

Curriculum Vitae
Gary W. Breton, Ph.D.

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|----------------------------------------|------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Education | 1987- 1991 | Massachusetts Institute of Technology <i>Cambridge, Massachusetts</i> Ph.D., August 1991 Major: Organic Chemistry Advisor: Dr. Frederick Greene |
| | 1983- 1987 | SUNY at Stony Brook <i>Stony Brook, New York</i> B.S., May 1987 Major: Chemistry Advisor: Dr. Robert Kerber |
| Positions | 2014- present | Dean of the School of Mathematical and Natural Sciences Berry College <i>Mount Berry, Georgia</i> |
| | 2013- 2014 | Interim Dean of the School of Mathematical and Natural Sciences Berry College <i>Mount Berry, Georgia</i> |
| | 2013- present | Callaway Professor of Chemistry Berry College <i>Mount Berry, Georgia</i> |
| | 2008- 2013 | Professor of Chemistry Berry College <i>Mount Berry, Georgia</i> |
| | 2007- 2010 | Chair, Department of Chemistry Berry College <i>Mount Berry, Georgia</i> |
| | 2001- 2004 | Chair, Department of Chemistry Berry College <i>Mount Berry, Georgia</i> |
| | 2000- 2007 | Associate Professor of Chemistry Berry College <i>Mount Berry, Georgia</i> |
| | 1994- 2000 | Assistant Professor of Chemistry Berry College <i>Mount Berry, Georgia</i> |
| Related Professional Experience | 1991- 1994 | Postdoctoral Research Associate University of North Carolina at Chapel Hill <i>Chapel Hill, North Carolina</i> Advisor: Dr. Paul Kropp |

Publications

Book Contributions

“Hydrogen Bromide” Breton, G. W.; Kropp, P. J. in the *Encyclopedia of Reagents for Organic Synthesis*, Paquette, L. A., Ed.; Wiley: New York, 1995, p 2704.

“Hydrogen Chloride” Breton, G. W.; Kropp, P. J. in the *Encyclopedia of Reagents for Organic Synthesis*, Paquette, L. A., Ed.; Wiley: New York, 1995, p 2707.

“Hydrogen Iodide” Breton, G. W.; Kropp, P. J.; Harvey, R. G. in the *Encyclopedia of Reagents for Organic Synthesis*, Paquette, L. A., Ed.; Wiley: New York, 1995, p 2728.

“Hydrazoic Acid” Breton, G. W.; Kropp, P. J. in the *Encyclopedia of Reagents for Organic Synthesis*, Paquette, L. A., Ed.; Wiley: New York, 1995, p 2685

Scholarly Research Articles

“Factors affecting the dimerization of persistent nitrogen-centered 1-phenyl urazole radicals to tetrazanes” Breton, G. W. *Journal of Physical Organic Chemistry*, **2018**, 31(6):e3808.

“DFT study of ortho, meta and para-pyridyl cations. Pyridinium found?” Breton, G. W. *Computational and Theoretical Chemistry*, **2018**, 1133, 51-57.

“Unanticipated formation of a novel octaazacyclodecane ring upon oxidation of a 1,1-bis-urazole” Breton, G. W. Martin, K. L. *Acta Crystallographica Section C*, **2018**, C74, 558-563.

“Computational, ¹H NMR, and X-ray structural studies on 1-arylurazole tetrazane dimers” Martin, K. L.; Breton, G. W. *Acta Crystallographica Section C*, **2017**, C73, 660-666.

“An *ab initio* Study of the Effect of Substituents on the $n \rightarrow \pi^*$ Interactions between 7-Azaindole and 2,6-Difluorosubstituted Pyridines” Singh, S. K.; Das, A.; Breton, G. W. *Journal of Physical Chemistry A*, **2016**, 6258-6269.

