

## Curriculum Vitae

### Jason G. Gillmore

Hope College Chemistry Department  
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#### Faculty Position:

Assistant Professor of Chemistry, Hope College, Holland, MI; July 2004 to present.

#### Education:

NIH Postdoctoral Traineeship, Center in Molecular Toxicology, Vanderbilt University, Nashville, TN; Professor Ned A. Porter, May 2003 to June 2004.

Doctor of Philosophy in Chemistry, University of Rochester, Rochester, NY, April 2003.

Major Advisor: Professor Joseph P. Dinnocenzo

Thesis Title: *Photoinduced Cation Radical Isomerization Reactions in Polymeric Media – “Quantum Amplified Isomerization.”*

Master of Science in Chemistry, Virginia Polytechnic Institute and State University, Blacksburg, VA, June 1998.

Major Advisor: Professor James M. Tanko

Thesis Title: *Evaluation of 1,1-Dimethyl-5,7-di-t-butylspiro[2.5]octa-4,7-dien-6-one as a Mechanistic Probe for Single Electron Transfer.*

Bachelor of Science in Chemistry (*cum laude*, Commonwealth Scholar, Psychology Minor), VPI&SU, Blacksburg, VA, December 1996.

#### Research Experience:

*Photochromic Photooxidants: Gating Sensitivity to Photinduced Charge Transfer with a Photochromic Rearrangement.* Hope College Chemistry Department, Holland, MI. July 2004 to present.

*Biologically relevant radical clocks to study lipid peroxidation.* With Prof. Ned A. Porter, Vanderbilt University Department of Chemistry and Center in Molecular Toxicology, Nashville, TN. May 2003 to June 2004.

*Investigations of cation radical isomerizations in polymer matrices and conventional solvents.* With Prof. Joseph P. Dinnocenzo, University of Rochester Department of Chemistry and Center for Photoinduced Charge Transfer, Rochester, NY. September 1998 to May 2003.

*Consultant.* Eastman Kodak Company, Rochester, NY. With Drs. Samir Farid and Douglas R. Robello. September 1999 to January 2003.

*Evaluation of 1,1-dimethyl-5,7-di-t-butylspiro[2.5]octa-4,7-dien-6-one as a potential single electron transfer probe.* With Prof. James M. Tanko, VPI&SU, Blacksburg, VA. August 1995 through July 1998.

*Model study relating to the cis-decalin system in the ongoing total synthesis of Popolohuanone E.* With Prof. John W. Benbow, Lehigh University, Bethlehem, PA. Summer 1995.

*General research experience in organic synthesis.* Synthesizing intermediates for use in ongoing research, with Prof. Tomas Hudlicky, VPI&SU, Blacksburg, VA. Spring 1995.

#### Teaching Experience:

##### Lecture Courses:

- One semester Advanced Organic Lecture, Hope College
- Two semester Organic Chemistry Lecture and Discussion, Hope College
- Substitute First Semester Organic Chemistry Lecturer as needed, UR
- First Semester Organic Chemistry PLTL Workshop Leader, UR
- First Semester Honors Organic Chemistry Lecture Assistant, UR
- Two Semester General Chemistry Undergraduate Recitation Instructor, VPI&SU

##### Laboratory Courses:

- Two Semester Organic Chemistry Lab, Hope College

- Organic Chemistry Lab Coordinator (5-7 sections; combined lab lecture), Hope College
- First Semester Organic Chemistry Lab TA, UR
- Two Semester Honors Organic Lab TA, UR
- Two Semester Organic Synthesis and Techniques Lab, VPI&SU
- Second Semester Organic Chemistry Lab, VPI&SU

**Mentor/Supervisor:**

- 7 Hope College undergraduate research students since joining Hope in Fall 2004:
  - Charles G. Sierzant, Hope '07, Fall 2004
  - Ryan TerLouw, Hope '07, Spring 2005 (1 credit), partial Summer 2005, Fall 2005 (1 credit), summer 2006
  - Andrew J. Radler, Hope '07, Spring 2005, Summer 2005
  - Kenneth E. Kuper III, Hope '07, Summer 2005, Fall 2005 (1 credit)
  - Kyle A. Smith, Hope '07, Summer 2005
  - Jonathan P. Moerdyk, Hope '09, Summer 2006, Fall 2006 (1 credit)
  - Ross W. Knoll, Hope '09, Summer 2006, Fall 2006
- 3 external undergraduate research students since joining Hope in Fall 2004:
  - Brian R. Heiberger, Purdue-Calumet, external NSF-REU Summer 2005 (minority student)
  - Christine L. Bodden, Harper College, external NSF-REU Summer 2006 (minority student)
  - Daniel J. Zeller, Purdue University, Summer 2006
- Visiting 2<sup>nd</sup> year Graduate Student (from Politecnico di Milano, Italy), Vanderbilt, May - November 2003.
- Undergraduate Summer Researcher, NSF-REU, UR, Summer 2001.
- Visiting High School Teachers, NSF-RET, UR, Summer 2001, Summer 2002.
- Senior graduate student in JPD group 1999-2003 (informal mentoring of junior group members, *etc.*)
- Undergraduate Advising, Hope College, 2004 – present (6-8 Chemistry majors / semester)

