

# Curriculum Vitae

John B. Matson

Virginia Tech  
Department of Chemistry  
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## 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

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

## TEACHING EXPERIENCE

*Virginia Tech*

**Organic Chemistry II** (CHEM 2536)  
**Synthesis and Reactions of Macromolecules** (CHEM 5704)  
**Advanced Macromolecular Chemistry** (CHEM 6564)

Spring 2014-2016, 2018  
Fall 2012-2018  
Spring 2019

## JOURNAL PUBLICATIONS

### *As PI at Virginia Tech*

#### 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 leptomeningeal collateral remodeling” **2019**, *submitted*.
56. Powell, C. R.; Foster, J. C.; Kaur, K.; Swilley, S. N.; Scannelli, S. J.; Troya, D.; Matson, J. B.\* “Self-Immolative COS/H<sub>2</sub>S-Releasing Polymers” **2019**, *submitted*.
55. Powell, C. R.; Kaur, K.; Zhou, M.; Alaboalirat, M.; **Matson, J. B.**\* “Functional N-substituted N-thiocarboxyanhydrides as Modular Tools for Constructing H<sub>2</sub>S Donor Conjugates” **2019**, *submitted*.
54. 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*.
53. Macabrey, D.; Longchamp, A.; Kaur, K.; Dubuis, C.; Corpataux, J. M.; Déglise, S.; **Matson, J. B.**\*; Allagnat, F.\* “A new H<sub>2</sub>S-releasing peptide hydrogel limits the development of intimal hyperplasia in human vein segments” **2019**, *submitted*.

#### In Press

52. 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**, *in press*. doi: 10.1021/acsmacrolett.9b00136
51. Volokhova, A. S.; Waugh, J. B.; **Matson, J. B.**\* “Effects of Graft Copolymer Compatibilizers in Blends of Cellulose Triacetate and Polylactic Acid” *Polym. Int.* **2019**, *in press*. doi: 10.1002/pi.5820.

#### Published

50. Foster, J. C.; Carrazzone, R. C.; Spear, N. J.; Radzinski, S. C.; Arrington, K. J.; **Matson, J. B.**\* “Tuning H<sub>2</sub>S 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 H<sub>2</sub>S 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 H<sub>2</sub>S 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 (H<sub>2</sub>S) 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
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.\*** “H<sub>2</sub>S-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
31. Powell, C. R.; Foster, J. C.; Okyere, B.; Theus, M. H.; **Matson, J. B.\*** “Therapeutic Delivery of H<sub>2</sub>S 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.
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 H<sub>2</sub>S-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

#### ***Undergraduate/Graduate/Postdoctoral Publications***

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.**<sup>†</sup>; 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.**<sup>†</sup>; 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)norbornenes 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)norbornenes 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

<sup>†</sup>denotes co-first author publications

\*denotes corresponding author publications

## **BOOK CHAPTERS**

1. Kaur, K.; Qian, Y.; **Matson, J. B.** “H<sub>2</sub>S 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
2. **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

## **PROFESSIONAL SERVICE**

### **International Union of Pure and Applied Chemistry (IUPAC)**

Member of Subcommittee on Polymer Terminology (SPT) and Subcommittee on Polymer Education (SPEd) in Division IV (Polymer Division) (2017-present)  
Young Observer for 2017 General Assembly (São Paulo, Brazil)

### **Editorial Advisory Boards**

*Polymer International* (2017-present)  
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 Pacifichem 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 *Pacifichem 2020* for the symposium entitled “Synthesis and Applications of Molecular Bottlebrush Polymers” Honolulu, HI, Dec 15-20, **2020**.
7. Co-organizer for 259<sup>th</sup> *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 2<sup>nd</sup> *American Gasotransmitter Symposium* Eugene, OR, May 18-19, **2019**.
5. Co-organizer for 257<sup>th</sup> *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 255<sup>th</sup> *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 1<sup>st</sup> *American Gasotransmitter Symposium* Atlanta, GA, April 22-23, **2017**.
2. Co-organizer for 253<sup>rd</sup> *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 251<sup>st</sup> *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)

