

Curriculum Vitae

John B. Matson

Virginia Tech
Department of Chemistry
313B Davidson Hall
Blacksburg, VA 24061
(540) 231-3329
jbmatson@vt.edu

PROFESSIONAL POSITIONS

Virginia Tech

Associate Professor
Assistant Professor

Blacksburg, VA
2018-present
2012-2018

EDUCATION and TRAINING

Northwestern University

Postdoctoral Fellow
Advisor: Samuel I. Stupp

Chicago, IL
2009-2012

California Institute of Technology

Ph.D. (defended Sept. 4, 2009; awarded June 10, 2010)
Advisor: Robert H. Grubbs
Thesis: Applications and extensions of living ring-opening metathesis polymerization

Pasadena, CA
2004-2009

Washington University in St. Louis

A.B. (awarded May 10, 2004)
Majors: Chemistry and German
Summa Cum Laude
Research Advisor: Karen L. Wooley

St. Louis, MO
2000-2004

AWARDS/HONORS

| | |
|---|------|
| Humboldt Research Fellowship for Experienced Researchers (Germany) | 2019 |
| John C. Schug Research Award (Virginia Tech Department of Chemistry) | 2019 |
| Thieme Chemistry Journal Award | 2019 |
| Camille Dreyfus Teacher-Scholar Award | 2018 |
| ACS PMSE Division Young Investigator Award | 2018 |
| Virginia Tech nominee for SCHEV Rising Star Award | 2017 |
| Jimmy W. Viers Teaching Award (Virginia Tech Department of Chemistry) | 2016 |
| NSF CAREER Award | 2015 |
| 3M Non-Tenured Faculty Award | 2015 |
| Ralph E. Powe Junior Faculty Enhancement Award | 2014 |
| ACS Petroleum Research Fund Doctoral New Investigator Award | 2014 |
| NIH National Research Service Award (NRSA) Postdoctoral Fellowship | 2011 |
| Kemin Travel Award to ACS Meeting | 2011 |
| Baxter Early Career Development Fellowship Award in Bioengineering | 2009 |
| ACS POLY Division Excellence in Graduate Polymer Research Award | 2009 |
| NSF Travel Grant to NATO Advanced Study Institute | 2008 |
| Dow Travel Fellowship | 2007 |

JOURNAL PUBLICATIONS

As PI at Virginia Tech

Submitted

61. Wang, Y.; **Matson, J. B.*** “Supramolecular nanostructures with tunable donor loading for controlled H₂S release” **2019**, *submitted*.
60. Kaur, K.; Carrazzone, R. J.; **Matson, J. B.*** “The Benefits of Macromolecular/Supramolecular Approaches in H₂S Delivery: A Review of Polymeric and Self-Assembled H₂S Donors” **2019**, *submitted*.
59. Volokhova, A.; Edgar, K. J.; **Matson, J. B.*** “Polysaccharide-containing block copolymers: Synthesis and applications” **2019**, *submitted*.
58. Yang, K.; Liu, Y.; Wang, Y.; Ren, Q.; Guo, H.; Lee, A.; **Matson, J. B.**; Chen, X. “Enzyme-induced in-vivo assembly of gold nanoparticles for imaging-guided synergistic chemo-photothermal therapy of tumor” **2019**, *submitted*.
57. Okyere, B.; Mills, T.; Kowalski, E.; Hazy, A.; Qian, Y.; Wang, X.; **Matson, J. B.**; Theus, M. H.* “A novel suppressive role for endothelial cell-specific EphA4 in leptomenigeal collateral remodeling” **2019**, *submitted*.
56. Kowalski, E. A.; Chen, J.; Qian, Y.; Chen, M.; Wang, X.; Hazy, A.; Zhou, M.; Byerly, M.; Pickrell A. M.; **Matson, J. B.**; Allen, I. C.; Theus, M. H.* “EphA4 Inhibition Alters the Neuroimmune Response Providing Neuroprotection Following Traumatic Brain Injury” **2019**, *submitted*.

In Press

55. Macabrey, D.; Longchamp, A.; Kaur, K.; Dubuis, C.; Corpataux, J. M.; Déglise, S.; **Matson, J. B.***; Allagnat, F.* “H₂S-releasing peptide hydrogel limits the development of intimal hyperplasia in human vein segments” *Acta Biomater.* **2019**, *in press*. doi: 10.1016/j.actbio.2019.07.042

Published

54. Powell, C. R.; Kaur, K.; Dillon, K. M.; Zhou, M.; Alaboalirat, M.; **Matson, J. B.*** “Functional N-substituted N-thiocarboxyanhydrides as Modular Tools for Constructing H₂S Donor Conjugates” *ACS Chem. Biol.* **2019**, *14*, 1129-1134. doi: 10.1021/acscchembio.9b00248
53. Powell, C. R.; Foster, J. C.; Kaur, K.; Swilley, S. N.; Scannelli, S. J.; Troya, D.; **Matson, J. B.*** “Self-Amplified Depolymerization of Oligo(thiourethanes) for the Release of COS/H₂S” *Polym. Chem.* **2019**, *10*, 2991-2995. doi: 10.1039/C9PY00354A
[**Polymer Chemistry Pioneering Investigators 2019 special issue](#)
52. Volokhova, A. S.; Waugh, J. B.; **Matson, J. B.*** “Effects of Graft Polymer Compatibilizers in Blends of Cellulose Triacetate and Polylactic Acid” *Polym. Int.* **2019**, *68*, 1263-1270. doi: 10.1002/pi.5820.
[**Polymers for Biology, Medicine and Sustainability special issue](#)
51. Arrington, K. J.; Haag, J. V.; French, E.; Murayama, M.; Edgar, K. J.; **Matson, J. B.*** “Toughening Cellulose: Compatibilizing Polybutadiene and Cellulose Triacetate Blends” *ACS Macro Lett.*, **2019**, *8*, 447-453. doi: 10.1021/acsmacrolett.9b00136
50. Foster, J. C.; Carrazzone, R. C.; Spear, N. J.; Radzinski, S. C.; Arrington, K. J.; **Matson, J. B.*** “Tuning H₂S Release by Controlling Mobility in a Micelle Core” *Macromolecules*, **2019**, *52*, 1104-1111. doi: 10.1021/acs.macromol.8b02315
49. Qian, Y.; Kaur, K.; Foster, J. C.; **Matson, J. B.*** “Supramolecular Tuning of H₂S Release from Aromatic Peptide Amphiphile Gels: Effect of Core Unit Substituents” *Biomacromolecules* **2019**, *20*, 1077-1086. doi: 10.1021/acs.biomac.8b0173
48. Shmidov, Y.; Zhou, M.; Yosefi, G.; Bitton, R.*; **Matson, J. B.*** “Hydrogels composed of hyaluronic acid and dendritic ELPs: Hierarchical structure and physical properties” *Soft Matter*, **2019**, *15*, 917-925. doi: 10.1039/c8sm02450b

