

ANDREW SCOTT KOCH

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OBJECTIVE:

To perfect teaching and learning at an undergraduate institute that encourages and provides facilities for excellence in research for students who would otherwise find it hard to achieve these goals.

EDUCATION:

University of California-Berkeley, Department of Chemistry, Berkeley, CA 94720. Ph.D. November 1989.
Ph.D. Advisor: Prof. Andrew Streitwieser, Jr.
Thesis: "The Synthesis and Study of Pyridinium-1-yl Compounds"

Ithaca College, Ithaca, NY 14850. B.A. in Chemistry with Honors, 1984.
Undergraduate Advisor: Prof. Heinz F. Koch

EXPERIENCE:

Chair: Chemistry and Biochemistry, St. Mary's College of Maryland. August 2007 to current.

Building Facilities Coordinator, St. Mary's College of Maryland. July 2008 to current.

Division Head: Natural Sciences and Mathematic, St. Mary's College of Maryland. August 2002 to 2005.

Associate Professor of Chemistry, St. Mary's College of Maryland. July 2001 to present.

Assistant Professor of Chemistry, St. Mary's College of Maryland. August 1997 to July 2001.

Courses: CHEM 112, *Chemistry in Context with lab*, CHEM 111, *Chemistry in Context*, CHEM 311, *Organic Chemistry I*, CHEM 312, *Organic Chemistry II*, CHEM 480, *Topics in Chemistry; Advanced Synthesis; Physical Organic Chemistry*. CHEM 490, *Senior Seminar*. IDIS 180, *Leadership Seminar*.

Laboratory: CHEM 112, *Chemistry in Context.*, CHEM 311& 312, *Organic Chemistry Lab I&II*, CHEM 106, *General Chemistry Lab II*.

Other Departmental and College Duties: Directed many undergraduates in research. **Committees:** Faculty Senate, Academic Resources (Chair), Campus Information Technology, College Writing, Divisional Computer/Resource (Chair), Infrastructure (Chair), Admissions Advisory Group, Divisional Colloquium Committee, Health Sciences Advisory Committee and Faculty Issues Committee (Chair). Faculty advisor to the St. Mary's American Chemistry Society Student Affiliates, and faculty mentor for the Ronald E. McNair Post Baccalaureate Achievement Program at U. Maryland College Park (2009). Maintain JEOL 400 MHz NMR, and gloveboxes (current MBraun Unilab).

ACS-PRF Summer Faculty Fellow, PRF#34427-AC3-SF00. Summer 2000 (G. Meyer)

ACS-PRF Summer Faculty Fellow, PRF#32604-AC3-SF98. Summer 1998 & 1999 (S.DiMugno)

Instruments: Bruker Avance 500 NMR, G.E. Omega-300 NMR, Varian VXR-200 NMR, Nicolet NT-360WB NMR, PAR 176 electrochemical analyzer system, and a UV-Vis-NIR spectrometer (Olis-14 upgrade of a Carey-14) equipped with diffuse reflectance and variable temperature (-80 - 100 °C) cells.

Assistant Professor of Chemistry, Williams College, Williamstown, MA 01267. July 1991-July 1997.

Courses: 4 semesters, CHEM 303, *Advanced Synthetic Organic Chemistry*; 2 semesters CHEM 311, *Advanced Physical Organic Chemistry*; 3 semester CHEM 202, *Organic Chemistry*; 1 semester CHEM 313, *Polymers and Materials*; CHEM 010, *The Chemistry of Wine Making*.

Laboratory: CHEM 303, *Advanced Synthetic Organic Chemistry*; CHEM 201 and CHEM 202, *Organic Chemistry*; CHEM 102, *Concepts of Chemistry (General Chemistry)*.

Other Departmental and College Duties: Directed ten senior honors projects, nine summer research students, and four non-honors independent research projects. Set up and coordinated an international undergraduate summer research exchange program between Leiden University, the Netherlands, and Williams College. Performed hands-on demonstrations for local elementary schools and the Williams College Sigma Xi Club, served on numerous committees, helped maintain and obtain departmental equipment and have been the departmental seminar coordinator from August 1995-1997.

Instruments: Bruker 300 DPX and IBM/Bruker WP-2000 SP FT NMR, Nicolet Magna-IR spectrometer 550 with the OMNIC operating program, Hewlett Packard 8452 UV/vis diode array spectrophotometer, GC/MS Hewlett Packard 5890 Series II Gas Chromatograph with a 5971A Mass Selective Detector and 59970 MS Chem Station, Perkin Elmer 3000 Fluorescence Spectrometer, Waters Associates model 6000 HPLC and a BAS CV-27 cyclic voltammograph.

Visiting Scientist, University of California, Santa Barbara, Institute for Polymers and Organic Solids, Santa Barbara, CA 93106. December 1989-July 1991, under the direction of Prof. Fred Wudl. Synthesis and Study of Organic Solids Exhibiting Electrically Conducting and/or Ferromagnetic Properties. Preparation, reactions and study of Fullerenes. Instruments used for work include: Nicolet Superconducting FT NMR spectrometers at 300 MHz for proton (with a Nicolet 1280 data system), Perkin Elmer DSC-4 Differential Scanning Calorimeter and TGS-2 Thermogravimetric Analyzer (with a Thermal Analysis Data Station and System 4 Thermal Analysis Microprocessor controller), Perkin Elmer 1330 Infrared spectrometer, Perkin Elmer Lambda 5 UV-Visible and a BAS 100A Electrochemical Analyzer.

Undergraduate Research Assistant, Leiden University, the Netherlands, Department of Chemistry: Synthesis of ^{14}C labeled compounds and measurement of kinetic isotope effects. Ithaca College, Department of Chemistry: Synthesis and mechanistic study of substituted styrenes and their reactions with alkoxides.

