

Curriculum Vitae
Ned B. Bowden
University of Iowa
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EDUCATIONAL AND PROFESSIONAL HISTORY

Education

- 1994 – 1999 M.S. in 1997, Ph.D. in 1999
Department of Chemistry
Harvard University
Cambridge, MA 02138
Thesis Title: Order and Disorder: Mesoscale Self-Assembly and Waves
Advisor: Professor George M. Whitesides
- 1990 – 1994 B.S. in 1994
Department of Chemistry
California Institute of Technology
Pasadena, CA 91126
Advisor: Robert H. Grubbs

Professional Appointments

- 2009 – present Associate Professor
Department of Chemistry
University of Iowa
- 2002 – 2009 Assistant Professor
Department of Chemistry
University of Iowa
Iowa City, IA 52242
- 2000 – 2002 Post-doctoral Scientist
Department of Chemistry
Stanford University
Palo Alto, CA 94305
Advisor: Professor Robert M. Waymouth
- 1999 Post-doctoral Scientist

Department of Chemistry
Harvard University
Cambridge, MA 02138
Advisor: Professor George M. Whitesides

Editor Positions

May 2018 – Present Associate Editor of ACS Applied Nano Materials

Honors and Awards

2014 University of Iowa Inventor Award
2009 University Housing Academic Excellence Award
2006 Graduate Student Travel Award Administered by the ACS Division of Polymer Chemistry for my student M. Brett Runge
2005 American Cancer Society Grant for New Avenues of Research
2003 American Chemical Society: Petroleum Research Fund Type G Award
2003 Research Corporation: Research Innovation Award
2000 – 2002 Postdoctoral Fellowship Based in the Center on Polymer Interfaces and Macromolecular Assemblies
1994 – 1997 Predoctoral Fellowship from the Department of Defense
1994 American Institute of Chemists Foundation Student Award for Outstanding Senior Majoring in Chemistry
1993 – 1994 Barry Goldwater Scholarship
1992 – 1993 Richard P. Schuster Memorial Prize to Outstanding Junior or Senior in Chemistry
1992 – 1994 Caltech Carnation Scholarship
1993 Academic All-American in Collegiate Cross Country

Membership

1992 – Present American Chemical Society
Division of Polymer Chemistry, Division of Polymeric Materials: Science and Engineering, and Division of Colloid and Surface Chemistry
1996 – Present American Association for the Advancement of Science
2013 – Present American Oil Chemists' Society

SCHOLARSHIP

66. Carter, Justin M.; Brown, Eric M.; Grace, James P.; Salem, Aliasger K.; Irish, Erin E.; Bowden, Ned B. "Improved growth of pea, lettuce, and radish plants using the slow release of hydrogen sulfide from GYY-4137" *PLOS One*, **2018**, Accepted.
65. Gilmer, Chad M.; Bowden, Ned B. "Reactive epoxy nanofiltration membranes with disulfide bonds for the separation of multicomponent chemical mixtures" *ACS Omega*, **2018**, 3, 10216-20224.
64. Schumacher, A. L.; Gilmer, C. M.; Atluri, K.; Lee, J.; Jugessur, A. S.; Salem, A. K.; Bowden, N. B.; Raghavan, M. L.; Hasan, D. M. "Development and evaluation of a nanometer-scale hemocompatible and antithrombotic coating technology platform for commercial intracranial stents and flow diverters" *ACS Applied Nano Materials*, **2018**, 1, 344-354.
63. Gilmer, C. M.; Zvokel, C.; Vick, A.; Bowden, N. B. "Separation of saturated fatty acids and fatty acid methyl esters with epoxy nanofiltration membranes" *RSC Advances*, **2017**, 7, 55626-55632.
62. Gilmer, C. M.; Bowden, N. B. "Highly cross-linked epoxy nanofiltration membranes for the separation of organic chemicals and fish oil ethyl esters" *ACS Applied Materials & Interfaces*, **2016**, 8, 24104-24111.
61. Geary, S. M.; Hu, Q.; Joshi, V. B.; Bowden, N. B.; Salem A. K. "Diaminosulfide based polymer microparticles as cancer vaccine delivery systems" *Journal of Controlled Release*, **2015** 220, 682-690.
60. Long, T. R.; Wongrakpanich, A.; Do, A.-V.; Salem, A. K.; Bowden, N. B. "Long-term release of a thiobenzamide from a backbone functionalized poly(lactic acid)" *Polymer Chemistry*, **2015**, 6, 7188-7195.
59. D'Mello, S. R.; Yoo, J.; Bowden, N. B.; Salem, A. K. "Microparticles prepared from sulfenamide-based polymers" *Journal of Microencapsulation*, **2014**, 31, 137-146.
58. Kitano, H.; Ramachandran, K.; Bowden, N. B.; Scranton, A. B. "Unexpected visible-light-induced free radical photopolymerization at low light intensity and high viscosity using a titanocene photoinitiator" *J. Appl. Polym. Sci.* **2013**, 128, 611-618.
57. Gupta, A.; Bowden, N. B. "Separation of *cis*-fatty acids from saturated and *trans*-fatty acids by nanoporous polydicyclopentadiene membranes" *ACS Appl. Mater. Interfaces*, **2013**, 5, 924-933.

