Substitution at a Saturated Carbon Atom": Wade,

- P. A.; Morrison, H. A.; Kornblum, N. *J. Org. Chem.* **1987**, *52*, 3102.
26. "Sulfonyl Isoxazolines: Reliable Intermediates for the Preparation of *cis*- β -Hydroxynitriles": Wade, P. A.; Bereznak, J. F. *J. Org. Chem.* **1987**, *52*, 2973.
27. "Polynitro-substituted Strained-ring Compounds. Synthesis, Mechanism of Formation, and structure of *trans*-Dinitrocyclopropanes": Wade, P. A.; Dailey, W. P.; Carroll, P. J. *J. Am. Chem. Soc.* **1987**, *109*, 5452.
28. "Electron Transfer Substitution Reactions: Stereochemistry": Kornblum, N.; Wade, P. A. *J. Org. Chem.* **1987**, *52*, 5301.
29. "Synthesis Towards Dinitrobicyclobutanes, Trinitrobicyclopentanes, and Tetranitrocyclo-alkanes"; Wade, P. A.; Sivasubramanian, S.; Bereznak In *Report of the 6th Annual Working Group Institute on Synthesis of High Energy Density Materials*; Concord Hotel, Kiamesha Lake, NY; May 19-22, 1987, pp 578-594.
30. "Electron Transfer Substitution Reactions: Leaving Groups": Kornblum, N.; Ackerman, P.; Manthey, J. W.; Musser, M. T.; Pinnick, H. W.; Singaram, S.; Wade, P. A. *J. Org. Chem.* **1988**, *53*, 1475.
31. "Synthesis Directed at 1,2-Dinitrospiropentane"; Wade, P. A.; Sivasubramanian, S.; Bereznak, J. F.; Rao, J. A. In *Report of the 7th Annual Working Group Institute on Synthesis of High Energy Density Materials*; Aspen Hotel, Parsippany, NJ; June 1-3, 1988; pp 552-563.
32. "A New Route to 4-Oxygenated Isoxazolines. Application to the Synthesis of 2-Deoxy-2-aminobutose Derivatives": Wade, P. A.; Price, D. T. *Tetrahedron Lett.* **1989**, *30*, 1185.
33. "A Dihydroisoxazole-based Route to 2,3,6-Trideoxy-3-aminohexose Derivatives": Wade, P. A.; Rao, J. A.; Bereznak, J. F.; Yuan, C.-K. *Tetrahedron Lett.* **1989**, *30*, 5969.
34. "Diastereofacial Selectivity Studies on 3-Alkenyl-4,5-dihydro-4,5-diphenylisoxazoles": Wade, P. A.; Bereznak, J. F.; Palfey, B. A.; Carroll, P. J.; Dailey, W. P.; Sivasubramanian, S. *J. Org. Chem.* **1990**, *55*, 3045.
35. "Diastereofacial Selectivity Studies on 4-Substituted 3-Acyl-4,5-dihydroisoxazoles": Wade, P. A.; Price, D. T.; Carroll, P. J.; Dailey, W. P. *J. Org. Chem.* **1990**, *55*, 3051.
36. "The Synthesis of High-energy Spiropentane Derivatives"; Wade, P. A.; Kondracki, P. A. In *Report of the 9th Annual Working Group Institute on Synthesis of High Energy Density Materials*; Concord Hotel, Kiamesha Lake, NY; June 4-7, 1990, pp 432-451.
37. "Polynitro-substituted Strained-ring Compounds. II. 1,2-Dinitrospiropentanes": Wade, P. A.; Kondracki, P. A.; Carroll, P. J. *J. Am. Chem. Soc.* **1991**, *113*, 8807.
38. "Thermolytic Rearrangements of 1,1-Cyclopropanedimethanol Disulfonates: the Cyclopropylcarbiny Cation Rearrangement Revisited": Wade, P. A.; Kondracki, P. A., *J. Org. Chem.* **1993**, *58*, 3140.
39. "Hydroxylation of Dihydroisoxazoles using *N*-Sulfonyloxaziridines": Davis*, F. A.; Kumar, A.; Reddy, R. E.; Wade*, P. A.; Shah, S. S. *J. Org. Chem.* **1993**, *58*, 7591.
40. "Diastereocontrol in the Asymmetric Dihydroxylation of Chiral 3-Alkenyl-4,5-dihydro- isoxazoles": Wade, P. A.; Cole, D. T.; D'Ambrosio, S. G. *Tetrahedron Lett.* **1994**, *35*, 53.