PUBLICATIONS:

1. Koch, H.F.; Koch, J.G.; Koch, N.H.; Koch, A.S. "Proton-Transfer Reactions. 3. Differences in the Protonation of Localized and Delocalized Carbanion Intermediates" *J. Am. Chem. Soc.*, **1983**, *105*, 2388-2393.
2. Koch, H.F.; Koch, A.S. "Proton-Transfer Reactions. 5. An Observed Primary Kinetic Isotope Effect That Increases with Increasing Temperature" *J. Am. Chem. Soc.*, **1984**, *106*, 4536-4539.
3. Koch, A.S.; Waterman, K.C.; Bank, K.; Streitwieser, A. "Preparation and Reactivity of Methyl 3,3-bis((4-dimethylamino)pyridinium-1-yl)propenoate Dichloride", *J. Org. Chem.*, **1990**, *55*, 6166-6171.
4. Allemand, P. M.; Koch, A.S.; Wudl, F.; Rubin, Y.; Diederich, F.; Alvarez, M. M.; Anz, S. J.; Whetten, R. L. "Two Different Fullerenes Have The Same Cyclic Voltammetry" *J. Am. Chem. Soc.*, **1991**, *113*, 1050-1051.
5. Allemand, P. M.; Khemani, K.; Koch, A.S.; Srdanov, G.; Wudl, F.; Rubin, Y.; Diederich, F.; Alvarez, M.M.; Anz, S.J.; Whetten, R.L. "The Unusual Spinresonance of Fullerene C_{60}^- " *J. Am. Chem. Soc.*, **1991**, *113*, 2780-2781.

6. Francois Diederich, Roland Ettl, Yves Rubin, Robert L. Whetten, Rainer Beck, Marcos Alvarez, Samir Anz, Dilip Sensharma, Fred Wudl, Kishan C. Khemani, and Andrew Koch. "The Higher Fullerenes: Isolation and Characterization of C₇₆, C₈₄, C₉₀, C₉₄, and C₇₀O, an Oxide of D_{5h}-C₇₀" *Science*, **1991**, 252(5005), 548-51.
7. Koch, A. S.; Khemani, K. C.; Wudl, F. "Preparation of Fullerenes with a Simple Benchtop Reactor" *J. Org. Chem.*, **1991**, 56, 4543-4545.
8. Allemand, P. M.; Khemani, K.; Koch, A.S.; Wudl, F., Holczer, K.; Donovan, S.; Grüner, G.; Thompson, J.D. "Organic Molecular Soft Ferromagnetism in a Fullerene C₆₀" *Science*, **1991**, 253, 301-303.
9. Penicaud, A.; Hsu, J.; Reed, C. A.; Koch, A.S.; Khemani, K.; Allemand, P. M.; Wudl, F. "C₆₀⁻ with Coordination Compounds. (Tetraphenylporphinato)chromium(III) Fulleride" *J. Am. Chem. Soc.*, **1991**, 113, 6698-6700.
10. Wudl, F.; Hirsch, A.; Khemani, K. C.; Suzuki, T.; Allemand, P.-M.; Koch, A.; Eckert, H.; Srdanov, G.; Webb, H. M. "Chapter 11: Survey of Chemical Reactivity of C₆₀, Electrophile and Diene-polarophile Par Excellence" *Fullerenes: Synthesis, Properties, and Chemistry*, American Chemical Society, **1992**, 161-175.
11. Srdanov, V. I.; Saab, A. P.; Margolese, D.; Poolman, E.; Khemani, K. C.; Koch, A.; Wudl, F.; Kirtman, B.; Stucky, G. D. "Absorption spectra and electronic properties of alkali metal-doped C₆₀ fullerene" *Chem. Phys. Lett.*, **1992**, 192, 243-8.
12. Andrew S. Koch, Amy S. Feng, Traci A. Hopkins, and Andrew Streitwieser "Nucleophilic Reactions of Pyridines and Imidazoles with Vinyl and Aromatic Halides" *J. Org. Chem.*, **1993**, 58(6), 1409-14.
13. Andrew S. Koch, Warren Grant Harbison, Joshua M. Hubbard, Martin de Kort, and Barbara A. Roe "Stability of Pyridinium Quinones to Aqueous Media: The Formation of Pyridinium-Oxy Zwitterionic Quinones" *J. Org. Chem.*, **1996**, 61(17), 5959-63. (**ONLY UNDERGRADUATE CO-AUTHORS**)
14. Koch, A.S.; Koch, H.F.; Lodder, G. "An International Collaborative Undergraduate Research Program between Ithaca College and Leiden University" *J. Chem. Edu.*, **1997**, 74 (10), 1158-1159.
15. Alan K. Wertsching, Andrew S. Koch and Stephen G. DiMagno "On the Negligible Impact of Ruffling on the Electronic Spectra of Porphine, Tetramethylporphyrin, and Perfluoroalkylporphyrins" *J. Am. Chem. Soc.*, **2001**, 123(17), 3932-3939.
16. Haoran Sun, Andrew S. Koch, Stephen G. DiMagno, "Rapid Preparation of Fluorinated Aromatic Heterocycles", ACS Symposium Series, pp. 85-104, vol. 1003, (2009).
17. "Suppressing Disproportionation in Quasimetal-Catalyzed Aromatic Fluorination", Bijia Wang, Haoran Sun, Linlin Qin, SriHarsha Uppauluri, Ronald L. Cerny, Andrew S. Koch, and Stephen G. DiMagno (*Manuscript in preparation*)

GRANTS:

"Late Stage, No Carrier Added Radiofluorinations" Submitted to NSF-CHE 7/28/2011 (Pending). PI: Dr. Stephen DiMugno University of Nebraska at Lincoln, Co-PI: Dr. Andrew Koch.

"Anhydrous Fluoride Salts" NSF-0717562 (\$420,000). Awarded August 2007. PI: Dr. Stephen DiMugno University of Nebraska at Lincoln, Co-PI: Dr. Andrew Koch. St. Mary's portion \$45,232 over 3 years.

"Enhancing the Chemistry Curriculum with FT-NMR Spectroscopy." Awarded by NSF-CCIL (1091373), 2000; \$135,610.

"Preparation of Conjugated Polymers Containing Metal Binding Sites." Awarded by Research Corporation. 1992; \$26,200.

CO-AUTHOR TO STUDENT RESEARCH PROPOSALS:

1. Pfizer Undergraduate Research Fellowship; Kevin Ward '93, Summer '92 stipend \$4,000, supplies \$1,000.
2. Council on Undergraduate Research, Academic-Industrial Undergraduate Research Partnership Fellowship; Barbara Roe '94, Summer '93 stipend \$2,500.

