

DINA C. MERRER

Professor of Chemistry
Department of Chemistry, Barnard College
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Degrees in Higher Education

- May 1999* Ph.D., Organic Chemistry, Rutgers University, New Brunswick, NJ
Absolute Kinetics of Selected Singlet Carbenes: Rearrangement in Excited States,
Quantum Mechanical Tunneling, and Bystander Effects
Adviser: Robert A. Moss
- May 1994* B.A., Chemistry (*magna cum laude*, Phi Beta Kappa), Smith College, Northampton, MA
Modifications of Tin Oxide Semiconductor Electrodes with Functionalized Porphyrins
Adviser: Sharon M. Palmer

Professional Experience in Higher Education

- July 2015-present* **Professor of Chemistry**, Department of Chemistry, Barnard College, Columbia University, New York, NY
Tow Professor, 2015-2016
- July 2012-December 2014, July 2015-present* **Chair**, Department of Chemistry, Barnard College, Columbia University, New York, NY
- January-May 2015* **Visiting Research Scholar**, Department of Chemistry, University of California – Los Angeles, CA
- January-June 2012* **Assistant Chair**, Department of Chemistry, Barnard College, Columbia University, New York, NY
- July 2009-June 2015* **Associate Professor of Chemistry**, Department of Chemistry, Barnard College, Columbia University, New York, NY
Tow Associate Professor, 2014-15
- August 2001-June 2009* **Assistant Professor of Chemistry**, Department of Chemistry, Barnard College, Columbia University, New York, NY
- July 1999-July 2001* **OSU Postdoctoral Fellow**, Department of Chemistry, The Ohio State University, Columbus, OH
Advisor: Professor Matthew S. Platz
Measured the fast kinetics of novel triplet carbenes by nanosecond laser flash photolysis and time-resolved infrared spectroscopies, cryogenic matrix techniques, and ab initio computational methods; synthesized bifunctional molecules for use as covalent links between polymeric layers in organic light-emitting diodes.
- Sept. 1994-May 1999* **Graduate Research Fellow**, Department of Chemistry, Rutgers University, New Brunswick, NJ
Advisor: Professor Robert A. Moss

Synthesized benzyl and alkylhalodiazirines and acetoxydiazirines; photochemically generated carbenes and studied their fast kinetics by laser flash photolysis; determined absolute rates and Arrhenius parameters for intramolecular and intermolecular carbenic reactions by laser flash photolysis.

May 1993-May 1994 **Undergraduate Research Assistant**, Department of Chemistry, Smith College, Northampton, MA
Advisor: Professor Sharon M. Palmer
Synthesized and studied electrochemistry of functionalized porphyrins; derivatized semiconductor electrodes with porphyrins by organic coupling techniques.

Academic and Professional Honors

2015-2016 Tow Professor, Barnard College
2014-2015 Tow Associate Professor, Barnard College
2006 Gladys Brooks Teaching Award, Barnard College
1999-2000 Ohio State University Postdoctoral Fellowship
1997-1998 Department of Education GAANN Graduate Fellowship
1996 William Rieman Teaching Prize, Rutgers University
1994-1996 Excellence Graduate Fellowship, Rutgers University
1995 J.R.L. Morgan Scholarship, Rutgers University
1995 U.S. Department of Defense Graduate Fellowship, Honorable Mention
1994 Phi Beta Kappa
1994 Sigma Xi Scientific Research Honor Society

Professional Memberships

American Chemical Society
Council on Undergraduate Research
Phi Beta Kappa
Sigma Xi

Courses Taught or Forthcoming

Spring 2017 Teaching release – 2 units (Tow Professorship, Presidential Research Award)
Guided research students: Abeera Nadeem, Andromeda Urquilla

Fall 2016 CHEM BC 3231 Organic Chemistry II
Senior thesis students: Verna Estes, Alison Scorese
Guided research students: Abeera Nadeem, Andromeda Urquilla

Spring 2016 CHEM BC 3280 Advanced Organic Chemistry
Senior thesis students: Verna Estes, Alison Scorese
Guided research students: Abeera Nadeem

Fall 2015 CHEM BC 3231 Organic Chemistry II
Senior thesis students: Verna Estes, Alison Scorese
Guided research students: Abeera Nadeem, Andromeda Urquilla

Spring 2015 Senior Faculty Research Leave
Senior thesis students: Elizabeth Dalchand, Sayaka Tsuno

Fall 2014 CHEM BC 1003 Chemical Problem Solving
Senior thesis students: Elizabeth Dalchand, Sayaka Tsuno