47. Dillon, K. M.; Powell, C. R.; **Matson, J. B.*** “Self-Immolative Prodrugs: Effective Tools for the Controlled Release of Sulfur Signaling Species” *Synlett*, **2019**, *30*, 525-531. doi: 10.1055/s-0037-1611693
46. Alaboalirat, M.; Qi, L.; Arrington, K. J.; Qian, S.; Keum, J. K.; Mei, H.; Littrell, K. C.; Sumpter, B. G.; Carrillo, J-M, Y.; Verduzco, R.* **Matson, J. B.*** “Amphiphilic Bottlebrush Block Copolymers: Analysis of Aqueous Self-Assembly by Small Angle Neutron Scattering and Surface Tension Measurements” *Macromolecules*, **2019**, *52*, 465-476. doi: 10.1021/acs.macromol.8b02366
45. Wang, Y.; Kaur, K.; Scannelli, S. J.; Bitton, R.; **Matson, J. B.*** “Self-Assembled Nanostructures Regulate H₂S Release from Constitutionally Isomeric Peptides” *J. Am. Chem. Soc.* **2018**, *140*, 14945-14951. doi: 10.1021/jacs.8b09320
**Selected as an ACS Editors’ Choice article
44. Kaur, K.; Qian, Y.; Gandour R. D.*; **Matson, J. B.*** “Hydrolytic Decomposition of *S*-Aroylthiooximes: Effect of pH and *N*-Arylidene Substitution on Reaction Rate” *J. Org. Chem.* **2018**, *83*, 13363-13369. doi: 10.1021/acs.joc.8b02151
43. Arrington, K. J.; Radzinski, S. C.; Drummey, K. J.; Long, T. E.; **Matson, J. B.*** “Reversibly Crosslinkable Bottlebrush Polymers as Pressure-Sensitive Adhesives” *ACS Appl. Mater. Interfaces* **2018**, *10*, 26662-26668. doi: 10.1021/acsami.8b08480
42. Powell, C. R.; Dillon, K. M.; Wang, Y.; Carrazzone, R. J. **Matson, J. B.*** “A Persulfide Donor Responsive to Reactive Oxygen Species: Insights into Reactivity and Therapeutic Potential” *Angew. Chem. Int. Ed.* **2018**, *57*, 6324-6328. doi: 10.1002/anie.201803087
**Highlighted in Science Trends, May 2018
41. Powell, C. R.; Dillon, K. M.; **Matson, J. B.*** “A Review of Hydrogen Sulfide (H₂S) Donors: Chemistry and Potential Therapeutic Applications” *Biochem. Pharmacol.* **2018**, *149*, 110-123. doi: 10.1016/j.bcp.2017.11.014
40. Arrington, K. J.; **Matson, J. B.*** “Assembly of a Visible Light Photoreactor: An Inexpensive Tool for Bottlebrush Polymer Synthesis via Photoiniferter Polymerization” *Polym. Chem.* **2017**, *8*, 7452-7456. doi: 10.1039/c7py01741c
39. Radzinski, S.C.; Foster, J. C.; Scannelli, S. J.; Weaver, J. R.; Arrington, K. J.; **Matson, J. B.*** “Tapered Bottlebrush Polymers: Cone-shaped Nanostructures by Sequential Addition of Macromonomers” *ACS Macro Lett.* **2017**, *6*, 1175-1179. doi: 10.1021/acsmacrolett.7b00724
38. Foster, J. C.; Radzinski, S.C.; **Matson, J. B.*** “Graft Polymer Synthesis by RAFT Transfer-to” *J. Poly. Sci., Part A: Polym. Chem.* **2017**, *55*, 2865-2876. doi: 10.1002/pola.28621
**Special Issue in honor of Prof. Robert H. Grubbs
37. Dong, Y.; **Matson, J. B.**; Edgar, K. J. “Olefin Cross-metathesis in Polymer and Polysaccharide Chemistry: A Review” *Biomacromolecules* **2017**, *18*, 1661-1676. doi: 10.1021/acs.biomac.7b00364
36. Arrington, K. J.; Waugh, J. B.; Radzinski, S. C.; **Matson, J. B.*** “Photo- and Biodegradable Thermoplastic Elastomers: Combining Ketone-Containing Polybutadiene with Polylactide using Ring-Opening Polymerization and Ring-Opening Metathesis Polymerization” *Macromolecules*, **2017**, *50*, 4180-4187. doi: 10.1021/acs.macromol.7b00479
35. Foster, J. C.; Radzinski, S. C.; Zou, X.; Finkielstein, C. V.; **Matson, J. B.*** “H₂S-Releasing Polymer Micelles for Studying Selective Cell Toxicity” *Mol. Pharmaceutics* **2017**, *14*, 1300-1306. doi: 10.1021/acs.molpharmaceut.6b01117
34. Zhou, M.; Shmidov, Y.; **Matson, J. B.***; Bitton, R.* “Multi-Scale Characterization of Thermoresponsive Dendritic Elastin-Like Peptides” *Colloids Surf. B* **2017**, *153*, 141-151. doi: 10.1016/j.colsurfb.2017.02.014