“Intermediacy of Persistent Urazole Radical and an Electrophilic Diazenium Species in the Acid-Catalyzed Reaction of MeTAD with Anisole” Breton, G. W.; Suroviec, A. H. *Journal of Organic Chemistry*, **2016**, 81, 206-214.

“Substituted 2-(Dimethylamino)biphenyl-2'-carboxaldehydes as Substrates for Studying $n \rightarrow \pi^*$ Interactions and as a Promising Framework for Tracing the Bürgi–Dunitz Trajectory” Breton, G. W.; Crasto, C. J. *Journal of Organic Chemistry*, **2015**, 80, 7375-7384.

“Unexpected Sigma Bond Rupture during the Reaction of N-Methyl-1,2,4-triazoline-3,5-dione with Acenaphthylene and Indene” Breton, G. W.; Hughes, J. S.; Pitchko, T. J.; Martin, K. M.; Hardcastle, K. *Journal of Organic Chemistry*, **2014**, 79, 8212-8220.

“Alternative Synthetic Routes to N-Methyl-1,2,4-triazoline-3,5-dione (MeTAD) and other Triazolinedione derivatives” Breton, G. W.; Turlington, M. *Tetrahedron Lett.* **2014**, 55, 4661-4663.

“Convenient Synthesis of Monobenzylated Hydrazides via Aqueous Zinc-Mediated Addition Reactions” Breton, G. W. *Synthetic Commun.*, **2014**, 44, 1128-1136.

“Application of Radical Cation Spin Density Maps toward the Prediction of Photochemical Reactivity between N-Methyl-1,2,4-triazoline-3,5-dione and Substituted Benzenes” Breton, G. W.; Hoke, K. R. *Journal of Organic Chemistry*, **2013**, 78, 4697-4707.

“Acid-Catalyzed Reactions of N-Methyl-1,2,4-Triazoline-3,5-Dione (MeTAD) with Some Polyaromatic Hydrocarbons” Breton, G. W. *Advanced Chemistry Letters*, **2013**, 1, 68-73.

