

Curriculum Vitae
William R. Dichtel
Robert L. Letsinger Professor of Chemistry, Northwestern University

Date of Birth September 19, 1978
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Academic Appointments

Robert L. Letsinger Professor (07/2016 – Present)
Department of Chemistry
Northwestern University

Associate Professor (02/2014 – 06/2016)
Assistant Professor (07/2008 – 01/2014)
Department of Chemistry and Chemical Biology
Cornell University

Academic Background and Education

Research Associate (Jointly Appointed)
Department of Chemistry and Biochemistry
University of California, Los Angeles
Advisor: Prof J. Fraser Stoddart
August 2005 – June 2008

Research Associate (Jointly Appointed)
Department of Chemistry
California Institute of Technology
Advisor: Prof James R. Heath
August 2005 – June 2008

Doctor of Philosophy
Department of Chemistry and Biochemistry
University of California, Berkeley
Advisor: Prof Jean M. J. Fréchet
September 2000 – July 2005

Bachelor of Science
Department of Chemistry
Massachusetts Institute of Technology
Advisor: Prof Timothy M. Swager
September 1996 – June 2000

Honors and Awards

Leo Hendrik Baekeland Award (2017)
Finalist, Blavatnik Award for Young Scientists (2017)
Arthur K. Doolittle Award (ACS PMSE Division, 2016)
Visiting Miller Professor, University of California, Berkeley (Spring 2016)
John D. and Catherine T. MacArthur Fellowship (2015)
Kavli Frontiers of Science Fellow (2015)
Kavli Emerging Leader in Chemistry Lecturer, 250th ACS National Meeting (2015)
Inaugural BASF Innovation Lecturer, University of Tokyo (2014)
Polymer International – IUPAC Award for Creativity in Applied Polymer Science (2014)
National Fresenius Award (Phi Lambda Upsilon, 2013)
Camille Dreyfus Teacher Scholar Award (2013)
ACS Arthur C. Cope Scholar Award (2013)
Beckman Young Investigator Award (2012)

Sloan Research Fellowship (2012)
Research Corporation Cottrell Scholar Award (2012)
NSF CAREER Award (2011)
3M Nontenured Faculty Award (2010, 2011, 2012)
Thieme Chemistry Journal Award (2009)
Finalist, Chancellor's Award for Postdoctoral Research (UCLA campus-wide, 2008)
Certificate of Excellence for Postdoctoral Research (UCLA departmental, 2008)
Teaching Effectiveness Award (UC-Berkeley campus-wide, 2004)
Outstanding Graduate Instructor Award (UC-Berkeley departmental, 2004)

Service to the Field

Editorial Advisory Board, *Chem* (Cell Press)
Editorial Advisory Board, *ACS Central Science* (ACS)
Editorial Advisory Board, *Polymer International* (Wiley)
Editorial Advisory Board, *Chemistry of Materials* (ACS)
Editorial Advisory Board, *Macromolecules* and *ACS Macro Letters* (ACS) (2013-2016)
Member-at-Large of the Executive Committee of the ACS PMSE Division (2013–2015)