33. Radzinski, S. C.; Foster, J. C.; Lewis, S. E.; French, E. V.; **Matson, J. B.*** “Factors Affecting Bottlebrush Polymer Synthesis by the Transfer-to Method Using Reversible Addition–Fragmentation Chain Transfer (RAFT) Polymerization” *Polym. Chem.* **2017**, *8*, 1636-1643. doi: 10.1039/c6py01982j
32. Qian, Y.; **Matson, J. B.*** “Gasotransmitter Delivery via Self-Assembling Peptides: Treating Diseases with Natural Signaling Gases” *Adv. Drug. Deliv. Rev.* **2017**, *110-111*, 137-156. doi:10.1016/j.addr.2016.06.017
**Peptides and Peptide Conjugates in Medicine special issue
31. Powell, C. R.; Foster, J. C.; Okyere, B.; Theus, M. H.; **Matson, J. B.*** “Therapeutic Delivery of H₂S via COS: Small Molecule and Polymeric Donors with Benign Byproducts” *J. Am. Chem. Soc.* **2016**, *138*, 13477-13480. doi: 10.1021/jacs.6b07204
30. Radzinski, S. C.; Foster, J. C.; Chapleski, R. C.; Troya, D.*; **Matson, J. B.*** “Bottlebrush Polymer Synthesis by Ring-Opening Metathesis Polymerization: The Significance of the Anchor Group” *J. Am. Chem. Soc.*, **2016**, *138*, 6998-7004. doi: 10.1021/jacs.5b13317
29. Arrington, K. J.; Murray, C. B.; Smith, E. C.; Marand, H.*; **Matson, J. B.*** “Precision Polyketones by Ring-Opening Metathesis Polymerization: Effects of Regular and Irregular Ketone Spacing” *Macromolecules*, **2016**, *49*, 3655-3662. doi: 10.1021/acs.macromol.6b00590
28. Radzinski, S. C.; Foster, J. C.; **Matson, J. B.*** “Preparation of Bottlebrush Polymers via a One-Pot Ring-Opening Polymerization (ROP) and Ring-Opening Metathesis Polymerization (ROMP) Grafting-Through Strategy” *Macromol. Rapid Commun.* **2016**, *37*, 616-621. doi: 10.1002/marc.201500672
27. Navon, Y.; Zhou, M.; **Matson, J. B.***; Bitton R.* “Dendritic Elastin-Like Peptides: The Effect of Branching on Thermoresponsiveness” *Biomacromolecules* **2016**, *17*, 262-270. doi: 10.1021/acs.biomac.5b01371
26. Foster, J. C.; Radzinski, S. C.; Lewis, S. E.; Slutzker, M. B.; **Matson, J. B.*** “Norbornene-Containing Dithiocarbamates for use in Reversible Addition–Fragmentation Chain Transfer (RAFT) Polymerization and Ring-Opening Metathesis Polymerization (ROMP)” *Polymer* **2015**, *79*, 205-211. doi: 10.1016/j.polymer.2015.10.028
25. Carter, J. M.; Qian, Y.; Foster, J. C.; **Matson, J. B.*** “Peptide-Based Hydrogen Sulfide-Releasing Gels” *Chem. Commun.* **2015**, *51*, 13131-13134. doi: 10.1039/c5cc04883d
24. Radzinski, S. C.; Foster, J. C.; **Matson, J. B.*** “Synthesis of Bottlebrush Polymers via Transfer-To and Grafting-Through Approaches Using a RAFT Chain Transfer Agent with a ROMP-Active Z-Group” *Polym. Chem.* **2015**, *6*, 5643-5652. doi: 10.1039/c4py01567c.
**Polymer Chemistry Emerging Investigators 2015 special issue
23. Meng, X.; **Matson, J. B.**; Edgar, K. J.* “Olefin Cross-metathesis, a Mild, Modular Approach to Functionalized Cellulose Esters” *Polym. Chem.* **2014**, *5*, 7021-7033. doi: 10.1039/c4py01102c
22. Foster, J. C.; **Matson, J. B.*** “Functionalization of Methacrylate Polymers with Thiooximes: A Robust Post-Polymerization Modification Reaction and a Method for the Preparation of H₂S-Releasing Polymers” *Macromolecules* **2014**, *47*, 5089-5095. doi: 10.1021/ma501044b
21. Foster, J. C.; Powell, C. R.; Radzinski, S. C.; **Matson, J. B.*** “S-Aroylthiooximes: A Facile Route to Hydrogen Sulfide Releasing Compounds with Structure-Dependent Release Kinetics” *Org. Lett.* **2014**, *16*, 1558-1561. doi: 10.1021/ol500385a
20. Meng, X.; **Matson, J. B.**; Edgar, K.* “Olefin Cross-Metathesis as a Source of Polysaccharide Derivatives: Cellulose ω-Carboxyalkanoates” *Biomacromolecules* **2014**, *15*, 177-187. doi: 10.1021/bm401447v
19. Carreon, A. C.; Santos, W. L.; **Matson, J. B.***; So, R. C.* “Cationic Polythiophenes as Responsive DNA-binding Polymers” *Polym. Chem.* **2014**, *5*, 314-317. doi: 10.1039/c3py01069d