Note: A review of this article was published in *Chemical & Engineering News*. See *Chemical & Engineering News*, **2013**, 91, issue 6

This article was also reviewed in *Inform* which is the magazine published by the American Oil Chemists Society.

This article was highlighted in the magazine *Tribology & Lubrication Technology* that is published by the Society of Tribologists and Lubrication Engineers (www.stle.org). It is read by 4,000 professionals worldwide on a monthly basis.

This article was highlighted in *Advances in Engineering* in March of 2013.

56. Graf, T. A.; Yoo, J.; Brummett, A. B.; Lin, R.; Wohlgenannt, M.; Quinn, D.; Bowden, N. B. "New polymers possessing a disulfide bond in a unique environment" *Macromolecules*, **2012**, *45*, 8193-8200.

Note: A review of this article and articles 55 and 54 appeared in *Chemical & Engineering News*. See *Chemical & Engineering News*, **2012**, *90*, issue 35.

55. Yoo, J.; Kuruvilla, D. J.; D'Mello, S. R.; Salem, A. K.; Bowden, N. B. "New class of biodegradable polymers formed from reactions of an inorganic functional group" *Macromolecules*, **2012**, *45*, 2292-2300.

Note: This article was reviewed in *Synfacts*. *Synfacts* is a journal to describe important trends and results in organic chemistry. Swager, T. M.; Mirica, K. A. "First synthesis of polysulfenamides" *Synfacts*, **2012**, *8*, 611.

54. Yoo, J.; D'Mello, S. R.; Graf, T.; Salem, A. K.; Bowden, N. B. "Synthesis of the first poly(diaminosulfide)s and an investigation of their applications as drug delivery vehicles" *Macromolecules*, **2012**, *45*, 688-697.

53. Krawczyk, B. M.; Baltrusaitis, J.; Yoder, C. M.; Vargo, T. G.; Bowden, N. B.; Kader, K. "Radio frequency glow discharge-induced acidification of fluoropolymers" *Journal of Biomedical Research Part A*, **2011**, *99*, 418-425.

52. Gupta, A.; Rethwisch, D. G.; Bowden, N. B. "Retention of palladium and phosphine ligands using nanoporous polydicyclopentadiene membranes" *Chemical Communications*, **2011**, *46*, 10236-10238.

51. Yoo, J.; Runge, M. B.; Bowden, N. B. "Synthesis of complex architectures of comb block copolymers and their assembly in the solid state" *Polymers*, **2011**, *52*, 2499-2504.

50. Graf, T. A.; Anderson, T. K.; Bowden, N. B. "Extended lifetimes of gold(III) chloride catalysts using copper(II) chloride and 2,2,6,6-tetramethylpiperidine-1-oxyl (TEMPO)" *Advanced Synthesis and Catalysis*, **2011**, *353*, 1033-1038.

49. Long, T. R.; Gupta, A.; Miler II, A. L.; Rethwisch, D. G.; Bowden, N. B. "Selective flux of organic liquids and solids using nanoporous membranes of polydicyclopentadiene" *J. Mater. Chem.* **2011**, *21*, 14265-14276.

Note: Invited article for a special issue Material Chemistry of Nanofabrication

48. Long, T. R.; Bowden, N. B. "PDMS thimbles" *Encyclopedia of Reagents for Organic Synthesis*, John Wiley & Sons Ltd., http://onlinelibrary.wiley.com/o/eros/articles/rn01331/pdf_fs.htmlhttp://onlinelibrary.wiley.com/o/eros/articles/rn01331/pdf_fs.html; Posted online: September 15, 2011.
47. Byun, M.; Bowden, N. B.; Lin, Z. "Hierarchically ordered structures engineered from controlled evaporative self-assembly" *Nano Letters* **2010**, *51*, 368-369.
46. Perring, M.; Long, T. R.; Bowden, N. B. "Epoxidation of the surface of polydicyclopentadiene for the self-assembly of organic monolayers" *J. Mater. Chem.* **2010**, *20*, 8679-8685.
45. Byun, M.; Han, W.; Qui, F.; Bowden, N. B.; Lin, Z. "Hierarchically ordered structures enabled by controlled evaporative self-assembly" *Small* **2010**, *6*, 2250-2255.
44. Zhao, L.; Goodman, M. D.; Bowden, N. B.; Lin, Z. "Self-assembly of an ultra-high-molecular-weight comb block copolymer at the air-water interface" *Soft Matter* **2009**, *5*, 4698-4703.
43. Miller II, A. L.; Bowden, N. B. "Site-isolation and recycling of PdCl₂ using PDMS thimbles" *J. Org. Chem.* **2009**, *74*, 4834-4840.
42. Runge, M. B.; Yoo, J.; Bowden, N. B. "Synthesis of Comb Tri- and Tetrablock Copolymers Catalyzed by the Grubbs First Generation Catalyst" *Macromolecular Rapid Communications*, **2009**, *30*, 1392-1398.
41. Mwangi, M. T.; Schulz, M. D.; Ned B. Bowden "Cascade Reactions with Grubbs' Catalyst and AD-mix-a/b Using PDMS Thimbles" *Organic Letters*, **2009**, *11*, 33-36.
40. Perring, M.; Bowden, N. B. "Assembly of Organic Monolayers on Polydicyclopentadiene" *Langmuir*, **2008**, *24*, 10480-10487.
39. Miller II, A. L.; Bowden, N. B. "A Materials Approach to the Dual Site-Isolation of Catalysts Bonded to Linear Polymers and Small, Ionic Molecules for Use in One-Pot Cascade Reactions" *Advanced Materials*, **2008**, *20*, 4195-4199.
38. Runge, M. B.; Lipscomb, C. E.; Ditzler, L. R.; Mahanthappa, M. K.; Tivanski, A. V.; Bowden, N. B. "Investigation of the Assembly of Comb Block Copolymers in the Solid State" *Macromolecules*, **2008**, *41*, 7687-7694.
37. Mwangi, M. T.; Runge, M. B.; Hoak, K. M.; Schulz, M. D.; Bowden, N. B. "A Materials Approach to Site-Isolation of Grubbs' Catalysts from Incompatible Solvents and m-Chloroperoxybenzoic Acid" *Chem. Eur. J.* **2008**, *14*, 6780-6788.

