

# Curriculum Vitae

John B. Matson

Virginia Tech  
Department of Chemistry  
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## PROFESSIONAL POSITIONS

### **Virginia Tech**

Professor of Chemistry  
*Dr. AC Lilly Jr.* Faculty Fellow of Nanoscience  
Associate Professor of Chemistry  
Assistant Professor of Chemistry

Blacksburg, VA  
2021-present  
2020-present  
2018-2021  
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

Alan F. Clifford Faculty Service Award (Virginia Tech Department of Chemistry) 2022  
Materials Today *European Polymer Journal* Award 2022  
*Dr. AC Lilly Jr.* Faculty Fellowship in Nanoscience (Virginia Tech College of Science) 2020  
Humboldt Research Fellowship for Experienced Researchers (Germany) 2020  
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 (Commonwealth of Virginia) 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 (PEER-REVIEWED)

†denotes co-first author publications

\*denotes corresponding author(s)

### *As PI at Virginia Tech*

#### Submitted/In review/In revision

89. Posea, M.; Dillon, K. M.; Denicola, A.; Alvarez, B. **Matson, J. B.**; Möller, M.\*; Cuevasanta, E.\* “Fluorescence detection of H<sub>2</sub>S through the formation of pyrene excimers” **2022**, *in revision*.
88. Alaboalirat, M.; Scannelli, S. J.; Rahmaninejad, H.; Carrillo, J.-M.; Do, C.; Ashkar, R.; **Matson, J. B.**\* “Solution structure of traditional and tapered bottlebrush polymers using small-angle neutron scattering” **2022**, *in revision*.
87. Yao, T.; van Nunen, T.; Rivero, R.; Powell, C.; Carrazzone, R.; Kessels, L.; Wieringa, P. A.; Hafeez, S.; Wolfs, T. G. A. M.; Moroni, L.\*; **Matson, J. B.**\*, Baker, M. B.\* “Electrospun Scaffolds Functionalized with a Hydrogen Sulfide Donor Stimulate Angiogenesis” **2022**, *in revision*.

#### Accepted

86. Blosch, S. E.; Scannelli, S. J.; Alaboalirat, M.; **Matson, J. B.**\* “Complex Polymer Architectures using Ring-Opening Metathesis Polymerization: Synthesis, Applications, and Practical Considerations” *Macromolecules*, **2022**, *accepted*.  
\*\*\*Invited Perspective article
85. Luscombe, C.K.\*; Moad, G.\*; Hiorns, R.C.; Jones, R. G.; Keddie, D. J.; Matson, J. B.; Merna, J.; Nakano, T.; Russell, G. T.; Topham, P. D. “A Brief Guide to Polymerization Terminology (IUPAC Technical Report)” *Pure. Appl. Chem.* **2022**, *accepted*.

#### In Press

84. Li, Z.; Zhu, Y.; **Matson, J. B.**\* “pH-Responsive Self-Assembling Peptide-Based Biomaterials: Designs and Applications” *ACS Appl. Bio Mater.* **2022**, *in press*. 10.1021/acsabm.2c00188  
\*\*\*Invited review for Forum on Self-assembling Biomaterials from Proteins, Peptides, and DNA
83. Blosch, S. E.; Alaboalirat, M.; Eades, C. B.; Scannelli, S. J.; **Matson, J. B.**\* “Solvent effects in grafting-through ring-opening metathesis polymerization” *Macromolecules*, **2022**, *accepted*. doi: 10.1021/acs.macromol.2c00254