PAPERS PRESENTED:

1. "Isotope Effects Associated with Proton Transfer from Oxygen to Carbon." Oral presentation at 17th Middle Atlantic Regional Meeting (ACS), White Haven, PA, April 6-8, 1983.
2. "Proton Transfer vs. β -Fluoride Ejection from Carbanions formed by Reaction of $\text{XC}_6\text{H}_4\text{CH-CF}_2$ with Alcoholic Alkoxide." Poster presented at International Symposium: Chemistry of Carbanions, Durham, England, July 16-20, 1984.
3. "The Formation and Study of Perpyridinium-1-yl Carbons." Poster presented at Symposium on New Organic Materials, Durham, England, September 10-12, 1990.
4. "Preparation of Fullerenes with a Simple Benchtop Reactor." Oral presentation at the Mini-Symposium on Fullerenes, University of California at Los Angeles, Los Angeles, CA, 1991.
5. "Working Towards the Formation of Pyridinium Substituted Benzoquinones." Poster presented at the 34th National Organic Symposium, Williamsburg, VA, June 11-15, 1995.
6. "Pyridinium Anthraquinones: An Electrochemical Investigation." Oral presentation, paper number 495, at the 213th National Meeting of the American Chemical Society, San Francisco, CA, April 16, 1997.
7. "Preparation and Fluorescence of [Pyridiniumporphinato]zinc Complexes" Oral presentation #653, 219th National Meeting of the ACS, San Francisco, CA, March 29, 2000.
8. "Preparation and Investigation of mono- and bis-Pyridiniumanthraquinones" Poster presentation #5541-0179, Fifth International Symposium on Functional π -Electron Systems, Ulm/Neu-Ulm, Germany, June 1, 2002.

INVITED LECTURES:

1. "The Synthesis and Study of Pyridinium-1-yl Compounds." Department of Chemistry, California State University at Northridge, CA, January 1991; Ithaca College, Ithaca, NY, January 1991; Swarthmore College, Swarthmore, PA, January 1991; Williams College, Williamstown, MA, January 1991.
2. "Fullerenes-The Birth of a New Compound." Department of Chemistry, Ithaca College, Ithaca, NY, December 1, 1992.
3. "Per-pyridinium Compounds: Preparation and Investigation of an Unusual Class of Densely Charged Compounds." Department of Chemistry, Rensselaer Polytechnic Institute, Troy, NY, March 9, 1995.
4. "Light-Harvesting: How Organic Materials Can Solve Some Problems." Sigma Xi Research Lecture. Bronfman Science Center, Williams College, Williamstown, MA, November 2, 1995.
5. "An Investigation on the Stability of Pyridiniumquinones and Their Possible Use in Light-Harvesting" Sigma Xi Research Lecture. Bronfman Science Center, Williams College, Williamstown, MA, November 3, 1995.
6. "Preparation and Investigation of some Pyridinium Quinones: Can they be used to enhance excited state lifetimes of photo-induced radical anions?" Department of Chemistry, Mount Holyoke College, South Hadley, MA, March 27, 1996.
7. "The Synthesis, Study and Uses of Pyridinium Anthraquinones" Department of Chemistry, Albright College, Reading, PA, March 1997; Kutztown University, Kutztown, PA, March 1997; West Chester University, West Chester, PA, March, 1997; S.U.N.Y. Plattsburgh, Plattsburgh, NY, March 1997, St. Mary's College, St. Mary's City, MD April 1997.
8. "Stable Pyridinium Compounds, a Wealth of Charge." Covalent Associates, Inc., Woburn, MA, May 20, 1998.
9. "Cationic Moieties on Anthraquinones; Reactivity and Electrochemistry" Tenth Kyushu International Symposium on Physical Organic Chemistry, September 30 to October 3, 2003, Fukuoka, Japan.
10. "Putting electronegativity to use: Fluorine to Pyridinium and cool stuff you can do with it" Ithaca College, Ithaca, NY, September 26, 2006.

CO-AUTHOR ON PRESENTATIONS:

"Rapid preparation of fluorinated heterocyclic aromatic compounds" DiMugno, Stephen G.; Sun, Haoran; Koch, Andrew Scott. Department of Chemistry, University of Nebraska, Lincoln, NE, USA. Abstracts of Papers, 232nd ACS National Meeting, San Francisco, CA, United States, Sept. 10-14, 2006 (2006), FLUO-013.

OTHER PRESENTATIONS/MISCELLANEOUS:

1. Chaired session PL-4, 11th IUPAC Conference on Physical Organic Chemistry, Ithaca, NY, August 2-7, 1992.

2. "Hands On Chemistry." A Workshop for High School Teachers. Sponsored by the Consortium for the Improvement of Math & Science Teaching. North Adams State College, North Adams, MA, October 13, 1992.
3. Co-Organizer for the Sixteenth Annual Undergraduate Research Symposium; Hosted by The Connecticut Valley Section of the American Chemical Society and Williams College. Williams College, April 27, 1996.
4. Molecular Modeling-A Way to Enhance Laboratory Experiments. Panel Discussion at 33rd Annual Meeting of the Mid-Atlantic Association of Liberal Arts Chemistry Teachers (MAALACT). Lebanon Valley College, September 18, 1999.
5. Co-coordinator for the Project Kaleidoscope Congressional Breakfast on the Future of Undergraduate Science, Mathematics, Engineering and Technology. Senate Hart Building, October 22, 1999.
6. Facilitator for a national conference call dialog on the NSF CCLI-A&I program with NSF program officer Jill Singer. November 7, 2002, from 12:00-1:00 p.m. Eastern.
7. Chaired a session on student-centered laboratories at the 2006 MAALACT meeting. Ithaca College, October 6-7, 2006.
8. Chaired a discussion on State of the Discipline at the 2008 MAALACT meeting. St. Mary's College of Maryland, October 11, 2008.
9. Student Mentor for the University of Maryland McNair Scholars Program, 2009.

MEETINGS/WORKSHOPS ATTENDED THAT DO NOT APPEAR ELSEWHERE:

1. American Chemical Society National Meeting, Los Angeles, CA, September 25-29, 1988.
2. Organic Optoelectronic Materials sponsored by the ACS Division of Polymer Chemistry, Monterey, CA, March 31-April 4, 1992.
3. American Chemical Society 203rd National Meeting, San Francisco, CA, April 5-10, 1992.
4. The 1992 Peter A. Leermakers Symposium on Fullerenes, Wesleyan University, May 12, 1992.
5. 24th American Chemical Society Northeast Regional Meeting, Burlington, VT, June 19-22, 1994.
6. Council on Undergraduate Research 5th National Conference, Lewiston, MA, June 23-25, 1994.
7. 12th IUPAC Conference on Physical Organic Chemistry, Padova, Italy, August 28-September 2, 1994.
8. The 31st Annual Meeting of the Mid-Atlantic Association of Liberal Arts Chemistry Teachers (MAALACT). Washington College, October 10 and 11, 1997.
9. Council on Undergraduate Research, Workshop: "How to Institutionalize Undergraduate Research" San Diego, January 30-February 1, 1998.
10. The 220th ACS National Meeting, Washington D.C., August 21, 2000