	Guided research students: Karol Francisco, Alison Scorese
<i>Spring 2014</i>	CHEM BC 3280 Advanced Organic Chemistry Guided research students: Camilla Buzard, Elizabeth Dalchand, Sayaka Tsuno
<i>Fall 2013</i>	CHEM BC 3231 Organic Chemistry II Guided research students: Elizabeth Dalchand, Sayaka Tsuno
<i>Spring 2013</i>	CHEM BC 3338/3340 Quantitative and Instrumental Analysis Laboratory Guided research students: Elizabeth Dalchand, Faizunnahar Dewan, Alexandra Stedronsky, Kelly Terlizzi
<i>Fall 2012</i>	CHEM BC 3231 Organic Chemistry II
<i>Spring 2012</i>	CHEM BC 3230 Organic Chemistry I Senior thesis student: Viktoriya Rutkovskaya Guided research students: Aliza Stein, UI Weena
<i>Fall 2011</i>	Teaching release – 2 units (overload, mentoring of research students) Senior thesis student: Viktoriya Rutkovskaya Guided research student: Aliza Stein
<i>Spring 2011</i>	Sabbatical Senior thesis students: Marina Orman, Marlana Sheridan Guided research students: Aliza Stein, UI Weena
<i>Fall 2010</i>	CHEM BC 3231 Organic Chemistry II Senior thesis students: Marina Orman, Marlana Sheridan Guided research students: Aliza Stein, UI Weena
<i>Spring 2010</i>	CHEM BC 3230 Organic Chemistry I Senior thesis students: Linda Suen, Julia Tolentino Guided research students: Marina Orman, Aliza Stein, UI Weena
<i>Fall 2009</i>	CHEM BC 3231 Organic Chemistry II Senior thesis students: Linda Suen, Julia Tolentino Guided research students: Marina Orman, Marlana Sheridan, Aliza Stein, UI Weena
<i>Spring 2009</i>	CHEM BC 3230 Organic Chemistry I Senior thesis students: Xiao Yu Mo, Jennifer Schloss Guided research students: Stephanie Zaleski
<i>Fall 2008</i>	CHEM BC 3333/3335 Modern Techniques of Organic Chemistry Laboratory Senior thesis students: Xiao Yu Mo, Jennifer Schloss Guided research students: Linda Suen, Stephanie Zaleski
<i>Spring 2008</i>	CHEM BC 3230 Organic Chemistry I Senior thesis students: Denise Napolitano, Sonia Ortiz, Kaitlyn Suski Guided research students: Michele Guide, Xiao Yu Mo, Ida Suen
<i>Fall 2007</i>	CHEM BC 3231 Organic Chemistry II Senior thesis students: Denise Napolitano, Sonia Ortiz, Kaitlyn Suski Guided research student: Michele Guide

- Spring 2007* Teaching release – 2 units (post-SAPL course releases)
Senior thesis student: Sarah Bernard
Guided research student: Denise Napolitano
- Fall 2006* CHEM BC 3333/3335 Modern Techniques of Organic Chemistry Laboratory
Senior thesis student: Sarah Bernard
Guided research students: Karen Justiniano, Denise Napolitano, Chantel Nicolas
- Spring 2006* CHEM BC 3232 Intermediate General Chemistry
CHEM BC 3280 Advanced Organic Chemistry (with Christian Rojas)
Senior thesis student: Marina Khrapunovich
Guided research student: Chantel Nicolas
- Fall 2005* CHEM BC 3333/3335 Modern Techniques of Organic Chemistry Laboratory
Senior thesis student: Marina Khrapunovich
Guided research students: Rebecca Goldstein, Chantel Nicolas
- Fall 2004-
Spring 2005* Special Assistant Professor Leave (SAPL)
- Spring 2004* CHEM BC 3230 Organic Chemistry I
CHEM BC 3280 Advanced Organic Chemistry (new course introduced with Christian Rojas)
Guided research students: Diana Huang, Marina Khrapunovich, Lillian Seu, Ilana Vinograd
- Fall 2003* CHEM BC 3231 Organic Chemistry II
Guided research students: Diana Huang, Marina Khrapunovich, Lillian Seu
- Spring 2003* CHEM BC 3230 Organic Chemistry I
Senior thesis student: Ekaterina Zelenova
Guided research student: Annice Ormiston
- Fall 2002* CHEM BC 3231 Organic Chemistry II
Senior thesis student: Ekaterina Zelenova
- Spring 2002* CHEM BC 3368 Physical Chemistry II Laboratory
Guided research students: Aidan Flaherty, Ekaterina Zelenova
- Fall 2001* CHEM BC 3231 Organic Chemistry II
Guided research student: Aidan Flaherty

