ADAM B. BRAUNSCHWEIG, PhD
Department of Chemistry, University of Miami
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PROFESSIONAL APPOINTMENTS

2013–Present	**Assistant Professor, Department of Chemistry, University of Miami**
2013	**Visiting Research Professor, Department of Chemistry, New York University**
2010–2012	**Assistant Professor, Department of Chemistry and The Molecular Design Institute, New York University (NYU)**
2007–2010	**NIH NRSA Postdoctoral Research Fellowship in Cancer Nanotechnology, Northwestern University**
2006–2007	**Postdoctoral Researcher, Department of Chemistry, The Hebrew University of Jerusalem**
2001–2006	**Graduate Student, Department of Chemistry, University of California, Los Angeles (UCLA)**

EDUCATION

Ph. D. in Organic Chemistry, UCLA, 2006
B. A. in Chemistry, Cornell University, Ithaca, New York, 2001

AWARDS AND AFFILIATIONS

Royal Society of Chemistry *Chemical Society Reviews* Emerging Investigator 2016 • ***Journal of Physical Organic Chemistry*** **Award for Early Career Excellence in Physical Organic Chemistry 2015** • ACS Organic Chemistry Young Innovator Symposium Invitee 2015 • UM Provost's Research Award • *Polymer Chemistry* Emerging Investigator 2015 • ACS PMSE Young Investigator Award 2014 • Carl Storm Underrepresented Minority (CSURM) GRC Travel Fellowship (2012) • AFOSR Young Investigator (2011–2013) • **NSF-NSEC Outstanding Researcher** (Northwestern University, 2009) • **NIH NRSA Postdoctoral Fellowship** (2008–2010) • Lady Davis Postdoctoral Fellowship (Declined) • **NSF GK–12 Graduate Fellowship** (2005–2006) • NSF REU Fellowship (2000) • American Chemical Society Member (1999–2016) • National AAAS Member (2008–2011)

PUBLICATIONS

[42] Shokri Kojori, H.; Ji, H.; Paik, Y.; Braunschweig, A. B.*; Park, S. J.* "Monitoring Interfacial Lectin Binding With Nanomolar Sensitivity Using a Plasmon Field Effect Transistor" *Submitted for publication.*

[41] Liu, X.; Zheng, Y.; Khothari, E.; Peurifoy, S. R.; Ji, Y.; Braunschweig, A. B.* "4D Polymer Nanopatterning Within a Massively Parallel Flow-Through Photochemical Nanoreactor", *Submitted for publication.*

[40] Smieska, L. M.; Li, Z. Ley, D.; Braunschweig, A. B.; Marohn, J. A. "Trap-Clearing Spectroscopy in Perylene Diimide Derivatives" *Chemistry of Materials*, **2016**, DOI: 10.1021/acs.chemmater.5b04025

[39] Zhou, Y.; Guzman, C. X.; Helguero-Kelley, L.; Captain, B.; Braunschweig, A. B.* "Isolating Structural Effects on Diketopyrrolopyrrole Aggregation" *Journal of Physical Organic Chemistry*, **2016**, *In Press.*
• Early Career Excellence in Physical Organic Chemistry Award Paper

[38] Guzman, C. X.; Krick Calderon, R. M.; Xu, H.; Peurifoy, S. R.; Yamazaki, S.; Guo, C.; Davidowski, S. K.; Rosner, H. F.; Holland, G.; Scott, A. M.; Braunschweig, A. B.* "Competitive Charge and Spin Dynamics in Multicomponent Hierarchical Donor-Acceptor Films," *Journal of Physical Chemistry C*, **2015**, *119*, 19584-19589.

[37] Peurifoy, S. R.; Guzman, C. X.; Braunschweig, A. B.* "Topology, assembly, and electronics: three pillars for designing supramolecular polymers with emergent optoelectronic behavior" *Polymer Chemistry*, **2015**, *6*, 5529-5539.

[36] Xu, H.; Zheng, Y.; Munro, C. J.; Ji, Y.; Braunschweig, A. B.* "Carbohydrate Nanotechnology: Hierarchical Assembly and Molecular Logic Using Nature's Other Information Carrying Biopolymers" *Current Opinion in Biotechnology*, **2015**, *34*, 41 – 47.

[35] Han, X.; Bian, S.; Liang, Y.; Houk, K. N.; Braunschweig, A. B.* "Reactions in Elastomeric Nanoreactors Reveal the Role of Force on the Kinetics of the Huisgen Reaction on Surfaces" *Journal of the American Chemical Society,* **2014**, *136*, 10553–10556.
• Highlighted in *Chemical and Engineering News*, 28 July 2014, *vol 92(30)*, p32

[34] Ley, D.; Guzman, C. X.; Adolfsson, K. H.; Scott, A. M.; Braunschweig, A.B.* "Emergent Charge Transfer in Cooperatively Assembling Donor-Acceptor Superstructures" *Journal of the American Chemical Society,* **2014**, *136*, 7809 – 7812.