41. "Trapping Evidence for 1,2-Dinitrospiropentene": Wade, P. A.; Kondracki, P. A. *J. Chem. Soc., Chem. Commun.* **1994**, 1263.
42. "A Useful Route to Optically Active 4-Oxygenated 4,5-Dihydroisoxazoles": Wade, P. A.; Shah, S. S.; Govindarajan, L. *J. Org. Chem.* **1994**, *59*, 7199.
43. "Nitro-substituted Cyclopropanes, Spiropentanes, and Spiropentenes": Wade, P. A.; Kondracki, P. A.; D'Ambrosio, S. G.; Shah, S. S. In *Report of the 13th Annual Working Group Institute on Synthesis of High Energy Density Materials*; Concord Hotel, Kiamesha Lake, NY; June 6-8, 1994, pp 140-154.
44. "Autoxidation of 2-(1,3-Dithianyl)lithium: a Cautionary Note": Wade, P. A.; D'Ambrosio, S. G.; Murray, J. K., Jr. *J. Org. Chem.* **1995**, *60*, 4258.
45. "2-Amino-2-deoxytetrose Derivatives. Preparation from 4,5-Dihydroisoxazoles via Reductive Cleavage": Wade, P. A.; D'Ambrosio, S. G.; Price, D. T. *J. Org. Chem.* **1995**, *60*, 6302.
46. "2-Amino-2-deoxytetrose Derivatives. 2. Preparation from D-Glyceraldehyde Acetonide: a Reinvestigation": Wade, P. A.; D'Ambrosio, S. G. *J. Carbohydr. Chem.* **1995**, *14*, 1329.
47. "Continuing Synthetic Studies Directed at Preparation of Dinitro- and Tetranitrospiropentane ": Wade, P. A.; D'Ambrosio, S. G.; Murray, J. K., Jr.; Shah, S. S. In *Report of the 14th Annual Working Group Institute on Synthesis of High Energy Density Materials*; Concord Hotel, Kiamesha Lake, NY; June 7-9, 1995, pp 44-60.
48. "Energetic Compounds for Use in Shaped-Charge, Follow-Through Devices": Wade, P. A.; Sullivan, J. D., Jr.; Turetsky, A.; Report No. ERDEC-TR-314; Chemical Research Development & Engineering Center, U.S. Armament Munitions Chemical Command; Aberdeen Proving Ground, Maryland; March, 1997.
49. "Synthesis of L-Daunosamine Derivatives on the Basis of the Asymmetric Dihydroxylation of 3-(*E*-1-Propenyl)-4,5-dihydroisoxazole": Wade, P. A.; D'Ambrosio, S. G.; Rao, J. A.; Shah-Patel, S.; Cole, D. T.; Murray, J. K., Jr.; Carroll, P. J. *J. Org. Chem.* **1997**, *62*, 3671.
50. "Tandem nitroaldol-dehydration reactions employing the dianion of phenylsulfonylnitromethane", Wade, P. A.; Murray, J. K.; Shah-Patel, S.; Palfey, B. A., Book of Abstracts, 219th ACS National Meeting, San Francisco, CA, March 26-30, 2000, ORGN-443.
51. "Tandem Nitroaldol-Dehydration Reactions Employing the Dianion of Phenylsulfonylnitromethane": Wade, P. A.; Murray, J. K., Jr.; Shah-Patel, S.; Palfey, B. A.; Carroll, P. J. *J. Org. Chem.* **2000**, *65*, 7723.
52. "Efficient protocol for conducting Diels-Alder reactions that employ α -substituted nitroethylene derivatives as the dienophile", Wade, P. A.; Murray, J. K., Jr.; Shah-Patel, S.; Carroll, P. J., Abstr. Pap. - Am. Chem. Soc. (2001), 221st ORGN-019. .
53. "Preparation, Properties, and Chemical Reactivity of α -Nitrosulfoximines, Chiral Analogs of α -Nitrosulfones" Wade, P. A.; Le, H. T.; Amin, N. V. *J. Org. Chem.* **2002**, *67*, 2859.
54. "Generation and In Situ Diels-Alder Reactions of Activated Nitroethylene Derivatives", Wade, P. A.; Murray, J. K., Jr.; Shah-Patel, S.; Carroll, P. J. *Tetrahedron Lett.* **2002**, *43*, 2585.