Research Students (42 total since 2001)

Sadia Ahmed (Barnard '16, summer research)
 Sarah Bernard (Barnard '07, senior thesis/summer research)
 Cam Buzard (Barnard '16, summer research)
 Elizabeth Dalchand (Barnard '15, senior thesis/summer research/guided research)
 Faizunnahar Dewan (Barnard '13, summer research/guided research)
 Verna Estes (Barnard '16, senior thesis/summer research)
 Aidan Flaherty (Barnard '04, independent study)
 Karol Francisco (Barnard '17, summer research/guided research)
 Rebecca Goldstein (Barnard '07, guided research)
 Michele Guide (Barnard '09, summer research)
 Camille Houferak (Barnard '15, summer research)
 Diana Huang (Barnard '05, summer research/guided research)
 Karen Justiniano (Barnard '08, guided research)
 Marina Khrapunovich (Barnard '06, senior thesis/summer research/guided research)
 Siobhán MacArdle (Barnard '14, summer research)
 Xiao Yu Mo (Barnard '09, senior thesis/summer research/guided research)
 Abeera Nadeem (Barnard '18, summer research/guided research)
 Denise Napolitano (Barnard '08, senior thesis/summer research/guided research)
 Chantel Nicolas (Barnard '07, summer research/guided research)
 Annice Ormiston (Barnard '05, guided research)
 Marina Orman (Barnard '11, senior thesis/summer research/guided research)
 Sonia Ortiz (Barnard '08, senior thesis/summer research)
 Viktoriya Rutkovskaya (Barnard '12, senior thesis/summer research)
 Alexis Sabo (Barnard '03, summer research)
 Yielia Saperstein (Barnard '19, summer research)
 Jennifer Schloss (Barnard '09, senior thesis/summer research)
 Alison Scorese (Barnard '16, senior thesis/summer research/guided research)
 Ulweena Sethi (Barnard '12, summer research/guided research)
 Lillian Seu (Barnard '05, guided research)
 Marlana Sheridan (Barnard '11, senior thesis/summer research/guided research)
 Alexandra Stedronsky (Barnard '15, guided research)
 Aliza Stein (Barnard '12, guided research)
 Ida Suen (Barnard '08, guided research)
 Linda Suen (Barnard '10, senior thesis/summer research/guided research)
 Kaitlyn Suski (Barnard '08, senior thesis/summer research)
 Kelly Terlizzi (Barnard '15, summer research)
 Julia Tolentino (Barnard '10, senior thesis/summer research)
 Sayaka Tsuno (Barnard '15, senior thesis/guided research)
 Andromeda Urquilla (Barnard '18, summer research/guided research)
 Ilana Vinograd (Barnard '05, guided research)
 Stephanie Zaleski (Barnard '11, summer research/guided research)
 Ekaterina Zelenova (Barnard '03, senior thesis/guided research)

Publications and Creative Work (undergraduate co-workers underlined)Journal Articles

- (12) Hare, S. R.; Orman, M.; Dewan, F.; Dalchand, E.; Buzard, C.; Ahmed, S.; Tolentino, J. C.; Sethi, U.; Terlizzi, K.; Houferak, C.; Stein, A. M.; Stedronsky, A.; Thamattoor, D. M.; Tantillo, D. J.; Merrer, D. C. Experimental and Computational Mechanistic Investigation of Chlorocarbene Additions to Bridgehead Carbene-anti-Bredt Systems: Noradamantylcarbene-Adamantene and Adamantylcarbene-Homoadamantene, *J. Org. Chem.* **2015**, *80*, 5049-5065.
- (11) Merrer, D. C.; Doubleday, C. Dynamic Control of Dichlorocarbene Addition to Cyclopropene, *J. Phys. Org. Chem.* **2011**, *24*, 947-951.
- (10) Mo, X. Y.; Bernard, S. E.; Khrapunovich, M.; Merrer, D. C. A Computational Study of Chlorocarbene Additions to Cyclooctyne, *J. Org. Chem.* **2008**, *73*, 8537-8544.