#### Published

82. Cornell, H. D.; Zhu, Y.; Ilic, S.; Lidman, N. E.; Yang, X.; **Matson, J. B.**; Morris, A. J.\* “Green Light Responsive Metal-Organic Frameworks for Colorectal Cancer Treatment” *Chem. Commun.* **2022**, *58*, 5225-5228.  
doi: 10.1039/D2CC00591C
81. Chan, C. H.; Chen, J.-T.; Farrell, W.; Fellows, C.; Keddie, D.; Luscombe, C.; **Matson, J.**\*; Merna, J.; Moad, G.; Russell, G.; Théato, P.; Topham, P. Sosa-Vargas, L. “Reconsidering Terms for Mechanisms of Polymer Growth: The ‘Step-Growth’ and ‘Chain-Growth’ Dilemma” **2022**, *13*, 2262-2270. doi: 10.1039/d2py00086e.  
\*\*Named Polym. Chem. Paper of the Month for April 2022
80. Li, Y.; Zhang, M.; Han, H.; Zhang, B.; **Matson, J. B.**; Chen, D.; Wang, Y.\* “Peptide-based supramolecular photodynamic therapy systems: From rational molecular design to effective cancer treatment” *Chem. Eng. J.* **2022**, *436*, 135240.
79. Alaboalirat, M.; **Matson, J. B.**\* “Poly( $\beta$ -Cyclodextrin) Prepared by Ring-Opening Metathesis Polymerization Enables Creation of Supramolecular Polymeric Networks” *ACS Macro Lett.*, **2021**, *10*, 1460-1466. doi: <https://doi.org/10.1021/acsmacrolett.1c00590>
78. Carrazzone, R. J.; Li, X.; Foster, J. C.; Wall, C. E.; Esker, A. R.; Madsen, L. A.\*; **Matson, J. B.**\* “Strong Variation of Micelle–Unimer Coexistence as a Function of Core Chain Mobility” *Macromolecules*, **2021**, *54*, 6975-6981 doi: 10.1021/acs.macromol.1c00635