18. Sur, S.; Tantakitti, F.; **Matson, J. B.**; Stupp, S. I. "Epitope Topography Controls Bioactivity in Supramolecular Nanofibers" *Biomater. Sci.* **2015**, *3*, 520-532. doi: 10.1039/c4bm00326h
17. **Matson, J. B.**; Navon, Y.; Bitton, R.; Stupp, S. I. "Light-Controlled Hierarchical Self-Assembly of Polyelectrolytes and Supramolecular Polymers" *ACS Macro Lett.* **2015**, *4*, 43-47. doi: 10.1021/mz500677q
16. Ortony, J. H.; Newcomb, C. J.; **Matson, J. B.**; Palmer, L. C.; Doan, P. E.; Hoffman, B. M.; Stupp, S. I. "Internal Dynamics of a Supramolecular Nanofiber" *Nat. Mater.* **2014**, *13*, 812-816. doi:10.1038/nmat3979
15. Newcomb, C. J.; Sur, S.; Ortony, J. H.; Lee, O.S.; **Matson, J. B.**; Boekhoven, J.; Yu, J.; Schatz, G. C.; Stupp, S. I. "Cell Death Versus Survival Instructed by Supramolecular Cohesion of Nanofibers" *Nat. Commun.* **2014**, *5*, 3321. doi: 10.1038/ncomms4321
14. Sur, S.; **Matson, J. B.**[†]; Newcomb, C. J.; Webber, M. J.; Stupp, S. I. "Photodynamic Control of Bioactivity in a Nanofiber Matrix" *ACS Nano* **2012**, *6*, 10776-10785. doi: 10.1021/nn304101x
13. Webber, M. J.; **Matson, J. B.**[†]; Tamboli, V. K.; Stupp, S. I. "Controlled Release of Dexamethasone from Peptide Nanofiber Gels to Modulate Inflammatory Response" *Biomaterials* **2012**, *33*, 6823-6832. doi: 10.1016/j.biomaterials.2012.06.003
12. **Matson, J. B.**[†]; Webber, M. J.; Tamboli, V. K.; Weber, B.; Stupp, S. I. "A Peptide-Based Material for Therapeutic Carbon Monoxide Delivery" *Soft Matter* **2012**, *8*, 6689-6692. doi: 10.1039/c2sm25785h
**Highlighted in the June 2012 issue of *Chemistry World*
11. **Matson, J. B.**; Newcomb, C. J.; Bitton, R.; Stupp, S. I. "Nanostructure-Templated Control of Drug Release from Peptide Amphiphile Nanofiber Gels" *Soft Matter* **2012**, *8*, 3586-3595. doi: 10.1039/c2sm07420f
**A top-10 most-read *Soft Matter* article in 2012
10. **Matson, J. B.**; Stupp, S. I. "Self-Assembling Peptide Scaffolds for Regenerative Medicine" *Chem. Commun.* **2012**, *48*, 26-33. doi: 10.1039/c1cc15551b
9. **Matson, J. B.**; Zha, R. H.; Stupp, S. I. "Peptide Self-Assembly for Crafting Functional Biological Materials" *Curr. Opin. Solid St. Mater. Sci.* **2011**, *15*, 225-235. doi: 10.1016/j.cossms.2011.08.001
8. **Matson, J. B.**; Stupp, S. I. "Drug Release from Hydrazone-Containing Peptide Amphiphiles" *Chem. Commun.* **2011**, *47*, 7962-7964. doi: 10.1039/c1cc12570b
7. Lee, S. G.; Brown, J. M.; Rogers, C. J.; **Matson, J. B.**; Krishnamurthy, C.; Rawat, M.; Hsieh-Wilson, L. C. "End-Functionalized Glycopolymers as Mimetics of Chondroitin Sulfate Proteoglycans" *Chem. Sci.* **2010**, *1*, 322-325. doi: 10.1039/c0sc00271b
6. **Matson, J. B.**; Grubbs, R. H. "Monotelechelic Poly(oxa)norborenones by Ring-Opening Metathesis Polymerization Using Direct End-Capping and Cross-Metathesis" *Macromolecules* **2010**, *43*, 213-221. doi: 10.1021/ma9019366
5. **Matson, J. B.**; Virgil, S. C.; Grubbs, R. H. "Pulsed-Addition Ring-Opening Metathesis Polymerization: Catalyst-Economical Syntheses of Homopolymers and Block Copolymers" *J. Am. Chem. Soc.* **2009**, *131*, 3355-3362. doi: 10.1021/ja809081h
4. **Matson, J. B.**; Grubbs, R. H. "ROMP-ATRP Block Copolymers Prepared from Monotelechelic Poly(oxa)norborenones using a Difunctional Terminating Agent" *Macromolecules* **2008**, *41*, 5626-5631. doi: 10.1021/ma800980p
3. **Matson, J. B.**; Grubbs, R. H. "Synthesis of Fluorine-18 Functionalized Nanoparticles as in vivo Molecular Imaging Agents" *J. Am. Chem. Soc.* **2008**, *130*, 6731-6733. doi: 10.1021/ja802010d
2. Rawat, M.; Gamma, C. I.; **Matson, J. B.**; Hsieh-Wilson, L. C. "Neuroactive Chondroitin Sulfate Glycomimetics" *J. Am. Chem. Soc.* **2008**, *130*, 2959-2961. doi: 10.1021/ja709993p
1. Joralemon, M. J.; O'Reilly, R. K.; **Matson, J. B.**; Nugent, A. K.; Hawker, C. J.; Wooley, K. L. "Dendrimers Clicked Together Divergently" *Macromolecules* **2005**, *38*, 5436-5443. doi: 10.1021/ma050302r

†denotes co-first author publications

*denotes corresponding author publications

BOOK CHAPTERS

2. Kaur, K.; Qian, Y.; **Matson, J. B.** “H₂S Delivery from Aromatic Peptide Amphiphile Hydrogels” *Biomaterials for Tissue Engineering: Methods and Protocols*, Springer, New York, **2018**, 193-208. doi: 10.1007/978-1-4939-7741-3_15
1. **Matson, J. B.**; Grubbs, R. H. “Synthesis of Fluorine-18 Functionalized Nanoparticles as in vivo Molecular Imaging Agents” *NATO Science for Peace and Security Series A: Chemistry and Biology, New Smart Materials via Metal Mediated Macromolecular Engineering* Springer Netherlands: **2009**, 237-247.

PATENTS

Provisional

3. **Matson, J. B.**; Radzinski, S. C.; Foster, J. C. “Tapered (Cone-Shaped) Polymer Nanostructures” US 62/547,910
2. Arrington, K. J.; Chen, J.; Edgar, K. J.; **Matson J. B.** “Multiblock Copolymers of Polysaccharides and Synthetic Polymers and Their Use in Compatibilizing Polymer Blends” VTIP-18-101
1. **Matson, J. B.** Powell, C. R. “Persulfide Donor Compounds” VTIP-18-109

Filed

1. Edgar, K. J.; Meng, X.; **Matson, J. B.** “Cross-Metathesized Polysaccharide Derivatives and Processes for Preparing Them” US2016/0215068 A1

TEACHING EXPERIENCE

Virginia Tech

Organic Chemistry II (CHEM 2536)

Spring 2014-2016, 2018

Organic Chemistry of Polymers (CHEM 4534)

Fall 2019

Synthesis and Reactions of Macromolecules (CHEM 5704)

Fall 2012-2018

Advanced Macromolecular Chemistry (CHEM 6564)

Spring 2019

PROFESSIONAL SERVICE

International Union of Pure and Applied Chemistry (IUPAC)

3. Titular Member of Division IV (Polymer Division) (2020-2021)
2. Member of Subcommittee on Polymer Terminology (SPT) in Division IV (Polymer Division) (2017-present)
1. Young Observer for 2017 General Assembly (São Paulo, Brazil)

Editorial Advisory Boards

4. *Polymer Chemistry* (2019-present)
3. *Journal of Polymer Science* (2019-present)
2. *Polymer International* (2017-present)
1. Cambridge Scholars (2017-present)