[33] Bian, S.; Zieba, S. B.; Morris, W. M.; Xu, H.; Richter, D. C.; Brown, K. A.; Mirkin, C. A.; Braunschweig, A. B.* "Beam Pen Lithography as a New Tool for Spatially Controlled Photochemistry, and its Utilization in the Synthesis of Multivalent Glycan Arrays" *Chemical Science,* **2014**, *5*, 2023 – 2030.

[32] Takagi, D.; Palacci, J.; Braunschweig, A.B.; Shelley, M. J.; Zhang, J. "Synthetic Microswimmers Orbit Closely Around Spherical Obstacles" *Soft Matter,* **2014**, *10*, 1784–1789.

[31] Eichelsdoerfer, D.J.; Liao, X.; Cabezas, M.; Morris, W.; Radha, B.; Brown, K. A.; Giam, L. R.; Braunschweig, A. B.; Mirkin, C. A. "Creating Large-Area Molecularly Textured Surfaces with Polymer Pen Lithography" *Nature Protocols*, **2013**, *8*, 2548-2560.

[30] Rieth, S.; Li, Zhong.; Hinkle, C. E.; Guzman, C. X.; Lee, J. J.; Nehme, S.; Braunschweig, A. B.* "Superstructures of Diketopyrrolopyrrole Donors and Perylenediimide Acceptors Formed by Hydrogen-Bonding and π•••π Stacking" *Journal of Physical Chemistry C* **2013**, *117*, 11347–11356.

[29] Zhong, X.; Bailey, N. A.; Schesing, K. B.; Bian, S.; Campos, L. M.;* Braunschweig, A. B.* "Materials for the Preparation of Polymer Pen Lithography Tip Arrays and a Comparison of their Printing Properties" *Journal of Polymer Science A: Polymer Chemistry*, **2013**, *51*, 1533 –1539. **Journal Cover.**

[28] Bian, S.; Scott, A. M.; Cao, Y.; Liang, Y.; Osuna, S.; Houk, K. N.; Braunschweig, A. B.* "Covalently Patterned Graphene Surfaces by a Force Accelerated Diels-Alder Reaction" *Journal of the American Chemical Society*, **2013**, *135*, 9240 – 9243.
• Highlighted in *Chemical and Engineering News*, 25 June 2013, *vol 91(26)*, p6.
• Highlighted in *Science*, **2013**, *341*, 320.
• *JACS* spotlight

[27] Takagi, D.;* Braunschweig, A. B.; Zhang, J.; Shelley, M. J. "Dispersion of Self-Propelled Rods Undergoing Fluctuation-Driven Flips" *Physics Review Letters*, **2013**, *110*, 038301.

[26] Rieth, S.; Miner, M. R.; Chang, C. M.; Hurlocker, B.; Braunschweig, A.B.* "Saccharide Receptor Achieves Concentration Dependent Mannoside Selectivity Through Two Distinct Cooperative Binding Pathways" *Chemical Science*, **2013**, *4*, 357–367.

[25] Bian, S.; Schesing, K. B.; Braunschweig, A. B.* "Matrix-Assisted Polymer Pen Lithography Induced Staudinger Ligation" *Chemical Communications*, **2012**, *48,* 4995 – 4997.

[24] Bian, S.; He, J.; Schesing, K. B.; Braunschweig, A. B.* "Polymer Pen Lithography (PPL) Induced Site-Specific Click Chemistry for the Formation of Functional Glycan Arrays" *Small*, **2012**, *8*, 2000–2005.

[23] Shim, W.; Braunschweig, A. B.; Liao, X.; Chai, J.; Lim, J. K.; Zheng, G.; Mirkin, C. A. "Massively Parallel Hard-Tip, Soft-Spring Lithography" *Nature*, **2011**, *469*, 516–520.
• Highlighted in *Chemical & Engineering News*, **2011**, *89*, 11.
• Highlighted in *Science*, **2011**, *331*, 519.

[22] Braunschweig, A.B.; Schmucker, A.L.; Wei, W.; Mirkin, C. A. "Nanostructures Enabled by On-Wire Lithography (OWL)" *Chemical Physics Letters*, **2010**, *486*, 89–98. **Journal Cover.**

[21] Liao, X.; Braunschweig, A. B.; Mirkin, C. A. "Force-Feedback Leveling of Massively Parallel Arrays in Polymer Pen Lithography" *Nano Letters,* **2010**, *10*, 1335–1340. Equal Author Contribution.

[20] Liao, X.; Braunschweig, A. B.; Zheng, Z.; Mirkin, C. A. "Force- and Time-Dependent Size and Shape Control in Molecular Printing via Polymer Pen Lithography (PPL)" *Small*, **2010**, *6*, 1082–1086. Equal Author Contribution. PubMed # 20184292

[19] Wiester, M. J.; Braunschweig, A. B.; Mirkin, C. A. "Solvent and Temperature Induced Switching of Tweezer-Like Rh^{I} Phosphinoalkyl Thioether (PS) Complexes" *Inorganic Chemistry,* **2010**, *49*, 7188-7196.

[18] Huang, L.; Braunschweig, A. B.; Shim, W.; Huo, F.; Lim, J.-K.; Xue, C.; Hurst, S. J.; Mirkin, C. A. "Matrix-Assisted Dip-Pen Nanolithography (MA-DPN) and Matrix-Assisted Polymer Pen Lithography (MA-PPL)" *Small*, **2010**, *6*, 1077–1081. Equal Author Contribution.