77. Dillon, K. M.; **Matson, J. B.**\* “A review of chemical tools for studying small molecule persulfides” *ACS Chem. Biol.* **2021**, *16*, 1128-1141. doi: 10.1021/acscchembio.1c00255
76. Kaur, K.; Enders, P.; Powell, C. R.; Kashfi, K.; **Matson, J. B.**\* “Amino acid-based H<sub>2</sub>S Donors: *N*-thiocarboxyanhydrides that release COS/H<sub>2</sub>S with innocuous by-products” *Chem. Commun.* **2021**, *57*, 5522-5525. doi: 10.1039/d1cc01309b
75. Dillon, K. M.; Morrison, H. A.; Powell, C. R.; Carrazzone, R. J.; Ringel-Scaia, V. M.; Winckler, E. W.; Council-Trouche, R. M.; Allen, I. C.\*; **Matson, J. B.**\* “Targeted delivery of persulfides to the gut: Effects on the microbiome” *Angew. Chem. Int. Ed.* **2021**, *60*, 6061-6067. doi: 10.1002/anie.202014052  
\*\*Selected as an *Angewandte Chemie* ‘Hot Paper’  
\*\*Highlighted by ChemViews Magazine “Reactive Sulfur Species for a Healthy Gut” Mar. 1, 2021
74. Wang, Y.; Li, Z.; Shmidov, Y.; Carrazzone, R. J.; Bitton, R.; **Matson, J. B.**\* “Crescent-shaped supramolecular tetrapeptide nanostructures” *J. Am. Chem. Soc.* **2020**, *142*, 20058-20065. doi: 10.1021/jacs.0c09399
73. Poudel, D.; Swilley-Sanchez, S.; O’Keefe, S.; **Matson, J. B.**; Long, T.; Fernández-Fraguas, C.\* “Novel electrospun pullulan fibers incorporating hydroxypropyl- $\beta$ -cyclodextrin: Morphology and relation with rheological properties” *Polymers* **2020**, *12*, 2558. doi: 10.3390/polym12112558
72. Carrazzone, R. J.; Foster, J. C.; **Matson, J. B.**\* “Tuning small molecule release from polymer micelles: Varying H<sub>2</sub>S release through cross linking in the micelle core” *Eur. Polym. J.* **2020**, *141*, 110077. doi: 10.1016/j.eurpolymj.2020.110077  
\*\*2020 Materials Today *European Polymer Journal* Award winner
71. Wang, Y.; An, Y.; Shmidov, Y.; Bitton, R.; Deshmukh, S. A.; **Matson, J. B.**\* “A combined experimental and computational approach reveals how aromatic peptide amphiphiles self-assemble to form ion-conducting nanohelices” *Mater. Chem. Front.*, **2020**, *4*, 3022-3031. doi: 10.1039/d0qm00369g
70. Wang, Y.; Dillon, K. D.; Li, Z.; Winckler, E. W.; **Matson, J. B.**\* “Alleviating cellular oxidative stress through treatment with superoxide-triggered persulfide prodrugs” *Angew. Chem. Int. Ed.* **2020**, *59*, 16698-16704. doi: 10.1002/anie.202006656  
\*\*Promoted as a Hot Topic in Drug Delivery by *Chemistry Europe*
69. Shmidov, Y.; Zhu, Y.; **Matson, J. B.**\*; Bitton, R.\* “Effect of Crosslinker Topology on Enzymatic Degradation of Hydrogels” *Biomacromolecules*, **2020**, *21*, 3279-3286. doi: 10.1021/acs.biomac.0c00722
68. Dillon, K. M.; Carrazzone, R. J.; **Matson, J. B.**\*; Kashfi, K.\* “The evolving landscape for cellular nitric oxide and hydrogen sulfide delivery systems: A new era of customized medications” *Biochem. Pharmacol.* **2020**, *176*, 113931. doi: 10.1016/j.bcp.2020.113931.
67. Wang, Y.; Yang, X.; Liu, T.; Li, Z.; Leskauskas, D.; Liu, G.; **Matson, J. B.**\* “Molecular-level control over plasmonic properties in silver nanoparticle/self-assembling peptide hybrids” *J. Am. Chem. Soc.*, **2020**, *142*, 9158-9162. doi: 10.1021/jacs.0c03672  
\*\*Highlighted in a virtual issue on chiral plasmonics in *J. Phys. Chem. C*. doi: 10.1021/acs.jpcc.1c03401
66. Qian, Y.; Altamimi, A.; Alston, S. Y.; Sarkar, S.; Cochran, M.; Zhou, M.; Levi-Polyachenko, N.\*; **Matson, J. B.**\* “H<sub>2</sub>S-Releasing Amphiphilic Dipeptide Hydrogels Are Potent *S. aureus* Biofilm Disruptors” *Biomater. Sci.* **2020**, *8*, 2564-2576. doi: 10.1039/d0bm00241k.
65. Dillon, K. M.; Carrazzone, R. J.; Wang, Y.; Powell, C. R.; **Matson, J. B.**\* “Polymeric persulfide prodrugs: Mitigating oxidative stress through controlled delivery of reactive sulfur species” *ACS Macro Lett.* **2020**, *9*, 606-612. doi: 10.1021/acsmacrolett.0c00118