**Outreach Activities:**

- Host annual visits of Western Michigan Christian High School advanced chemistry classes to Hope College for a day of tours, demos, and activities, 2004-present.
- Elementary school classroom visits and demonstrations, Rochester City School District, 1999-2000.
- National Chemistry Week Activities, Rochester Museum & Science Center, 2000, 2001.
- Demonstrations for “Bring your child to work” days, UR, 2001.

**Funded Grant support (\$73,219 external + \$138,471 internal since July 2004):**

Research Corporation, Cottrell College Scholars Award, Grant # CC6653: “Photochromic Photooxidants: developing a series of electron poor photochromes to gate photoinduced charge transfer.” Applied November 2005, funded June 2006, \$43,219 (RC) + 19,871 (Hope College match) = \$63,090.

Camille and Henry Dreyfus Foundation, Start-up Award Program, “Perimidinespirocyclohexadienone Photochromic Photooxidants: developing a series of photochromic reactions to allow gating of photoinduced charge transfer initiation of cation radical reactions”. Applied May 2005, funded August 2004, \$30,000.

Hope College Start-up Funds (\$118,600 for 2004-2007)

- \$75,000 Institutional Research Start-up (2004/5 - \$40k, 2005/6 - \$25k, 2006/7 - \$10k)
- \$15,000 Departmental Research Support (\$5k / yr x 3 yrs)
- \$21,000 Summer Student Stipends (\$7k / summer x 3 summers)
- \$3,800 Summer Salary (awarded \$3.8k / summer x 2 summers – second summer declined)
- \$1,800 Additional Travel (\$900/trip x 2 trips)

**Grants pending or not funded:**

Council on Undergraduate Research 2005 Summer Undergraduate Fellowship grant to fund one additional undergraduate researcher (ca. \$4,000). Applied November 2004, not funded.

**Scholarships and Honors:**

PKAL Faculty for the 21<sup>st</sup> Century, Class of 2006.  
 NIH Training Grant, Vanderbilt Center in Molecular Toxicology, 2003-2004.  
 Hooker Fellow, University of Rochester, 2000-2003.  
 Sproull Fellow, University of Rochester, 1998-2003.  
 Sherman Clarke Fellow, Department of Chemistry, University of Rochester, 1998-2003.  
 Departmental Tuition Waiver and Assistantship (Teaching or Research),  
 Chemistry Department, VPI&SU, 1997-1998.  
 National Merit Scholar, University Funded, VPI&SU, 1993-1996.  
 Departmental Merit Scholar, Chemistry Department, VPI&SU, 1993-1996  
 (partially funded by National Starch Corporation.)  
 Merck Award for Excellence in Organic Chemistry as an Undergraduate.  
 Golden Key National Honor Society, 1995 to Present.  
 Phi Kappa Phi National Honor Society, 1995 to Present.  
 Founders' Day Honoree, VPI&SU, 1994, 1995, 1996, 1997.

**Organizations/Activities/Professional Development:**

Grants reviewed:  
 NSF – 1 proposals reviewed since March 2006.  
 CUR Dialog on Grantsmanship, Washington, DC, April 17-19, 2005.  
 PKAL Leadership Initiative seminar on Building Research Rich Learning  
 Environments, Hope College, Holland, MI, April 15-17, 2005.  
 Chair, Hope College Extracurricular Activities Committee, academic year 2005/6, 2006/7.  
 Advisor, Hope College Chemistry Club / ACS Student Affiliates chapter, ac. yr. 2005/6, 2006/7.  
 Hope College Chemistry Department Faculty Search Committee, Fall 2005, Fall 2006.  
 Coordinator, Hope College Chemistry Department information sessions (GRE, Graduate School,  
 Careers, Pre-Registration Advising, etc.) academic year 2005/6, 2006/7.  
 Pew Midstates Science & Mathematics Consortium New Faculty Workshop, Holland, MI,  
 July 9-11, 2004.  
 Academic Careers in Chemistry Workshop, Eastern Analytical Symposium, Somerset, NJ,  
 November 16-17, 2003. (competitive application process; supplemental travel award)  
 Co-organizer / Student Chair, Peer-Led Team Learning Regional Leaders' Symposium, Nazareth  
 College, Rochester, NY, November 2001.  
 Peer-Led Team Learning: The Workshop Project, National Dissemination Grant. Various local  
 and national dissemination activities. 1999 to present.  
 Chair's Graduate Student Advisory Panel, Department of Chemistry, University of Rochester,  
 August 2001 to May 2003.  
 Dean's Student Advisory Committee, College of Arts and Sciences, VPI&SU,  
 Chemistry Department Representative, January 1995 to November 1996.  
 Community Chemistry Outreach activities, University of Rochester, 1999-2002.  
 American Chemical Society,  
 Member, 2003-present; Student Member, 1997-2003; Student Affiliate, 1993-1996.  
 Organic Division, 1997 to present.  
 Division of Chemical Education, 2000 to present.  
 Local Sections: Western Michigan 2004-present; Nashville 2003-2004;  
 Rochester 1998-2003; Virginia Blue Ridge 1997-1998.  
 Council on Undergraduate Research, 2004 to present.