[17] Chen, X.; Yeganeh, S.; Qin, L.; Li, S.; Xue, C.; Braunschweig, A. B.; Schatz, G.C.; Ratner, M. A.; Mirkin, C. A. "Chemical Fabrication of Hetero-Nanogaps for Molecular Transport Junctions" *Nano Letters*, **2009**, *9*, 3974 – 3979. Highlighted by NanoTech Web News.

[16] Ullman, P. A.; Braunschweig, A. B.; Lee, O.-S.; Wiester, M. J.; Schatz, G. C.; Mirkin, C. A. "Inversion of Product Selectivity in an Enzyme-Inspired Metallosupramolecular Tweezer Catalyzed Epoxidation Reaction" *Chemical Communications*, **2009**, 5121–5123.

[15] Braunschweig, A. B.; Huo, F.; Mirkin, C. A. "Molecular Printing" *Nature Chemistry*, **2009**, *1*, 353–358.

[14] Olson, M. A.; Braunschweig, A. B.; Ikeda, T.; Fang, L.; Trabolsi, A.; Stoddart, J. F. "Thermodynamic Forecasting of Mechanically Interlocked Switches" *Organic and Biomolecular Chemistry*, **2009**, 4391 – 4405. Equal author contribution. **Journal Cover.**

[13] Chen, X.; Braunschweig, A. B.; Wiester, M. J.; Yeganeh, S.; Ratner, M. A.; Mirkin, C. A. "Formation of Molecular Transport Junctions using Click Chemistry within Nanogaps Followed Spectroscopically" *Angewandte Chemie International Edition*, **2009**, *48*, 5178–5181. Equal author contribution. Hot Paper. **Journal Cover.**

• This work was highlighted in *Angewandte Chemie International Edition*, **2009**, *48*, 5583 – 5585.

[12] Braunschweig, A. B.; Senesi, A. J.; Mirkin, C. A. "Redox Activating Dip Pen Nanolithography (RA-DPN)" *Journal of the American Chemical Society*, **2009**, *131*, 922–923.

[11] Olson, M. A.; Braunschweig, A. B.; Fang, L.; Ikeda, T.; Klajn, R.; Trabolsi, A.; Mirkin, C. A.; Gryzbowski, B. A.; Stoddart, J. F. "A Bistable Poly[2]catenane Forms Nanosuperstructures" *Angewandte Chemie International Edition*, **2009**, *48*, 1792–1797.

[10] Weizmann, Y.; Braunschweig, A. B.; Wilner, O. I.; Cheglakov, Z.; Willner, I. "Supramolecular Aptamer-Thrombin Linear and Branched Nanostructures" *Chemical Communications*, **2008**, 4888 – 4890. RSC "Hot Article", September 2008, **Journal Cover.**

[9] Weizmann, Y.; Braunschweig, A. B.; Cheglakov, Z.; Willner, I. "A Polycatenated DNA Scaffold for the One-Step Assembly of Hierarchical Nanostructures" *Proceedings of the National Academy of Science, USA*, **2008**, *105*, 5289 – 5294.

[8] Cheglakov, Z.; Weizman, Y.; Braunschweig, A. B.; Willner, I. "Increasing the Complexity of Periodic Protein Nanostructures by the Rolling Circle Amplified Synthesis of Aptamers" *Angewandte Chemie International Edition*, **2008**, *47*, 126 – 130. **Journal Cover.**

[7] Braunschweig, A. B.; Dichtel, W. R.; Milijanić, O. Š.; Olson, M. A.; Spruell, J. M.; Khan, S. I.; Heath, J. R.; Stoddart, J. F. "Modular Synthesis and Dynamics of a Variety of Donor-Acceptor Interlocked Compounds Prepared by a Click Chemistry Approach" *Chemistry–An Asian Journal*, **2007**, *2*, 634 – 647.

[6] Northrop, B. N.; Braunschweig, A. B.; Mendes, P. M.; Stoddart, J. F. "Progress in Designing Nanoscale Machines and Devices" *Handbook of Nanoscience, Engineering, and Technology 2nd Edition*, Goddard, W. A. III *ed.* CRC Press, Boca Raton.

[5] Braunschweig, A. B.; Elnathan, R.; Willner, I. "Monitoring the Activity of Tyrosinase on a Tyramine / Dopamine Functionalized Surface by Force Microscopy" *Nano Letters*, **2007**, *7*, 2030−2036.

[4] Wieckowska, A.; Braunschweig, A. B.; Willner, I. "Electrochemical Control of Surface Properties Using a Quinone-Functionalized Monolayer: Effects of Donor-Acceptor Complexes" *Chemical Communications*, **2007**, 3918 − 3920. Equal author contribution.

[3] Braunschweig, A. B.; Ronconi, C.; Han, J.-Y.; Aricó, F.; Cantrill, S. J.; Stoddart, J. F.; Khan, S. I.; White, A. J. P.; Williams, D. J. "Pseudorotaxanes and Rotaxanes Formed By Viologen Derivatives" *European Journal of Organic Chemistry*, **2006**, 1857 – 1866.