- “Synthesis of Monoaryl Hydrazides via the BF₃ Catalyzed Reaction of Diethyl Azodicarboxylate with Substituted Benzenes” Breton, G. W.; Grigalunas, M. J.; Hughes, J. S. *American Journal of Organic Chemistry*, **2012**, *26*, 132-135.
- “One-Pot Synthesis of Novel 2,3-Dihydro-1H-indazoles” Breton, G. W.; Lepore, A. J. *Molecules*, **2011**, *16*, 9553-9561.
- “Acid-Catalyzed Reaction of 4-Methyl-1,2,4-triazoline-3,5-dione (MeTAD) with Substituted Benzenes” Breton, G. W. *Tetrahedron Letters*, **2011**, *52*, 733-735.
- “Thermal Decomposition of *meso*- and *d,l*-3,4-diethyl-3,4-dimethyldiazetidine-*N,N'*-dioxide” Breton, G. W.; Nickerson, J. E.; Greene, A. M.; Oliver, L. H. *Organic Lett.* **2007**, *9*, 3005-3008.
- “Synthesis of a Stereochemically Defined 1,2-Diazetidine-*N,N'*-Dioxide and a Study of Its Thermal Decomposition” Breton, G. W.; Oliver, L. H.; Nickerson, J. E. *J. Org. Chem.* **2007**, *72*, 1412-1416.
- “Thermal Decomposition of a Series of 1,2-Diazetidines” Breton, G. W.; Shugart, J. H. *J. Org. Chem.* **2003**, *68*, 8643-8649.
- “Are 1,2-Dihydrodiazetes Aromatic? An Experimental and Computational Investigation” Breton, G. W.; Martin, K. L. *J. Org. Chem.* **2002**, *67*, 6699-6704.
- “Seed Chemistry of *Sophora chrysophylla* (Mamane) in Relation to Diet of Specialist Avian Seed Predator *Loxioides bailleui* (Palila) in Hawaii” Banko, P. C.; Cipollini, M. K.; Breton, G. W.; Pauk, E.; Wink M.; Izhaki, I. *J. Chem. Ecol.* **2002**, *28*, 1393-1410.
- “Synthesis of 1,2-Diazetidines via a Diels-Alder Cycloaddition Approach” Breton, G. W.; Shugart, J. H.; Hughey, C. A.; Perala, S. M.; Hicks, A. D. *Organic Letters* **2001**, *3*, 3185-3187.
- “Use of Cyclic Allylic Bromides in the Zinc-Mediated Aqueous Barbier-Grignard Reaction” Breton, G. W.; Shugart, J. H.; Hughey, C. A.; Conrad, B. P.; Perala, S. M. *Molecules* **2001**, *6*, 655-662.
- “Further Studies of the Thermal and Photochemical Diels-Alder Reactions of *N*-Methyl-1,2,4-triazoline-3,5-dione (MeTAD) with Naphthalene and Some Substituted Naphthalenes” Breton, G. W.; Newton, K. A. *J. Org. Chem.* **2000**, *65*, 2863-2869.
- “Surface-Mediated Reactions. 8. Oxidation of Sulfides and Sulfoxides with *tert*-Butyl Hydroperoxide and OXONE” Kropp, P. J.; Breton, G. W.; Fields, J. D.; Tung, J. C.; Loomis, B. R. *J. Am. Chem. Soc.* **2000**, *122*, 4280-4285.
- “Acetylation of Unsymmetrical Diols in the Presence of Al₂O₃” Breton, G. W.; Kurtz, M. J.; Kurtz, S. L. *Tetrahedron Lett.* **1997**, *38*, 3825-3828.
- “Selective Monoacetylation of Unsymmetrical Diols using SiO₂ Supported Sodium Hydrogen Sulfate” Breton, G. W. *J. Org. Chem.* **1997**, *62*, 8952-8954.
- “Surface-Mediated Reactions. 5. Oxidation of Sulfides, Sulfoxides, and Alkenes with *tert*-Butyl Hydroperoxide” Breton, G. W.; Fields, J. D.; Kropp, P. J. *Tetrahedron Lett.* **1995**, *36*, 3825.
- “Surface-Mediated Reactions. 6. Effects of Silica Gel and Alumina on Acid-Catalyzed Reactions” Kropp, P. J.; Breton, G. W.; Craig, S. L.; Crawford, S. D.; Durland, W. F.; Jones, III, J. E.; Raleigh, J. S. *J. Org. Chem.* **1995**, *60*, 4146.
- “Surface-Mediated Reactions. 3. Hydrohalogenation of Alkenes” Kropp, P. J.; Daus, K. A.; Tubergen, M. W.; Kepler, K. D.; Wilson, V. P.; Craig, S. L.; Baillargeon, M. M.; Breton, G. W. *J. Am. Chem. Soc.* **1993**, *115*, 3071.

Scholarly Educational Articles

"The Synthesis of Isoamyl Acetate (Banana Oil) via an SN2 Reaction" Breton, G. W. *Chemical Educator*, **2011**, *16*, 6-8.

"Electrophilic Aromatic Chlorination: Synthesis of the Fungicide Chloroneb" Breton, G. W. *Chemical Educator*, **2011**, *16*, 89-90.

"Free Radical Bromination of 2-Methylbutane and Analysis by 1H NMR Spectroscopy" Breton, G. W. *Chem. Educator* **2005**, *10*, 298-299.

"Multi-Week Synthesis of a Sunscreen Agent for the Organic Chemistry Laboratory" Breton, G. W.; Belk, M. K. *Chem. Educator* **2004**, *9*, 27-29.

"A Heated Cuvette Holder for Fiber-Optic Ultraviolet-Visible Spectrophotometers" Breton, G. W.; Kinzer, D.; Shugart, J. H. *Chem. Educator* **2003**, *8*, 199-200.

