

Bryan W. Boudouris

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Education

Ph. D. in Chemical Engineering, August 2009

University of Minnesota, Minneapolis, MN
Advisors: Professors C. Daniel Frisbie and Marc A. Hillmyer

B. S. in Chemical Engineering, May 2004

University of Illinois at Urbana-Champaign, Urbana, IL

Academic and Federal Positions

Associate Vice President for Strategic Interdisciplinary Research *August 2022 – Present*
Office of Research, Purdue University

R. Norris and Eleanor Shreve Professor of Chemical Engineering *July 2023 – Present*
Davidson School of Chemical Engineering, Purdue University

Professor of Chemistry, by Courtesy *August 2020 – Present*
Department of Chemistry, Purdue University

Professor of Chemical Engineering *August 2020 – June 2023*
Davidson School of Chemical Engineering, Purdue University

IPA (Rotating) Program Director *September 2020 – July 2022*
Division of Materials Research, National Science Foundation

Robert and Sally Weist Associate Professor *August 2016 – August 2020*
Davidson School of Chemical Engineering, Purdue University

Associate Professor of Chemistry, by Courtesy *August 2016 – August 2020*
Department of Chemistry, Purdue University

Director of the Professional M.S. Program *July 2016 – August 2019*
Davidson School of Chemical Engineering, Purdue University

Assistant Professor of Chemistry, by Courtesy *October 2013 – August 2016*
Department of Chemistry, Purdue University

Assistant Professor *August 2011 – August 2016*
Davidson School of Chemical Engineering, Purdue University

Postdoctoral Fellow *September 2009 – July 2011*
Department of Chemical & Biomolecular Engineering, University of California, Berkeley and
Materials Science Division, Lawrence Berkeley National Laboratory

Selected Honors and Awards

- Dean A. A. Potter Faculty Excellence Award for Undergraduate Teaching 2023
- Purdue University Faculty Scholar 2022
- Dudley A. Saville Lectureship at Princeton University 2022
- Featured in the “Young Investigator” Issue of the *Journal of Polymer Science* 2021
- APS John H. Dillon Medal 2021
- Featured in the “Pioneering Investigators” Issue of *Polymer Chemistry* 2021
- AIChE Owens Corning Early Career Award 2020
- Named as a Future Chemical Engineering Faculty Leader for the CACHE 50th Meeting 2019
- Featured in the “Emerging Investigators” Issue of *Soft Matter* 2019
- Purdue College of Engineering Early Career Research Award 2018
- Featured in the “Young Talents in Polymer Science” Issue of *Macromol. Chem. Phys.* 2016
- Purdue College of Engineering Exceptional Early Career Teaching Award 2016
- NSF Faculty Early Career Development Program (CAREER) Award 2016
- Purdue Innovators Hall of Fame 2015
- NAE Frontiers of Engineering Education Invited Participant 2015
- APS Division of Polymer Physics-UK Polymer Physics Group Lectureship 2015
- IMPACT Faculty Fellow at Purdue University 2015
- NAE Frontiers of Engineering Invited Participant 2013
- DARPA Young Faculty Award 2012
- AFOSR Young Investigator Research Program Award 2012

Selected Service and Professional Associations

- Member of the American Institute of Chemical Engineers (AIChE), the American Chemical Society (ACS), the American Physical Society (APS), the Electrochemical Society (ECS), the Materials Research Society (MRS), the American Association for the Advancement of Science (AAAS), and the American Society for Engineering Education (ASEE)
- Member of the Board of Directors for Conexus Indiana, an agency aimed at strengthening Indiana’s competitive advantage in advanced manufacturing and logistics (2023-Present)
- Associate Editor for *ACS Macro Letters* (2023-Present)
- AIChE Chemical Engineering Technology Operating Council (CTOC) Member (2023-Present)
- Purdue University Councilor to the Oak Ridge Associated Universities (ORAU, 2023-Present)
- Chair of the National American Chemical Society Project SEED Committee (2021-2022)
- AIChE Materials Engineering and Science Division (MESD, Division 8) Director (2017-2019)
- AIChE Area 8A (Polymers) Vice-Chair (2016) and Chair (2017)
- Alternate Councilor for the Purdue Section of the American Chemical Society (2012-2018)
- Associate (2012-2015) and Full Member (2016-Present) of the National American Chemical Society Project SEED Executive Committee
- Founding Program Director of the Purdue Section’s ACS Project SEED program, which encourages high school students from economically-disadvantaged families to conduct summer research in university laboratories under the guidance of Purdue faculty.

- Programming Vice-Chair (March 2023 Meeting) and Chair (March 2024 Meeting) for the Division of Polymer Physics (DPOLY) of the APS
- Editorial Advisory Board Member for *ACS Macro Letters* (2020-2023)
- Editorial Advisory Board Member for the *Journal of Applied Polymer Science* (2013-Present)