Independent Publications

95. Matsumoto, M.; Valentino, L.; Stiehl, G. M.; Balch, H. B.; Corcos, A. R.; Wang, F.; Ralph, D. C.; Marinas, B. J.; Dichtel, W. R.; "Lewis-Acid-Catalyzed Interfacial Polymerization of Covalent Organic Framework Films." *Chem*, **2018**.
94. Evans, A. M.; Parent, L. R.; Flanders, N. C.; Bisbey, R. P; Vitaku, E.; Chen, L. X.; Gianneschi, N. C.; Dichtel, W. R.; "Seeded Growth of Single-Crystal Two-Dimensional Covalent Organic Frameworks." *ChemRxiv*, **2018**.
93. Snyder, R. L.; Fortman, D. J.; De Hoe, G. X.; Hillmyer, M. A.; Dichtel, W. R.; "Reprocessable Acid-Degradable Polycarbonate Vitrimers." *Macromolecules*, **2018**, *51* (2), pp 389-397.
92. Miskin, M. C.; Sun, C.; Cohen, I.; Dichtel, W. R.; McEuen, P. L.; "Measuring and Manipulating the Adhesion of Graphene." *Nano Lett.* **2018**, *18* (1), pp 449-454.
91. Chen, C.; Joshi, T.; Li, H.; Chavez, A. D.; Pedramrazi, Z.; Liu, P.; Li, H.; Dichtel, W. R.; Bredas, J.; Crommie, M. F.; "Local Electronic Structure of a Single-Layer Porphyrin-Containing Covalent Organic Framework." *ACS Nano*, **2018**, *12* (1), pp 385-391.
90. Valentino, L.; Matsumoto, M.; Dichtel, W. R.; Marinas, B. J.; "Development and Performance Characterization of a Polyimine Covalent Organic Framework Thin-Film Composite Nanofiltration Membrane." *Environ. Sci. Technol.* **2017**, *51* (24), pp 14532-14539.
89. Li, H.; Chavez, A. D.; Li, H.; Li, H.; Dichtel, W. R. J.; "Nucleation and Growth of Covalent Organic Frameworks from Solution: The Example of COF-5." *J. Am. Chem. Soc.* **2017**, *139* (45), pp 16310-16318.
88. Hein, S. J.; Lehnher, D.; Arslan, H.; Uribe-Romo, F. J.; Dichtel, W. R.; "Alkyne Benzannulation Reactions for the Synthesis of Novel Aromatic Architectures." *Acc. Chem. Res.* **2017**, *50*, (11), pp 2776-2778.
87. Fortman, D.; Brutman, J. P.; Hillmyer, M. A.; Dichtel, W. R.; "Structural effects on the reprocessability and stress relaxation of crosslinked polyhydroxyurethanes." *J. Appl. Polym. Sci.* **2017**, *134*, 44984.
86. Vitaku, E.; Dichtel, W. R. "Synthesis of 2D Imine-Linked Covalent Organic Frameworks through Formal Transimination Reactions." *J. Am. Chem. Soc.* **2017**, *139*, 12911-12914.
85. Hein, S.; Lehnher, D.; Dichtel, W.R. "Rapid access to substituted 2-naphthyne intermediates via the benzannulation of halogenated silylalkynes." *Chem. Sci.* **2017**, *8*, 5676-5681.