- (9) Khrapunovich, M.; Zelenova, E.; Seu, L.; Sabo, A. N.; Flaherty A.; Merrer, D. C. Regioselectivity and Mechanism of Dihalocarbene Addition to Benzocyclopropene, *J. Org. Chem.* **2007**, *72*, 7574-7580.
- (8) Merrer, D. C.; Rablen, P. R. Dichlorocarbene Addition to Cyclopropenes: A Computational Study, *J. Org. Chem.* **2005**, *70*, 1630-1635.
- (7) Merrer, D. C.; Ozdetinkaya, S.; Shinnar, A. E. Experimental and Theoretical Ultraviolet Spectra of Haloindoles, *Tetrahedron Lett.* **2004**, *45*, 4899-4902.
- (6) Moss, R. A.; Johnson, L. A.; Merrer, D. C.; Lee, G. E. Jr. Carbenes as Substrates: Bimolecular Fragmentation of Alkoxychlorocarbenes, *J. Am. Chem. Soc.* **1999**, *121*, 5940-5944.
- (5) Moss, R. A.; Merrer, D. C. Structure-Reactivity Dependence in the Rearrangements of a Family of Alkylacetoxycarbenes, *Tetrahedron Lett.* **1998**, *39*, 8067-8070.
- (4) Merrer, D. C.; Moss, R. A.; Liu, M. T. H.; Banks, J. T.; Ingold, K. U. Benzylchlorocarbene: Origins of Arrhenius Curvature in the Kinetics of the 1,2-H Shift Rearrangement, *J. Org. Chem.* **1998**, *63*, 3010-3016.
- (3) Moss, R. A.; Maksimovic, L.; Merrer, D. C. Benzylfluorocarbene: Reactions and Kinetics, *Tetrahedron Lett.* **1997**, 7049-7052.
- (2) Moss, R. A.; Merrer, D. C. Absolute Kinetics of Mesitylmethylchlorocarbene Reactions, *J. Chem. Soc., Chem. Commun.* **1997**, 617-618.
- (1) Moss, R. A.; Ma, W.; Merrer, D. C.; Xue, S. Conversion of 'Obstinate' Nitriles to Amidines by Garigipati's Reaction, *Tetrahedron Lett.* **1995**, 8761-8764.

Book Chapters

- (3) D'Angelo, H.; McGuire, K. L.; Gillikin, C. M.; Merrer, D. C. Evaluating the Impact of Oil Palm Agriculture and Logging on Soil Microbial Communities, in *Land-use Change Impacts on Soil Processes*; Brearley, F. Q.; Thomas, A. D., Eds.; CABI: U.K., 2015, in press.
- (2) Merrer, D. C.; Houk, K. N.; Xu, L. Dynamics in Carbene Reactions, in *Contemporary Carbene Chemistry*; Moss, R. A.; Doyle, M. P., Eds.; Wiley: Hoboken, NJ, 2013, pp 131-165.
- (1) Merrer, D. C.; Moss, R. A. Kinetics of Intramolecular Carbene Reactions, in *Advances in Carbene Chemistry*; Brinker, U. H., Ed.; JAI Press: Greenwich, CT, 2001, Vol. 3, pp 53-113.

Other

Merrer, D. C.; Platz, M. S. Preface to Special Issue, *J. Phys. Org. Chem.* **2011**, *24*, 865.

Conference Presentations

- (27) (forthcoming) Nadeem, A.; Urquilla, A.; Saperstein, Y.; Estes, V.; Scorese, A.; Dalchand, E.; Tsuno, S.; Merrer, D. C. Reactivity and Dynamics of Chlorocarbene Additions to Dibenzocyclooctyne, 253rd National Meeting of the American Chemical Society, Division of Organic Chemistry, San Francisco, CA, April 2017.
- (26) Estes, V.; Scorese, A.; Nadeem, A.; Urquilla, A.; Dalchand, E.; Tsuno, S.; Merrer, D. C. Mechanism of Chlorocarbene Additions to Diarylcyclooctynes, 251st National Meeting of the American Chemical Society, Division of Chemical Education, San Diego, CA, March 2016.
- (25) Tsuno, S.; Yang, Z.; Dalchand, E.; Estes, V.; Nadeem, A.; Urquilla, A.; Houk, K. N.; Merrer, D. C. Mechanisms and Dynamics of Chlorocarbene Additions to Diarylcyclooctynes, Gordon Research Conference on Physical Organic Chemistry, Plymouth, NH, June 2015.
- (24) Dalchand, E.; Tsuno, S.; Scorese, A.; Francisco, K.; Buzard, C.; Merrer, D. C. Phenylchlorocarbene Additions to Diarylcyclooctynes and Diarylcyclooctenes, 249th National Meeting of the American Chemical Society, Division of Organic Chemistry, Denver, CO, March 2015.
- (23) Dalchand, E.; Buzard, C.; Tsuno, S.; Ahmed, S.; Scorese, A.; Francisco, K.; Dewan, F.; Terlizzi, K.; Orman, M.; Thamattoor, D. M.; Merrer, D. C. Phenylchlorocarbene Additions to Strained C-C π Systems: Mechanisms and Kinetics, Reaction Mechanisms Conference, Davis, CA, June 2014.
- (22) Dalchand, E.; Ahmed, S.; Buzard, C.; Tsuno, S.; Dewan, F.; Terlizzi, K.; Orman, M.; Thamattoor, D. M.; Merrer, D. C. Mechanisms and Kinetics of Phenylchlorocarbene Additions to Adamantene and Adamantylcarbene, 247th National Meeting of the American Chemical Society, Division of Organic Chemistry, Dallas, TX, March 2014.
- (21) Dewan, F.; Houferak, C.; Terlizzi, K.; Orman, M.; Merrer, D. C. Photochemistry of Chlorocarbene Additions to Noradamantylidiazirine: Mechanistic Investigations, 245th National Meeting of the American Chemical Society, Division of Organic Chemistry, New Orleans, LA, April 2013.