[2] Choi, J. W.; Flood, A. H.; Steuerman, D. W.; Nygaard, S.; Braunschweig, A. B.; Moonen, N. M. P.; Laursen, B. W.; Luo, Y.; DeIonno, E.; Peters, A. J.; Jeppesen, J. O.; Xu, K.; Stoddart, J. F.; Heath, J. R. "Ground–State Equilibrium Thermodynamics and Switching Kinetics of Bistable [2]Rotaxanes Switched in Solution, Polymer Gels, and Molecular Electronic Devices" *Chemistry–A European Journal*, **2006**, *12*, 261 – 279. **Journal Cover.**

[1] Braunschweig, A. B.; Northrop, B. N.; Stoddart, J. F. "Structural Control at the Solid–Organic Interface" *Journal of Materials Chemistry*, **2006**, *16*, 32 – 44. **Journal Cover.**

ASSIGNED PATENTS

[4] **Braunschweig, A. B.;** Rieth, S.; Li, Z. "Superstructures of diketopyrrolopyrrole donors and perylenediimide acceptros formed by hydrogen-bonding and pi…pi stacking" *US 14/187,737*

[3] **Braunschweig, A. B.**; Rieth, S.; Miner, M. R. "Carbohydrate Selective Receptors" *US PATENT 14/403,686*

[2] Mirkin, C. A.; Shim, W.S.; **Braunschweig, A. B.**; Liao, X.; Chai, J.; Zheng, G. "Massively Parallel Silicon Pen Nanolithography" *US PATENT 8961853*

[1] Mirkin, C. A.; Liao, X.; **Braunschweig, A. B.** "Force Feedback Leveling of Tip Arrays for Nanolithography" *PCT/US 12/960,439*

PATENT APPLICATIONS

[1] Mirkin, C. A.; Liu, C.; Wang, Y.; **Braunschweig, A. B.**; Xing, L.; Giam, L. "Scanning Probe Epitaxy" Non-Provisional Patent Application *PCT/US09/43864; US Patent Application No. 12/465,616.*

[2] Mirkin, C.A.; Liu, C. A.; Wang, Y.; **Braunschweig, A. B.**; Xing, L.; Giam, L.; Fragala, J.; Henning, A. "Dual-Tip Cantilevers" Non-Provisional Patent Application *PCT/US09/43866*

[3] Mirkin, C. A.; **Braunschweig, A. B.**; Senesi, A. J. "Redox-Activated Patterning" Non-Provisional Patent Application *PCT/US09/65399*

[4] Mirkin, C. A.; Chen. X.; **Braunschweig, A. B.**; Wiester, M. J.; Xu, X.; Daniel, W. L. "Click Chemistry, Molecular Transport Junctions, and Colorimetric Detection of Copper" Non-Provisional Patent Application *US10/29014.*

[5] Mirkin, C. A.; **Braunschweig, A. B.**; Chai, J.; Eichelsdoerfer, D.; Giam, L. R.; Liao, X.; Wong, L. S. "Generation of Combinatorial Patterns by Deliberate Tilting of a Polymer-Pen Arrays" Non-Provisional Patent Application *PCT/US10/58773*

[6] Mirkin, C. A.; Shim, W.S.; **Braunschweig, A. B.**; Liao, X.; Chai, J.; Zheng, G. "Massively Parallel Silicon Pen Nanolithography" Non-Provisional Patent Application *PCT/US 13/375,361*

[7] **Braunschweig, A. B.**; He, Jiajun; Bian, S.; Schesing, K. B. "Nanoreactor Printing" Non-Provisional Patent Application *PCT/US12/32019*

[8] **Braunschweig, A. B.**; Bian, S. "Covalently Patterned Graphene by a Force Accelerated Cycloaddition

[9] Reaction" Non-Provisional Patent Application *PCT/US13/44570*

[10] **Braunschweig, A. B.**; Zhong, X.; Schesing, K. B.; Bian, S. "Polymer Tips" Non-Provisional Patent Application US2014/0141167 A1

INVITED LECTURES

[45] **AFOSR Natural Materials and Systems & Extremophiles Annual Program Review, 7-11 December, 2015, Ft. Walton Beach, FL**
"Carbohydrate Materials Discovery: Towards a Post-Cellulosic Future"

[44] **Pacifichem: Multi-scale & Synergistic Supramolecular Systems in Material and Biomedical Sciences, Honolulu, Hawaii, 15-20 December 2015**

[43] **CUNY Advanced Science Research Center Active & Adaptive Materials Symposium, New York, NY, 22-23 October 2015**
"Nanosecond Charge Carrier Lifetimes in Hierarchical Donor-Acceptor Supramolecular Polymer Films"

[42] **IX International Congress on Chemical Sciences, Technology and Innovation (Quimicuba' 2015) Nano and Supramolecular Chemistry Symposium**
"3D Nanolithography with Force and Light-Accelerated Reactions"

[41] **250th American Chemical Society National Meeting, Boston, MA 16 – 20 August 2015**
Organic Division Young Academic Investigators Symposium
"Increasing the Scope of Organic Reactions for Tailoring the Biotic/Abiotic Interface"