55. "Competing Diels-Alder Reactions of Activated Nitroethylene Derivatives and [3,3]-Sigmatropic Rearrangements of the Cycloadducts", Wade, P. A.; Murray, J. K., Jr; Shah-Patel, S.; Le, H. T. *Chem. Commun.* **2002**, 1090.
56. "A Simple Combinatorial Experiment Based on Fischer Esterification", Wade, P. A.; Rutkowsky, S. A.; King, D. A. *J. Chem. Ed.*, **2006**, *83*, 927.
57. "Reactions of (1-nitroethenyl)sulfonylbenzene, a Nitroethene Derivative Geminally Substituted by a Second W-Group", Wade, P. A.; Murray, J. K.; Pipic, A.; Arbaugh, R. J.; Jeyarajasingam, A. *J. Phys. Org. Chem.* **2009**, *22*, 337.
58. "Formation and [3,3]-sigmatropic rearrangement of O-allyl nitronic esters: a new route to γ,δ -unsaturated nitro compounds", Wade, P. A.; Le, H. T.; Pipic, A.; Manikandan, S. *Chem. Commun.* **2009**, 3531.
59. "Formation and sigmatropic rearrangement of $\text{PhCOC}(\text{NO}_2)=\text{CH}_2$ cycloadducts of 1,3-cyclohexadiene: a theoretical study", Xu, H.; Wade, P. A.; Sohlberg, K. *Tetrahedron* **2010**, *66*, 845.
60. "Sequential Diels-Alder / [3,3] Sigmatropic Rearrangement Reactions of β -Nitrostyrene with 3-Methyl-1,3-pentadiene", Wade*, P. A.; Pipic, A.; Zeller, M., Tsetsakos, P. *Beilstein. J. Org. Chem.* **2013**, *9*, 2137.
61. "A new method for functionalizing α,γ -dinitro compounds at the β -position: application to the cyclization of β -alkoxy- α,γ -dinitro compounds", Wade*, P. A.; Castillo, C. E.; Paparoidamis, N. *J. Phys. Org. Chem.* **2014**, *27*, 38.
62. "Synthesis and conjugate addition reactions of *N*-(β -nitroalkyl)amides", Wade*, P. A.; Paparoidamis, N.; Liao, J.; Manor, B. C.; DeBolt, K. *Tetrahedron Lett.* **2015**, *56*, 6722 (Cited by D. F. Taber in "Organic Chemistry Highlights", 09/12/2016).
63. "Nitration reactions of conjugated compounds employing lithium nitrate and trifluoroacetic anhydride", Wade*, P. A.; Paparoidamis, N.; Miller, C. J.; Costa, S. A. *Can. J. Chem.* **2019**, *97*, 591-596. Ahead of Print. doi: 10.1139/cjc-2019-0024.
64. "Cyclic β -hydroxy- α -nitrosulfone isomers readily equilibrate via open-chain aldehyde forms", Wade, P. A.; Tandon, R.; Carroll, P. J.; Addison, A. W. *Org. Biomol. Chem.* **2023**, 0000 [to be submitted, March 2023].