- (20) [Rutkovskaya, V.](#); [Stein, A.](#); Orman, M.; [Weena, U.](#); Merrer, D. C. Halocarbene Additions to Strained C-C π Bonds: Mechanistic Surprises, 243rd National Meeting of the American Chemical Society, Division of Organic Chemistry, San Diego, CA, March 2012.
- (19) [Orman, M.](#); [Tolentino, J.](#); [Weena, U.](#); [Rutkovskaya, V.](#); [MacArdle, S.](#); Merrer, D. C. Reaction Dynamics and Other Mechanistic Possibilities in Carbene Additions to Strained C-C π Bonds, Gordon Research Conference on Physical Organic Chemistry, Plymouth, NH, June 2011.
- (18) [Sheridan, M.](#); [Orman, M.](#); [Tolentino, J.](#); [Weena, U.](#); [Stein, A.](#); Merrer, D. C. Intermolecular Chemistry of Dichlorocarbene Additions to Strained C-C π Bonds – Finding the Dynamics Threshold, 241st National Meeting of the American Chemical Society, Division of Chemical Education, Anaheim, CA, March 2011.
- (17) [Sheridan, M.](#); [Orman, M.](#); [Weena, U.](#); [Suen, L.](#); [Tolentino, J.](#); Merrer, D. C. Dihalocarbene Additions to Strained C-C Bonds. Reaction Mechanisms Conference, Amherst, MA, June 2010.
- (16) [Suen, L.](#); [Tolentino, J.](#); [Mo, X. Y.](#); [Sheridan, M.](#); [Zaleski, S.](#); Merrer, D. C. Halocarbene Additions to Strained Cyclic π and σ C-C Bonds, 239th National Meeting of the American Chemical Society Division of Organic Chemistry, San Francisco, CA, March 2010.
- (15) [Mo, X. Y.](#); [Schloss, J.](#); [Suen, L.](#); [Zaleski, S.](#); [Sheridan, M.](#); [Tolentino, J.](#); [Weena, U.](#); Merrer, D. C. Who's in Charge? Halocarbene Additions to Strained C-C Bonds. International Symposium on Reactive Intermediates and Unusual Molecules, Prague, Czech Republic, July 2009.
- (14) [Mo, X. Y.](#); [Schloss, J.](#); [Suen, L.](#); [Zaleski, S.](#); Merrer, D. C. Dynamical Control of Intermolecular Carbene Reactions. 237th National Meeting of the American Chemical Society, Division of Organic Chemistry, Salt Lake City, UT, March 2009.
- (13) [Mo, X. Y.](#); [Bernard, S. E.](#); [Napolitano, D.](#); [Suski, K.](#); [Khrapunovich, M.](#); Merrer, D. C. Mechanistic Investigation of Halocarbene Additions to Cyclooctyne. Reaction Mechanisms Conference, Chapel Hill, NC, June 2008.
- (12) [Napolitano, D.](#); [Ortiz, S.](#); [Suski, K.](#); [Khrapunovich, M.](#); [Guide, M.](#); Merrer, D. C. Halocarbene Additions to Strained Cyclic C-C π and σ Bonds. 235th National Meeting of the American Chemical Society, Division of Organic Chemistry, New Orleans, LA, April 2008.
- (11) [Bernard, S. E.](#); [Napolitano, D. C.](#); [Suski, K.](#); [Khrapunovich, M.](#); Merrer, D. C. Mechanisms of Halocarbene Additions to Cyclooctyne: An Experimental and Theoretical Investigation. 233rd National Meeting of the American Chemical Society, Division of Organic Chemistry, Chicago, IL, March 2007.
- (10) [Bernard, S. E.](#); Merrer, D. C. Computational Study of Chlorocarbene Addition to Cyclooctyne. Mercury Conference on Computational Chemistry, Clinton, NY, July 2006.
- (9) [Khrapunovich, M.](#); [Zelenova, E.](#); [Flaherty, A.](#); [Seu, L.](#); [Sabo, A. N.](#); Merrer, D. C. Regioselectivity and Mechanism of :CX₂ Addition to Benzocyclopropene. Reaction Mechanisms Conference, College Park, MD, June 2006.
- (8) [Nicolas, C. I.](#); Merrer, D. C.; Addition of Dihalocarbenes to Benzyl[1.1.1]propellane. 231st National Meeting of the American Chemical Society, Division of Organic Chemistry, Atlanta, GA, March 2006.
- (7) Merrer, D. C.; Doubleday, C. E., Jr. Dynamics of Carbene Addition to Cyclopropene. 2005 International Chemical Congress of Pacific Basin Societies (Pacifichem), Honolulu, HI, December 2005.
- (6) [Khrapunovich, M.](#); [Zelenova, E.](#); [Flaherty, A.](#); [Seu, L.](#); [Sabo, A. N.](#); Merrer, D. C. Regioselectivity and Mechanism of :CX₂ Addition to Benzocyclopropene. 2005 Gordon Conference on Physical Organic Chemistry, Plymouth, NH, June 2005.
- (5) Merrer, D. C.; [Zelenova, E.](#); [Khrapunovich, M.](#); [Huang, D.](#); [Seu, L.](#); [Sabo, A. N.](#) Singlet Carbene Additions to Strained Benzannulated Rings. 227th National Meeting of the American Chemical Society, Division of Organic Chemistry, Anaheim, CA, March 2004.
- (4) [Zelenova, E.](#); Merrer, D. C.; Addition of Singlet Carbenes to Benzocyclopropene. 225th National Meeting of the American Chemical Society, Division of Organic Chemistry, New Orleans, LA, March 2003.
- (3) Merrer, D. C. Dichlorocarbene Addition to Cyclopropenes: A Computational Study. 225th National Meeting of the American Chemical Society, Division of Organic Chemistry, New Orleans, LA, March 2003.
- (2) Merrer, D. C.; [Flaherty, A.](#) Theoretical Study of Dichlorocarbene Addition to Cyclopropenes. Reaction Mechanisms Conference, Columbus, OH, July 2002.
- (1) Merrer, D. C.; Moss, R. A. Bystander Effects in Related Acetoxycarbenes. 216th National Meeting of the American Chemical Society, Division of Organic Chemistry, Boston, MA, August 1998.