Refereed and Submitted Publications

121. “Large Room Temperature Magnetoresistance in a High-Spin Donor-Acceptor Conjugated Polymer,” Tahir, H.; Eedugurala, N.; Hsu, S.-N.; Mahalingavelar, P.; Savoie, B. M.; Boudouris, B. W.; Azoulay, J. D. **2023**, *under review*.
120. “Anomalous Magnetoresistance in a Nonconjugated Radical Polymer Glass,” Akkiraju, S.; Gilley, D.; Savoie, B. M.; Boudouris, B. W. **2023**, *under review*.
119. “Porous Block Polymer Membranes for Uranium Uptake,” He, X.; Dugas, M. P.; Hodul, J. N.; Boudouris, B. W. **2023**, *under review*.
118. “Acrylamide-based Saliva-gels as a Potential Xerostomia Treatment,” Debnath, S.; Woepffel, A. P.; Malandraki, G.; Boudouris, B. W. **2023**, *under review*.
117. “Title Withheld for Security,” Bowen, B.; Flores-Hansen, C.; Akkiraju, S.; Brayton, K.; Bradley, C.; Perry, J. A.; Ihlenfeld IV, W. C.; Geesey, B. A.; Manship, T. D.; Rhoads, J. F.; Boudouris, B.W. **2023**, *under review*.
116. “Conductive Glassy Nonconjugated Open-Shell radical Polymer with Organosulfur Backbone for Macroscopic Conductivity,” Thi, Q. V.; Nguyen, Q. H.; Jeon, S.-Y.; Boudouris, B. W.; Joo, Y. **2023**, *under review*.
115. “Upcycling of Poly(vinyl chloride) to Hydrocarbon Waxes via Dechlorination and Catalytic Hydrogenation,” Svadlenak, S.; Wojcik, S.; Ogunlalu, O.; Vu, M.; Dor, M.; Boudouris, B. W.; Wildenschild, D.; Goulas, K. A. *Appl. Catal. B* **2023**, 338, 123065.
114. “Enhanced Electron Transport in Nonconjugated Radical Oligomers Occurs by Tunneling,” Tan, Y.; Li, J.; Li, S.; Yang, H.; Chi, T.; Shiring, S. B.; Liu, K.; Savoie, B. M.; Boudouris, B. W.; Schroeder, C. M. *Nano Lett.* **2023**, 23, 5951-5958.
113. “Tailoring Molecular-Scale Contact at Perovskite/Polymeric Hole-Transporting Material Interface for Efficient Solar Cells,” Sun, J.; Ma, K.; Tang, Y.; Varadharajan, D.; Chen, A. X.; Atapattu, H. R.; Lee, Y. H.; Chen, K.; Boudouris, B. W.; Graham, K. R.; Lipomi, D. J.; Mei, J.; Savoie, B. M.; Dou, L. *Adv. Mater.* **2023**, 35, 2300647.
112. “Bridging the Monomer to Polymer Gap in Radical Polymer Design,” Tan, Y.; Boudouris, B. W.; Savoie, B. M. *ACS Macro Lett.* **2023**, 12, 801-807.
111. “Significant Charge Transport Effects due to Subtle Molecular Changes in Nitroxide Radical Single Crystals,” Liang, Z.; Hsu, S.-N.; Tan, Y.; Tahir, H.; Kim, H. J.; Liu, K.; Stoehr, J. F.; Zeller, M.; Dou, L.; Savoie, B. M.; Boudouris, B. W. *Cell Rep. Phys. Sci.* **2023**, 4, 101409.
110. “Photo-activated Polymerization Inhibition Process in Photoinitiator Systems for High-throughput 3D Nanoprinting,” Somers, P.; Liang, Z.; Chi, T.; Johnson, J. E.; Pan, L.; Boudouris, B. W.; Xu, X. *Nanophotonics* **2023**, 12, 1571-1580.
109. “Charge Transport and Antiferromagnetic Ordering in Nitroxide Radical Crystals,” Liang, Z.; Tan, Y.; Hsu, S.-N.; Stoehr, J. F.; Tahir, H.; Woepffel, A. B.; Debnath, S.; Zeller, M.; Dou, L.; Savoie, B. M.; Boudouris, B. W. *Mol. Syst. Des. Eng.* **2023**, 8, 464-472.