11. The 34th Annual Meeting of the Mid-Atlantic Association of Liberal Arts Chemistry Teachers (MAALACT). Moravian College, October 5 and 6, 2001.
12. Molecular Modeling in the Undergraduate Curriculum workshop at Morgan State University, October 18, 2001.
13. Project Kaleidoscope Facilities Workshop at Ursinus College, November 16 - 18, 2001.
14. The 225th ACS National Meeting, New Orleans, LA, March 23-27, 2003.
15. The 227th ACS National Meeting, Anaheim, CA - March 27 - April 1, 2004.
16. The 229th ACS National Meeting, San Diego, CA, March 13-17, 2005.
17. The 231st National Meeting of the American Chemical Society, Atlanta Georgia, March 26-30, 2006.
18. The 233rd National Meeting of the American Chemical Society, Chicago, March 25-27, 2007.
19. The 235th ACS National Meeting, New Orleans, LA, April 6-10, 2008.
20. The 43rd Annual Meeting of the Mid-Atlantic Association of Liberal Arts Chemistry Teachers (MAALACT). Washington College, 2009
21. The 239th ACS National Meeting, San Francisco, CA, March 21-25, 2010.
22. The 241st ACS National Meeting, Anaheim, CA, March 27-31, 2011.

UNDERGRADUATE THESES OVERSEEN:

1. "Synthesis of Poly-Schiff Bases" Michael D. Bruce, 1992
2. "Synthesis and Analysis of Bidentate Polypyridine-Ruthenium Complexes" Christopher D. Paré, 1992
3. "Synthesis and Characterization of Electrically Conducting Polymers" Ethan P. Marin, 1993
4. "Synthesis of Charged Bipyridine Ligands" Paul Bernard, 1993
5. "Work Toward the Synthesis and Isolation of Three Per-pyridinium Benzoquinones" Barbara A. Roe, 1994
6. "Synthesis of Novel Charged Ruthenium-Polypyridine Complexes" Jon F. Fielder, 1994
7. "Synthesis and Isolation of 2,5-bis-4-*tert*-butylpyridinium-3,6-dioxy-1,4-Benzoquinone and Attempted Synthesis and Isolation of Related Compounds" Warren G. Harbison, V, 1995
8. "Synthesis of Ruthenium-Polypyridine Complexes and the Attempted Formation of Mono- and Bidentate Anthraquinone-Polypyridine Ligands" Joshua M. Hubbard, 1996
9. "Synthesis of Organic Electrochromic Materials based on Benzoquinone Centers and the Attempted Synthesis of an Anthraquinone Ligand for a Ruthenium-Polypyridine Complex" Benjamin W. Partan, 1997

10. "Preparation and Electrochemical Investigation of Mono- and Bis-Pyridinium Anthraquinones" Jean L. Raphael, 1997
11. Brian Tenney, Synthesis of Ligands for Ruthenium and Spectroscopic and Electrochemical Analysis of Ru(1-(2'-(1'-methylpyridine))-2-(2''-pyridine)aminomethane)₃ and Ru(bipyridine)₂(1-(2'-(1'-methylpyridine))-2-(2''-pyridine)aminomethane), 1998.
12. Ryan Anderson, Extraction, Isolation and Identification of Medicinally Active Compounds from the West African Plant Species *Cassia Sieberiana*, 1999.
13. Kristina Borstnik, Synthesis of Polypyridinium Substituted Benzoquinones and Their Addition to Metals, 1999.
14. Tuong Vi Le, The effect of an extract of *eriobotrya japonica* on chemotaxis of leucocytes invitro, 2000
15. Michael J. Evans, New Electron Acceptors for Chromophors, 2000.
16. Scott Hellman, The Isolation and Determination of Unknown Phenolic Compounds from the Sponge *Aplysina fistularis*, 2001.
17. Amanda T. Pau, Purification and Structural Elucidation of Toxin from *Convolutriloba retrogemma*, an acoelous flatworm (Platyhelminthes), 2002.
18. Rebecca A. Golombeck, Extraction and Isolation of Antimicrobial Compounds from *Xenia elongata*, 2002.
19. Elizabeth R. Pettys, Preliminary Isolation and Structural Elucidation of a Toxin from the Flatworm *Convolutriloba retrogemma*, 2003.
20. Jeremy A. Ryan, Substitutions to 1-chloro-5-(4-dimethylaminopyridinium)anthraquinone, 2003.
21. Zofia Zaplatynski, Isolation and Identification of an Antimicrobial Compound Extracted from a Soft Coral, *Xenia elongata*, 2003.
22. Carolyn Mathews, Extraction, Isolation and Identification of Antimicrobial Compounds from *Xenia elongata*, 2004.
23. Carla Cammarata, Isolation and Identification of an Antimicrobial Compound from the Thermal Decomposition of Reducing Sugars in the Presence of Oxygen, 2004.
24. Sofia Herrero, Synthesis of Pyridinium and Imidazolium Substituted Benzoquinone, 2004.
25. Tabitha A. Clem, Coordination Compounds of 2,5-Bis(4'-tert-butylpyridinium-1'-yl)-3,6-dioxy-1,4-benzoquinone, 2005.
26. Richard Counselman, Structural Identification of an Antimicrobial Compound from the Thermal Decomposition of Reducing Sugars in the Presence of Oxygen, 2005.
27. Gretchen White, Zwitter Ion Synthesis Involving Reactions of Chloranil With Various Imidazoles and Pyridines, 2005.