Invited Lectures

- (29) (forthcoming) Good Behavior is Overrated: Carbene Additions to Strained Bonds, International Symposium on Reactive Intermediates and Unusual Molecules, Sorrento, Italy, June 2017.
- (28) (forthcoming) The Valley of Fear(lessness): Carbene Mysteries, James Flack Norris Award Symposium, 253rd National Meeting of the American Chemical Society, Division of Organic Chemistry, San Francisco, CA, April 2017.
- (27) (forthcoming) Good Behavior is Overrated: Carbene Additions to Strained Bonds, Swarthmore College, February 2017.
- (26) Mechanisms of carbene additions to strained C-C π bonds, Symposium on Reactive Intermediates and Unusual Molecules, International Chemical Congress of Pacific Basin Societies (Pacifichem), Honolulu, HI, December 2015.
- (25) Carbene Reactivity: Who's in Charge?, Houk Group Meeting, University of California, Los Angeles, CA, March 2015.
- (24) Carbene Reactivity: Who's in Charge?, James Flack Norris Award Symposium, 247th National Meeting of the American Chemical Society, Division of Organic Chemistry, Dallas, TX, March 2014.
- (23) Halocarbene Additions to Strained C-C π Bonds: Mechanistic Surprises, Mesilla Chemistry Workshop: Tribute to Sally Chapman on the Studies of the Chemical Dynamics of Energy Transfer and Chemical Reactions, Mesilla, NM, February 2014.
- (22) Halocarbene Additions to Strained C-C π Bonds: Mechanistic Surprises, Reaction Mechanisms Conference, Columbia, MO, June 2012.
- (21) Dynamic Control of Carbene Reactions to Strained C-C Bonds, CUNY – York College, March 2012.
- (20) Dynamic Control of Carbene Reactions to Strained C-C Bonds, Brigham Young University, November 2011.
- (19) Dynamic Control of Carbene Reactions to Strained C-C Bonds, Symposium on Reactive Intermediates and Unusual Molecules, International Chemical Congress of Pacific Basin Societies (Pacifichem), Honolulu, HI, December 2010.
- (18) Carbenes Behaving Dynamically: Additions to Strained Bonds, Mount Holyoke College, September 2009.
- (17) Expect the Unexpected: Carbene Additions to Strained Systems, University of Nevada, Reno, NV, September 2008.
- (16) Carbenes Behaving Badly: Violating Transition State Theory, NSF Workshop on Physical Organic Chemistry, Lake Tahoe, CA, September 2008.
- (15) Expect the Unexpected: Carbene Additions to Strained Systems, Columbia University, New York, NY, March 2008.
- (14) Expect the Unexpected: Carbene Additions to Strained Rings, Gordon Research Conference on Physical Organic Chemistry, Plymouth, NH, June 2007.
- (13) Mechanisms of Carbene Addition to Cyclopropenes: Dynamics and Strain, Brooklyn College, Brooklyn, NY, May 2007.
- (12) Mechanisms of Carbene Addition to Cyclopropenes: Dynamics and Strain, Rutgers University, New Brunswick, NJ, May 2007.
- (11) Dynamics in the Mechanisms of Carbene Additions to Strained C-C Bonds, 233rd National Meeting of the American Chemical Society, Chicago, IL, March 2007.
- (10) Carbenes Behaving Dynamically: Additions to Cyclopropenes, Colby College, Waterford, ME, February 2007.
- (9) Mechanisms of Carbene Addition to Cyclopropenes: Dynamics and Strain, University of Maryland, College Park, MD, October 2006.
- (8) Mechanisms of Carbene Addition to Cyclopropenes: Dynamics and Strain, Johns Hopkins University, Baltimore, MD, October 2006.