108. "Tactile and Chemical Sensing with Haptic Feedback for a Telepresence Explosive Ordnance Disposal Robot," Xiao, C.; Woepfel, A. B.; Clepper, G. M.; Gao, S.; Xu, S.; Rueschen, J. F.; Kruse, D.; Wu, W.; Tan, H. Z.; Low, T.; Beaudoin, S. P.; Boudouris, B. W.; Wachs, J. *IEEE Trans. Robot.* **2023**, DOI: 10.1109/TRO.2023.3278455.
107. "Ion-Selective Organic Electrochemical Transistor Sensors using Molecularly Imprinted Polymers," Woepfel, A. B.; Schaefer, J.; Kim, H. J.; Boudouris, B. W.; Beaudoin, S. P. *ACS Appl. Polym. Mater.* **2022**, *4*, 6667-6674.
106. "Circularly Recyclable Polymers Featuring Topochemically Elongated Carbon-Carbon Bonds," Luo, X.; Wei, Z.; Seo, B.; Wang, X.; Hu, Q.; Boudouris, B. W.; Zhao, K.; Mei, J.; Savoie, B. M.; Dou, L. *J. Am. Chem. Soc.* **2022**, *144*, 16588-16597.
105. "High Affinity Heavy Metal Removal using Structured Sorbents 3D-printed from Carbon Nanotube-Enriched Polymer Solutions," Xu, J.; Slykas, C.; Braegelman, A. S.; Alvarez, K. G.; Kasl, T.; Boudouris, B. W.; Webber, M. J.; Sharma, V.; Phillip, W. A. *Matter* **2022**, *5*, 3432-3451.
104. "Poly(5-carboxyindole)- β -Cyclodextrin Composites as Enhanced Materials for Formaldehyde Gas Sensing," Hodul, J. N.; Carneiro, N. F.; Murray, A. K.; Lee, W.; Brayton, K. M.; Chiu, G. T.-C.; Braun, J. E.; Boudouris, B. W.; Rhoads, J. F. *J. Mater. Sci.* **2022**, *57*, 11460-11474.
103. "Sorption Kinetics of Poly(ethyleneimine)-Poly(ethylene oxide) Blends and the Implication for Low-Cost, Small-Scale CO₂ Sensors," Siefker, Z. A.; Hodul, J. N.; Flores-Hansen, C.; Chiu, G. T.-C.; Braun, J. E.; Rhoads, J. F.; Boudouris, B. W. *ACS Appl. Polym. Mater.* **2022**, *4*, 4389-4397.
102. "Design Considerations for Next-Generation Polymer Sorbents: From Polymer Chemistry to Device Configurations," Ouimet, J. A.; Xu, J.; Flores-Hansen, C.; Phillip, W. A.; Boudouris, B. W. *Macromol. Chem. Phys.* **2022**, *223*, 2200032.
101. "Smart Soft Contact Lenses for Continuous 24-hour Monitoring of Intraocular Pressure in Glaucoma Care," Zhang, J.; Kim, K.; Kim, H. J.; Schneider, D. M.; Park, W.; Lee, S. A.; Dai, Y.; Kim, B.; Moon, H.; Shah, J. V.; Harris, K. E.; Collar, B.; Liu, K.; Irazoqui, P.; Lee, H.; Park, S. A.; Kollbaum, P. S.; Boudouris, B. W.; Lee, C. H. *Nat. Commun.* **2022**, *13*, 5518.
100. "High-Spin (S = 1) Blatter-Based Diradical with Robust Stability and Electrical Conductivity," Zhang, S.; Pink, M.; Junghoefer, T.; Zhao, W.; Hsu, S.-N.; Rajca, S.; Calzolari, A.; Boudouris, B. W.; Casu, M. B.; Rajca, A. *J. Am. Chem. Soc.* **2022**, *144*, 6059-6070.
99. "Radical Polymer-based Organic Electrochemical Transistors," Kim, H. J.; Perera, K.; Liang, Z.; Bowen, B.; Mei, J.; Boudouris, B. W. *ACS Macro Lett.* **2022**, *11*, 243-250.
98. "Electronic and Spintronic Open-Shell Macromolecules, *Quo Vadis?*," Tan, Y.; Hsu, S.-N.; Tahir, H.; Dou, L.; Savoie, B. M.; Boudouris, B. W. *J. Am. Chem. Soc.* **2022**, *144*, 626-647.
97. "Student Outcomes Related to Motivation and Stress in an Online Materials and Energy Balances Course During the COVID-19 Pandemic," Adaramola, A.; Boudouris, B. W.; Godwin, A. *Chem. Eng. Educ.* **2022**, *56*, 36-46.
96. "High-Speed One-Photon 3D Nanolithography using Controlled Initiator Depletion and Inhibitor Transport," Hsu, S.-H.; Chi, T.; Kim, J.; Somers, P.; Boudouris, B. W.; Xu, X.; Pan, L. *Adv. Opt. Mater.* **2022**, *10*, 2102262.
95. "Electronic and Magnetic Properties of a 3-Arm Nonconjugated Open-Shell Macromolecule," Yeo, H.; Akkiraju, S.; Tan, Y.; Tahir, H.; Dille, N. R.; Savoie, B. M.; Boudouris, B. W. *ACS Polym. Au* **2022**, *2*, 59-68.