36. Runge, M. B.; Mwangi, M. T.; Miller II, A. L.; Perring, M.; Bowden, N. B. "Cascade Reactions Using LiAlH_4 and Grignard Reagents in the Presence of Water" *Angew. Chem. Int. Ed.*, **2008**, *47*, 935-939.
35. Runge, M. B.; Bowden, N. B. "Synthesis of High Molecular Weight Comb Block Copolymers and Their Assembly into Ordered Morphologies in the Solid State" *J. Am. Chem. Soc.*, **2007**, *129*, 10551-10560.
34. Perring, M.; Mitchell, M.; Kenis, P. J. A.; Bowden, N. B. "Patterning by Etching at the Nanoscale (PENs) on Si(111) Through the Controlled Etching of PDMS" *Chemistry of Materials*, **2007**, *19*, 2903-2909.
33. Miller, A. L.; Bowden, N. B. "Room Temperature Ionic Liquids: New Solvents for Schrock's Catalyst and Removal Using Polydimethylsiloxane Membranes" *Chemical Communications*, **2007**, 2051-2053.
32. Runge, M. B.; Dutta, S.; Bowden, N. B. "Synthesis of Comb Block Copolymers by ROMP, ATRP, and ROP and Their Assembly in the Solid State" *Macromolecules*, **2006**, *39*, 498-508.
31. Dutta, S.; Perring, M.; Barrett, S.; Mitchell, M.; Kenis, P. J. A.; Bowden, N. B. "Cross Metathesis on Olefin-Terminated Monolayers on Si(111) Using the Grubbs' Catalyst" *Langmuir*, **2006**, *22*, 2146-2155.
30. Mwangi, M. T.; Runge, M. B.; Bowden, N. B. "Occlusion of Grubbs' Catalysts in Active Membranes of Polydimethylsiloxane. Catalysis in Water and New Functional Group Selectivities" *J. Am. Chem. Soc.*, **2006**, *128*, 14434-14435.
29. Runge, M. B.; Mwangi, M. T.; Bowden, N. B. "New Reactions from Old Catalysts. Occlusion of Grubbs' Catalysts in PDMS to Change Their Reactions" *J. Organomet. Chem.*, **2006**, *691*, 5278-5288.
28. Gavranovic, G. T.; Csihony, S.; Bowden, N. B.; Hawker, C. J.; Waymouth, R. M.; Moerner, W. E.; Fuller, G. G. "Well-Controlled Living Polymerization of Perylene-Labeled Polyisoprenes and Their Use in Single Molecule Imaging" *Macromolecules*, **2006**, *39*, 8121-8127.
27. Arafat, S., Dutta, S.; Perring, M.; Mitchell, M.; Kenis, P. J. A.; Bowden, N. B. "Mild Methods to Assemble and Pattern Organic Monolayers on Hydrogen-Terminated Si(111)", *Chemical Communications*, **2005**, 3198-3200.
26. Perring, M.; Dutta, S.; Arafat, S.; Mitchell, M.; Kenis, P. J. A.; Bowden, N. B. "Simple Methods for the Direct Assembly, Functionalization, and Patterning of Acid-Terminated Monolayers on Si(111)", *Langmuir*, **2005**, *21*, 10537-10544.
25. Jha, S.; Dutta, S.; Bowden, N. B. "Synthesis of Ultralarge Molecular Weight Bottlebrush Polymers Using the Grubbs' Catalysts", *Macromolecules*, **2004** *37*, 4365-4374.