64. Abetz, V.; Chan, C. H.; Luscombe, C. K.\*; **Matson, J. B.**; Merna, J. Nakano, T.; Raus, G.; Russell, G. T.\* “Quo Vadis, Macromolecular Science? Reflections by the IUPAC Polymer Division on the Occasion of the Staudinger Centenary” *Isr. J. Chem.* **2020**, *60*, 9-19. doi: 10.1002/ijch.201900182
63. Kaur, K.; Wang, Y.; **Matson, J. B.**\* “Linker-Regulated H<sub>2</sub>S Release from Aromatic Peptide Amphiphile Hydrogels” *Biomacromolecules*, **2020**, *21*, 3, 1171-1178. doi: 10.1021/acs.biomac.9b01600
62. Okyere, B.; Mills, W. A.; Wang, X.; Chen, M.; Chen, J.; Hazy, A.; Qian, Y.; **Matson, J. B.**; Theus, M. H.\* “EphA4/Tie2 Crosstalk Regulates Leptomeningeal Collateral Remodeling Following Ischemic Stroke” *J. Clin. Investig.* **2020**, *130*, 1025-1035. doi: 10.1172/jci131493
61. Zhou, M.; Qian, Y.; Zhu, Y.; **Matson, J. B.**\* “Elastase-triggered H<sub>2</sub>S delivery from polymer hydrogels” *Chem. Commun.* **2020**, *56*, 1085-1088. doi: 10.1039/c9cc08752d
60. Volokhova, A.; Edgar, K. J.; **Matson, J. B.**\* “Polysaccharide-containing block copolymers: Synthesis and applications” *Mater. Chem. Front.* **2020**, *4*, 99-112. doi: 10.1039/c9qm00481e
59. Kaur, K.; Carrazzone, R. J.; **Matson, J. B.**\* “The Benefits of Macromolecular/Supramolecular Approaches in H<sub>2</sub>S Delivery: A Review of Polymeric and Self-Assembled H<sub>2</sub>S Donors” *Antioxid. Redox Signal.* **2020**, *32*, 79-95. doi: 10.1089/ars.2019.7864
58. Kowalski, E. A.; Chen, J.; Hazy, A.; Fritsch, L. E.; Gudenschwager-Basso, E. K.; Chen, M.; Wang, X.; Qian, Y.; Zhou, M.; Byerly, M.; Pickrell A. M.; **Matson, J. B.**; Allen, I. C.; Theus, M. H.\* “Peripheral Loss of EphA4 Ameliorates TBI-Induced Neuroinflammation and Tissue Damage” *J. Neuroinflammation* **2019**, *210*. doi: 10.1186/s12974-019-1605-2
57. Wang, Y.; **Matson, J. B.**\* “Supramolecular nanostructures with tunable donor loading for controlled H<sub>2</sub>S release” *ACS Appl. Bio Mater.* **2019**, *2*, 5093-5098. doi: 10.1021/acsabm.9b00768
56. Longchamp, A.; Kaur, K.; Macabrey, D.; Dubuis, C.; Corpataux, J. M.; Déglise, S.; **Matson, J. B.**\*; Allagnat, F.\* “H<sub>2</sub>S-releasing peptide hydrogel limits the development of intimal hyperplasia in human vein segments” *Acta Biomater.* **2019**, *97*, 374-384. doi: 10.1016/j.actbio.2019.07.042
55. Yang, K.; Liu, Y.; Wang, Y.; Ren, Q.; Guo, H.; **Matson, J. B.**; Chen, X.; Nie, Z. “Enzyme-induced in-vivo assembly of gold nanoparticles for imaging-guided synergistic chemo-photothermal therapy of tumor” *Biomaterials* **2019**, *223*, 119460. doi: 10.1016/j.biomaterials.2019.119460
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 H<sub>2</sub>S 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/H<sub>2</sub>S” *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 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  
**\*\*Invited submission to 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.**\* “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  
\*\*Invited submission to special issue on peptides and peptide conjugates in medicine
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.  
\*\*Invited submission to *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 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  $\omega$ -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.**<sup>†</sup>; 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)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

#### **BOOK CHAPTERS (PEER-REVIEWED)**

2. 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
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.

#### **JOURNAL PUBLICATIONS (NON-PEER-REVIEWED)**

2. KIELTYKA, R. E.; **Matson, J. B.**; Besenius, P.\* “Structure to Function in Supramolecular Polymers and Materials” *Macromol. Rapid Commun.* **2018**, *39*, e1800597. doi: 10.1002/marc.201800574  
\*\*Introduction to a special issue organized for *Macromol. Rapid Commun.* based on an ACS symposium
1. **Matson, J. B.\***; Baker, M. B. “Polymers for biology, medicine and sustainability” *Polym. Int.* **2019**, *68*, 1219-1219.  
\*\*Introduction to a special issue organized for *Polym. Int.* based on an ACS symposium