94. "A Carbon Nanotube-Functional Polymer Composite Film for Low-Power Indoor CO₂ Monitoring," Siefker, Z. A.; Bajaj, N.; Zhao, X.; Boyina, A. R.; Braun, J. E.; Chiu, G. T.C.; Boudouris, B. W.; Rhoads, J. F. *IEEE Sensors Journal* **2022**, *12*, 11233-11240.
93. "Two-dimensional Organic Semiconductor-incorporated Perovskite (OSiP) Electronics," Zhao, W.; Hsu, S.-N.; Boudouris, B. W.; Dou, L. *ACS Appl. Electron. Mater.* **2021**, *3*, 5155-5164.
92. "Designing Donor-Acceptor Copolymers for Stable and High-Performance Organic Electrochemical Transistors," Luo, X.; Shen, H.; Perera, K.; Tran, D. T.; Boudouris, B. W.; Mei, J. *ACS Macro Lett.* **2021**, *10*, 1061-1067.
91. "Rapid, Continuous Projection Multi-photon 3D Printing Enabled by Spatiotemporal Focusing of Femtosecond Pulses," Somers, P.; Liang, Z.; Johnson, J. E.; Boudouris, B. W.; Pan, L.; Xu, X. *Light Sci. Appl.* **2021**, *10*, 199.
90. "Ligand-driven Grain Engineering of High Mobility Two-dimensional Perovskite Thin Film Transistors," Lian, A.; Gao, Y.; Asadpour, R.; Wei, Z.; Finkenauer, B. P.; Jin, L.; Yang, J.; Liao, P.; Zhu, C.; Huang, L.; Boudouris, B. W.; Alam, M. A.; Dou, L. *J. Am. Chem. Soc.* **2021**, *143*, 15215-15223.
89. "Thermoelectric Performance of Lead-Free Two-Dimensional Halide Perovskites Featuring Conjugated Ligands," Hsu, S.-N.; Zhao, W.; Gao, Y.; Akriti; Boudouris, B. W.; Dou, L. *Nano Lett.* **2021**, *18*, 7839-7844.
88. "Impact of Open-Shell Loading on Mass Transport and Doping in Conjugated Radical Polymers," Liu, K.; Perera, K.; Wang, Z.; Mei, J.; Boudouris, B. W. *J. Polym. Sci.* **2021**, *59*, 2771-2782.
87. "Conductive Polymer Spark Gap Igniters," McConnell, M. P.; Murray, A. K.; Boudouris, B. W.; Gunduz, I. E.; Son, S. F.; Chiu, G. T.-C.; Rhoads, J. F. *Propell. Explos. Pyrot.* **2021**, *46*, 1500-1503.
86. "Design of Mixed Electron- and Ion-Conducting Radical Polymer-Based Blends," Akkiraju, S.; Vergados, J.; Hoagland, L.; Lu, Z.; Anandan, V.; Boudouris, B. W. *Macromolecules* **2021**, *54*, 5178-5186.
85. "Device Engineering in Organic Electrochemical Transistors toward Multifunctional Applications," Sheng, H.; Abtahi, A.; Lussem, B.; Boudouris, B. W.; Mei, J. *ACS Appl. Electron. Mater.* **2021**, *3*, 2434-2448.
84. "Manipulating Polymer Composition to Create Low-Cost, High-Fidelity Sensors for Indoor CO₂ Monitoring," Siefker, Z. A.; Hodul, J. N.; Zhao, X.; Bajaj, N.; Brayton, K. M.; Flores-Hanses, C.; Zhao, W.; Chiu, G. T.-C.; Braun, J. E.; Rhoads, J. F.; Boudouris, B. W. *Sci. Rep.* **2021**, *11*, 13237.
83. "Molecular Design Features for Charge Transport in Non-Conjugated Radical Polymers," Tan, Y.; Casetti, N. C.; Boudouris, B. W.; Savoie, B. M. *J. Am. Chem. Soc.* **2021**, *143*, 11994-12002.
82. "Relationship of Various Interfacial Tensions of Surfactants/Brine/Oil Formulations to Oil Recovery Efficiency," Chung, J.; Holtsclaw, J.; Henderson, T. C.; Everett, T. A.; Schultheiss, N. C.; Boudouris, B. W.; Franses, E. I. *Energy Fuels* **2021**, *35*, 7768-7777.
81. "Design of an n-Type Low Glass Transition Temperature Radical Polymer," Chi, T.; Akkiraju, S.; Liang, Z.; Tan, Y.; Kim, H. J.; Zhao, X.; Savoie, B. M.; Boudouris, B. W. *Polym. Chem.* **2021**, *12*, 1448-1457.
80. "Substituted Thioxanthone-based Photoinitiators for Efficient Two-Photon Direct Laser Writing Polymerization with Two-Color Resolution," Chi, T.; Somers, P.; Wilcox, D. A.; Schuman, A. J.; Johnson, J. E.; Liang, Z.; Pan, L.; Xu, X.; Boudouris, B. W. *ACS Appl. Polym. Mater.* **2021**, *3*, 1426-1435.