24. Wolfe, D. B.; Snead A.; Mao. C.; Bowden, N. B.; Whitesides, G. M. "Mesoscale Self-Assembly: Capillary Interactions When Positive and Negative Menisci Have Similar Amplitudes", *Langmuir* **2003** 19, 2206-2214.
23. Bowden, N. B.; Dankova, M.; Wiyatno, W.; Waymouth, R. M., "Synthesis of Polyethylene Block Graft Copolymers from Styrene, Butyl Acrylate, and Butadiene", *Macromolecules* **2002** 35, 9246-9248.
22. Bowden, N. B.; Willets, K. A.; Moerner, W. E.; Waymouth, R. M., "Synthesis of Fluorescently Labeled Polymers and Their Use in Single-Molecule Imaging", *Macromolecules* **2002** 35, 8122-8125.
21. Jiang, X.; Takayama, S.; Qian, X.; Ostuni, E.; Wu, H.; Bowden, N.; LeDuc, P.; Ingber, D. E.; Whitesides, G. M. "Controlling Mammalian Cell Spreading and Cytoskeletal Arrangement With Conveniently Fabricated Continuous Wavy Features on Poly(dimethylsiloxane)", *Langmuir* **2002** 18, 3273-3280.
20. Ismagilov, R. F.; Schwartz, A.; Bowden, N.; Whitesides, G. M., "Autonomous Movement and Self-Assembly", *Angew. Chem. Int. Ed.* **2002** 41, 652-654.
19. Bowden, N.; Tien, J.; Huck, W. T. S.; Whitesides, G. M. *Mesoscale Self-Assembly: The Assembly of Micron- and Millimeter-Sized Objects Using Capillary Forces*; in "Supramolecular Organization and Materials Design", Jones, W. and Rao, C. N. R., Ed.; Cambridge University Press: Cambridge, **2002**, 103-145.
18. Oliver, S. R. J.; Clark, T. D.; Bowden, N.; Whitesides, G. M., "Three-Dimensional Self-Assembly of Complex, Millimeter-Scale Structures through Capillary Bonding", *J. Am. Chem. Soc.* **2001** 123, 8119-8120.
17. Grzybowski, B. A.; Bowden, N.; Arias, F.; Yang, H.; Whitesides, G. M., "Modeling of Menisci and Capillary Forces from the Millimeter to the Micrometer Size Range", *J. Phys. Chem. B* **2001** 105, 404-412.
16. Bowden, N.; Weck, M.; Choi, I. S.; Whitesides, G. M., "Molecule-Mimetic Chemistry and Mesoscale Self-Assembly", *Acc. Chem. Res.* **2001** 34, 231-238.
15. Bowden, N.; Arias, F.; Deng, T.; Whitesides, G. M., "Self-Assembly of Microscale Objects at a Liquid/Liquid Interface through Lateral Capillary Forces", *Langmuir* **2001** 17, 1757-1765.
14. Oliver, S. R. J.; Bowden, N.; Whitesides, G. M., "Self-Assembly of Hexagonal Rods Based on Capillary Forces", *J. Colloid Interface Sci.* **2000** 224, 425-428.
13. Huck, W. T. S.; Bowden, N.; Onck, P.; Pardoen, T.; Hutchinson, J. W.; Whitesides, G. M., "Ordering of Spontaneously Formed Buckles on Planar Surfaces", *Langmuir* **2000** 16, 3497-3501.

12. Bowden, N.; Oliver, S.; Whitesides, G. M., "Mesoscale Self-Assembly: Capillary Bonds and Negative Menisci", *J. Phys. Chem. B* **2000** *104*, 2714-2724.
11. Wu, H.; Bowden, N.; Whitesides, G. M., "Selectivities among Capillary Bonds in Mesoscale Self-Assembly", *Appl. Phys. Lett.* **1999** *75*, 3222-3224.
10. Isaacs, L.; Chin, D. N.; Bowden, N.; Xia, Y.; Whitesides, G. M. *Self-assembling Systems on Scales from Nanometers to Millimeters: Design and Discovery*; in "Supramolecular Materials and Technologies", Reinhoudt, D. N., Ed.; John Wiley & Sons Ltd: New York, **1999**, 1-46.
9. Choi, I. S.; Bowden, N.; Whitesides, G. M., "Macroscopic, Hierarchical, Two-Dimensional Self-Assembly", *Angew. Chem. Int. Ed.* **1999** *38*, 3078-3081.
8. Bowden, N.; Choi, I. S.; Grzybowski, B. A.; Whitesides, G. M., "Mesoscale Self-Assembly of Hexagonal Plates Using Lateral Capillary Forces: Synthesis Using the 'Capillary Bond'", *J. Am. Chem. Soc.* **1999** *121*, 5373-5391.
7. Bowden, N.; Huck, W. T. S.; Paul, K. E.; Whitesides, G. M., "The Controlled Formation of Ordered, Sinusoidal Structures by Plasma Oxidation of an Elastomeric Polymer", *Appl. Phys. Lett.* **1999** *75*, 2557-2559.
6. Grzybowski, B. A.; Haag, R.; Bowden, N.; Whitesides, G. M., "Generation of Micrometer-Sized Patterns for Microanalytical Applications Using a Laser Direct-Write Method and Microcontact Printing", *Anal. Chem.* **1998** *70*, 4645-4652.
5. Bowden, N.; Brittain, S.; Evans, A. G.; Hutchinson, J. W.; Whitesides, G. M., "Spontaneous Formation of Ordered Structures in Thin Films of Metals Supported on an Elastomeric Polymer", *Nature* **1998** *393*, 146-149.
4. Terfort, A.; Bowden, N.; Whitesides, G. M., "Three-Dimensional Self-Assembly of Millimeter-Scale Components", *Nature* **1997** *386*, 162-164.
3. Bowden, N.; Terfort, A.; Carbeck, J.; Whitesides, G. M., "Self-Assembly of Mesoscale Objects into Ordered Two-Dimensional Arrays", *Science* **1997** *276*, 233-235.
2. Kim, S.-H.; Zuercher, W. J.; Bowden, N. B.; Grubbs, R. H., "Catalytic Ring Closing Metathesis of Dienynes: Construction of Fused Bicyclic [n.m.0] Rings", *J. Org. Chem.* **1996** *61*, 1073-1081.
1. Kim, S.-H.; Bowden, N.; Grubbs, R. H., "Catalytic Ring Closing Metathesis of Dienynes: Construction of Fused Bicyclic Rings", *J. Am. Chem. Soc.* **1994** *116*, 10801-10802.