Review Chapters

1. P. A. Wade and R. M. Giuliano In "The Role of the Nitro Group in Carbohydrate Chemistry"; Chapter from: " Nitro Compounds: Recent Advances in Synthesis and Chemistry"; H. Feuer and A. T. Nielsen, Editors; VCH Publishers; New York, NY: 1990; pp 137-266.
2. P. A. Wade In "Intramolecular 1,3-Dipolar Cycloadditions"; Chapter 10 from: "Comprehensive Organic Synthesis"; Vol 4; M. Semmelhack, Ed.; Pergamon Press; New York, N.Y.: 1991; pp 1111-1168.
3. P. A. Wade In "Phenylsulfonylnitromethane"; Contribution to: "Encyclopedia of Reagents for Organic Synthesis"; S. E. Denmark and L. A. Paquette, Editors; Wiley; New York, N.Y.: 1995; Vol. 6, pp 4051-52.

Book Review

Review of the book "Dienes in the Diels-Alder Reaction": (Fringuelli, F.; Tatichi, A.) Wade, P. A. *J. Am. Chem. Soc.*, **1991**, *113*, 5493.

General Comments on Science

- 1) Rebuttal to "An Open Letter on Grants"; Friedman, M; (*Newsweek* May 18, 1981; p 99) appearing under "Letters" (*Newsweek* June 8, 1981; pp 13-14).
- 2) Wade, Peter A., "A discussion of can reaction mechanisms be proven? Comments", *J. Chem. Ed.*, **2009**, *86*, 558.

Patents

"Liquid explosive composition"; US 6,007,648; Sullivan, Jr., John D.; Wade, Peter A.; Turetsky, Abraham L.; issued 12/28/99; Assignee: The USA as represented by the Secretary of the Army (Washington, DC).

Invited Seminars (since 2000)

2001: "New Cycloaddition Methodology Based on the Chemistry of Novel Nitro Compounds", Invited symposium speaker: Feuer Symposium, West Lafayette, Indiana, Nov. 2, 2001.

2003: "Recent Developments in the Chemistry of Nitro Compounds and Nitronic Esters", Guelph – Waterloo Research Centre, University of Guelph, Guelph, Ontario, Canada, Jul. 28, 2003.

2003: "Some New Developments in the Chemistry of Nitro Compounds and Nitronic Esters", State University of New York at Albany, Albany, New York, Oct. 28, 2003.

Meeting Presentations (since 2000)

2000: "Tandem Nitroaldol-Dehydration Reactions Employing the Dianion of Phenylsulfonylnitro-methane": Wade*, P. A., Murray, J. K., Jr.; Shah-Patel, S; Palfey, B. A.; 219th ACS National Meeting, San Francisco, California.

2001: "Efficient Protocol for Conducting Diels-Alder Reactions That Employ α -Substituted Nitroethylene Derivatives as the Dienophile": Wade*, P. A.; Murray, J. K. Jr.; Shah-Patel, S.; Carroll, P. J.; 220th ACS National Meeting, San Diego, California.

2001: "Synthesis and Reactions of Two Novel 1-Nitrosulfoximines", Wade, P. A.; Le*, H. T.; College of Arts and Sciences 1st Annual Science Day, Drexel University, April 24, 2001. **This presentation won an award from the College.** The presentation was repeated at the 3rd Annual Research Day, Drexel & MCP Hahnemann Universities, 30th Street Amtrack Station, Philadelphia PA, May 1, 2001.

2001: "Synthesis, Properties, and Reactions of a Novel 1-Nitrosulfoximine", Wade, P. A.; Le*, H. T.; Thirteenth Biennial Philadelphia Organic Chemists' Day, Drexel University, May 31, 2001.

2001: "Alpha-Substituted Nitroethylenes as Dienophiles and Heterodienes in Diels-Alder Reactions", Wade, P. A.; Murray*, J. K., Jr.; Thirteenth Biennial Philadelphia Organic Chemists' Day, Drexel University, May 31, 2001. **This presentation won an award from the Philadelphia Organic Chemists' Club and matching award from Wyeth Ayerst Research.** The presentation was repeated at the 3rd Annual Research Day, Drexel & MCP Hahnemann Universities, 30th Street Amtrack Station, Philadelphia PA, May 1, 2001.