79. “Organic Cation Engineering for Vertical Charge Transport in Lead-Free Perovskite Quantum Wells,” Ma, K.; Hsu, S.-N.; Gao, Y.; Wei, Z.; Jin, L.; Finkenauer, B. P.; Huang, L.; Boudouris, B. W.; Mei, J.; Dou, L. *Small Science* **2021**, *1*, 2000024.
78. “All-printed Stretchable Corneal Sensor on Soft Contact Lenses for Noninvasive and Painless Ocular Electrodiagnosis,” Kim, K.; Kim, H. J.; Zhang, H.; Park, W.; Meyer, D.; Kim, M. K.; Kim, B.; Park, H.; Bradley, A.; Xu, B.; Kollbaum, P.; Boudouris, B. W.; Lee, C. H. *Nat. Commun.* **2021**, *12*, 1544.
77. “A Vapor Phase Trinitrotoluene Threshold Detector Enabled by Nonlinear Feedback,” Bajaj, N.; Laster, J. S.; Boudouris, B. W.; Chiu, G. T.-C.; Rhoads, J. F. *IEEE Sens. Lett.* **2020**, *4*, 2501504.
76. “Modifying Field-Effect Transistor Response in a Conjugated Polymer upon the Addition of Radical Dopants,” Wilcox, D. A.; Boudouris, B. W. *Thin Solid Films* **2020**, *714*, 138391.
75. “Modifying the Surface Chemistry and Nanostructure of Carbon Nanotubes Facilitates the Detection of Aromatic Hydrocarbon Gases,” Hodul, J. N.; Murray, A. K.; Carneiro, N. F.; Meseke, J. R.; Morris, J.; He, X.; Zemlyanov, D.; Chiu, G. T.-C.; Braun, J. E.; Rhoads, J. F.; Boudouris, B. W. *ACS Appl. Nano Mater.* **2020**, *3*, 10389-10398.
74. “Two-Dimensional Halide Perovskites Featuring Semiconducting Organic Building Blocks,” Gao, Y.; Wei, Z.; Hsu, S.-N.; Boudouris, B. W.; Dou, L. *Mater. Chem. Front.* **2020**, *4*, 3400-3418.
73. “Fostering Motivation for Chemical Engineering Students’ Academic Success: An Example from a Sophomore Materials and Energy Balances Course,” Godwin, A.; Boudouris, B. W. *Chem. Eng. Educ.* **2020**, *54*, 121-128.
72. “Mixed Ionic and Electronic Conduction in Radical Polymers,” Yu, I.; Jeon, D.; Boudouris, B. W.; Joo, Y. *J. Macromolecules* **2020**, *53*, 4435-4441.
71. “100th Anniversary of Macromolecular Science Viewpoint: Recent Advances and Opportunities for Mixed Ion and Charge Conducting Polymers,” Chung, J.; Khot, A.; Savoie, B. M.; Boudouris, B. W. *ACS Macro Lett.* **2020**, *9*, 646-655.
70. “Rethinking the Analysis of the Linear Viscoelastic Behavior of an Epoxy Polymer Near and Above the Glass Transition,” Ni, Y.; Song, H.; Wilcox, D. A.; Medvedev, G.; Boudouris, B. W.; Caruthers, J. M. *Macromolecules* **2020**, *53*, 1867-1880.
69. “A Resonant CO₂ Sensor Functionalized with a Polymerized Ionic Liquid,” Siefker, Z. A.; Murray, A. K.; Zhao, X.; Boudouris, B. W.; Bajaj, N.; Chiu, G. T.-C.; Rhoads, J. F. **2020**, *IEEE Sensors*, Montreal, Canada.
68. “Tailored Thioxanthone-based Photoinitiators for Two-Photon-Controllable Polymerization and Nanolithographic Printing,” Chi, T.; Somers, P.; Wilcox, D. A.; Schuman, A. J.; Iyer, V.; Le, R.; Gengler, J.; Ferdinandus, M.; Liebig, C.; Pan, L.; Xu, X.; Boudouris, B. W. *J. Polym. Sci. Part B: Polym. Phys.* **2019**, *57*, 1462-1475.
67. “Molecular Engineering of Organic-Inorganic Hybrid Perovskites Quantum Wells,” Gao, Y.; Shi, E.; Snaider, J. M.; Shiring, S. B.; Liang, C.; Liebman-Pelaez, A.; Yoo, P.; Deng, S.; Zeller, M.; Boudouris, B. W.; Liao, P.; Zhu, C.; Yu, Y.; Savoie, B. M.; Huang, L.; Dou, L. *Nat. Chem.* **2019**, *11*, 1151-1157.
66. “Accurate Determination of the Equilibrium Surface Tension Values including Area Perturbation Tests,” Chung, J.; Boudouris, B. W.; Franses, E. I. *J. Vis. Exp.* **2019**, *150*, e59818.
65. “Effects of the Water-Oil Volume Ratio and Premixing or Pre-equilibration on the Interfacial Tension and Phase Behavior of Biphasic Mixtures,” Chung, J.; Boudouris, B. W.; Franses, E. I. *Colloids Surf. A Physicochem. Eng. Asp.* **2019**, *571*, 55-63.

64. "Tuning the Interfacial and Energetic Interactions between a Photoexcited Conjugated Polymer and Open-Shell Small Molecules," Wilcox, D. A.; Snaider, J.; Mukherjee, S.; Yuan, L.; Huang, L.; Savoie, B. M.; Boudouris, B. W. *Soft Matter* **2019**, *15*, 1413-1422.
63. "Radical Polymers Alter the Carrier Properties of Semiconducting Carbon Nanotubes," Joo, Y.; Mukherjee, S.; Boudouris, B. W. *ACS Appl. Polym. Mater.* **2019**, *1*, 204-210.
62. "High-Affinity Detection and Capture of Heavy Metal Contaminants using Block Polymer Composite Membranes," Zhang, Y.; Vallin, J. R.; Sahoo, J. K.; Gao, F.; Boudouris, B. W.; Webber, M. J.; Phillip, W. A. *ACS Cent. Sci.* **2018**, *4*, 1697-1707.
61. "A Rheometry Method to Assess the Evaporation-induced Mechanical Strength Development of Polymer Solutions used for Membrane Applications," Caicedo-Casso, E.; Sargent, J.; Dorin, R. M.; Wiesner, U. B.; Phillip, W. A.; Boudouris, B. W.; Erk, K. A. *J. Appl. Polym. Sci.* **2018**, *136*, 47038.
60. "Energetic Microparticle Adhesion to Functionalized Surfaces," Hoss, D. J.; Mukherjee, S.; Boudouris, B. W.; Beaudoin, S. P. *Propell. Explos. Pyrot.* **2018**, *43*, 862-868.
59. "Phase and Rheological Behavior of Aqueous Mixtures of a Propoxylated Surfactant," Yang, Y.-J.; Tang, H.; Chung, J.; Santagata, M.; Franses, E. I.; Boudouris, B. W. *Colloids Surf. A Physicochem. Eng. Asp.* **2018**, *554*, 60-73.
58. "Highly Transparent Crosslinkable Radical Copolymer Thin Film as the Ion Storage Layer in Organic Electrochromic Devices," He, J.; Mukherjee, S.; Zhu, X.; You, L.; Boudouris, B. W.; Mei, J. *ACS Appl. Mater. Interfaces* **2018**, *10*, 18956-18963.
57. "Thermoelectric Performance of an Open-Shell Donor-Acceptor Conjugated Polymer Doped with a Radical-Containing Small Molecule," Joo, Y.; Huang, L.; Eedugurala, N.; London, A. E.; Kumar, A.; Wong, B. M.; Boudouris, B. W.; Azoulay, J. D. *Macromolecules* **2018**, *51*, 3886-3894.
56. "Impact of Surface Chemistry on the Adhesion of a Small Molecule to a Conducting Polymer Substrate," Laster, J. S.; Ezeamaku, C. D.; Beaudoin, S. P.; Boudouris, B. W. *Colloids Surf. A Physicochem. Eng. Asp.* **2018**, *551*, 74-80.
55. "A Nonconjugated Radical Polymer Glass with High Electrical Conductivity," Joo, Y.; Agarkar, V.; Sung, S. H.; Savoie, B. M.; Boudouris, B. W. *Science* **2018**, *359*, 1391-1395.
54. "Fit-for-Purpose Block Polymer Membranes Molecularly-Engineered for Water Treatment," Zhang, Y.; Arbelo, N. A.; Weidman, J. L.; Corti, D. S.; Boudouris, B. W.; Phillip, W. A. *npj Clean Water* **2018**, *1*, 2.
53. "Advancing Polymer Science by Revisiting Known Plastics," Olsen, B. D.; Boudouris, B. W. *Chem* **2018**, *4*, 927-929.
52. "Stable Radical Materials for Energy Applications," Wilcox, D. A.; Agarkar, V.; Mukherjee, S.; Boudouris, B. W. *Ann. Rev. Chem. Bio. Eng.* **2018**, *9*, 083945.
51. "Surface Tension Behavior of Aqueous Solutions of a Propoxylated Surfactant and Interfacial Tension Behavior against a Crude Oil," Chung, J.; Boudouris, B. W.; Franses, E. I. *Colloids Surf. A Physicochem. Eng. Asp.* **2018**, *537*, 163-172.
50. "Radical Polymers as Interfacial Layers in Inverted Hybrid Perovskite Solar Cells," Zheng, L.; Mukherjee, S.; Wang, K.; Hay, M. E.; Boudouris, B. W.; Gong, X. *J. Mater. Chem. A* **2017**, *5*, 23831.
49. "Fabrication of Silver Nanostructures using Femtosecond Laser-Induced Photoreduction," Barton, P.; Mukherjee, S.; Prabha, J.; Boudouris, B. W.; Pan, L.; Xu, X. *Nanotechnology* **2017**, *28*, 505302.