Invited highlight articles

Bowden, N. B. "New Methods for Anionic Polymerizations at Elevated Temperatures: 'Retarded Anionic Polymerizations'" *Macromolecular Chemistry and Physics*, **2006**, *207*, 1917-1920.
Invited highlight article.

Patents at the University of Iowa

Bowden, N. B.; Gupta, A.; Carter, J.; Gilmer, C.; Zeman, C. "Methods for separating mixtures" PCT Int. Appl. **2015**, WO 2015168163 A1 20151105.

Bowden, N. B.; Gupta, A. B. "Methods for separating mixtures of fatty acids" PCT Int. Appl. **2015**, WO 2015106211 A1 2015071

Bowden, N. B. Gupta, A. B. "Methods for separating mixtures of compounds" US Pat. Appl. Publ. **2015**, US 20150065660 A1 20150305

Bowden, N. B.; Gupta, A. "Methods for separating mixtures of fatty acids" PCT Int. Appl. 2014, WO 2014088607 A1 20140612.

Bowden, N. B.; Gupta, A.; Long, T. R. "High-density polydicyclopentadiene" January 24, 2013: US 20130020262.

Bowden, N. B.; Salem, A. K.; Yoo, J.; Kuruvilla, D. J. "New biodegradable polymers with sulfenamide bonds for drug delivery applications" August, 30, 2012: WO 2012115806

Bowden, N. B.; Perring, M. "Modified Polydicyclopentadienes and their preparation and patterned modified polydicyclopentadienes" U.S. Pat. Appl. Publ. 2010, US 20100010185 A1 20100114.

Bowden, N. B.; Runge, M. B.; Miller II, A. L. "Apparatus and method for carrying out multiple reactions for preparing alcohols, pyrrolidines, epoxides, biaryls, and other related compounds" U.S. Pat. Appl. Publ. 2009, US 20090299102 A1 20091203.

Bowden, N. B.; Dutta, S. "Mild Methods for Generating Patterned Silicon Surfaces" PCT. Int. App., 2006, WO 2006049976 A2 20060511.

Patents at Harvard University

Bowden, N. B.; Terfort, A. W.; Carbeck, J. D.; Whitesides, G. M., "Self-Assembly of Mesoscale Objects", US Patent, 2003, US 6507989 BI 20030121.

Lectures and Conference Presentations in 2016

“New membranes and new opportunities: Organic solvent nanofiltrations to separate key organic chemicals” Eastern Illinois University in February of 2016

“Organic solvent nanofiltration: An inexpensive method of purification” Nanoscience and Nanotechnology Institute at the University of Iowa in February of 2016.

“Organic solvent nanofiltrations to purify the key components of vegetable and fish oils” Truman State University in February of 2016.

Lectures and Conference Presentations in 2015

“Rapid, membrane-based method to separate cis-fatty acid salts into individual components” Gordon Research Conference in Massachusetts in June of 2015

“New organic polymers based on bonds between sulfur and nitrogen for applications in medicine and conducting polymers” Missouri State University in March of 2015

“New organic polymers based on bonds between sulfur and nitrogen for applications in medicine and conducting polymers” Northeastern Illinois University in November of 2015

“Synthesis of new polymers based on bonds between nitrogen and sulfur” University of Northern Iowa in September of 2015

Lectures and Conference Presentations in 2014

“Rapid, membrane-based method to separate cis-fatty acid salts into individual components” American Oil Chemists Society National Meeting in San Antonio, TX in May of 2014 (seminar)

“Rapid, membrane-based method to separate cis-fatty acid salts into individual components” American Oil Chemists Society National Meeting in San Antonio, TX in May of 2014 (poster)

“Evolution, science, and religion: is there room for common ground?” Sarah Harding nursing home in Clinton, IA in January of 2014 (seminar)

“Rapid, membrane-based method to separate cis-fatty acids and cis-fatty acid esters into individual components” Ag-West Bio, Saskatoon, Canada in May of 2014

Lectures and Conference Presentations Prior to 2014

“Synthesis of a polymers based on sulfur-nitrogen bonds for drug delivery” ACS National Meeting in Indianapolis in March of 2013.

“Simple separation of fatty acids using an organic nanofiltration membrane” ACS National Meeting in Indianapolis in March of 2013.