Reviewer for funding agencies

National Science Foundation, ACS Petroleum Research Fund, Research Corporation, British Heart Foundation

Reviewer for journals

Acta Biomater., *Angewandte Chemie*, *ACS Appl. Mater. Interfaces*, *ACS Chem. Biol.*, *ACS Macro Lett.*, *Adv. Healthcare Mater.*, *Anal. Chem.*, *Bioconj. Chem.*, *Biomacromolecules*, *Biomaterials*, *Bioorg. Med. Chem. Lett.*, *Carb. Polym.*, *Chem. Commun.*, *Chem. Sci.*, *Curr. Med. Chem.*, *J. Am. Chem. Soc.*, *J. Org. Chem.*, *J. Poly Sci. Part B: Poly. Phys.*, *Langmuir*, *Macromolecules*, *Macromol. Theor. Sim.*, *Macromol. Rapid Comm.*, *Mol. Pharm.*, *Nature Comm.*, *Org. Lett.*, *Polymer*, *Polym. Chem.*, *Synlett*

Symposium organization

9. Co-organizer for *Pacificchem 2020* for the symposium entitled “Nitric Oxide, Carbon Monoxide, and Hydrogen Sulfide as Potential Therapeutic Agents: The 4th American Gasotransmitter Symposium” Honolulu, HI, Dec 15-20, **2020**.

8. Co-organizer for *Pacificchem 2020* for the symposium entitled “Synthesis and Applications of Molecular Bottlebrush Polymers” Honolulu, HI, Dec 15-20, **2020**.
7. Co-organizer for *259th National Meeting of the American Chemical Society* for the symposium titled “Structure to Function in Supramolecular Polymers” Philadelphia, PA, March 22-26, **2020**.
6. Co-organizer for *2nd American Gasotransmitter Symposium* Eugene, OR, May 18-19, **2019**.
5. Co-organizer for *257th National Meeting of the American Chemical Society* for symposium titled “Synthesis and Properties of Densely Grafted Polymers” Orlando, FL, March 31-April 4, **2019**.
4. Co-organizer for *255th National Meeting of the American Chemical Society* for symposium titled “International Symposium on Biorelated Polymers: Innovation in Biomedical Polymers” New Orleans, LA, March 18-22, **2018**.
3. Co-organizer for *1st American Gasotransmitter Symposium* Atlanta, GA, April 22-23, **2017**.
2. Co-organizer for *253rd National Meeting of the American Chemical Society* for symposium titled “Structure to Function in Supramolecular Polymers and Materials” San Francisco, CA, April 2-6, **2017**.
1. Co-organizer for *251st National Meeting of the American Chemical Society* for symposium titled “Supramolecular Polymers: From Structure to Advanced Functionality” San Diego, CA, March 13-17, **2016**.

ORAL CONFERENCE PRESENTATIONS (presenting author underlined)

60. Matson, J. B. “Self-assembling peptide-based materials for therapeutic H₂S delivery” 47th IUPAC World Chemistry Congress, Paris, France, July 5-12, **2019**.
59. Matson, J. B. “New materials by blending commodity polymers with polysaccharides” 47th IUPAC World Chemistry Congress, Paris, France, July 5-12, **2019**.
58. Matson, J. B. “Macromolecular and Supramolecular Materials for Signaling Gas Delivery” *Polymers Gordon Research Conference*, South Hadley, MA Jun 9-14, **2019**.
57. Matson, J. B. “Chemical Tools for Delivery of Reactive Sulfur Species: Small Molecules to Materials” *2nd American Gasotransmitter Symposium*, Eugene, OR May 18-19, **2019**.
56. Matson, J. B. “Self-assembled tetrapeptide nanocoils for delivery of hydrogen sulfide” *257th American Chemical Society National Meeting*, Orlando, FL March 31-April 4, **2019**.
55. Matson, J. B. “Block copolymers of polysaccharides and conventional polymers as compatibilizers in blends of bio-derived polymers” *257th American Chemical Society National Meeting*, Orlando, FL March 31-April 4, **2019**.
54. Matson, J. B. “Aqueous self-assembly of amphiphilic cylindrical and cone-shaped (tapered) bottlebrush polymers prepared by sequential-addition of macromonomers ring-opening metathesis polymerization (SAM-ROMP)” *257th American Chemical Society National Meeting*, Orlando, FL March 31-April 4, **2019**.
53. Matson, J. B. “Tapered bottlebrush polymers: Cone-shaped polymers prepared by sequential addition of macromonomers ring-opening metathesis polymerization (SAM-ROMP)” *Macro 2018 World Polymer Congress*, Cairns, Australia, July 1-5, **2018**.
52. Matson, J. B. “Tuning release of signaling gases by controlling mobility in a micelle core” *Macro 2018 World Polymer Congress*, Cairns, Australia, July 1-5, **2018**.
51. Matson, J. B. “Well-Defined Polysaccharide Block, Segmented, and Graft Copolymers as Compatibilizers in Blends of Bio-Derived Polymers” *Macro 2018 World Polymer Congress*, Cairns, Australia, July 1-5, **2018**.
50. Matson, J. B. “Non-centrosymmetric nanostructures: Tapered (cone-shaped) bottlebrush polymers by sequential-addition of macromonomers ring-opening metathesis polymerization (SAM-ROMP)” *4th Fusion Functional Polymeric Materials Conference*, Nassau, Bahamas, June 5-8, **2018**.
49. Matson, J. B. “Chemical Tools for Delivery of H₂S and Related Species: Small Molecules, Polymers, and Hydrogels” *5th World Congress on H₂S Biology and Medicine*, Toronto, Canada, May 31-June 3, **2018**.
48. Matson, J. B.; Foster, J. C.; Radzinski, S. C. “Tapered (Cone-Shaped) Polymers by Sequential-Addition of Macromonomers Ring-Opening Metathesis Polymerization (SAM-ROMP)” *255th ACS National Meeting*, New Orleans, LA, March 18-22, **2018**.