2001: "Exploratory Halogenation of *E*-1-Nitro-1-phenylsulfonyl-2-butene" Wade, P. A.; Zagorsky*, C. R.; Thirteenth Biennial Philadelphia Organic Chemists' Day, Drexel University, May 31, 2001.

2002: "Competing Diels-Alder Reactions of Activated Nitroethylene Derivatives and [3,3]-Sigmatropic Rearrangements of the Cycloadduct", Le,* H. T.; Wade, P. A.; Murray, J. K., Jr; Shah-Patel, S., 2nd Annual College of Arts & Sciences Student Research Day, 04/30/02, Behrakis Grand Hall, Drexel University, Philadelphia, PA.

2002: "Competing Diels-Alder Reactions of Activated Nitroethylene Derivatives and [3,3]-Sigmatropic Rearrangements of the Cycloadduct", Le,* H. T.; Wade, P. A.; Murray, J. K., Jr; Research Day, 05/07/02, Daskalakis Athletic Center, Drexel University, Philadelphia, PA.

2003: "Synthesis, properties, and reactions of novel nitronic esters", Peter A. Wade, and Hung T. Le, 36th Middle Atlantic Regional Meeting of the American Chemical Society, 06/10/03, Princeton, NJ.

2003: "Synthesis, Properties and Reactions of Novel Nitronic Esters", Peter A. Wade and Hung T. Le, Philadelphia Organic Chemists' Day, 05/29/03, University of Pennsylvania

2003: "The First Hemiacetal Mimic", Peter A. Wade, Poonam Rohilla, James K. Murray, Jr., and Ruchi Tandon, Philadelphia Organic Chemists' Day, 05/29/03, University of Pennsylvania.

2003: "Synthesis, Properties and Reactions of Novel Nitronic Esters", Peter A. Wade and Hung T. Le, 3rd Annual College of Arts & Sciences Student Research Day, 04/15/03, Behrakis Grand Hall, Drexel University, Philadelphia, PA.

2003: "The First Hemiacetal Mimic", Peter A. Wade, Poonam Rohilla (presenter), 3rd Annual College of Arts & Sciences Student Research Day, 04/15/03, Behrakis Grand Hall, Drexel University, Philadelphia, PA.

2003: "Synthesis, Properties and Reactions of Novel Nitronic Esters", Peter A. Wade and Hung T. Le (presenter), 04/22/03, Research Day, Daskalakis Athletic Center, Drexel University, Philadelphia, PA.

2004: "Applications of a New [3,3]-Sigmatropic Rearrangement Toward the Synthesis of Novel Nitro Compounds and Zolofit", Peter A. Wade, Hung T. Le (presenter), James K. Murray, 05/04/04, Sixth Annual Research Day, Daskalakis Athletic Center, Drexel University, Philadelphia, PA.

2004: "Novel Chemistry of β -Hydroxy- α -nitrosulfones", Poonam Rohilla (presenter), Peter A. Wade, and James K. Murray, 05/04/04, Sixth Annual Research Day, Daskalakis Athletic Center, Drexel University, Philadelphia, PA.

2004: "Tandem [4+2] Cycloaddition / [3,3] Sigmatropic Rearrangement Strategy For Diastereoselective Synthesis of Nitrodecalins", Santhanaraman Manikandan (presenting) and Peter A. Wade, 05/04/04, Sixth Annual Research Day, Daskalakis Athletic Center, Drexel University, Philadelphia, PA.

2004: "Tandem [4+2] Cycloaddition / [3,3] Sigmatropic Rearrangement Strategy For Diastereoselective Synthesis of Nitrodecalins", Santhanaraman Manikandan (presenting) and Peter A. Wade, 228th ACS National Meeting, Philadelphia PA, 08/25/04.

2005: "Application of Novel [3,3]-Sigmatropic rearrangements Toward the Synthesis of Nitro Compounds", Hung T. Le, S. Manikandan, and Peter A. Wade, ACS 5th Annual Graduate Student Poster Session, 01/27/05, Behrakis Grand Hall, Drexel University, Philadelphia, PA.