“Separations of mixtures of fatty acids into individual components using a nanoporous membrane” Tech Connect Meeting in Washington DC in May of 2013.

“New biodegradable polymers based on previously unknown functional groups for drug and gene delivery” Tech Connect Meeting in Washington DC in May of 2013.

“High purity fatty acids” Innovation Expo in Coralville, IA in October of 2013.

“Separation and isolation of pure fatty acids using an organic solvent nanofiltration membrane” Iowa Academy of Science meeting in March of 2013.

- I solely organized and ran the chemistry section of the Iowa Academy of Science meeting.

“Adventures in chemistry” Given as the honorary seminar (and only seminar) at the national meeting of the Alpha Sigma Chi organization. This seminar was given in July of 2012 at the University of Iowa.

“How to make a gold catalyst immortal” ACS National Meeting in Philadelphia in August of 2012.

“Synthesis of the first polymers based on sulfur-nitrogen bonds” ACS National Meeting in Philadelphia in August of 2012.

“New drug delivery polymers based on a new functional group: sulfenamides” ACS National Meeting in Philadelphia in August of 2012.

“New synthetic polymers for applications as drug delivery vehicles” Iowa Academy of Science in April of 2012.

“The first synthesis of polysulfenamides as new polymers for drug delivery applications” Knox college in October of 2012.

“Synthesis of biodegradable polymers based on sulfenamides, diaminosulfides, and disulfidediamines” Mayo Clinic in September of 2012.

“New polymers based on sulfur-nitrogen bonds for applications in medicine” ACS Midwest Regional meeting in October 2012 in Omaha, NE.

“The first synthesis of polysulfenamides as new polymers for drug delivery” UW River Falls in May 2012.

“The first synthesis of polysulfenamides as new polymers for drug delivery” University of Texas at Dallas, September 2011

“How to develop new polymers for applications in medicine: the first synthesis of polysulfenamides” La Crosse-Winona ACS Local Section Meeting in May of 2011

“Behave! How to separate unruly catalysts and reagents in one pot using materials chemistry” Northwest Missouri State University, February 2011

“The first synthesis of polysulfenamides as new polymers for drug delivery” Saint Cloud State University, September 2011

“The first synthesis of polysulfenamides as new polymers for drug delivery” University of Nebraska at Omaha, November 2011

“Greater than 99% site-isolation of phosphines and Pd using polydicyclopentadiene membranes” American Chemical Society Meeting, August 2010.

“How to make a gold catalyst immortal” American Chemical Society Meeting, August 2010.

“Synthesis of comb block copolymers with molecular weights in the millions of grams per mole and their assembly in the solid state” American Chemical Society Meeting, August 2010.

“Polysulfenamides: New biodegradable polymers for medical applications” Augustana College, November 2010.

“Behave! How to separate unruly catalysts and reagents in one pot using materials chemistry” Carleton College, October 2010.

“How to do the impossible: Reactions in organic chemistry with polymer membranes” University of Wisconsin at Oshkosh, March 2010.

“Nanoporous polydicyclopentadiene membranes to separate molecules based on “size” not molecular weight” Pacifichem, December 2010.

“Polysulfenamides: New biodegradable polymers for medical applications” University of Iowa, November 2010.

“Polysulfenamides: New biodegradable polymers for medical applications” Western Illinois University, October 2010.

“Synthesis and assembly of very large polymers: Comb block copolymers” Gordon Research Conference: Macromolecular materials, January 2009. (Poster)

“A materials approach to the site-isolation of homogeneous catalysts for cascade reactions” University of Missouri at Kansas City, February 2009.

“A materials approach to the site-isolation of homogeneous catalysts for cascade reactions”
University of New York at Stony Brook in February 2009.

“Cascade reactions with polymeric membranes” ACS regional meeting in Iowa City in
October of 2009.

“A materials approach to the site-isolation of homogeneous catalysts for cascade reactions”
Mayo Clinic, December 2009.

**“Hairy brush and comb polymers: How to synthesize new polymer architectures using
simple organic reactions”** University of Nebraska at Omaha, November 2009.

“A materials approach to the site-isolation of homogeneous catalysts for cascade reactions”
University of Iowa, Department of Chemical and Biochemical Engineering, October 2008

“New properties for old catalysts by site-isolation within polymeric thimbles” University of
Iowa, Department of Chemistry, October 2008

“New applications for polymers in organic synthesis” University of Massachusetts,
September 2008

**“Synthesis and assembly of comb block copolymer into photonic materials and interesting
new applications for polymers in organic synthesis”** University of Colorado at Boulder,
March 2008

**“A Grignard reaction in water? New methods to carry out green cascade reactions using
simple polymer thimbles”** University of Kansas, April 2008.