48. "Solution Self-assembly Behavior of A-B-C Triblock Polymers and the Implications for Nanoporous Membrane Fabrication," Sargent, J. L.; Hoss, D. H.; Phillip, W. A.; Boudouris, B. W. *J. Appl. Polym. Sci.* **2017**, *135*, 45531.
47. "Analyzing Adhesion in Microstructured Systems through a Robust Computational Approach," Hoss, D. J.; Boudouris, B. W.; Beaudoin, S. P. *Surf. Interface Anal.* **2017**, *49*, 1165-1170.
46. "Enhancing Polymer Thermoelectric Performance using Radical Dopants," Tomlinson, E. P.; Mukherjee, S.; Boudouris, B. W. *Org. Electron.* **2017**, *51*, 243-248.
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4. “Polylactide-Polythiophene-Polylactide Triblock Copolymers,” Boudouris, B. W.; Frisbie, C. D.; Hillmyer, M. A. *Macromolecules* **2010**, *43*, 3566–3569.
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2. “Nanoporous Poly(3-alkylthiophene) Thin Films Generated from Block Copolymer Templates,” Boudouris, B. W.; Frisbie, C. D.; Hillmyer, M. A. *Macromolecules* **2008**, *41*, 67–75.
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Pending Patents

12. Filed Patent. "Three-Dimensional Nanolithography Systems and Methods," Pan, L.; Xu, X.; Boudouris, B. W., Filed: December 13, 2022, Under Review with Application Number: 63/432,264.
11. Filed Patent. "Intraocular Pressure Tonometers, Systems Comprising the Same, Methods for Fabrication Thereof, and Methods for Monitoring Intraocular Pressure in a Subject," Lee, C. H.; Irazoqui, P.; Boudouris, B. W.; Kim, K.; Kim, H. J. Filed: October 29, 2021, Under Review with Application Number: 63/273,377.
10. Filed Patent. "Contact Lens Having Sensors and Methods for Producing the Same," Lee, C. H.; Boudouris, B. W., Filed: July 1, 2021, Under Review with Application Number: 17/365,734.
9. Filed Patent. "Block Polymer Composite Membranes for High-Affinity Detection and Capture of Heavy Metal Contaminants," Zhang, Y.; Boudouris, B. W.; Webber, M. J.; Phillip, W. A., Filed: April 28, 2021, Under Review with Application Number: 17/289,647.
8. Filed Patent. "Polymer Blends having Simultaneous Electronic and Ionic Conduction," Akkiraju, S.; Boudouris, B. W.; Lu, Z.; Anandan, V., Filed: December 29, 2020, Under Review with Application Number: 84/226,692.
7. Filed Patent. "A Chemiresistive CO₂ Sensor Based on Carbon Nanotube-Functional Polymer Composite Films," Rhoads, J. F.; Boudouris, B. W.; Chiu, G. T.-C.; Bajaj, N.; Murray, A. K.; Siefker, Z. A.; Zhao, X., Filed: August 8, 2019, Under Review with Application Number: 62/884,390.