56. Matson, J. B. “Self-assembled tetrapeptide nanocoils for delivery of hydrogen sulfide” 257<sup>th</sup> *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” 257<sup>th</sup> *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)" *257<sup>th</sup> 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)" *4<sup>th</sup> Fusion Functional Polymeric Materials Conference*, Nassau, Bahamas, June 5-8, **2018**.
49. Matson, J. B. "Chemical Tools for Delivery of H<sub>2</sub>S and Related Species: Small Molecules, Polymers, and Hydrogels" *5<sup>th</sup> World Congress on H<sub>2</sub>S 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)" *255<sup>th</sup> 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 H<sub>2</sub>S" *255<sup>th</sup> 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" *255<sup>th</sup> 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" *255<sup>th</sup> 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" *255<sup>th</sup> ACS National Meeting*, New Orleans, LA, March 18-22, **2018**.
43. Zhou, M.; Matson, J. B. "Thermoresponsive Dendritic Elastin-Like Peptides" *254<sup>th</sup> ACS National Meeting*, Washington, D.C., August 20-24, **2017**.
42. Arrington, K. J.; Matson, J. B. "Compatibilizing Methylcellulose and Polyethylene for Sustainable Materials" *254<sup>th</sup> ACS National Meeting*, Washington, D.C., August 20-24, **2017**.
41. Kaur, K.; Qian, Y.; Foster, J. C.; Matson, J. "Thiooxime Containing H<sub>2</sub>S Releasing Peptide Hydrogels: An Insight into Stability and Self-Assembly" *254<sup>th</sup> 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 H<sub>2</sub>S Release" *254<sup>th</sup> 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" *254<sup>th</sup> 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" *254<sup>th</sup> ACS National Meeting*, Washington, D.C., August 20-24, **2017**.
37. Matson, J. B. "The Transfer-To Method in Bottlebrush Polymer Synthesis" *46<sup>th</sup> IUPAC World Chemistry Congress*, São Paulo, Brazil, July 9-14, **2017**.

36. Matson, J. B. “Materials for H<sub>2</sub>S Delivery: Polymer micelles and peptide-based gels” *1<sup>st</sup> 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” *253<sup>rd</sup> 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” *253<sup>rd</sup> 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” *253<sup>rd</sup> 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” *253<sup>rd</sup> ACS National Meeting*, San Francisco, CA, April 2-6, **2017**.
31. Matson, J. B. Foster, J. C. “Polymeric materials for delivery of hydrogen sulfide (H<sub>2</sub>S), a biologically relevant signaling gas” *253<sup>rd</sup> 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” *253<sup>rd</sup> 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 H<sub>2</sub>S 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 H<sub>2</sub>S-Releasing Micelles” *251<sup>st</sup> ACS National Meeting*, San Diego, CA, March 13-17, **2016**.
23. Matson, J. B. “Thiol-Triggered Hydrogen Sulfide-Releasing Gels” *251<sup>st</sup> ACS National Meeting*, San Diego, CA, March 13-17, **2016**.
22. Matson, J. B. “The Transfer-To Approach to Bottlebrush Polymer Synthesis” *2<sup>nd</sup> 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” *249<sup>th</sup> 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” *249<sup>th</sup> 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” *249<sup>th</sup> ACS National Meeting*, Denver, CO, March 22-26, **2015**.



17. Matson, J. B. “Materials for Therapeutic Delivery of H<sub>2</sub>S” *4<sup>th</sup> 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 H<sub>2</sub>S-Releasing Polymers” *248<sup>th</sup> 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” *247<sup>th</sup> 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” *247<sup>th</sup> 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” *245<sup>th</sup> 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” *22<sup>nd</sup> 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” *241<sup>st</sup> ACS National Meeting*, Anaheim, CA, March 27-31, **2011**.
7. Virgil, S. C.; Kuhn, K. M.; Matson, J. B.; Golsiz, S. R.; Hazari, N.; Grubbs, R. H.; Bercaw, J. E.; Stoltz, B. M. “Automation and robotics in an academic organometallic chemistry research” *240<sup>th</sup> 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” *237<sup>th</sup> 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” *228<sup>th</sup> 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” *228<sup>th</sup> ACS National Meeting*, Philadelphia, PA, August 22-26, **2004**.

## **INVITED DEPARTMENTAL AND COMPANY SEMINARS**

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**

*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 H<sub>2</sub>S: 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, H<sub>2</sub>S-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

*H<sub>2</sub>S-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

*H<sub>2</sub>S-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