“Adventures in Metathesis: Polymers, Small Molecules, and Surfaces” Purdue University,
January 2007

“Adventures in Metathesis: Polymers, Small Molecules, and Surfaces” University of
Wisconsin at Madison, February 2007

“Adventures in Metathesis: Polymers, Small Molecules, and Surfaces” Iowa State
University, February 2007

“Adventures in Metathesis: Polymers, Small Molecules, and Surfaces” University of
Chicago, March 2007

“Comb block copolymers: Synthesis and assembly into photonic band gap materials” ACS
National Meeting in Chicago, Illinois in March 2007

“Mild methods to assemble and pattern monolayers on Si(111) using soft lithography” ACS
National Meeting in Chicago, Illinois in March 2007

“Metathesis in new solvents – ionic liquids and polydimethylsiloxane – to introduce new selectivities and reactions” ACS National Meeting in Chicago, Illinois in March 2007

“Adventures in Metathesis: Polymers, Small Molecules, and Surfaces” University of Houston, April 2007

“Thimbles and Synthesis of Comb Block Copolymers for New Photonic Band Gap Materials” ACS National Meeting in Boston, August 2007. This was an invited seminar in the Young Academic Investigators Symposium.

“A Grignard reaction in water? New methods to carry out green cascade reactions using simple polymer thimbles” Mankato State University, October 2007

“A Grignard reaction in water? New methods to carry out green cascade reactions using simple polymer thimbles” University of Iowa (Department of Chemistry), October 2007

“A Grignard reaction in water? New methods to carry out green cascade reactions using simple polymer thimbles” Bradley University, November 2007

“Big polymers from small catalysts: synthesis and assembly of comb block copolymers” University of Minnesota at Twin Cities, November 2007

“A Grignard reaction in water? New methods to carry out green cascade reactions using simple polymer thimbles” Northwestern University, 2007

“Adventures in Metathesis: Synthesis of Polymers, Small Molecules, and Functional Surfaces” University of Minnesota at Duluth, November 2006

“Adventures in Metathesis: Synthesis of Polymers, Small Molecules, and Functional Surfaces” University of Missouri at St. Louis, November 2006

“Organic Monolayers on Si(111): Assembly, Functionalization, and Patterning” Five day conference on “Functional Modification of Semiconductor Surfaces” at Telluride, CO. August 2006 (Invited)

“Synthesis and Assembly of Comb Block Copolymers in the Solid State” ACS National Meeting in Atlanta, Georgia. March 2006

“Assembly and Functionalization of Olefin-Terminated Monolayers on Si(111) with the Grubbs’ Catalyst” ACS National Meeting in Atlanta, Georgia. March 2006

“Synthesis and Characterization of High Molecular Weight Comb Polymers with New Nanoscale Architectures” Creighton University, September 2005

“Synthesis and Characterization of High Molecular Weight Comb Polymers with New Nanoscale Architectures” Augustana College, October 2005

“Mild Methods to Assemble, Functionalize, and Pattern Organic Monolayers on Si(111)”
Midwest Regional Meeting in Joplin, Missouri in October 2005

“Mild Methods to Assemble and Pattern Self-Assembled Monolayers on Si(111) for Potential Cell and Biosensor Applications” National American Chemical Society Meeting in San Diego in March 2005.

“Synthesis of Big Polymers with New Technologies: Bottlebrush Polymers as Organic Nanomaterials” National American Chemical Society Meeting in San Diego in March 2005.

“Synthesis of Big Polymers Using New Technologies: Bottlebrush Polymers as Organic Nanomaterials” University of Wisconsin, Oshkosh, December 2004

“Organic Monolayers on Silicon” NSF Workshop, Colorado, October 2004

“Synthesis of Big Polymers Using New Technologies: Bottlebrush Polymers as Organic Nanomaterials” University of Iowa, Department of Chemistry, October 2004

“Synthesis of Big Polymers Using New Technologies: Bottlebrush Polymers as Organic Nanomaterials” University of Iowa, Working Weekend, October 2004

“Self-Assembly on All Scales: From Molecules to Macroscopic Objects” Sandia National Laboratory, Albuquerque, New Mexico, August 2003

“High Molecular Weight Bottlebrush Polymers Synthesized Using the Grubbs Catalyst” American Chemical Society, National Meeting in New York, NY, August 2003.

“Adventures in Polymer Chemistry: The Synthesis of Ultra-Large Bottlebrush Polymers” University of Wisconsin – River Falls, October 2003

“Engineering Polymers: New Branched Polymers and Single Polymer Fluorescence” Loras College, October 30, 2002

“Engineering Polymers and Mesoscale Self-Assembly” University of Iowa, Department of Physics, November 19, 2002

Seminars and posters by graduate and undergraduate students in 2015

“Membranes for separations” By Justin Carter and Chad Gilmer, recruiting weekend in February and March of 2015.

Seminars and posters by graduate and undergraduate students in 2013

“Synthesis of a biodegradable hydrogen sulfide releasing polymer” by Tyler Long at the ACS National meeting in Indianapolis in March of 2013.

“Simple separation of fatty acids using an organic nanofiltration membrane” by Abhi Gupta at the ACS National meeting in Indianapolis in March of 2013.

Seminars and posters by graduate and undergraduate students prior to 2013

Tyler long presented chemistry experiments to a high school in Wisconsin.

Adam Brummett presented a poster at the graduate student recruiting weekends in March.

“Synthesis of new biodegradable polymers for applications in medicine” by Jun Yoo at the department of chemistry at the University of Iowa in January, 2011.