- (7) Regioselectivity and Mechanism of $:CX_2$ Addition to Benzocyclopropene, Reaction Mechanisms Conference, College Park, MD, June 2006.
- (6) Chemistry + Carbenes = Career, General Electric Fellowship Program for minority students in the sciences, Barnard College, New York, NY, April 2006.
- (5) Mechanisms of Carbene Additions to Cyclopropenes: Dynamics and Strain, Columbia University, New York, NY, March 2006.
- (4) Carbene Addition to Cyclopropenes: Mechanistic Reconsiderations, Long Island University, Brooklyn, NY, October 2005.

- (3) Carbenes Behaving Dynamically: Addition to Cyclopropene, Smith College, Northampton, MA, April 2005.
- (2) Carbenes Behaving Dynamically, Organic Chemistry Celebration, Barnard College, New York, NY, February 2005.
- (1) A Mechanistic Mystery: Carbene Addition to Cyclopropenes, Western Connecticut State University, Danbury, CT, April 2003.

Research Grants

Prior Grants

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| <i>July 2012-
August 2016</i> | PI, Petroleum Research Fund, American Chemical Society, 52099-UR4, \$65,000
Mechanisms and Dynamics of Carbene Additions to Anti-Bredt Olefins |
| <i>January 2015-
July 2015</i> | PI, Barnard College Minigrant, \$8,000
Dynamics of Carbene Additions to Aryl Cyclooctynes |
| <i>June 2009-
September
2014</i> | PI, National Science Foundation, CHE-0844034, \$283,626
Dynamic Control of Electrophilic Carbene Additions to Strained Cyclic C-C Bonds |
| <i>October 2011-
October 2013</i> | PI, National Center for Supercomputing Applications, TG CHE-110091, 1.1M SU
Dynamics of Carbene Additions to Benzocyclopropene |
| <i>August 2010-
August 2012</i> | PI, National Center for Supercomputing Applications, TG CHE-100133, 50,000 SU
Reaction Dynamics of Dichlorocarbene Additions to Cyclopropenes |
| <i>May 2010-April
2013</i> | Co-PI, National Science Foundation, CHE-0959177, \$166,668
MRI-R ² : Acquisition of UV-Vis-NIR, FT-IR, and Fluorescence Spectrometric Instrumentation
Barnard Chemistry Department grant (PI, Marisa Buzzeo; co-PIs Christian Rojas, John Magyar, Alison Williams) |
| <i>Sept. 2005-
August 2009</i> | PI, National Science Foundation, CHE-0517876, \$201,000
Mechanisms of Electrophilic Carbene Additions to Strained Cyclic C-C Bonds |
| <i>March 2003-
March 2006</i> | Co-PI, National Science Foundation, CHE-0234660, \$90,049
A High Resolution GC/MS/FID for Undergraduate Research in Chemistry |
| <i>June 2002-
June 2004</i> | PI, Cottrell College Science Award, Research Corporation, CC5551, \$35,000
Relative and Absolute Kinetic Studies of Stable Nucleophilic Carbenes |
| <i>May 2002-
August 2004</i> | PI, Petroleum Research Fund, American Chemical Society, 37969-GB4, \$35,000
Mechanisms of Intramolecular Ring Expansions: Additions of Carbenes to Strained Cyclic Systems |
| <i>May 2002-May
2003</i> | PI, National Center for Supercomputing Applications, 10,000 cpu hours
Mechanisms of Carbene Additions to Strained Cyclic Systems |
| <i>June 2002-
August 2002</i> | PI, New York Science Education Program Summer Undergraduate Fellowship to Alexis N. Sabo (BC '03), \$4,000
The Mechanism of Electrophilic Carbene Addition to Benzocyclopropene: Concerted or Stepwise? |