Interservice Emerging Scholars Network, 2004 to present.

Coordinator, "Making the Grade" Community Tutoring Outreach (weekly tutoring of elementary to high school students by church volunteers), Music City Assembly of God, Nashville, TN, 2003-2004.

Training Coordinator, Section Leader and Team Leader, BLOCK Ministry (urban Christian outreach), Rochester, NY, 1999-2003.

### Publications, peer reviewed:

(asterisk\* indicates undergraduate co-author)

**"Peroxy Radical Clocks."** Roschek, B. Jr.; Tallman, K.A.; Rector, C.L.; Gillmore, J.G.; Pratt, D.A.; Punta, C.; Porter, N.A. *J. Org. Chem.* **2006**, *71* (9), 3527-3532.

**"Quantum Amplified Isomerization: A New Concept for Polymeric Optical Materials."** Gillmore, J.G.; Neiser, J.D.; McManus, K.A.; Roh, Y.; Dombrowski, G.W.; Brown, T.G.; Dinnocenzo, J.P.; Farid, S.; Robello, D.R. *Macromolecules* **2005**, *38* (18), 7684-7694.

**"Cyclopropyl Carbinyl → Homoallyl-Type Ring Opening of Ketyl Radical Anions. Structure/Reactivity Relationships and the Contribution of Solvent/Counterion Reorganization to the Intrinsic Barrier."** Tanko, J.M.; Gillmore, J.G.; Friedline, R.; Chahma, M. *J. Org. Chem.* **2005**, *70* (10), 4170-4173.

**"Radical ion probes. 11. Reaction of 1,1-dimethyl-5,7-di-*t*-butylspiro[2.5]octa-4,7-dien-6-one with 5-hexenyl magnesium bromide."** Gillmore, J.G.; Tanko, J.M. *Tetrahedron Lett.* **1998**, *39* (48), 8795-8798.

**"Radical Ion Probes. 8. Direct and Indirect Electrochemistry of 5,7-Di-*tert*-butylspiro-[2.5]octa-4,7-dien-6-one and Derivatives."** Phillips, J.P.; Gillmore, J.G.; Schwartz, P.\*; Brammer, L.E., Jr.; Berger, D.J.; Tanko, J.M. *J. Am. Chem. Soc.* **1998**, *120* (1), 195-202.

### Publications, not peer-reviewed:

(asterisk\* indicates undergraduate co-author)

**"Optical Recording Material."** Robello, D.R.; Dinnocenzo J.P.; Farid, S.; Gillmore, J.G. US patent 6,969,578 B2, November 29, 2005. [Application submitted August 19, 2002 (US 2002-223238). Followed up with European (EP 2003-77476) and Japanese (JP 2003-295379) patent applications in 2003-2004.]

**"Quantum Amplified Isomerization: A New Chemically Amplified Imaging System in Solid Polymers."** Robello, D.R.; Dinnocenzo, J.P.; Farid, S.; Gillmore, J.G.; Thomas, S.W. III\*. In *Chromogenic Phenomena in Polymers: Tunable Optical Properties*; Jenekhe, S.A., Kiserow, D.J., Eds.; ACS Symposium Series 888; American Chemical Society: Washington, DC, 2004; pp 135-146.

**"Photoinduced Cation Radical Isomerization Reactions in Polymeric Media – 'Quantum Amplified Isomerization' "** Gillmore, J.G., Ph.D. Thesis, University of Rochester, Rochester, NY, April 2003.

**"Quantum Amplified Isomerization: Photoinitiated Electron Transfer Chain Reactions in Dewarbenzene Substituted Polymers."** Robello, D.R.; Farid, S.; Dinnocenzo, J.P.; Gillmore, J.G. *Polym. Prepr. (Am. Chem. Soc., Div. Polym. Chem.)* **2002**, *43* (1), 165-166.