28. John Aaron Crapster, Synthesis and Characterization of Benzyltributylammonium Fluoride and “DiMagno’s Resin”: Novel Fluorinating Reagents, 2006.
29. Christopher D. Schweitzer, Pyridinium Substitution of Electron Acceptors: Photoinduced Energy Harvesting, 2006.
30. Allison M. Billock, Systematic Isolation of an Antimicrobial, 2006.
31. Teresa M. Palmeri, An anhydrous polymer supported fluoride source, 2007.
32. Gameli K. Agbleze, New quaternary ammonium fluoride salts for fluorination, 2008.
33. Christina M. Falk, Investigating the co-catalytic behavior of pyridinium anthraquinones in NHPI catalytic oxidation reactions, 2008.
34. Rachel W. Flurie, Suzuki coupling of a zwitterionic boronic acid, 2008.
35. Joo H. Lee, Synthesis of Anhydrous Fluorine Nucleophiles with Polymer Supports, 2008.
36. Bertrand T. Adanve, Novel Synthesis of Aryl Azides, 2010.
37. Danielle J. Brown, The Effect of Pyridinium Diaryliodonium in Directing Reductive Elimination, 2010.
38. Nicholas C. Bruno, Investigation into new methods for hypervalent iodine compounds, 2010.
39. Thomas D. Montgomery, Reaction of viologen compounds with aryl iodonium PF₆ salts, 2010.
40. Stephanie E. Hartwick, Thermal and Microwave-assisted Reactions of 4-tert-butyl-pyridine and 4-Dimethylaminopyridine with Diaryliodonium(III) Salts, 2010.
41. Ana L. Peterson, The Preparation of Camphor Sulfinamide for the Asymmetric synthesis of Amines, 2010.
42. Benjamin M. Biber, New Methods for Synthesis of Aryl Substituted Viologens, 2011.
43. Janice Y. Kang, Solvent effects in the synthesis of N-pyridinium compounds, 2011.
44. Robert A. Swyka, Investigation into the Use of Iodonium Salts for the Arylation of Cyclopentadiene, 2011.
45. Kenneth E. Fritsch, in progress, F 2011
46. Estanislao Carino-Herrera, in progress, 2012.
47. Yun-Cheol Choe, in progress, 2012.
48. Lyndsay E. Fournier, in progress, 2012.
49. Christopher D. Sanborn, in progress, 2012.

50. Christiana N. Teijaro, in progress, 2012.

Co-Authored Student Presentations at National and Regional Meetings:

1. "Synthesis of Poly-Schiff Bases" Michael D. Bruce, Presented at the ACS Undergraduate Chemistry Research Symposium, Eastern NY Section, Siena College, April 11, 1992
2. "Synthesis and Analysis of Bidentate Polypyridine-Ruthenium Complexes" Christopher D. Paré, Presented at the ACS Undergraduate Chemistry Research Symposium, Eastern NY Section, Siena College, April 11, 1992
3. "Synthesis and Isolation of 2,5-bis-4-*tert*-butylpyridinium-3,6-dioxy-1,4-Benzoquinone and Attempted Synthesis and Isolation of Related Compounds" Warren G. Harbison, V, Presented at the Fifteenth Annual Undergraduate Research Symposium, The Connecticut Valley Section of the ACS, Trinity College, April 29, 1995
4. "Synthesis of Ruthenium-Polypyridine Complexes and the Attempted Formation of Mono- and Bidentate Anthraquinone-Polypyridine Ligands" Joshua M. Hubbard, Presented at the Sixteenth Annual Undergraduate Research Symposium, The Connecticut Valley Section of the ACS, Williams College, April 27, 1996
5. Koch, Andrew S.; Raphael, Jean L., "Preparation and investigation of mono- and bis-pyridinium anthraquinones". Poster presentation (CHED-442) 213th National Meeting of the American Chemical Society, San Francisco, CA, April 14, 1997
The prepn. of mono- and bis-pyridinium anthraquinones, anthraquinones substituted with a cationic pyridinium moiety via the pyridine nitrogen, are described. These unique charged anthraquinones are formed from the reaction of the corresponding chloroanthraquinone with an excess of the desired pyridine in ortho-dichlorobenzene or nitrobenzene. Mixed pyridiniumanthraquinones can be prepd. by isolation of the mono-pyridinium product of 1,5-dichloroanthraquinone and subsequent reaction with a different pyridine. The characterization and properties of these compds. will be presented.
6. "Synthesis of Polypyridinium Substituted Benzoquinones and Their Addition to Metals" Kristina Borstnik, Oral presentation at the 63rd Intercollegiate Student Chemist Convention, Gettysburg College, April 10, 1999. First Prize in Organic.
7. Koch, Andrew Scott; Evans, Michael J., "Preparation and study of pyridinium- and imidazolium-substituted electron acceptors for charge separation". Poster presentation (CHED-214) at the 220th ACS National Meeting, Washington D.C., August 21, 2000.
We report the synthesis and electrochem. of some novel electron acceptor based on quinoids contg. cationic moieties. In particular, we have substituted several pyridinium and imidazolium derivs. on two classes of electron acceptors, 1,4-benzoquinones and 9,10-anthraquinones. Electrochem. study demonstrates that substitution at the 1,4-positions on 9,10-anthraquinones increases the reductive potential of these electron acceptors. Given this data, we observe that linking these acceptors to chromophoric metal centers may permit efficient, long-distance charge-transfer reactions.
8. Koch, Andrew Scott; Hellman, Scott J., "Preparation of metallo-organics based on group 8 transition metals and 2,5-dioxy-3,6-bis(pyridinium-1'-yl)-1,4-benzoquinone" Poster presentation (CHED-185) at the 220th ACS National Meeting, Washington D.C., August 21, 2000.
An investigation into the prepn. of metallo-orgs. based on pyridiniumquinones contg. oxy anions in the 2- and 5- positions with group 8 metals is presented. Metal complexes between these zwitterionic

ligands and period 4 group 8 metals are easily formed from the metal chlorides. However, coordination with a period 5 group 8 metal such as ruthenium is much more difficult.