“Retention of palladium and phosphine ligands using nanoporous polydicyclopentadiene thimbles” by Abhinaba Gupta at the 46th Midwest and 39th Great Lakes Regional Meeting of the American Chemical Society in October of 2011.

“Functionalization of high molecular weight biosynthetic polymers” By Jenny K. Donar (Undergraduate) at the Fall Undergraduate Research Festival in December, 2010

“Site-isolation of palladium and phosphine ligands using polydicyclopentadiene” By Abhi Gupta at the NOBCChe Midwest Regional Meeting in October, 2010.

“Extended catalytic lifetimes of AuCl₃ using CuCl₂ and TEMPO” By Tyler Graf at the NOBCChe Midwest Regional Meeting in October, 2010.

“The site-isolation of Mn(salen) catalyst with polydicyclopentadiene membranes” By Tyler Long at the Midwest Regional Meeting in Iowa City in October of 2009.

“Gold catalyst stabilization using TEMPO” by Tyler Graf at the Midwest Regional Meeting in Iowa City in October of 2009.

“Site-isolation of Palladium and phosphine ligands using polydicyclopentadiene” by Abhinaba Gupta at the Midwest Regional Meeting in Iowa City in October of 2009.

“Novel cascade reactions through site-isolation of incompatible organometallic catalysts” By Michael Schulz (an undergraduate in my group) at the Midwest Regional Meeting in Iowa City in October of 2009.

“Synthesis of comb triblock copolymers and study of their self-assembled morphologies in the solid state” By Jun Yoo at the Midwest Regional Meeting in Iowa City in October of 2009.

“Synthesis and self-assembly of multi-block comb copolymers by ROMP and ATRP” By M. Brett Runge at the ACS National meeting in Salt Lake City, Utah in March of 2009.

“Investigation of the self-assembly of diblock comb polymers into ordered arrays” By M. Brett Runge at the ACS National meeting in Salt Lake City, Utah in March of 2009.

“Site-isolation of polymer-bound catalysts from small, ionic molecules and their use in one-pot cascade reactions using PDMS membranes” By A. Lee Miller II at the ACS National meeting in Salt Lake City, Utah in March of 2009.

“PDMS thimbles for the development of cascade reactions: A materials approach to organic chemistry” by A. Lee Miller II at the ACS National meeting in Salt Lake City, Utah in March of 2009.

“Site-isolation of incompatible catalysts and novel cascade reactions” By Michael Schulz (an undergraduate in my group) at the Midwest Regional meeting in Nebraska in October 2008 (Poster).

“Pot-in-pot reactions: Site-isolation of organometallic catalysts from each other for versatile cascade reactions and catalyst recycling” By Martin Mwangi at the ACS National Meeting in New Orleans in April 2008. Highlighted in “Chemistry World”. (Poster)

“Pot-in-pot reactions: Site-isolation of organometallic catalysts and reagents for otherwise impossible cascade reactions” by Martin Mwangi at the AIChE Spring National Meeting in New Orleans in April 2008.(Oral presentation)

“Pot-in-pot reactions: Site-isolation of organometallic catalysts from each other for versatile cascade reactions and catalyst recycling” By Martin Mwangi at the Midwest Regional Meeting in Kansas City, MO in November 2007. (Oral presentation)

“Photonic materials from the assembly of comb block copolymers” By M. Brett Runge at the Central Regional Meeting of the ACS in Covington, Kentucky in May 2007. (Oral presentation)

“Room Temperature Ionic Liquids as Solvents for Schrock’s Catalyst and Polydimethylsiloxane Membranes for Facilitating Separations” By A. Lee Miller II at the ACS National Meeting in Chicago, Illinois in March 2007. (Poster)

“Synthesis, Characterization, and Self-assembly of Large Comb Block Copolymers” By M. Brett Runge at the ACS National Meeting in Chicago, Illinois in March 2007. This was part of the Excellence in Graduate Polymer Science Research Symposium. (Oral presentation)

“Occlusion of Grubbs’ Metathesis Catalysts in PDMS: Serendipitous Discovery of New Reactivities in Aqueous Solvents” By Martin Mwangi at the ACS National Meeting in Chicago, Illinois in March 2007. (Oral presentation)

“Synthesis of well-defined hollow organic polymers for drug delivery and catalysis” By Martin Mwangi at the Symposium on Cartilage Physiology and Repair in Tromso, Norway in August of 2006. (Oral presentation)

“Toward hollow polymers: synthesis of key macromonomers” by Martin Mwangi at the Banff Symposium in Organic Chemistry in Banff, AB, Canada in November 2005. (Oral presentation)

“Potential photonic materials from comb block copolymers” By M. Brett Runge at the Midwest Organic Solid State Symposium XVII in June 2006. (Oral presentation)

“Ultralarge Comb Block Copolymers synthesized by ROMP, ATRP, and ROP” By M. Brett Runge at the 40th Midwest Regional Meeting of the American Chemical Society, Joplin, MO, October 2005. (Oral presentation)

“Functionalization and Characterization of Olefin-Terminated Monolayers on Si(111)” By Samrat Dutta at the 40th Midwest Regional Meeting of the American Chemical Society, Joplin, MO, October 26-29 2005. (Poster)