84. Xiao, L.; Ling, Y.; Alsaiee, A.; Li, C.; Helbing, D. E.; Dichtel, W. R. “ β -Cyclodextrin Polymer Network Sequesters Perfluorooctanoic Acid at Environmentally Relevant Concentrations.” *J. Am. Chem. Soc.* **2017**, *139*, 7689-7692.
83. Ling, Y.; Klemes, M. J.; Xiao, L.; Alsaiee, A.; Dichtel, W. R.; Helbling, D. E. “Benchmarking Micropollutant Removal by Activated Carbon and Porous β -cyclodextrin Polymers Under Environmentally Relevant Scenarios.” *Environ. Sci. Technol.* **2017**, *139*, 7590-7598.
82. Benia, G.; Fortman, D. J.; Heath, W. H.; Dichtel, W. R.; Torkelson, J. M. “Non-Isocyanate Polyurethane Thermoplastic Elastomer: Amide-Based Chain Extender Yields Enhanced Nanophase Separation and Properties in Polyhydroxyurethane.” *Macromolecules*, **2017**, *50*, 4425-4434.
81. Bisbey, R. P.; Dichtel, W. R. “Covalent Organic Frameworks as a Platform for Multidimensional Polymerization.” *ACS Cent. Sci.* **2017**, *3*, 533-543.
80. Csernica, P. M.; McKone, J. R.; Mulzer, C. R.; Dichtel, W. R.; Abruna, H. D.; and DiSalvo, F. J. “Electrochemical Hydrogen Evolution at Ordered Mo₇Ni₇.” *ACS Catalysis*, **2017**, *7*, 3375-3383.
79. Matsumoto, M.; Dsari, R. R.; Ji, W.; Feriante, C. H.; Parker, T. C.; Marder, S. R.; and Dichtel, W. R. “Rapid, Low Temperature Formation of Imine-Linked Covalent Organic Frameworks Catalyzed by Metal Triflates.” *J. Am. Chem. Soc.* **2017**, *139*, 4999-5002.
78. Fortman, D. J.; Brutman, J. P.; Hillmyer, M. A.; Dichtel, W. R. “Structural effects on the reprocessability and stress relaxation of cross-linked polyhydroxyurethanes.” *J. Appl. Polym. Sci.* **2017**, 44984.
77. Sun, C.; Holowka, D. A.; Baird, B. A.; Dichtel, W. R. “Beyond Media Composition: Cell Plasma Membrane Disruptions by Graphene Oxide.” *Chem* **2017**, *2*, 324–325.
76. Lehnher, D.; Alzola, J. M.; Mulzer, C. R.; Hein, S. J.; Dichtel W. R. “Diazatetracenes Derived From the Benzannulation of Acetylenes: Electronic Tuning via Substituent Effects and External Stimuli.” *J. Org. Chem.*, **2017**, *82*, 2004–2010.
75. Smith, B. J.; Parent, L. R.; Overholts, A. C.; Beaucage, P. A.; Bisbey, R. P.; Chavez, A. D.; Hwang, N.; Park, C.; Evans, A. M.; Gianneschi, N. C.; Dichtel, W. R. “Colloidal covalent organic frameworks.” *ACS Cent. Sci.*, **2017**, *3*, 58–65.
74. Alzate-Sánchez, D. M.; Smith, B. J.; Alsaiee, A.; Hinestroza, J. P.; Dichtel, W. R. “Cotton Fabric Functionalized with a β -Cyclodextrin Polymer Captures Organic Pollutants from Contaminated Air and Water.” *Chem. Mater.* **2016**, *28*, 8340–8346.
73. Mulzer, C. R.; Shen, L.; Bisbey, R. P.; McKone, J. R.; Zhang, N.; Abruna, H. D.; Dichtel, W. R. “Superior Charge Storage and Power Density of Conducting Polymer Modified Covalent Organic Framework.” *ACS Cent. Sci.* **2016**, *2*, 667–673.
72. Sun, C.; Wakefield, D. L.; Han, Y.; Muller, D. A.; Holowka, D. A.; Baird, B. A.; Dichtel, W. R. “Graphene Oxide Nanosheets Stimulate Ruffling and Shedding of Mammalian Cell Plasma Membranes.” *Chem*, **2016**, *1*, 273–286.
71. Bisbey, R. P.; DeBlase, C. R.; Smith, B. J.; Dichtel, W. R. “Two-dimensional covalent organic framework thin films grown in flow.” *J. Am. Chem. Soc.* **2016**, *138*, 11433–11436.
70. DeBlase, C. R.; Dichtel, W. R. “Hybrid Supercapacitors from Framework Materials.” *Chem* **2016**, *1*, 16-31. [Highlight]
69. Lehnher, D.; Chen, C.; Pedramrazi, Z.; DeBlase, C. R.; Alzola, J. M.; Keresztes, I.; Lobkovsky, E. B.; Crommie, M. F.; Dichtel, W. R. “Sequence-defined oligo(*ortho*-arylene) foldamers derived from the benzannulation of *ortho*(arylene ethynylene)s.” *Chem. Sci.* **2016**, *7*, 6357–6364.
68. Chavez, A. D.; Smith, B. J.; Smith, M. K.; Beaucage, P. A.; Northrop, B. H.; Dichtel, W. R. “Discrete, Hexagonal Boronate Ester-Linked Macrocycles Related to Two-Dimensional Covalent Organic Frameworks.” *Chem. Mater.* **2016**, *28*, 4884-4888.
67. DeBlase, C. R.; Dichtel, W. R. “Moving Beyond Boron: The Emergence of New Linkage Chemistries in Covalent Organic Frameworks.” *Macromolecules*, **2016**, *49*, 5297–5305. (Invited Perspective)