47. Powell, C. R.; Foster, J. C.; Okyere, B.; Theus, M.; Matson, J. B. "Polymeric Systems for the Release of COS and H₂S" *255th ACS National Meeting*, New Orleans, LA, March 18-22, **2018**.
46. Matson, J. B.; Arrington, K. J. "Making and Breaking Polymers with Light: Blue-Light-Mediated Photoiniferter Polymerization and Polyketone Degradation" *255th ACS National Meeting*, New Orleans, LA, March 18-22, **2018**.
45. Arrington, K. J.; Chen, J.; Mondschein, R. J.; Long, T. E.; Edgar, K. J.; Matson, J. B.; "Synthesis of Polysaccharide ABA Triblock Copolymers by One-Pot Cross-Metathesis Ring-Opening Metathesis Polymerization" *255th ACS National Meeting*, New Orleans, LA, March 18-22, **2018**.
44. Matson, J. B.; Foster, J. C. "Tuning Release of Signaling Molecules by Controlling Mobility in a Micelle Core" *255th ACS National Meeting*, New Orleans, LA, March 18-22, **2018**.
43. Zhou, M.; Matson, J. B. "Thermoresponsive Dendritic Elastin-Like Peptides" *254th ACS National Meeting*, Washington, D.C., August 20-24, **2017**.
42. Arrington, K. J.; Matson, J. B. "Compatibilizing Methylcellulose and Polyethylene for Sustainable Materials" *254th ACS National Meeting*, Washington, D.C., August 20-24, **2017**.
41. Kaur, K.; Qian, Y.; Foster, J. C.; Matson, J. "Thiooxime Containing H₂S Releasing Peptide Hydrogels: An Insight into Stability and Self-Assembly" *254th ACS National Meeting*, Washington, D.C., August 20-24, **2017**.
40. Qian, Y.; Kaur, K.; Foster, J.; Matson, J. "Self-assembled Aromatic Peptide Hydrogels with Controlled H₂S Release" *254th ACS National Meeting*, Washington, D.C., August 20-24, **2017**.
39. Powell, C. R.; Foster, J. C.; Okyere, B.; Theus, M.; Matson, J. "Synthesis and Properties of COS Releasing Polymeric Systems" *254th ACS National Meeting*, Washington, D.C., August 20-24, **2017**.
38. Matson, J. B.; Radzinski, S. C. "Synthesis of Tapered Bottlebrush Polymers using Sequential Ring-Opening Metathesis Polymerization" *254th ACS National Meeting*, Washington, D.C., August 20-24, **2017**.
37. Matson, J. B. "The Transfer-To Method in Bottlebrush Polymer Synthesis" *46th IUPAC World Chemistry Congress*, São Paulo, Brazil, July 9-14, **2017**.
36. Matson, J. B. "Materials for H₂S Delivery: Polymer micelles and peptide-based gels" *1st American Gasotransmitter Symposium*, Atlanta, GA, April 21-22, **2017**.
35. Arrington, K. J.; Waugh, J.; Radzinski, S.; Matson, J. B. "Design and study of biodegradable and photodegradable thermoplastic elastomers" *253rd ACS National Meeting*, San Francisco, CA, April 2-6, **2017**.
34. Radzinski, S. C.; Foster, J. C.; Chapleski, R.; Troya, D.; Matson, J. B. "Synthesis and characterization of bottlebrush polymers: The importance of the anchor group" *253rd ACS National Meeting*, San Francisco, CA, April 2-6, **2017**.
33. Radzinski, S. C.; Foster, J. C.; Matson, J. B. "Synthesis of bottlebrush polymers using the transfer-to approach" *253rd ACS National Meeting*, San Francisco, CA, April 2-6, **2017**.
32. Matson, J. B.; Qian, Y.; Kaur, K. "Supramolecular gels for delivery of hydrogen sulfide" *253rd ACS National Meeting*, San Francisco, CA, April 2-6, **2017**.
31. Matson, J. B.; Foster, J. C. "Polymeric materials for delivery of hydrogen sulfide (H₂S), a biologically relevant signaling gas" *253rd ACS National Meeting*, San Francisco, CA, April 2-6, **2017**.
30. Matson, J. B.; Arrington, K. J. "Photo- and biodegradable thermoplastic elastomers containing cellulose and polylactide" *253rd ACS National Meeting*, San Francisco, CA, April 2-6, **2017**.
29. Arrington, K. J.; Matson, J. B. "Synthesis of a Bio- and Photodegradable Thermoplastic Elastomer" *Southeastern Regional Meeting of the ACS*, Columbia, SC, Oct. 23-27, **2016**.