Active Grants

- | | |
|------------------------------------|---|
| <i>Sept. 2016-
August 2019</i> | PI, National Science Foundation, CHE-1566361, \$310,000
RUI: Mechanisms, Kinetics, and Dynamics of Carbene Additions to Diarylcyclooctynes |
|------------------------------------|---|

Sept. 2016-
August 2018 PI, Barnard College Presidential Research Award, \$50,000
Collaborations in Experimental and Computational Chemical Detective Work:
Determining Rogue Organic Reactions

Service

Service to Barnard College

2012-Jan. 2017 Chair, Chemistry Department
 Fall 2016 Barnard College Presidential Task Force on Diversity and Inclusion
 Fall 2016 Barnard College Chair of Chairs
 2014-present Faculty Finance and Resources Committee (FFRC)
 2002-present Chemistry Department faculty search committees – 14 total
 2002-present Pre-major and major adviser
 2013-2015 Pre-Health Professions Committee
 2013-2015 Barnard College Curriculum Review, Departments/Majors Committee
 2011-2014 Phi Beta Kappa, Barnard Chapter - Secretary
 Spring 2013 Chair, Committee on Grievance
 2009-2013 Faculty Governance and Procedures Committee – Chair, Spring 2011, Spring 2012
 Spring 2012 Assistant Chair, Chemistry Department
 2010 Dean of the College Search Committee
 2008-2011,
2003-2004 Committee on Instruction
 2008-2009 Columbia University Athletics Advisory Committee
 2007-2008 Tenure Process Review Committee
 2005-2008 Board of Trustees Committee on Student Life
 2005-2007 Student Life Committee
 2005-2007 Committee on Honors
 2002-2004 Committee on Programs and Academic Standing
 May 2003 Faculty representative for Five Sisters admissions recruiting events in NYC and Chicago
 Fall 2002, 2003 Participant in SGA town hall meetings: diversity on campus
 honor code
 2001-2002 Faculty teller for faculty elections
 April 2002 Panelist: "What is graduate school like?" for Barnard undergraduates

Service to Columbia University (CU)

2009-present Barnard Chemistry evaluation of CU Chemistry promotion and tenure cases
 2001-present CU Chemistry Ph.D. thesis examination committees (19 students to-date)
 2001-2013 Run CU Organic Chemistry problem sessions – average 1-2 per year
 2001-2013 Participant in weekly Columbia organic chemistry seminars and problem sessions

Service to the Profession

2005-present Article reviewer: *Journal of the American Chemical Society*, *Chemical Reviews*, *Journal of Organic Chemistry*, *Journal of Physical Organic Chemistry*, *Beilstein Journal of Organic Chemistry*, *Tetrahedron Letters*
 2002-present Ad-hoc grant proposal reviewer: NSF, PRF
 2016 Co-chair, Reaction Mechanisms Conference
 2010-2016 Reaction Mechanisms Conference Governing Board
 February 2015 Panel reviewer (only member from a PUI), Chemical Structure, Dynamics, and Mechanisms B, NSF
 May 2010-
October 2011 Guest editor, special issue of the *Journal of Physical Organic Chemistry* on Reactive Intermediates and Unusual Molecules, published October 2011 (Vol. 24, issue 10).
 June 2009 Participant in Mellon 23 Intellectual Life Conference, Amherst College, Amherst, MA
 April 2006 Participant in Changing the Face of Science and Engineering Women in Science conference, Smith College, Northampton, MA

- November 2005* Liberal arts college panelist for NSF-sponsored workshop for postdoctorals and graduate students on Academic Careers in Chemistry, Eastern Analytical Symposium, Somerset, NJ
- August 2003* Participant in an NSF-sponsored summit about research at predominantly undergraduate institutions, Bates College, Lewiston, ME