66. Gao, J.; Uribe-Romo, F. J.; Saathoff, J. D.; Arslan, H.; Crick, C. R.; Hein, S. J.; Itin, B.; Clancy, P.; Dichtel, W. R.; Loo, Y.-L. "Ambipolar Transport in Solution-Synthesized Graphene Nanoribbons" *ACS Nano*, **2016**, *10*, 4847–4856.
65. Smith, B. J.; Overholts, A. C.; Hwang, G.; Dichtel, W. R. "Insight into the crystallization of amorphous imine-linked polymer networks to 2D covalent organic frameworks." *Chem. Comm.* **2016**, *52*, 3690–3693.
64. Alsbaiee, A.; Smith, B. J.; Xiao, L.; Ling, Y.; Helbling, D. E.; Dichtel, W. R. "Instant removal of organic micropollutants from water by a porous β -cyclodextrin polymer." *Nature*, **2016**, *529*, 190–194. *This work was highlighted on the cover of the January 14, 2016 issue of Nature. This paper was recognized as a "Highly Cited Paper" by ISI Web of Science in June 2016, which places it among the top 1% of papers in the fields of chemistry and environmental science for its publication year.*
63. Fortman, D. J.; Brutman, J. A.; Cramer, C. J.; Hillmyer, M. A.; Dichtel, W. R. "Catalyst-free Polyhydroxyurethane Vitrimers." *J. Am. Chem. Soc.* **2015**, *137*, 14019–14022.
62. Lehnerr, D.; Alzola, J. M.; Lobkovsky, E. B.; Dichtel, W. R. "Regioselective Synthesis of Polyheterohalogenated Naphthalenes via the Benzannulation of Haloalkynes." *Chem. Eur. J.* **2015**, *21*, 18122–18127.
61. DeBlase, C. R.; Hernández-Burgos, K.; Rotter, J. M.; Fortman, D. J.; Timm, R. A.; dos S. Abreu, D.; Diógenes, I. C. N.; Kubota, L. T.; Abruña, H. D.; Dichtel, W. R. "Cation-dependent stabilization of electrogenerated naphthalene diimide dianions in porous polymer thin films." *Angew. Chem. Int. Ed.* **2015**, *54*, 13225–13229.
60. van Humbeck, J. F.; Aubrey, M. L.; Alsbaiee, A.; Ameloot, R.; Coates, G. W.; Dichtel, W. R.; Long, J. R. "Tetraarylborate polymer networks as single-ion conducting solid electrolytes." *Chem. Sci.* **2015**, *6*, 5499–5505.
59. Bradforth, S. E.; Miller, E. R.; Dichtel, W. R.; Leibovich, A. K.; Feig, A. L.; Martin, J. D.; Bjorkman, K. S.; Schultz, Z. D.; Smith, T. L. "Improve undergraduate science education." *Nature*, **2015**, *523*, 283–284.
58. Sun, C.; Wakefield, D.; Dichtel, W. R. "Retaining the activity of enzymes and fluorophores attached to graphene oxide." *Chem. Mater.* **2015**, *27*, 4499–4504.
57. Gopalakrishnan, D.; Dichtel, W. R. "Real-time detection of RDX vapors using thin films of a conjugated polymer network." *Chem. Mater.* **2015**, *27*, 3813–3816.
56. Smith, B. J.; Hwang, N.; Chavez, A.; Novotney, J. L.; Dichtel, W. R. "Growth rates and water stability of 2D boronate ester covalent organic frameworks." *Chem. Commun.* **2015**, *51*, 7532–7535.
55. DeBlase, C. R.; Hernández-Burgos, K.; Silberstein, K. E.; Rodríguez-Calero, G. G.; Bisbey, R. P.; Abruña, H. D.; Dichtel, W. R. "Rapid and efficient redox processes within 2D covalent organic framework thin films." *ACS Nano* **2015**, *9*, 3178–3183.
54. Arslan, H.; Walker, K. L.; Dichtel, W. R. "Regioselective Asao–Yamamoto benzannulations of diarylacetylenes." *Org. Lett.* **2014**, *16*, 5926–5929.
53. Colson, J. W.; Mann, J. A.; DeBlase, C. R.; Dichtel, W. R. "Patterned Growth of Oriented 2D Covalent Organic Framework Thin Films on Single-Layer Graphene." *J. Poly. Sci. A: Polym. Chem.* **2015**, *53*, 378–384. *(Special issue dedicated to Jean M. J. Fréchet for his 70th birthday)*
52. Hein, S. J.; Arslan, H.; Keresztes, I.; Dichtel, W. R. "Rapid synthesis of crowded aromatic architectures from silyl acetylenes." *Org. Lett.* **2014**, *16*, 4416–4419.
51. Smith, B. J.; Dichtel, W. R. "Mechanistic studies of two-dimensional covalent organic frameworks rapidly polymerized from initially homogenous conditions." *J. Am. Chem. Soc.* **2014**, *136*, 8783–8789.
50. Jung, B.; Satish, P.; Bunck, D. N.; Dichtel, W. R.; Ober, C. K.; Thompson, M. O. "Reaction pathways for ester cleavage of an acrylic polymer at high temperatures during laser-induced sub-millisecond heating." *ACS Nano*, **2014**, *8*, 5746–5756.