28. Radzinski, S. C.; Matson, J. B. "Synthesis and Characterization of Bottlebrush Polymers: The Importance of the Anchor Group" *Southeastern Regional Meeting of the ACS*, Columbia, SC, Oct. 23-27, **2016**
27. Powell, C. R.; Matson, J. B. "Therapeutic Delivery of H₂S via COS: Small Molecule and Polymeric Donors with Benign Byproducts" *Southeastern Regional Meeting of the ACS*, Columbia, SC, Oct. 23-27, **2016**.
26. Matson, J. B.; Arrington, K. J. "Synthesis of Aliphatic Polyketones using Ring-opening Metathesis Polymerization and Their Use in Photodegradable Thermoplastic Elastomers" *2016 Macromolecules Innovation Institute Technical Conference and Review*, Blacksburg, VA, Oct. 10-12, **2016**.
25. Matson, J. B.; Gandour, R. D. "Flipping Organic Chemistry: A Broadly Applicable Method for Flipping a Large Science Class" *Conference on Teaching Large Classes*, Blacksburg, VA, July 21, **2016**.
24. Foster, J. C.; Matson, J. B. "Morphological Control of the Release Profile of H₂S-Releasing Micelles" *251st ACS National Meeting*, San Diego, CA, March 13-17, **2016**.
23. Matson, J. B. "Thiol-Triggered Hydrogen Sulfide-Releasing Gels" *251st ACS National Meeting*, San Diego, CA, March 13-17, **2016**.
22. Matson, J. B. "The Transfer-To Approach to Bottlebrush Polymer Synthesis" *2nd Fusion Functional Polymeric Materials Conference*, Ascot, England, August 5-8, **2015**.
21. Matson, J. B.; "Materials for Therapeutic Delivery of Hydrogen Sulfide" *Nanoparticles at the Interface between Biology and the Materials World*, Rehovot, Israel, July 5-6, **2015**.
20. Matson, J. B.; Carter, J. M. "Self-Assembling Peptide Materials for Hydrogen Sulfide Delivery" *249th ACS National Meeting*, Denver, CO, March 22-26, **2015**.
19. Matson, J. B.; Foster, J. C. "Triggered Delivery of Therapeutic Hydrogen Sulfide from Macromolecular and Supramolecular Carriers" *249th ACS National Meeting*, Denver, CO, March 22-26, **2015**.
18. Meng, X.; Matson, J. B.; Edgar, K. J. "Olefin Cross-metathesis, a Mild, Modular Approach to Functionalized Cellulose Esters" *249th ACS National Meeting*, Denver, CO, March 22-26, **2015**.
17. Matson, J. B. "Materials for Therapeutic Delivery of H₂S" *4th Zing Polymer Chemistry Conference*, Cancun, Mexico, December 10-13, **2014**.
16. Foster, J. C.; Matson, J. B. "Polymer Functionalization with Thiooximes: A Facile Route to H₂S-Releasing Polymers" *248th ACS National Meeting*, San Francisco, CA, August 10-14, **2014**.
15. Edgar, K. J.; Meng, X.; Matson, J. B.; Liu, H. Y. "Versatile Design and Synthesis of Cellulose Derivatives for Amorphous Solid Dispersions" *247th ACS National Meeting*, Dallas, TX, March 16-20, **2014**.
14. Meng, X.; Matson, J. B.; Edgar, K. J. "Olefin Cross-Metathesis as a Source of Novel Polysaccharide Derivatives" *247th ACS National Meeting*, Dallas, TX, March 16-20, **2014**.
13. Matson, J. B.; Foster, J. C. "Materials for Therapeutic Signaling Gas Delivery" *Functional Polymeric Materials*, Cancun, Mexico, February 10-13, **2014**.
12. Matson, J. B.; Radzinski, S. C. "Self-Assembled and Covalent Nanoobjects for Drug Delivery and Regenerative Medicine" *Macromolecules and Interfaces Institute Technical Conference and Review*, Blacksburg, VA, October 28-30, **2013**.
11. Ortony, J. H.; Matson, J. B.; Palmer, L. C.; Newcomb, C. J.; Doan, P. E.; Hoffman, B. M.; Stupp, S. I. "Direct measurement of internal dynamics in a self-assembled nanofiber" *245th ACS National Meeting*, New Orleans, LA, April 7-11, **2013**.
10. Matson, J. B.; Webber, M. J.; Weber, B.; Tamboli, V. K.; Stupp, S. I. "Signaling Gas Delivery from Supramolecular Polymers" *IUPAC MACRO2012 World Polymer Congress*, Blacksburg, VA, June 24-29, **2012**.

9. Matson, J. B.; Webber, M. J.; Tamboli, V.; Stupp, S. I. "Release of Soluble Signaling Molecules from Peptide-Amphiphile Supramolecular Polymers" *22nd American Peptide Symposium*, San Diego, CA, June 25-30, **2011**.
8. Matson, J. B.; Stupp, S. I. "Tunable Small-Molecule Drug Release from Peptide-Amphiphile Supramolecular Polymers" *241st ACS National Meeting*, Anaheim, CA, March 27-31, **2011**.
7. Virgil, S.C.; Kuhn, K. M.; Matson, J. B.; Golisz, S. R.; Hazari, N.; Grubbs, R. H.; Bercaw, J. E.; Stoltz, B. M. "Automation and robotics in an academic organometallic chemistry research" *240th ACS National Meeting*, Boston, MA, August 22-26, **2010**.
6. Matson, J. B.; Virgil, S. C.; Grubbs, R. H. "Polynorbornenes prepared by Pulsed-Addition Ring Opening Metathesis Polymerization" *237th ACS National Meeting*, Salt Lake City, UT, March 22-26, **2009**. (Excellence in Graduate Polymer Research Award talk)
5. Matson, J. B.; Virgil, S. C.; Grubbs, R. H. "ROMP-ATRP Block Copolymers and Pulsed-Addition ROMP" *NATO Advanced Study Institute for New Smart Materials via Metal Mediated Macromolecular Engineering: From Complex to Nano Structures*, Antalya, Turkey, September 1-12, **2008**.
4. Matson, J. B.; Grubbs, R. H. "Synthesis of Fluorine-18 Functionalized Nanoparticles as in vivo Molecular Imaging Agents" *NATO Advanced Study Institute for New Smart Materials via Metal Mediated Macromolecular Engineering: From Complex to Nano Structures*, Antalya, Turkey, September 1-12, **2008**.
3. Matson, J. B.; Grubbs, R. H. "Synthesis of Fluorine-18 Functionalized Nanoparticles as in vivo Molecular Imaging Agents" *International Symposium on Olefin Metathesis XVII*, Pasadena, CA, July 29-August 3 **2007**.
2. Joralemon, M. J.; Nugent, A. K.; Matson, J. B.; O'Reilly, R. K.; Hawker, C. J.; Wooley, K. L. "Clicking Together Dendritic Macromolecules Divergently" *228th ACS National Meeting*, Philadelphia, PA, August 22-26, **2004**.
1. O'Reilly, R. K.; Joralemon, M. J.; Nugent, A. K.; Matson, J. B.; Hawker, C. J.; Wooley, K. L. "A Novel Approach to Regioselectively-functionalized Amphiphilic Block Copolymers and Nanoparticles" *228th ACS National Meeting*, Philadelphia, PA, August 22-26, **2004**.