**"Quantum Amplified Isomerization: A New Chemically Amplified Imaging System."** Robello, D.R.; Dinnocenzo, J.P.; Gillmore, J.G.; Thomas, S.W. III\*. *Polym. Prepr. (Am. Chem. Soc., Div. Polym. Chem.)* **2001**, *42* (2), 717-718.

**"Evaluation of 1,1-dimethyl-5,7-di-*t*-butylspiro[2.5]octa-4,7-dien-6-one as a mechanistic probe for single electron transfer."** Gillmore, J.G., M.S Thesis, Virginia Polytechnic Institute & State University, Blacksburg, Virginia, June 1998.

### External Research Presentations:

*Photochromic Photooxidants: Developing a series of electron-poor photochromes in an attempt to*

- gate sensitivity to photoinduced charge transfer*. 232<sup>nd</sup> American Chemical Society National Meeting. (ORGN 84). San Francisco, CA, September 2006. (contributed talk)
- Photochromic Photooxidants: Developing electron deficient photochromes to gate sensitivity to photoinduced charge transfer*. 31<sup>st</sup> Reaction Mechanisms Conference, College Park, MD, June 2006. (contributed poster, invited talk)
- Photochromic Photooxidants: using photochrome rearrangements to gate photoinduced charge transfer ability*. Calvin College Chemistry Department, Grand Rapids, MI, February 2006. (invited talk)
- Photochromic Photooxidants: using photochrome rearrangements to gate photoinduced charge transfer ability*. Andrews University Chemistry Department, Berrien Springs, MI, October 2005. (invited talk)
- Peroxyl Radical  $\beta$ -Fragmentations as Free Radical Clocks of Hydrogen Atom Transfer Reactions*. 9<sup>th</sup> International Symposium on Organic Free Radicals, Porto-Vecchio, Corsica, June 2004. (contributed poster)
- Photoinitiated cation radical isomerization reactions in polymeric media: long distance charge separation in a low dielectric media?* 226<sup>th</sup> American Chemical Society National Meeting (ORGN 34). Physical Organic Chemistry Session. New York, NY, September 2003. (contributed talk)
- Cation Radical Isomerizations in Polymeric Media*. Virginia Tech Chemistry Department Blacksburg, VA, October 2001. (invited talk)
- Ion Radical Reactions in Polymeric Media*. Pacificchem 2000 - the International Chemical Congress of Pacific Basin Societies, Symposium on Reactive Intermediates and Strained Molecules, Honolulu, HI, December 2000. (invited talk)
- Ion Radical Isomerizations in Polymeric Media*. Gomberg 2000, 8<sup>th</sup> International Symposium on Organic Free Radicals, Ann Arbor, MI, June 2000. (contributed poster & talk)
- Utility of 1,1-Dimethyl-5,7,-di-t-butylspiro[2.5]octa-4,7-dien-6-one as a Probe for Single Electron Transfer*. Southeast Regional Meeting of the ACS, Roanoke, VA, October 1997. (contributed talk)

### Student Research Presentations:

- Ter Louw, R.P.; Moerdyk, J.M. *Developing Quinoline Analogs of Perimidinespirohexadienone Photochromes as "Photochromic Photooxidants"*. 232<sup>nd</sup> American Chemical Society National Meeting. (CHED 296). San Francisco, CA, September 2006. (contributed poster)
- Moerdyk, J.M. *Quinoline Analogs of Perimidinespirohexadienone Photochromes: Toward Gating Photoinduced Charge Transfer*. Lilly Undergraduate Research Fellows Day, Eli Lilly & Co., Indianapolis, IN, August 2006. (invited poster)
- Moerdyk, J.M. *Quinoline Analogs of Perimidinespirohexadienone Photochromes: Toward Gating Photoinduced Charge Transfer*. Regional NSF-REU Symposium, South Bend, IN, August 2006. (contributed poster – 1<sup>st</sup> prize; invited oral – 2<sup>nd</sup> prize)
- Kuper, K.E. III. *Synthesis of Quinoline Intermediates: toward more potent photochromic photooxidants*. Pew Midstates Science & Mathematics Consortium Undergraduate Research Symposium, Chicago, IL, November 2005. (contributed poster)

### External Non-research Presentations:

- "What I wish I knew my first year..." presenter, Pew Midstates Science & Mathematics Consortium New Faculty Workshop, Holland, MI, July 2005; July 2006. (invited talk)
- Panelist presenter (new faculty perspective), PKAL Leadership Initiative seminar on Building Research Rich Learning Environments, Hope College, Holland, MI, April 15-17, 2005. (invited talk)
- Graduate School, perspectives of an undergraduate alumnus*. Virginia Tech Chemistry Club, Blacksburg, VA, October 2001. (invited discussion)