#### **PATENTS**

##### **Published**

2. Matson, J. B.; Arrington, K. J.; Chen, J.; Edgar, K. J. “Copolymer Compatibilizers and Uses Thereof” PCT/US2019/022760
1. Edgar, K. J.; Meng, X.; Matson, J. B. “Cross-Metathesized Polysaccharide Derivatives and Processes for Preparing Them” US2016/0215068 A1

#### **MENTORING**

##### ***Postdoctoral scholars previously in the Matson group***

1. Dr. Yin Wang. 2017-2020. Current position: Associate Professor of Pharmacy, Shanghai Jiao Tong University

##### ***PhD students graduated from Matson group***

8. Dr. Ryan Carrazzone. Defended PhD on Jun 9, **2021**. Current position: Materials R&D Engineer at Intel Corp.
7. Dr. Kuljeet Kaur. Defended PhD on Dec 3, **2019**. Current position: Postdoc at EPFL (*Switzerland*)
6. Dr. Yun Qian. Defended PhD on May 13, **2019**. Current position: Process Development Scientist at Levena Biopharma
5. Dr. Mingjun Zhou. Defended PhD on Apr 30, **2019**. Current position: Postdoc at Univ. Massachusetts, Amherst
4. Dr. Chad Powell. Defended PhD on Apr 25, **2019**. Current position: Research Scientist at Solvay
3. Dr. Kyle Arrington. Defended PhD on Apr 30, **2018**. Current position: Materials R&D Engineer at Intel Corp.
2. Dr. Scott Radzinski. Defended PhD on Mar 23, **2017**. Current position: Senior Polymer Chemist at Secant Group
1. Dr. Jeffrey C. Foster. Defended PhD on Mar 22, **2017**. Current position: Postdoc at Sandia National Labs



## TEACHING EXPERIENCE

*Virginia Tech*

**Organic Chemistry II** (CHEM 2536)

Spring 2014-2016, 2018, Fall 2021

**Organic Chemistry of Polymers** (CHEM 4534)

Fall 2019, 2020

**Synthesis and Reactions of Macromolecules** (CHEM 5704)

Fall 2012-2018

**Advanced Macromolecular Chemistry** (CHEM 6564)

Spring 2019, 2021-22

*American Chemical Society*

**Polymer Chemistry: Principles and Practice Short Course Instructor**

2017-present

## PROFESSIONAL SERVICE

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

4. Titular Member of Division IV (Polymer Division) (2020-2023)
3. Secretary of Subcommittee on Polymer Terminology (SPT) in Division IV (Polymer Division) (2020-present)
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**

5. *Journal of Functional Biomaterials* (2021-present)
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**

ACS Petroleum Research Fund, Army Research Office, Binational Science Foundation, British Heart Foundation, European Research Council, Icelandic Research Fund, Israeli Science Foundation, National Institutes of Health (NCI ZCA1 TCRB-V), National Science Foundation (Biomaterials Program, MSN Program), Research Corporation

### **Reviewer for journals**

*Acta Biomater.*, *Angewandte Chemie*, *ACS Appl. Mater. Interfaces*, *ACS Biomater. Sci.*, *ACS Chem. Biol.*, *ACS Macro Lett.*, *Adv. Healthcare Mater.*, *Anal. Chem.*, *Antiox. & Redox Signaling*, *Bioconj. Chem.*, *Biomacromolecules*, *Biomaterials*, *Bioorg. Med. Chem. Lett.*, *Carb. Polym.*, *Chem. Commun.*, *Chem. Sci.*, *Curr. Med. Chem.*, *Front. Mater.*, *Isr. J. Chem.*, *J. Am. Chem. Soc.*, *J. Mater. Chem. B*, *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.*, *Sci. Adv.*, *Synlett*

### **Symposium organization**

9. Co-organizer for *Pacificchem 2021* for symposium titled "Nitric Oxide, Carbon Monoxide, and Hydrogen Sulfide as Potential Therapeutic Agents: The 4th American Gasotransmitter Symposium" Honolulu, HI, Dec 16-21, **2021**.
8. Co-organizer for *Pacificchem 2021* for symposium titled "Synthesis and Applications of Molecular Bottlebrush Polymers" Honolulu, HI, Dec 16-21, **2021**.
7. Co-organizer for *261<sup>st</sup> National Meeting of the American Chemical Society* for symposium titled "Structure to Function in Supramolecular Polymers" Atlanta, Ga, August 22-26, **2021**.
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**.