[40] **15th European Symposium on Organic Reactivity, Kiel, Germany, 31 August – 5 September 2015**
***Journal of Physical Organic Chemistry* Award for Early Excellence in Physical Organic Chemistry Award Lecture**
"Supramolecular Polymers and the Subtleties of Molecular Recognition"

[39] **Fusion Functional Polymer Materials Conference, Ascot, UK, 6 August 2015**
"Correlated Structure and Photophysics in Supramolecular Polymer Films"

[38] **Gordon Research Conference on Physical Organic Chemistry, Holderness, NH, 21-26 June, 2015**
***Journal of Physical Organic Chemistry* Award for Early Excellence in Physical Organic Chemistry Award Lecture**
"Addressing the surface chemistry bottleneck with force- and light-accelerated reactions"

[37] **International Mini-Conference on Singlet Fission, Erlangen, Germany, 14 – 16 May 2015**
Plenary Lecture: "Competing Charge and Spin Dynamics in Donor-Acceptor Hierarchical Films"

[36] **Department of Chemistry, University of Miami, 4 May 2015**
"The Surface Chemistry Bottleneck"

[35] **Department of Chemistry, University of California, Los Angeles, 30 April 2015**
Organization for Cultural Diversity in Science (OCDS) Lecture
"The Surface Chemistry Bottleneck"

[34] **Department of Materials Science Colloquium, University of California, Irvine, 29 April 2015**
"The Surface Chemistry Bottleneck"

[33] **Chemistry Department Colloquium, San Diego State University, 28 April, 2015**
"The Surface Chemistry Bottleneck"

[32] **Organic Chemistry Colloquium, University of California, San Diego, 27 April, 2015**
"The Surface Chemistry Bottleneck"

[31] **Physical Chemistry Colloquium, Purdue University, Lafayette, Indiana, 4 March 2015**
"The Surface Chemistry Bottleneck"

[30] **Chemistry Department Colloquium, Indiana University, Bloomington, Indiana, 3 March 2015**
"The Surface Chemistry Bottleneck"

[29] **Organic Chemistry Colloquium, Weizmann Institute of Science, Rehovot, Israel, 6 January 2015**
Addressing the Surface Chemistry Bottleneck

[28] **4th Zing Polymer Chemistry Conference, Riviera Maya, 10 – 13 December, 2014**
Competitive Electron Spin Dynamics in Multicomponent Hierarchical Donor-Acceptor Films

[27] **Chemistry Department Colloquium, Florida State University, 4 December, 2014**
Addressing the Surface Chemistry Bottleneck

[26] **Chemistry Department Colloquium, Wesleyan University, Middletown, CT, 21 November 2014**
Addressing the Surface Chemistry Bottleneck

[25] **Chemistry Department Colloquium, Dartmouth University, Hanover, NH 20 November 2014**
Addressing the Surface Chemistry Bottleneck

[24] **2nd Targeting and Triggering Basic Research Workshop and Review, Cambridge University, Cambridge, UK, 19-20 August 2014**
Emergent Charge Transfer in Cooperatively Assembling Donor-Acceptor Supramolecular Polymers and Films

[23] **ACS Florida Annual Meeting and Exposition, Tampa, Florida, 8 May 2014**
Keynote Address, Materials Division
Two Examples Demonstrating the Importance of Surface Organic Chemistry: Photochemically- and Force-Initiated Brush Polymer Microarrays

[22] **21st New Orleans Carbohydrate Symposium, New Orleans, LA, 21 March 2014**
"New Tools for the Preparation of Multivalent Glycan Nanoarrays"

[21] **247th American Chemical Society National Meeting, Dallas, TX**
Polymeric Materials: Science and Engineering Young Investigator's Symposium
"Photochemically- and Force-Initiated Brush Polymer Microarrays and Their Applications in Sensing and Electronic Materials"

[20] **Fusion Functional Polymeric Materials, Cancun, Mexico, 12 February 2014**
"Emergent Charge Transfer in Cooperatively Assembling Donor-Acceptor Superstructures"

[19] **AFOSR Natural Material and Systems Program Review, Fort Walton, FL, December 13, 2013**
"Carbohydrate Nanotechnology: Multivalency, Logic, Organization"

[18] **CUNY Brooklyn, Department of Chemistry, Department Colloquium, November 21, 2013**
"Photochemically- and Force-Initiated Brush Polymer Microarrays and Their Applications in Sensing and Electronic Materials"

[17] **Florida International University, Department of Physics, Department Colloquium**

"The Potential of Massively Parallel Tip Arrays in Biological Microarrays and Electronics"

[16] **246th American Chemical Society National Meeting, Indianapolis, IN**
Division of Colloid and Surface Chemistry: Supramolecular Nanomaterials
"Complexity as the Rule: Examples From Supramolecular Donor-Acceptor Systems to Carbohydrate Recognition Suggest Cooperativity and Multivalency are Inevitable"

[15] **SUNY Stony Brook, Department Colloquium, February 8, 2013**
"Carbohydrate Nanotechnology and Self-Assembling Complexity: Beyond Binary Solutions to Molecular Logic"