2005: "Preparation of a Heavily Functionalized Bicyclic Product via the Diels-Alder Reaction". Alma Pipic and Peter A. Wade, Fifteenth Biennial Philadelphia Organic Chemists' Club Day, 04/21/05, New Chemistry Building, University of Pennsylvania, Philadelphia, PA.

2005: "Preparation of a Heavily Functionalized Bicyclic Product via the Diels-Alder Reaction". Alma Pipic and Peter A. Wade, Fifth Annual COAS Student Research Day, Behrakis Grand Hall, 04/13/2005, Drexel University, Philadelphia, PA.

2006: "A New, General [3,3]-Sigmatropic rearrangement: Conversion of *O*-Allyl Nitronic Esters to Nitro Compounds, Peter A. Wade, Alma Pipic (presenting), Hung T. Le, and S. Manikandan, Science Research Poster Day 2006, Behrakis Grand Hall, 04/19/2006, Drexel University, Philadelphia, PA.

2009: "A new route to γ,δ -unsaturated nitro compounds via [3,3]-sigmatropic rearrangement of *O*-allyl nitronic esters", ORGN-416, Alma Pipic (presenting), Peter A. Wade, 238th ACS National Meeting, Washington, D.C., August 18, 2009.

2010: "Synthesis and Chemical Reactivity of 4-Nitro-4-Phenylsulfonyl-1-Butene", Ryan Soliwoda (presenting), Peter A. Wade, STAR Scholars Summer Showcase 2010, Drexel University, Philadelphia, PA.

2014: "Synthesis and Reactions of β -Nitroacetamides", and Nicholas Paparoidamis (presenting), Peter A. Wade, Jennie Liao, and Neal Ryan, Nineteenth Biennial Philadelphia Organic Chemists' Club Day, 04/23/14, New Chemistry Building, University of Pennsylvania, Philadelphia, PA.

Invited Discussion Group Leader

"Leadership Initiative in Science Education 4", conference held at Chemical Heritage Foundation, 315 Chestnut St., Philadelphia, PA May 20-21, 2004.

Recent Teaching Innovations

1) Since 2013, developed and updated laboratory manuals for CHEM 244, CHEM 245, CHEM 246, CHEM 248, and CHEM 249 courses. First editions of the CHEM 244 and CHEM 245 manuals were developed in collaboration with Valerie Braz, Laboratory Manager (formerly). Revised editions (CHEM 244 4th – 6th editions; CHEM 245 5th and 6th editions) are now-sole authored. CHEM 246 lab manuals are sole-authored. CHEM 249 lab manuals were developed in collaboration with Alyssa Bohlen, Laboratory Manager (current).

These manuals give highly detailed: theory and experimental procedures are included. One other institution (South Texas College) has adopted the CHEM 244 and CHEM 245 lab manuals.

2) Since 2014, development of curricula for CHEM 246, CHEM 248, and CHEM 249 Majors Organic Chemistry 1, 2, and 3. Sustainability (Green Chemistry) is a central principle that was introduced in these courses beginning in 2015. There is no presently available textbook for sophomore organic chemistry that emphasizes sustainability. This central topic has been integrated in the classroom with an available sophomore organic text (Organic Chemistry, 9th edition, L. G. Wade and J. W. Simek).

3) In 2021 incorporated multiplet simulator software into CHEM 541.

Professional Service

1) Chosen in 33 consecutive years by the Nobel Committee for Chemistry, The Royal Swedish Academy of Sciences to nominate potential laureates for the Nobel Prize for Chemistry.

2) From 2005-present, served at the request of the Commission for Academic Accreditation of the U.A.E. as a member of on-site External Review Teams (ERTs) for accreditation and reaccreditation of various University-level programs: (a) Chairperson of the ERT to review initial accreditation of a chemistry B.S. degree program at the University of Sharjah, September, 2005; (b) Member of the ERT to review initial accreditation of a chemistry B.S. degree program at the American University of Sharjah, September, 2005; (c) Member of the ERT to review renewal of accreditation for B.S. degree programs in biology, chemistry, computer science, mathematics, physics, and psychology at New York University, Abu Dhabi, November, 2015; (d) Member of the ERT to review renewal of accreditation of the chemistry B.S. program at the University of Sharjah, March, 2016; (e) Chairperson of the ERT to review initial accreditation of a chemistry B.S. degree program at Khalifa University of Science, Technology, and Research, Abu Dhabi, November, 2016; (f) Member of the ERT to review initial accreditation of Ph.D. programs in Science at United Arab Emirates University, Al Ain, September, 2019; (g) Member of the ERT to review initial accreditation of Ph.D. programs in Science at Khalifa University of Science, Technology, and Research, Abu Dhabi, May, 2020 (remote review due to COVID-19 considerations).