## MEMBERSHIPS IN PROFESSIONAL ORGANIZATIONS

5. Wake Forest Baptist Comprehensive Cancer Center (2020-present)
4. Virginia Tech Center for Engineered Health (2016-present)

3. Virginia Tech Center for Drug Discovery (2015-present)
2. Virginia Tech Macromolecules Innovation Institute (2012-present)
1. American Chemical Society (2009-present)

**ORAL CONFERENCE PRESENTATIONS** (presenting author underlined)

75. Matson, J. B. "Optimizing ROMP grafting-through in bottlebrush polymer synthesis" *263<sup>rd</sup> American Chemical Society National Meeting*, San Diego, CA, Mar 20-24, **2022**.
74. Matson, J. B. "Self-Amplified Depolymerization of Polythiourethanes" *263<sup>rd</sup> American Chemical Society National Meeting*, San Diego, CA, Mar 20-24, **2022**.
73. Matson, J. B. "Tapered bottlebrush polymers: Synthesis, characterization, and self-assembly" *Virginia Tech 2022 Macromolecules Innovation Institute Technical Conference and Review* Blacksburg, VA, Mar. 1-3, **2022**.
72. Matson, J. B. "Supramolecular aromatic peptide amphiphile tetramers: Self-assembly, bioactivity, and catalysis" *Pacificchem 2021*, Virtual, Dec. 16-21, **2021**.
71. Matson, J. B. "Applications of RDRP for the Construction of Complex Polymer Topologies" *Pacificchem 2021*, Virtual, Dec. 16-21, **2021**.
70. Matson, J. B. "Tapered bottlebrush polymers: Synthesis, characterization, and self-assembly" *Pacificchem 2021*, Virtual, Dec. 16-21, **2021**.
69. Matson, J. B. "Triggered and Controlled Delivery of Reactive Sulfur Species: From Small Molecules to Materials" *Pacificchem 2021*, Virtual, Dec. 16-21, **2021**.
68. Matson, J. B. "Covalent and Supramolecular Materials for Delivery of Bioactive Gases" *Pacificchem 2021*, Virtual, Dec. 16-21, **2021**.
67. Matson, J. B. "Synthesis of Complex Polymer Topologies using Reversible-Deactivation Radical Polymerization Methods" ACS POLY Division Controlled Radical Polymerization Workshop, Charleston, SC, Nov. 14-17, **2021**.
66. Li, Z.; Matson, J. B. "Supramolecular hybrid materials: Templation of helical Ag nanoparticle arrays using supramolecular polymers based on peptides" *262<sup>nd</sup> American Chemical Society National Meeting*, Atlanta, GA, Aug 22-26, **2021**.
65. Matson, J. B. "Helical supramolecular polymers: Self-assembly, bioactivity, and catalysis" *262<sup>nd</sup> American Chemical Society National Meeting*, Atlanta, GA, Aug 22-26, **2021**.
64. Carrazzone, R. J.; Matson, J. B. "Harnessing core chain mobility in tuning small molecule release rates from polymer micelles" *261<sup>st</sup> American Chemical Society National Meeting*, virtual, Apr 5-16, **2021**.
63. Matson, J. B. "Supramolecular nanohelices for drug delivery, ion-transport, and sensing" *260<sup>th</sup> American Chemical Society National Meeting*, Virtual, Aug 17-20, **2020**.
62. Matson, J. B. "Macromolecular and Supramolecular Materials for Signaling Gas Delivery" *Virginia Tech 2019 Macromolecules Innovation Institute Technical Conference and Review* Blacksburg, VA, Nov. 4-6, **2019**.
61. Matson, J. B. "Delivering Reactive Sulfur Species: From Small Molecules to Materials" *VI International Workshop on Nitric Oxide in Cancer and Beyond*, New York, NY, Sep 20-22, **2019**.
60. Matson, J. B. "Self-assembling peptide-based materials for therapeutic H<sub>2</sub>S delivery" *47<sup>th</sup> IUPAC World Chemistry Congress*, Paris, France, Jul 5-12, **2019**.
59. Matson, J. B. "New materials by blending commodity polymers with polysaccharides" *47<sup>th</sup> IUPAC World Chemistry Congress*, Paris, France, Jul 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” *2<sup>nd</sup> American Gasotransmitter Symposium*, Eugene, OR May 18-19, **2019**.
56. Matson, J. B. “Self-assembled tetrapeptide nanocoils for delivery of hydrogen sulfide” *257<sup>th</sup> American Chemical Society National Meeting*, Orlando, FL Mar 31-Apr 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 Mar 31-Apr 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 Mar 31-Apr 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, Jul 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, Jul 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, Jul 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, Jun 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, Mar 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, Mar 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, Mar 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, Mar 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, Mar 18-22, **2018**.
43. Zhou, M.; Matson, J. B. “Thermoresponsive Dendritic Elastin-Like Peptides” *254<sup>th</sup> ACS National Meeting*, Washington, D.C., Aug 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., Aug 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., Aug 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., Aug 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., Aug 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., Aug 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, Jul 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, Apr 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, Apr 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, Apr 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, Apr 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, Apr 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, Apr 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, Apr 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, Jul 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, Mar 13-17, **2016**.
23. Matson, J. B. "Thiol-Triggered Hydrogen Sulfide-Releasing Gels" *251<sup>st</sup> ACS National Meeting*, San Diego, CA, Mar 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, Aug 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, Jul 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, Mar 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, Mar 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, Mar 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, Dec 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, Aug 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, Mar 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, Mar 16-20, **2014**.
13. Matson, J. B.; Foster, J. C. “Materials for Therapeutic Signaling Gas Delivery” *Functional Polymeric Materials*, Cancun, Mexico, Feb 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, Oct 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, Apr 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, Jun 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, Jun 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, Mar 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” *240<sup>th</sup> ACS National Meeting*, Boston, MA, Aug 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, Mar 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, Sep 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, Sep 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, Jul 29-Aug 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, Aug 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, Aug 22-26, **2004**.