9. Pau, Amanda T.; Frahm, Jennifer; Armitage, Ruth Ann; Koch, Andrew Scott, "SMACS: Activities of a new ACS-SA chapter". Poster presentation (CHED-255) at the 220th ACS National Meeting, Washington D.C., August 21, 2000.
The St. Mary's ACS Student Affiliate Chapter, known as SMACS, has been busy this year trying to reach out to the campus and community. Many times throughout the semester we have tried to attract people by stimulating their curiosity through demonstrations. These included a huge atm. pressure demo and making liq. nitrogen ice cream. During National Chem. Week, we presented demos in three categories- color, polymers, and the crowd-favorite, explosives. The demos attracted a lot of attention, since we conducted them outside of the cafeteria. During World Carnival, our campus Earth Day celebration, we tried to show the community that chem. is fun by making slime and silly putty. This is only our second active year in ACS-SA and we hope to expand our activities in the future.
9. "Preparation and Study of Mono- and Bis-Pyridinium Anthraquinones"; 2000 PRISM Project. Evans, M., Oral Presentation. Third Annual Undergraduate Research Symposium in the Chemical and Biological Sciences; University of Maryland, Baltimore County. October 21, 2000. First Place Winner in Chemical Sciences
10. Hovland, Douglas E.; Koch, Andrew Scott, "New Electron Accepting Ligands Containing Pendent Electron Acceptors for Extended Excited State Lifetimes". Poster presentation (CHED-228) at the 222nd ACS National Meeting August 26-30, 2001, Chicago, Illinois
Several new ligands contg. sp²-hybridized nitrogen atoms sepd. by two carbons have been synthesized. The synthesis of these ligands, prepn. of metallo-orgs. and characterization will be discussed. Special attention will be given to how these ligands pose a means for attaching stable electron accepting moieties.
11. "New Electron Accepting Ligands Containing Pendent Electron Acceptors for Extended Excited State Lifetimes" Hovland, D. Fourth Annual Undergraduate Research Symposium in the Chemical and Biological Sciences; University of Maryland, Baltimore County. October 6, 2001.
12. "Copper(I) and Copper (II) redox Cople in the Preparation of Long Lived Chromophores" Araujo, K. Fourth Annual Undergraduate Research Symposium in the Chemical and Biological Sciences; University of Maryland, Baltimore County. October 6, 2001.
13. Amanda T. Pau, "Purification and Structural Elucidation of Toxin from *Convolutriloba retrogemma*, an acoelous flatworm (Platyhelminthes)". Oral presentation at the 66th Intercollegiate Student Chemist Convention, Lebanon Valley College, April 20, 2002.
14. Rebecca A. Golombeck, "Extraction and Isolation of Antimicrobial Compounds from *Xenia elongata*". Oral presentation at the 66th Intercollegiate Student Chemist Convention, Lebanon Valley College, April 20, 2002.
15. Koch, Andrew Scott; Pettys, Elizabeth R.; Hatch, Walter I.; Pau, Amanda T, "Isolation and preliminary structural elucidation of a toxin from the flatworm, *Convolutriloba retrogemma*". Poster presentation (CHED-471) at the 225th ACS National Meeting, New Orleans, LA, March 23-27, 2003.
The acoelous flatworm *Convolutriloba retrogemma* produces a potent toxin, which remains unidentified. Work on purifying the toxin has included reversed-phase HPLC and column chromatog., but these methods have been unsuccessful at sepg. two closely related compds. Preliminary NMR and

fluorescence data indicates the presence of a sugar and a compd. contg. a florescent arom. system. The isolation, characterization and toxicity will be discussed.

16. Koch, Andrew Scott; Ryan, Jeremy A.; Borstnik, Kristina; Evans, Michael J., "Nucleophilic additions to 1-chloro-5-(4-dimethylamino)pyridiniumanthraquinone". Poster presentation (CHED-491) at the 225th ACS National Meeting, New Orleans, LA, March 23-27, 2003.
Pyridinium substituted anthraquinones show reversible redns. in the same range as viologens and benzoquinones. If these charged anthraquinones are to find a place as electron acceptors a viable means to tether them to chromophores must be found. Under certain conditions, reaction of 1,5-dichloroanthraquinone with 4-dimethylaminopyridine (DMAP) gives 1-chloro-5-(4-dimethylamino)pyridiniumanthraquinone in good yield. The prepn. of 1-chloro-5-(4-dimethylamino)pyridiniumanthraquinone and reactions with various nucleophiles will be discussed.
17. Andrew Scott; Zaplatynski, Zofia; Byrd, Jeffrey J.; Golombeck, Rebecca A.; Maust, Kristina, "Isolation and identification of antimicrobial compound extracted from a soft coral, *Xenia elongata*". Poster presentation (CHED-470) at the 225th ACS National Meeting, New Orleans, LA, March 23-27, 2003.
Many corals secrete antifouling agents to prevent diatom and bacterial growth or to inhibit settling by other marine organisms, or to defend against predators. These org. mols. are often produced in very small amts. or not at all until the organism is in the presence of other organisms. Exts. of the soft coral, *Xenia elongata*, have shown pos. inhibition of *Staphylococcus aureus* growth, a gram-pos. bacterium. Sepn. of the exts. using column chromatog. has resulted in the isolation of a purified compd. that produces clear crystals. Isolation and preliminary structure elucidation will be presented.
18. Koch, Andrew Scott; Herrero, Sofia H.; Hatch, Walter I.; Hellman, Scott J., "Phenolics from the sea sponge *Aplysina fistularis*". Poster presentation (CHED-500) at the 225th ACS National Meeting, New Orleans, LA, March 23-27, 2003.
The sea sponge, *Aplysina fistularis*, possesses many strong antibacterial agents. This inhabitant of the Florida Keys lives virtually untouched by other marine creatures due to a plethora of protection compds. from antibacterial to protective anti-microbial. It is hypothesized that these agents are phenolic because of the moderately high phenolic concns. found in the tissue of this sponge, as detd. by the Folin-Denis Assay. The extns. of sponge tissue and isolation and identification of these phenolic antibacterial compds. will be discussed.
19. Koch, Andrew Scott; Clem, Tabitha A., "Coordination Compounds of 2,5-bis(4'-tert-butylpyridinium-1'-yl)-3,6-dioxy-1,4-benzoquinone". Poster presentation (CHED-1022) at the 229th ACS National Meeting, San Diego, CA, March 13-17, 2005.
The zwitterion 2,5-bis(4'-tert-butylpyridinium-1'-yl)-3,6-dioxy-1,4-benzoquinone was formed from the reaction of 4-tert-butylpyridine with p-chloranil. Its use as a ligand with various transition metals was investigated. These metals include Cr, Co, Zn, and Cu. Temp.-dependent ¹H NMR shows paramagnetic shifting of several ppm. The most significant paramagnetic shifting is in the arom. signals. Paramagnetic line broadening is also obsd., such that the doublets in the arom. region are no longer distinguishable as doublets. Electrochem. studies are presented.
20. Crapster, John Aaron; Koch, Andrew Scott; DiMagno, Stephen G., "Synthesis of Benzyltributylammonium fluoride and its use as a novel anhydrous fluorinating salt". Poster presentation (CHED-531) at the 231st National Meeting of the American Chemical Society, Atlanta Georgia, March 26-30, 2006.
This report presents the synthesis of a novel anhyd. fluorinating reagent, benzyltributylammonium fluoride. The reagent was prepd. by reacting benzyltributylammonium cyanide with hexafluorobenzene. The reaction was carried out in situ using polar aprotic solvents at room temp.