INVITED DEPARTMENTAL AND COMPANY SEMINARS

38. Ben Gurion University (*Israel*), Ilse Katz Institute for Nanoscale Science & Technology, Jul. 3, **2019**.
37. Virginia Tech, Department of Biochemistry, Apr. 15, **2019**.
36. Arizona State University, School of Molecular Sciences, Mar. 1, **2019**.
35. Eastman Chemical Company, Kingsport, TN, Feb. 25, **2019**.
34. University of Mainz (*Germany*), Institute of Organic Chemistry, Nov.19, **2018**.
33. Boston College, Department of Chemistry, Nov. 7, **2018**.
32. University of North Carolina, Charlotte, Department of Chemistry, Oct. 1, **2018**.
31. University of Akron, College of Polymer Science and Polymer Engineering, Sept. 21, **2018**.
30. Carleton College, Department of Chemistry, Sept. 29, **2017**.
29. St. Olaf College, Department of Chemistry, Sept. 28, **2017**.
28. University of the Republic (*Uruguay*), Center for Free Radical and Biomedical Research, Jul. 14, **2017**.
27. University of Massachusetts, Amherst, Dept. of Chemistry, Mar. 30, **2017**.
26. Virginia Tech, Dept. of Chemistry Highlands Seminar Series, Mar. 24, **2017**.
25. University of South Carolina, Dept. of Chemistry, Mar. 16, **2017**.
24. University of Southern Mississippi, School of High Performance Polymers, Mar. 8, **2017**.
23. Florida State University, Dept. of Chemistry, Feb. 23, **2017**.
22. University of Florida, Dept. of Chemistry, Feb. 21, **2017**.
21. Stanford University, Dept. of Chemistry, Feb. 8, **2017**.
20. University of Arizona, Dept. of Chemistry, Feb. 6, **2017**.
19. East Carolina University, Dept. of Chemistry, Nov. 18, **2016**.
18. Case Western Reserve University, Dept. of Macromolecular Science, Sept. 23, **2016**.
17. University of North Carolina, Dept. of Chemistry, Sept. 8, **2016**.
16. University of Oregon, Dept. of Chemistry, Mar. 11, **2016**.
15. University of Washington, Dept. of Chemistry, Mar. 9, **2016**.

- 14 Washington State University, Dept. of Chemistry, Mar. 7, **2016**.
13. Western Carolina University, Department of Chemistry and Physics, January 29, **2016**.
12. University of California, San Diego, Department of Chemistry and Biochemistry, January 11, **2016**.
11. University of Virginia, Department of Chemistry, October 16, **2015**.
10. James Madison University, Department of Chemistry, September 25, **2015**.
9. Delaware University, Department of Materials Science, September 23, **2015**.
8. East Tennessee State University, Department of Chemistry, September 4, **2015**.
7. University of Warwick (*England*), Department of Chemistry, August 4, **2015**.
6. Cal Poly San Luis Obispo, Department of Chemistry, May 14, **2015**.
5. College of Charleston, Department of Chemistry, November 6, **2014**.
4. Virginia Tech BioBased Materials Center, March 28, **2014**.
3. Winthrop University, Department of Chemistry, Geology and Physics, March 13, **2014**.
2. Indiana University of Pennsylvania, Department of Chemistry, February 28, **2014**.
1. Norfolk State University, Department of Chemistry, February 27, **2013**.

RESEARCH SUPPORT

As PI/co-PI at Virginia Tech

Current

Novel Cellular and Molecular Regulation of Collateral Remodeling in Ischemic Stroke

NIH – National Institute of Neurological Disorders and Stroke (R01GM123508)

PI: Prof. Michelle Theus (VT); Co-I's: Prof. Hehuang Xie (VT) and Prof. John Matson (VT)

\$1,733,852 (Matson: 2%); 7/2019 – 6/2024

Self-assembling peptide nanocoils as templates to form chiral plasmonic nanoparticles

Virginia Tech Dean's Discovery Fund

\$18,115 (Matson 61%); 7/2019-6/2020

Tapered Bottlebrush Polymers for Templating Gold and Silver Nanoparticles with Shape Asymmetry

Army Research Office (74464-CH-II)

\$60,000 (Matson 62%); 6/2019-2/2020

Functional Bioactive Materials for Gasotransmitter Delivery and Tissue Engineering

Dreyfus Foundation (TC-18-039)

\$75,000; 5/2018-4/2023

Mimicking Native Cryptic Sites

Binational Science Foundation (2016096)

Co-PI: Prof. Ronit Bitton (Ben Gurion University, Israel)

\$198,000 (Matson: 63%); 9/2017 – 8/2021

Delivery of H₂S: Supramolecular and Enzyme-Triggered Strategies for Controlled Release

NIH – National Institute of General Medical Sciences (R01GM123508)

Co-PI: Prof. Khosrow Kashfi (City College of New York)

\$1,485,899 (Matson: 90%); 4/2017 – 1/2022

CAREER: Self-Assembled, H₂S-Releasing Gels for Promoting Angiogenesis

National Science Foundation, Division of Materials Research, Biomaterials Program (DMR-1454754)

\$530,000; 4/2015 – 3/2020

Previous

Tapered Bottlebrush Polymers: A New Polymer Topology

ACS Petroleum Research Fund, Doctoral New Investigator Grant (54884-DNI7)

\$110,000; 9/2015 – 8/2018

pH Responsive-Nanoprobes: A novel therapeutic approach for brain injury

Virginia Tech Institute for Critical Technologies and Applied Science (JFC12-256)

Co-PIs: Prof. Michelle Theus (Virginia Tech); Prof. Abby Whittington (Virginia Tech)
\$120,000 (Matson: 13%); 7/2016 – 6/2018

H₂S-Releasing Materials for Wound Healing
3M Non-Tenured Faculty Award (14548087)
\$45,000; 4/2015 – 3/2018

Traumatic Brain Injury and Regeneration: A Novel Therapeutic Platform for Drug Delivery
Virginia Tech Center for Drug Discovery
PI: Prof. Abby Whittington
\$5,000 (Matson: 38%); 1/2016 – 6/2016

Thermoresponsive Peptide Dendrimers
Binational Science Foundation (2012126)
Co-PI: Prof. Ronit Bitton (Ben Gurion University, Israel)
\$150,000 (Matson: 50%); 10/2013 – 9/2015

Tapered Bottlebrush Polymers: A New Polymer Architecture
Army Research Office (W911NF-14-1-0322)
\$50,000; 8/2014 – 5/2015

One-Pot Bottlebrush Polymers
Oak Ridge Associated Universities, Powe Junior Faculty Enhancement Award
\$10,000; 6/2014 – 5/2015

H₂S-Releasing Micelles for Cancer Therapy
Virginia Tech Institute for Critical Technologies and Applied Science (JFC12-256)
Co-PI: Prof. Carla Finkielstein (Virginia Tech)
\$120,000 (Matson: 80%); 7/2013 – 6/2015

As Postdoc

3D Differentiation of Mesenchymal Stem Cells in Peptide Amphiphile Matrices
National Institute of Dental and Craniofacial Research (1F32AR061955-01)
\$48,000; 11/2011 – 8/2012

Development of Hyaluronic Acid-Peptide Amphiphile Nanosacs for Systemic Delivery of Drugs, Proteins, and Signals
IBNAM-Baxter Early Career Development Award in Bioengineering
\$110,000; 11/2009 – 10/2011