[14] **AFOSR Natural Material and Systems & Extremophiles Program Review, Washington D.C.**
"Carbohydrate Nanotechnology: Hierarchical Assemblies and Information Processing with Oligosaccharide Host-Guest Systems"

[13] **Center for the Chemistry of Integrated Systems, Northwestern University, May 25, 2012**
"A Mannose-Selective Synthetic Receptor With a Unique Cooperative Binding Mechanism"

[12] **University of Miami, Department of Chemistry, February 21, 2012**
"A Mannose-Selective Synthetic Receptor With a Unique Cooperative Binding Mechanism"

[11] **AFOSR Natural Material and Systems & Extremophiles Program Review, Washington D.C.**
"Carbohydrate Nanotechnology: Hierarchical Assemblies and Information Processing with Oligosaccharide Host-Guest Systems"

[10] **Army Research Office, Durham, North Carolina, October 21, 2011**
"Frontiers of Supramolecular Design: From Polymer Superstructures to Synthetic Lectins"

[9] **The Polytechnic Institute of New York University, October 7, 2011**
"Decoding the Glycome with a New Family of Synthetic Lectins"

[8] **City University of New York, Staten Island, April 28, 2011**
"Molecular Printing: Solving the sub-100 nm Soft Matter Conundrum"

[7] **Courant Institute of Mathematical Sciences, New York University, February 3, 2011**
"Molecular Printing: Solving the sub-100 nm Soft Matter Conundrum"

[6] **Air Force Research Laboratory, Dayton, OH, August 25, 2010**
"Molecular Printing: Solving the sub-100 nm Soft Matter Conundrum"

[5] **Northwestern University, May 28, 2010**
Chemistry for the Next Generation by the Next Generation
"Polymer Pen Lithography"

[4] **DePaul University, Chicago, IL, October 24, 2009**
"Molecular Printing"

[3] **Naval Research Laboratory, Washington, D.C., July 17, 2009**
"Frontiers of Tip-Based Nanolithography "

[2] **Illinois Institute of Technology, May 9, 2008**
"Changing Chemical Education One STM at a Time"

[1] **Illinois Institute of Technology, June 12, 2008**
"Nuances of Molecular Structure in Device Design"

PRESENTATIONS

[22] **Gordon Research Conference, Salvia Regina, RI, 3 – 8 August, 2014**
"Cooperatively Assembling Donor-Acceptor Superstructures Direct Energy Into an Emergent Charge Separated State"

[21] **247th American Chemical Society National Meeting, Dallas, Texas, 20 March 2014**
"Glycan Microarrays Prepared via a Beam Pen Lithography Induced Thiol-Acrylate Photopolymerization"

[20] **8th International Symposium on Macrocyclic and Supramolecular Chemistry, Washington D.C., 2013**
"Accessing Molecular Complexity With Conformationally Dynamic Synthetic Carbohydrate Receptors"

[19] **Gordon Research Conference, Self-Assembly, Les Diablerets, Switzerland, 2013**
"Carbohydrate Receptor Defies Cram's Rule of Preorganization to Achieve Mannose Selectivity"

[18] **244th American Chemical Society National Meeting, Philadelphia, PA, 2012**

"Using Polymer Pen Lithography to Create New Covalent Bonds on Surfaces with Sub-micrometer Feature Diameters"

[17] **244th American Chemical Society National Meeting, Philadelphia, PA, 2012**
"Synthetic Carbohydrate Receptors Achieve Specificity Through Positive Allosteric Cooperativity"

[16] **244th American Chemical Society National Meeting, Philadelphia, PA, 2012**
"Matrix-assisted Polymer Pen Lithography: A new method for immobilization of bioorthogonal reactions and kinetic characterization of force catalyzed reactions"

[15] **244th American Chemical Society National Meeting, Philadelphia, PA, 2012**
World Class University International Symposium on Energy Storage and Conversion
"Donor-Acceptor Crystalline Supramolecular Polymers for Solar Energy Harvesting"

[14] **Gordon Research Conference, Donor-Acceptor Systems, Salvia Regina, Rhode Island, 2012**
"Donor-Acceptor Crystalline Supramolecular Polymers"

[13] **Gordon Research Conference, Electronic Processes in Organic Materials, Il Ciocco, Italy, 2012**
"Photoactive Donor-Acceptor Crystalline Supramolecular Polymers"

[12] **9th US-Korea Workshop on Nanostructured Materials, Seattle, WA, 2010**
"Template Directed Assembly Strategies"

[11] **5th International Symposium on Macrocyclic and Supramolecular Chemistry, Nara, Japan, 2010**
"Solvent, Temperature, and Electronic Effects on the Switching of Rh^{I} Macrocycles Formed via the Weak Link Approach"

[10] **Tip-Based Nanomanufacturing Review Meeting, DARPA, San Diego, CA, 2010**
"Scanning Probe Epitaxy"

[9] **8th US-Korea Workshop on Nanostructured Materials, Seoul, Korea, 2009**
"Template-Directed Assembly Strategies"