#### **INVITED DEPARTMENTAL AND COMPANY SEMINARS**

49. Johannes Gutenberg University of Mainz (*Germany*), Institute for Organic Chemistry, May 3, **2022**.
48. Hasselt University (*Belgium*), Institute for Materials Research, Apr. 8, **2022**.
47. Wake Forest University Department of Chemistry, Feb. 23, **2022**.
46. Carilion Clinic Neurosurgery (Roanoke), Neurosurgeons Academic Session, Feb. 1, **2022**.
45. North Carolina A&T and UNC Greensboro Joint School of Nanoscience and Nanoengineering, Dec. 3, **2021**.
44. Appalachian State University Department of Chemistry and Fermentation Sciences, Oct. 15, **2021**.
43. Wyatt Technology Webinar (virtual), Jan 27, **2021**.
42. Maastricht University (*The Netherlands*) Inst. for Technology-Inspired Regenerative Med. (MERLN), Feb. 6, **2020**.
41. Eindhoven University of Technology (*The Netherlands*) Institute for Complex Molecular Systems, Feb. 5, **2020**.
40. Carnegie Mellon University Department of Chemistry, Oct 30, **2019**.
39. Radford University Department of Chemistry, Sep 27, **2019**.
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. Johannes Gutenberg University of Mainz (*Germany*), Institute for Organic Chemistry, Nov19, **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, Sep 21, **2018**.
30. Carleton College, Department of Chemistry, Sep 29, **2017**.
29. St. Olaf College, Department of Chemistry, Sep 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, Sep 23, **2016**.
17. University of North Carolina, Dept. of Chemistry, Sep 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, Jan 29, **2016**.
12. University of California, San Diego, Department of Chemistry and Biochemistry, Jan 11, **2016**.
11. University of Virginia, Department of Chemistry, Oct 16, **2015**.
10. James Madison University, Department of Chemistry, Sep 25, **2015**.
9. Delaware University, Department of Materials Science, Sep 23, **2015**.
8. East Tennessee State University, Department of Chemistry, Sep 4, **2015**.
7. University of Warwick (*England*), Department of Chemistry, Aug 4, **2015**.
6. Cal Poly San Luis Obispo, Department of Chemistry, May 14, **2015**.
5. College of Charleston, Department of Chemistry, Nov 6, **2014**.
4. Virginia Tech BioBased Materials Center, Mar 28, **2014**.