The reagent has shown to be a powerful source of fluoride anions through the fluorination of various substrates. Stability and reactivity will be presented.

21. Schweitzer, Christopher Donato; Koch, Andrew Scott, "Stepwise Suzuki cross coupling of charged pyridiniumanthraquinone with 1,4-benzenediboronic acid". Poster presentation (CHED-494) at the 231st National Meeting of the American Chemical Society, Atlanta Georgia, March 26-30, 2006. Synthesis of mixed pyridiniumanthraquinones is reported utilizing the stepwise reaction of 1-chloro-5-(4'-dimethylaminopyridinium)anthraquinone with 1,4-benzenediboronic acid. Suzuki cross coupling of this anthraquinone with the diboronic acid resulted in both mono- and bis- substitution of the anthraquinone in good to excellent yield. Further substitution of 1-(benzene-para-boronic acid)-5-(4'-dimethylaminopyridinium)anthraquinone with various other aryl halides and an electrochem. study is presented.
22. Hovland, Douglas E.; Mbadugha, Bessie N. A.; Koch, Andrew Scott; Hovland, Allan K., "Novel organic laboratory experiment using the Fraser fir". Poster presentation (CHED-108) at the 232nd National Meeting of the American Chemical Society, San Francisco, CA, Sept. 10-14, 2006. In an effort to update our traditional extn. expts., we searched for an alternative that would appeal to the large population of biol. students enrolled in our org. chem. course. We chose to adopt a procedure that featured the extn. of maltol from Fraser fir needles (www3.wcu.edu/~butcher/plant.html). As an endangered conifer (J.Chem.Ed. 1998, 75,1592), the Fraser fir affords an environmental as well as a biol. connection. We have modified the published procedures to incorporate expanded use of NMR. Through hands-on ¹³C NMR and ¹H NMR analyses of their exts., students gain valuable experience in structure detn. via interpretation of spectroscopic data. An extension to link the extn. of maltol from the Fraser fir to the inorg. course is being developed. The expt. will make use of maltol's ability to form a bidentate ligand that complexes with many transition metal ions.
23. Palmeri, Teresa M.; Koch, Andrew Scott; DiMagno, Stephen G., "An anhydrous polymer supported fluoride source". Poster presentation (CHED-500) at the 233rd National Meeting of the American Chemical Society, Chicago, March 25-27, 2007. Described here is an efficient and clean method for delivering fluoride ion under anhyd. conditions. DiMagno et. al. have reported the in-situ formation of tetrabutylammonium fluoride by reaction of hexafluorobenzene with tetrabutylammonium cyanide under anhyd. conditions. Under these conditions, fluoride behaves as an aggressive nucleophile and creates the opportunity for fluoride substitution on electron-deficient systems. One problem encountered with this method is the sepn. of product from the tetrabutylammonium byproduct. The work presented here demonstrates that a polymer support equiv. can be prepd. using Merrifield's resin and tributylamine, and that it leads to a cleaner method for the use of anhyd. fluoride source.
24. Agbleze, Gameli K.; Koch, Andrew Scott; DiMagno, Stephen G., "New quaternary ammonium fluoride salts for fluorination". Poster presentation (CHED-556) at the 235th National Meeting of the American Chemical Society, New Orleans, April 6-10, 2008. Quaternary ammonium fluorides have long since been a popular means of introducing fluoride onto a variety of mols. When working with truly anhyd. fluoride salts the added complications of unwanted side-reactions such as Hoffman elimination can severely limit reaction conditions. Described here is the prepn. of quaternary ammonium fluoride salts to study stability vs. structural features. Various aryl and alkyl ammonium fluorides were prepd. under anhyd. conditions and their stability evaluated. Both anilinium and ammonium salts were compared and stability toward Hoffman elimination and nucleophilic attack from fluoride is assessed.

25. Bruno, Nicholas C.; Koch, Andrew Scott, "A highly electron-deficient benzoquinone, 2,3-dicyano-5,6-difluoro-p-benzoquinone". Poster presentation (CHED-641) at the 235th National Meeting of the American Chemical Society, New Orleans, April 6-10, 2008.
Fluorination has many applications in org. synthesis. A relatively new method of fluorination, using anhyd. tetrabutylammonium fluoride (TBAF), was recently reported by Sun and DiMugno. The ability of conducting fluorination reactions in rigorously anhyd. conditions has prompted the investigation into highly electron deficient mols. that might be moisture sensitive. Toward this end we report the reaction of 2,3-dichloro-5,6-dicyano-p-benzoquinone (DDQ) with fluoride under anhyd. conditions, and offer some insight into the reactivity of the resulting highly electron-deficient benzoquinone.
26. Falk, Christina M.; Koch, Andrew Scott, "Investigating the co-catalytic behavior of pyridinium anthraquinones in NHPI catalytic oxidation reactions". Poster presentation (CHED-424) at the 235th National Meeting of the American Chemical Society, New Orleans, April 6-10, 2008.
Investigating the co-catalytic behavior of anthraquinones as a means in the oxidn. of hydrocarbons. Our focus in this expt. is on the use of anthraquinones, mainly various pyridinium species, in conjunction with the catalyst N-hydroxphthalimide in oxidn. reactions using dioxygen as the reagent. Implications of this research are very valuable in enabling a greener method for oxygenation, which could further be applied to industry.
27. Flurie, Rachel W.; Koch, Andrew Scott, "Suzuki coupling of a zwitterionic boronic acid". Poster presentation (CHED-456) at the 235th National Meeting of the American Chemical Society, New Orleans, April 6-10, 2008.
The versatility of the Suzuki coupling reaction between aryl boronic acids and aryl halides has made it a popular choice for carbon-carbon bond forming reactions given its tolerance toward many functional groups. Here we report on the step-wise Suzuki coupling of a cationic anthraquinone. We have recently showed that Suzuki coupling of 1-chloro-5-(4'-dimethylaminopyridinium)anthraquinone with 1,4-diboronic acid can give the mono-substituted product, 1-(4'-phenylboronic acid)-5-(4''-dimethylaminopyridinium)anthraquinone (PBPAQ), in high yield. The reason for such a high percent of PBPAQ over the bis-substituted product is that the boronic acid of PBPAQ gives up a proton to form a zwitter-ionic compd. that ppts. out of soln. at room temp. In this work, we present further couplings using the zwitter-ionic PBPAQ.
28. Lee, Joo H.; Koch, Andrew Scott; DiMugno, Stephen G., "Synthesis of Anhydrous Fluorine Nucleophiles with Polymer Supports". Poster presentation (CHED-575) at the 235th National Meeting of the American Chemical Society, New Orleans, April 6-10, 2008.
Fluorine's high electronegativity profoundly affects the polarity and property of the mols., which is esp. useful in pharmaceutical drugs. Sun and DiMugno showed that tetrabutylammonium fluoride (TBAF) when generated in the absence of water is a superior fluorinating agent. However, the difficulty of sepn. after fluorination has led to the investigation of fluorinating agents on polymer supports. Here we report the synthesis of polymer-supported fluorinating agents and an assessment of their utility.
29. Adanve, Bertrand T.; Koch, Andrew S.; Di Magno, Stephen G., "Novel Synthesis of Aryl Azides". Poster presentation (CHED-1198) at the 239th ACS National Meeting, San Francisco, CA, March 21-25, 2010.
A new method is proposed to make aryl derivs. through reductive elimination of arylidonium compds. This new method offers several advantages, one of which is it does not involve the use of any highly toxic compd. while it delivers quant. yields. In this presentation, we demonstrate the use of this method to put the azide group (a good nucleophile) on various aryl rings.