[8] **American Chemical Society National Meeting, Washington, D.C., 2009**
"Redox-Activating Dip-Pen Nanolithography"
"Functional Nanosystems for Molecular Electronics, Biodiagnostics and Biomimetic Catalysis"

[7] **The 53rd International Conference on Electron, Ion and Photon Beam Technology and Nanofabrication, Marco Island, FL, 2009**
"Frontiers of Tip-Based Nanofabrication: From DPN and Beyond"

[6] **American Chemical Society National Meeting, New Orleans, LA, 2008**
"Bistable Side-Chain Poly[2]catenanes: A Mechanically Switchable Polymer"

[5] **American Chemical Society National Meeting, Boston, MA, 2007**
"Monitoring the Activity of Tyrosinase by Force Microscopy: Developing Biosensors Using Dynamic Force Interactions"

[4] **American Chemical Society National Meeting, Atlanta, GA, 2006**
"Programmed Assembly of Quantum Dot Architectures on Surfaces *via* Molecular Recognition"

[3] **American Chemical Society National Meeting, San Francisco, CA, 2005**
"Highly Convergent Synthesis of Rotaxanes via Click Chemistry"

[2] **American Chemical Society National Meeting, Washington, D.C., 2005**
"Thermodynamic Control of Bistable Rotaxanes"
"An Outreach Scanning Tunneling Microscope"

[1] **11th International Symposium of Novel Aromatic Compounds, Newfoundland, Canada, 2005**
"Nuances of Molecular Structure in Device Performance"

TEACHING

2016 **UM Department of Chemistry, Heterocyclic Chemistry (CHM 592B/692B)**
2015 **UM Department of Chemistry, Organic Chemistry I (CHM 201A)**
2015 **UM Department of Chemistry, Heterocyclic Chemistry (CHM 591B)**
2014 **UM Department of Chemistry, PRISM Organic Chemistry I (CHM 201EP)**
2014 **UM Department of Chemistry, Heterocyclic Chemistry (CHM 591B)**
2013 **UM Department of Chemistry, PRISM Organic Chemistry I (CHM 201E)**
2013 **UM Department of Chemistry, PRISM Organic Chemistry II (CHM 202D)**
2012 **NYU Department of Chemistry, Organic Chemistry II (CHEM-UA 226)**
2010-2012 **NYU Department of Chemistry, Physical Organic Chemistry (G25.1313001 / V25.0913001)**

OUTREACH

2015	**WVUM "Get Smart" On-Air Interview, 1 December 2015**
2013-Present	**Director, UM High School Research Internships in Physical Sciences (RIPS) Program**
2011-2015	**CHUST Summer Student Host**
2010-2012	**Young Women's Leadership School of East Harlem Inquiry Based Teaching, Founded NYU-Met Teaching Collaborative**
2011-Present	**International Gateway for Gifted Youth New York Hosting**
2011	**Faculty Resources Network, Materials World Workshop on Photolithography**
2001–2004	**Graduate Student Teaching Assistant, UCLA**
2005–2006	**National Science Foundation GK–12 Fellow in Fremont High-School, Los Angeles**
2002–2006	**California NanoSystems Institute Outreach Committee**
	This work was highlighted in *Chemical and Engineering News*, **2005**, *83*, 36 – 37.

UNIVERSITY SERVICE

2015	**UM Faculty Fellow Eaton Residence Hall**
2015	**UM Fulbright and Prestigious Awards Committee**
2015	**UM Beyond the Book Adjucation**
2014	**UM Chemistry Faculty Search Committee**
2014-2015	**UM Prestigious Awards and Fulbright Selection Committee**
2013, 2016	**UM Stamps and Singer Fellowship Selection Weekend**
2013	**UM BioNIUM Instrumentation Committee**
2013-2014	**UM Chemistry Graduate Student Committee**
2010-2012	**NYU Chemistry Graduate Student Committee**
2011-2012	**NYU Faculty Oversight, Shared Instrumentation Facility**
2012	**NYU Physical Chemistry Curriculum Committee**
2012	**NYU Undergraduate Laboratories Search Committee**

PROFESSIONAL ACTIVITIES

2014	Organizer, ACS Polymeric Materials, Science and Engineering (PMSE) Symposium "Stimuli-Responsive Supramolecular, Macromolecular and Nanostructured Systems and Biopolymer-Driven Organization of Nanostructures" 248th ACS Fall National Meeting, San Francisco, CA
2010–2015	Manuscript Reviewer: *Accounts of Chemical Research, ACS Applied Materials and Interfaces, ACS Macro Letters, ACS Nano, Acta Biomaterialia, Angewandte Chemie International Edition, Applied Physics A: Materials Science & Processing, Beilstein Journal of Organic Chemistry, Chemical Communications, Chemical Science, Chemistry – An Asian Journal, Chemistry – A European Journal, Journal of the American Chemical Society, Journal of Applied Polymer Science, Journal of Colloid and Interfacial Science, Journal of Materials Chemistry C, Journal of Nanobiotechnology, Langmuir, Macromolecules, Nanoscale, Nature Chemistry, Nature Nanotechnology, New Journal of Chemistry, RSC Advances, Small, Supramolecular Chemistry*
2010–2015	Proposal Reviewer: *Air Force Office of Scientific Research (2011-2013), Army Research Office (2013-2015), Deutsche Forschungsgemeinschaft (2015), Elsevier-Academic Press, Louisiana Board of Regents, Bio Division Review Panel National Science Foundation (2012, 2015)*
2012	Session Chair, PMSE Young Investigator's Symposium, 244th ACS National Meeting
2012	National Science Foundation BIO Review Panel
2009	Defense Threat Reduction Agency Molecular and Hybrid Nanoelectronics Workshop