3. Winthrop University, Department of Chemistry, Geology and Physics, Mar 13, **2014**.
2. Indiana University of Pennsylvania, Department of Chemistry, Feb 28, **2014**.
1. Norfolk State University, Department of Chemistry, Feb 27, **2013**.

## **RESEARCH SUPPORT**

### *As PI/co-PI at Virginia Tech*

#### **Current**

*NSF-BSF: Tapered Bottlebrush Block Copolymers: Synthesis, Solution Self-Assembly, and Simulations*  
National Science Foundation, Binational Science Foundation, Polymers Program (DMR-2104602)  
PIs: Matson, Ronit Bitton (Ben Gurion University, Israel)  
\$441,459; 6/2021 – 5/2024

*MIP: Glyco-MIP*  
National Science Foundation  
PIs: Maren Roman (VT), several others  
\$22,900,000; 8/2020 – 7/2025

*Administrative Supplement for Purchase of a Helium Recovery System*  
National Institutes of Health  
PIs: Matson, Webster Santos (VT)  
\$151,153; 7/2020 – 6/2021

*Self-Amplified Depolymerizable Polymers*  
National Science Foundation, Division of Chemistry, MSN Program (CHE-2003662)  
\$450,000; 7/2020 – 6/2023

*R&D Contract*  
Pharmaceutical Company  
\$302,855; 6/2020 – 6/2022

*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-Is: Prof. Hehuang Xie (VT) and Prof. John Matson (VT)  
\$1,733,852; 7/2019 – 6/2024

*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)  
PI: Matson; Co-PI: Prof. Ronit Bitton (Ben Gurion University, Israel)  
\$198,000; 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)  
PI: Matson; co-PI: Prof. Khosrow Kashfi (City College of New York)  
\$1,485,899; 4/2017 – 1/2022

#### **Previous**

*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 – 03/2021

*Self-Assembling Peptide Nanocoils as Templates to Form Chiral Plasmonic Nanoparticles*  
Virginia Tech Dean's Discovery Fund  
PI: Matson; co-PI: Guoliang "Greg" Liu (Virginia Tech)

\$18,115; 7/2019 – 6/2020

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

Army Research Office (74464-CH-II)

PI: Matson; co-PI: Guoliang “Greg” Liu (Virginia Tech)

\$60,000; 6/2019 – 3/2020

*Administrative Supplement for Purchase of a Size Exclusion Chromatography System*

National Institutes of Health

\$111,000; 8/2018 – 7/2019

*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)

PI: Prof. Michelle Theus (Virginia Tech); co-Is: Matson, Prof. Abby Whittington (Virginia Tech)

\$120,000; 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; co-PIs: Matson, Michelle Theus (Virginia Tech)

\$5,000; 1/2016 – 6/2016

*Thermoresponsive Peptide Dendrimers*

Binational Science Foundation (2012126)

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

\$150,000; 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)

PI: Matson; Co-PI: Prof. Carla Finkielstein (Virginia Tech)

\$120,000; 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