Issued Patents

6. United States Patent 11,305,482. "Continuous and Scalable 3D Nanoprinting," Xu, X.; Boudouris, B. W.; Pan, L. Issued: April 14, 2022.
5. United States Patent 11,084,912. "Radical Polymer Film with High Electrical Conductivity," Boudouris, B. W.; Savoie, B. M.; Joo, Y.; Agarkar, V.; Seung, S. H. Issued: August 10, 2021.
4. United States Patent 10,794,962. "Engineered Detection Swab," Beaudoin, S. P.; Boudouris, B. W.; Chaffee-Cipich, M.; Harrison, A. J.; Lukow, S.; Rostro, L.; Schram, C. J.; Smith, K. M.; Thomas, M. T. Issued: October 6, 2020.
3. United States Patent 10,513,621. "Ink and Method of Conducting an Examination," Boudouris, B. W.; Dodd, R. R.; Sargent, J. L.; Alcorace, E., Issued: December 24, 2019.
2. United States Patent 10,333,045. "Solution Based Synthesis of Copper-Arsenic-Chalcogen Derived Nanoparticles," Agrawal, R., Boudouris, B. W., Balow, R. B., Issued: June 25, 2019.
- 1b. Japan Patent 6330230. "Multiblock Copolymers and Methods of Use", Phillip, W. A.; Boudouris, B. W., Issued: May 11, 2018.
- 1a. United States Patent 10,022,679. "Multiblock Copolymers and Methods of Use", Phillip, W. A.; Boudouris, B. W., Issued: July 17, 2018.

Invited Presentations

55. “Designing Functional Polymers for Organic Electronic and Sensing Applications.” The University of Arizona. Department of Chemical and Environmental Engineering. May 1, 2023.
54. “Designing Functional Polymers for Organic Electronic and Sensing Applications.” The University of Mississippi. Department of Chemistry and Biochemistry. February 24, 2023.
53. “Polymer-based Sensors to Monitor Indoor Air Quality and Ocular Response.” 2022 AIChE Annual Meeting [Analytical Technology Plenary Lecture Session]. November 15, 2022.
52. “Designing Radical Polymers for Mixed Electronic and Ionic Conduction.” 5th POLYSTORAGE Workshop. November 14, 2022.
51. “Polymer-based Sensors to Monitor Indoor Air Quality and Ocular Response.” 2022 Notre Dame-Purdue Soft Matter Symposium. October 29, 2022.
50. “Polymers for Advanced Bioelectronic and Water Purification Devices.” Arizona State University, School for Engineering of Matter, Transport, and Energy. April 18, 2022.
49. “Tailoring Macromolecular Design for Advanced Bioelectronics and Water Purification Membranes.” Princeton University. Saville Lectureship in the Department of Chemical and Biological Engineering. February 9, 2022.
48. “Designing Radical Polymers for Solid-State Electronics and Electrochemical Devices.” The International Chemical Congress of Pacific Basin Societies (Pacifichem). December 19, 2021.
47. “History, Progress, and Outlook of the Project SEED Program.” Southeast Regional Meeting of the American Chemical Society (SERMACS). November 13, 2021.
46. “The Chemistry and Application of Bioelectronic Polymers.” Herty Medalist Undergraduate Research Symposium hosted by the ACS Georgia Local Section. October 1, 2021.
45. “Is There Anything Radical about the Physics of Open-Shell Macromolecules?” Polymer Physics Telluride Science Research Conference. June 30, 2021.
44. “Tailoring Macromolecular Design Water Purification Membranes and Radical Polymer Electronics.” Pennsylvania State University, Department of Chemical Engineering. April 6, 2021.
43. “Controlling Block Polymer Interfaces for Next-Generation Membrane Separations.” APS March 2021 Meeting. March 19, 2021.
42. “Radicalizing Organic Electronics with Polymer Physics.” APS March 2021 Meeting [John H. Dillon Medal Symposium]. March 16, 2021.
41. “Research with a Sustainable Materials Science and Engineering Approach.” TMS 2021 Annual (Virtual) Meeting and Exhibition. March 15, 2021.
40. “Tailoring Macromolecular Design for Polymer Bioelectronics and Water Purification Membranes.” Texas A&M University, Artie McFerrin Department of Chemical Engineering. March 10, 2021.
39. “Designing Radical Polymers for Solid-State Electronics and Electrochemical Devices.” 2020 AIChE Annual Meeting [Division 8 (Materials Science and Engineering Division) Plenary Lecture Session]. November 17, 2020.
38. “Designing High-Performance Block Polymer-based Membrane Adsorbers for Water Purification.” 2019 AIChE Annual Meeting [Area 8A (Polymers) Plenary Lecture Session]. November 12, 2019.
37. “Tailoring Macromolecular Design for Water Purification and Organic Electronic Applications.” University of Southern Mississippi, School of Polymer Science and Engineering. October 9, 2019.