"Using Writing to Enhance the Undergraduate Research Experience" Bressette, A. R.; Breton, G. W. *J. Chem. Ed.* **2001**, *78*, 1626-1627.

"Student-Determined Values for the Calculation of Chemical Shifts of Methylene Protons in Different Chemical Environments" Breton, G. W. *J.Chem.Ed.* **2000**, *77*, 81-83.

"An Inexpensive Commercially Available Analog-to-Digital Converter" Breton, G. W. *J.Chem.Ed.* **2000**, *77*, 262.

"Investigating a Reaction of N-Methyltriazolinedione" Breton, G. W. *The Chemical Educator* **1999**, Vol. 4, No. 4.

"A Grignard-Like Organic Reaction in Water" Breton, G. W.; Hughey, C. A. *J.Chem.Ed.* **1998**, *75*, 85-86.

"Photodimerization of Anthracene. A [4p+4p] Photochemical Cycloaddition" Breton, G. W.; Vang, X. *J.Chem.Ed.* **1998**, *75*, 81-82.

"Generation and Observation of Cyclopentadienyl Anion" Breton, G. W. *The Chemical Educator* **1997**, Vol. 2, No. 6.

"The Wittig Reaction: Generation, Observation and Reactivity of a Phosphorous Ylide Intermediate. An Experiment for the Advanced Organic Chemistry Laboratory Course" Breton, G. W. *J. Chem. Ed.* **1997**, *74*, 114-115.

Funded External Grants

MRI: Acquisition of a 400 MHz NMR Spectrometer to Facilitate Faculty Research and Improve Undergraduate Training (2011). Breton, G. W.; Hoke, K.; Qualley, D.; Van Aardt, T. National Science Foundation (Award No: CHE-1125616). Amount funded \$258,971.

RUI: Investigation of the Properties and Reactivities of 1,2-Diazetene Dioxides (2004). National Science Foundation (Award No: CHE-0405034). Amount funded \$113,401.

A Quartz Cell Heating Unit for the Ocean Optics Fiber Optic UV-Vis Spectrophotometer System (2000). Ocean Optics, Inc. Amount funded \$3,290.

A Systematic Method for the Introduction of Instrumentation into the Chemistry Curriculum (1998). Grant from the Camille and Henry Dreyfus Foundation, Special Grant Program in the Chemical Sciences. Amount funded \$21,000.

Integration of NMR into the Chemistry Curriculum (1997). Grant from the National Science Foundation (Instrumentation and Laboratory Improvement—Instrument Purchase). Project amount \$42,100.

The Use of Adsorbed Monolayers to Induce Regio- and Chemoselectivity in Organic Reactions (1995). Grant from the American Chemical Society Petroleum Research Fund. Amount funded \$20,000.

Other Professional Activities

Invited for the past eight years (2010-2018) to help write and review organic chemistry questions for the chemistry GRE exam.

Editor-in-Chief of the *Journal of Laboratory Chemical Education*
(<http://www.sapub.org/journal/aimsandscope.aspx?journalid=1139>)

Regularly review manuscripts for the following journals: *The Journal of Chemical Education*, *The Journal of Organic Chemistry*, *Tetrahedron Letters*, *Tetrahedron* and *The Chemical Educator*.

Review ACS PRF proposals and NSF proposals that fall under my area of expertise.

Served as a reviewer for two chapters of the textbook, *Advanced Organic Chemistry*, 1st Edition, in preparation for the 2nd edition. David E. Lewis (Oxford University Press). 2018

Served as a reviewer for two chapters of the textbook, *Organic Chemistry*, 5th Edition, Paula Bruice (Prentice Hall). 2005

Beta-tested and reviewed the web-based online homework site called EPOCH (Prentice Hall). 2003.

Recognitions

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| 1986 | Phi Beta Kappa |
| 2002 | Phi Kappa Phi |
| 2002 | Mary S and Samuel Poe Carden Award (annual Berry College award given for outstanding teaching, scholarship and service). |