3) Served as a referee to *J. Am. Chem. Soc.*, *J. Org. Chem.*, *Tetrahedron Lett.*, *Tetrahedron*, *Synthesis*, *Organic Lett.*, *Can. J. Chem.* (Eng. & Fr. lang. articles), *Europ. J. Chem.*, *Europ. J. Org. Chem.*, *Angew. Chem.*, *J. Chem. Ed.*, *Monatsch. Chem.*, and various other professional journals.

4) Served as a referee on numerous PRF, NSF, and International Science Foundation research proposals. Served on an NSF review panel, February, 2015.

5) Served as a Session Chairman: (a) 187th ACS National Meeting, St. Louis Missouri, 1984; (b) 14th Annual Working Group Institute on Synthesis of High Energy Density Materials, Concord Hotel, Kiamesha Lake, New York, 1995 (c) 15th Annual Working Group Institute on Synthesis of High Energy Density Materials, Picatinny Arsenal, New Jersey, 1996.

- 6) Served as an outside reviewer in tenure & promotion decisions for two chemistry faculty members at other Ph.D. granting institutions.
- 7) Served as Coordinator for the Thirteenth Biennial Philadelphia Organic Chemists' Day, Drexel University, May 31, 2001 and for several earlier Philadelphia Organic Chemists' Day programs run at Drexel University.
- 8) Wrote GRE chemistry exam questions for the Educational Testing Service (ETS) on a yearly basis from 1998 – 2006 and 2011.
- 9) Served as the Committee Chair for a university-requested review of the Chemistry Department at Delaware State University, April 2010.

University Service

1987-1988	Asst. Department Head, Chemistry Department
1991-2003	Graduate Advisor for the Chemistry Department
1980-85	Chairman, Chem. Dept. Graduate Recruitment Committee
1990-96	Chairman, Chem. Dept. Graduate Recruitment Committee
1989-91	Faculty Senator
1994-97	Faculty Senator
1989	College of Science Dean Search Committee
1989-90	Academic Support Committee, Faculty Senate
1991	Chairman, Research Infrastructure Subcommittee
1992	Director of Graduate Admissions Search Committee
1991-1992	Faculty Senate Research Priorities Committee
1992-1994	Secretary, Faculty Club Governing Board
1994-1995	Vice-chairman, Faculty Club Governing Board
1996-1998	Chairman, Department of Chemistry, Search Committee for hiring a new chemistry Assistant Professor (J.-C. Bradley)
1996-1998	Graduate Advisory Workshop
1996-2002	Graduate Affairs Committee, Chemistry Department
2001-2003	Faculty Senator, College of Arts & Sciences
2001-2002	Chairman, Department of Chemistry, Search Committee for hiring a new chemistry Assistant Professor
2001-2003	Assoc. Department Head, Chemistry Department, College of Arts & Sciences
2003-2006	Department Head, Chemistry Department, College of Arts & Sciences
2006-2007	Assoc. Department Head, Chemistry Department, College of Arts & Sciences

2006-2007	Chairman, Department of Chemistry, Search Committee for hiring a new chemistry Assistant Professor (Jun Xi)
2008	Chairman, Mid-term Review Committee (for Daniel B. King)
2009-2012	University Committee on Learning assessment
2015-2017	Chairman, Chemistry Department Safety Committee
2015-2017	Chemistry Department Undergraduate Affairs Committee
2017	Department of Chemistry, Search Committee for hiring a new chemistry Assistant Professor (J. Scepaniak)