36. “Designing Functional Polymers for Next-Generation Energy, Water, and Health Applications.” National Cheng Kung University, Department of Chemical Engineering. December 19, 2018.
35. “Designing Functional Polymers for Water Purification and Flexible Electronic Applications.” University of Pittsburgh, Department of Chemical and Petroleum Engineering. October 26, 2018.
34. “The Nanoscale Features that Allow Non-conjugated Radical Polymer Glasses to Achieve High Electrical Conductivity Values.” 4th Functional Polymeric Materials Conference. June 8, 2018
33. “Designing Charge Neutral, Non-Conjugated Radical Polymers with High Electrical Conductivity Values.” 2018 ACS Spring Meeting. March 21, 2018.
32. “Designing Functional Polymers for Water Purification and Flexible Electronic Applications.” University of Illinois at Chicago, Department of Chemical Engineering. February 13, 2018.
31. “Designing Functional Macromolecules for Electronic Applications and Water Purification.” Purdue-University – Korea University Workshop at the 2017 AIChE Annual Meeting. October 29, 2017.
30. “Elucidating Charge Transport in Radical-Containing Polymers and the Application to Energy Conversion Devices.” Soft Materials Summer School hosted by the University of Freiburg (Germany). July 6, 2017.
29. “Elucidating Solid-State Charge Transfer in Radical Polymers.” American Chemical Society (ACS) PanPoly Conference. March 23, 2017.
28. “Designing Functional Macromolecules for Water Purification and Electronic Applications.” Tufts University, Department of Chemical and Biological Engineering. February 23, 2017.
27. “Designer Polymers for Next-Generation Flexible Electronic and Water Purification Applications.” University of Wisconsin – Madison, Department of Chemical and Biological Engineering. December 13, 2016.
26. “Solid State Transport in Radical Polymer Glasses and Their Application to Organic Electronic Devices.” 2016 AIChE Annual Meeting (Area 8A (Polymers) Plenary Lecture Session). November 14, 2016.
25. “Designing Functional Macromolecules for Water Purification and Electronic Applications.” University of Akron, Department of Polymer Science. October 14, 2016.
24. “Designer Macromolecules for Next-Generation Flexible Electronic and Membrane Adsorber Applications.” BASF Committee for Scientific Innovation and Interaction Seminar Series. October 11, 2016.
23. “Manipulating the Solid-state Charge Transport of Radical Polymer Glasses.” Notre Dame-Purdue Symposium on Soft Matter and Polymers. October 8, 2016.
22. “Controlling the Self-Assembly and Nanoscale Structure of Block Polymers for the Design and Fabrication of Nanofiltration Membranes and Membrane Adsorbers.” Center for Nanoscale Materials Science at Oak Ridge National Laboratory User Meeting. August 11, 2016.
21. “Correlating Structure with Charge Transport in Radical Polymers.” Polymer Physics Gordon Research Conference (GRC). July 27, 2016.
20. “Design of Triblock Polymers and Their Implementation as High-Performance Nanostructured Membranes and High Capacity Metal Ion Adsorbent Systems.” American Chemical Society (ACS) Central Region Meeting (CERM). May 19, 2016.
19. “Making Glasses Conduct: Electrochemical Doping of Redox-Active Polymer Thin Films.” American Physical Society (APS) March Meeting. March 17, 2016.

18. "Self-assembly of Open Shell-Containing Block Polymer Thin Films." American Physical Society (APS) March Meeting. March 15, 2016.
17. "Designing Macromolecules for Advanced Energy Conversion and Separations Membrane Applications." 3M Corporation. December 10, 2015.
16. "Design of Functional Polymers for Advanced Energy Conversion and Water Purification Applications." University of Illinois at Urbana Champaign, Department of Chemical and Biomolecular Engineering. November 19, 2015.
15. "Tuning the Thin Film Self-Assembly of Radical-Containing Diblock Copolymers." 2015 AIChE Annual Meeting. November 11, 2015.
14. "Designing Macromolecules for Advanced Energy Conversion and Separations Applications." Massachusetts Institute of Technology, Program in Polymers and Soft Matter. October 21, 2015.
13. "Solid-State Charge Transport in Redox-Active Radical Polymers." 228th Electrochemical Society (ECS) Meeting. October 14, 2015.
12. "Charge Transport Physics of Non-conjugated Glassy Radical Polymer Conductors." Physical Aspects of Polymer Science Meeting of the Institute of Physics (IOP). September 10, 2015.
11. "Radical Polymers in Solid-State Organic Electronic Devices." 250th National Meeting of the American Chemical Society (ACS). August 17, 2015.
10. "Designing Macromolecules for Advanced Energy Conversion and Nanofiltration Applications." University of Wisconsin – Madison, Department of Chemistry. May 4, 2015.
9. "Designing Macromolecules for Advanced Energy Conversion and Nanofiltration Applications." University of Minnesota, Department of Chemical Engineering and Materials Science. April 28, 2015.
8. "Designing Macromolecules with Specific Optoelectronic and Chemical Functionalities for Advanced Membrane and Energy Conversion Applications." Purdue University, School of Chemical Engineering. September 9, 2014.
7. "Non-conjugated Radical Polymers as an Emerging Class of Transparent Conductors for Organic Photovoltaic and Thermoelectric Applications." 30th International Conference of the Polymer Processing Society (PPS-30). June 11, 2014.
6. "The Utilization of Radical Polymers in Next-Generation Thermoelectric Devices." United States Air Force Academy. October 21, 2013.
5. "The Utilization of Radical Polymers in Next-Generation Thermoelectric Devices." Air Force Office of Scientific Research, Flexible Thermoelectrics Workshop. July 10, 2013.
4. "Designing Macromolecules with Specific Optoelectronic and Chemical Functionalities for Advanced Energy and Biomedical Applications." Purdue University, Department of Chemistry (Organic Chemistry Division). April 2, 2013.
3. "Design of Optoelectronically-active Polymers for Organic Photovoltaic Applications." Purdue Solar Research Series, Birck Nanotechnology Center. January 24, 2013.
2. "Radical Polymers for Nanostructured, Next Generation Thermoelectric Devices." DARPA Young Faculty Award Kick-Off Meeting. July 31, 2012.
1. "Designing Semiconducting Polymers for Advanced Energy Applications." Purdue University, Birck Nanotechnology Center. September 28, 2011.