CURRENT AND PAST GROUP MEMBERS

Past Postdoctoral: Dr. Charlotte Hinkle (PhD Ohio State University, Currently: Analyst, Government Accountability Office); **Dr. David Ley** (PhD Justus-Liebig University Giessen; Current: BASF, Ludwigshafen); **Dr. Zhong Li** (PhD SUNY Stony Brook, NY; Current: Ren-Pharm International, Ltd, Jericho, NY); **Dr. Steven Rieth** (PhD Ohio State University, OH; Current: USPTO)

Current Postdoctoral: Dr. Carlos Carbonell (PhD, Institut Català de Nanociència i Nanotecnologia, Barcelona Institute of Science and Technology)

Past Graduate: Shudan Bian (Graduate Student, NYU ’14; Thesis Title: Massively Parallel Tip Arrays As Tools To Gain New Insights Into Organic Reactions on Surfaces”; Current: Postdoc, Tufts University); **Jiajun He** (Masters Student, NYU ‘11); **Catherine Munro** (UM, PhD ’18); **Han Xu** (UM, PhD ’17),
Current Graduate: Marcello Fernando Bravo (UM PhD ’20); **Carmen X. Guzman** (UM ’17, *NSF GRF*); **Chuan Liu** (UM, PhD ’19); **Kaixuan Liu** (UM, PhD ’19); **Xiaoming Liu** (UM, PhD ’19); **Yeting Zhang** (UM PhD ’18), **Jie Yu** (UM PhD ’20); **Xiang Zhong** (UM PhD ’20).

Past Undergraduate: Patrick Aurelus (UM, B. A. ’15, *ACS Scholar,* Current Position: Herba Diagnostics, Miami Gardens); **Clifford Chang** (NYU BS ’14); **Jungeun “Jasmine” Lee** (REU Summer Student, Montclair State University ’13); **Maxim Marshalik** (Undergraduate, NYU ’11, Current Graduate Student UCLA Chemistry); **Daniel C. Richter** (B.A., UM ‘16, *Goldwater Scholar*); **Samer Nahme** (Undergraduate Student, NYU Abu Dhabi ’14); **Sydur Rahman** (Undergraduate Student, NYU ’12, Dean’s Undergraduate Research Fellowship, *Johns Hopkins Medical School*, ‘17); **Kevin Schesing** (Undergraduate, NYU ’12, 2012 Isidore Rubiner Award for outstanding undergraduate chemical research, Dean’s Undergraduate Research Fellowship, *Robert Wood Johnson New Jersey Medical School* ‘16); **Brian Schmatz** (Undergraduate, NYU ’13, Dean’s Undergraduate Research Fellowship; Current: *Georgia Tech Chemistry PhD* ‘18); **Sylwia Zieba** (Undergraduate Student, NYU ’13, Current*: NYU Dental School*, ‘18)

Current Undergraduate: Thomas Carlino (UM B. S. ’17); **Ezan Khotari** (UM B.S. ’18)**; Sam Peurifoy** (B.A.., UM ’16, REU U. Washington, Seattle, 2014; RISE Fellowship, Germany, 2015; *Winner Clinton Global Initiative University Resolution Project Social Venture Challenge 2015*, highlighted *e-veritas* 13 April 2015); **Sathvik Palakurty** (UM B. S. 2019); **David Scherr** (UM B. S. 2017); **Yujia Zhou** (Foote Fellow, UM B. S. 2018)

Past High School Students: Andres Flamenco (*ACS Project SEED,* East Side Community High School, NYC, Summer 2012); **Dorrell Fletcher** (Monsignor Edward Pace High School, Class of 2016 High School Student, self-assembly, *ACS Project SEED*); **Lance Helguero-Kelley** (Ransom Everglades HS, Class of 2016); **Daniel Rodriguez** (Hialeah Miami Lakes HS, Class of 2016); **Andrea Wenrich** (Ransom Everglades HS, Current: Stanford University BS ‘18); **Yujia Zhou** (Palmetto HS, Current: University of Miami BS 2018)

Past Visiting Scholars: Emilia Strandback (CHUST KTH Summer ’12 student)**, Karin Adolffson** (CHUST KTH Summer ’13 student); **Erik Bergendal** (CHUST KTH Summer ’13 student); **Magnus Larson** (CHUST KTH, Sweden M.S. ’13); **Allan Starkholm** (CHUST KTH Summer Student, ’14), **Zoe Ahmad Ataf (**CHUST KTH, Sweden, M.S. 2015); **Bjorn Schmidt** (CHUST KTH, Sweden, M. S. 2015), **Nicole Martel** (MDC, Summer ’15)