30. Brown, Danielle J.; Koch, Andrew S.; Di Magno, Stephen G., "The Effect of Pyridinium Diaryliodonium in Directing Reductive Elimination". Poster presentation (CHED-1195) at the 239th ACS National Meeting, San Francisco, CA, March 21-25, 2010.
Both sym. and asym. aryl iodonium salts were synthesized. Pyridinium groups were coordinated and the effect of the pyridines were investigated with the aim of detg. whether they assisted and directed nucleophilic anions to the aryl rings. Reductive elimination of the pyridinium diaryliodoniums was accomplished by thermal degradation. and product formation followed by NMR.
31. Bruno, Nicholas C.; Koch, Andrew S.; Di Magno, Stephen G., "Investigation into new methods for hypervalent iodine compounds". Poster presentation (CHED-1193) at the 239th ACS National Meeting, San Francisco, CA, March 21-25, 2010.
This presentation deals with the development of new synthetic methods for the prepn. of various hypervalent iodine compds. and a comparison with different oxidative methods. From this study novel hypervalent iodine compds. were prepd. and their reactivities with different nucleophiles were investigated. Novel methods of oxidn., redn., and coupling will be presented.
32. Kang, Janice Y.; Koch, Andrew S.; Di Magno, Stephen G., "Synthesis of asymmetric and symmetric diaryliodonium salts containing nitro groups and their thermal reductive eliminations". Poster presentation (CHED-1197) at the 239th ACS National Meeting, San Francisco, CA, March 21-25, 2010.
The synthesis of various asym. and sym. diaryliodonium salts containing. NO₂ groups will be presented. Exchange of the labile ligand with different aryl amines followed by thermal decompn. leads to N-substituted aryl ammoniums. Contrary to other nucleophiles, the aryl amines couple to the more electron-rich aryl group of the iodonium salt. This presentation focuses on the prepn. and characterization of the ammonium diaryl iodonium complexes and their thermal reductive eliminations.
33. Peterson, Ana L.; Koch, Andrew S., "The Preparation of Camphor Sulfinamide for the Asymmetric synthesis of Amines". Poster presentation (CHED-1207) at the 239th ACS National Meeting, San Francisco, CA, March 21-25, 2010.
This research project involves the incorporation of a camphor-derived substituent in place of the previously reported tert-Bu group so as to induce stereocontrol. The ultimate goal of prepg. this "camphor sulfinamide" reagent is to increase the selectivity of the synthesis of imines from chiral aldehyde due to the bornyl group. With two different enantiomers available for the bornyl group, it may be possible to achieve two different configurations of chiral centers in imines.
34. Swyka, Robert A.; Koch, Andrew S.; Di Magno, Stephen G., "Recent developments on the synthesis of hypervalent iodonium reagents". Poster presentation (CHED-1204) at the 239th ACS National Meeting, San Francisco, CA, March 21-25, 2010.
Recent developments on the synthesis of hypervalent iodonium reagents and their reactions will be presented. An investigation into new procedures for the formation of ditosylate iodonium salts from derivs. of iodobenzene will be discussed. The ditosylate iodonium could be a useful starting point for other synthetic procedures due to the ability of nucleophiles to substitute easily for the tosyl group. Given the low nucleophilicity of tosyl, these reagents could have wide application in org. synthesis.
35. Biber, Benjamin M.; Koch, Andrew S.; DiMagno, Stephen G., "New methods for synthesis of aryl substituted viologens". Poster presentation (CHED-1048) at the 241st ACS National Meeting, Anaheim, CA, March 27-31, 2011.
The synthesis of various asymmetric viologens was accomplished with the use of iodonium salts. N-Me (monoquat) and N-aryl viologens were reacted with diaryl iodonium (PF₆) salts and subjected to reductive elimination conditions to give N,N'-disubstituted viologens as characterized by high-field

NMR. This was found to be a convenient method for the introduction of non-electron deficient aryl rings to the viologen nitrogens.

36. Sanborn, Christopher D.; Koch, Andrew S.; DiMagno, Stephen G., "Asymmetric triaryl iodonium salts". Poster presentation (CHED-1046) at the 241st ACS National Meeting, Anaheim, CA, March 27-31, 2011.

The characterization of asym. triaryl iodoniums is lacking and previously reported high-yielding synthesis processes require lithium reagents. However, the synthesis of a specific asym. triaryl iodonium can be achieved in high yields via a two step process using benign reagents (exempting lithium compds., with a 68% yield overall). This specific triaryl iodonium can exist under ambient conditions for a prolonged period of time, thus presenting itself as a key reagent for studying reactions with asym. triaryl iodoniums.

37. Swyka, Robert A.; Koch, Andrew S.; DiMagno, Stephen G., "Hypervalent iodine arylation of organic compounds". Poster presentation (CHED-1044) at the 241st ACS National Meeting, Anaheim, CA, March 27-31, 2011.

Diaryl iodonium salts can react with anions to form trisubstituted iodoniums with three carbon-iodine bonds. Upon heating, these iodoniums can further react via reductive elimination to yield carbon-carbon coupled compds. and an iodophenyl compd. This reaction will be explored by using the cyclopentadiene anion as one of the groups coordinated to the iodonium.

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