49. DeBlase, C. R.; Silberstein, K. E.; Truong, T.; Abruña, H. D.; Dichtel, W. R. “ β -Ketoenamine-linked covalent organic frameworks capable of pseudocapacitive energy storage.” *J. Am. Chem. Soc.* **2013**, *135*, 16821–16824.
48. Bunck, D. N.; Dichtel, W. R. “Bulk synthesis of exfoliated 2D polymers using hydrazone-linked covalent organic frameworks.” *J. Am. Chem. Soc.* **2013**, *135*, 14952–14955.
47. Brucks, S. D.; Bunck, D. N.; Dichtel, W. R. “Functionalization of 3D covalent organic frameworks using monofunctional boronic acids.” *Polymer* **2014**, *55*, 330–334. (*Special issue on porous polymers*)
46. Mann, J. A.; Dichtel, W. R. “Noncovalent functionalization of graphene by molecular and polymeric adsorbates” *J. Phys. Chem. Lett.* **2013**, *4*, 2649–2657. (*invited review*)
45. Mann, J. A.; Dichtel, W. R. “Improving the binding characteristics of tripodal compounds on single layer graphene.” *ACS Nano*, **2013**, *7*, 7193–7199.
44. Arslan, H.; Uribe-Romo, F. J.; Smith, B. J.; Dichtel, W. R. “Accessing extended and partially fused hexabenzocoronenes using a benzannulation / cyclodehydrogenation approach.” *Chem. Sci.* **2013**, *4*, 3973–3978.
43. Colson, J. W.; Dichtel, W. R. “Rationally synthesized two-dimensional polymers.” *Nature Chem.* **2013**, *5*, 453–465. (*invited review*) *This paper was recognized as a “Highly Cited Paper” by ISI Web of Science in December 2014, which places it among the top 1% of papers in the field of chemistry for its publication year.*
42. Gopalakrishnan, D.; Dichtel, W. R. “Direct detection of RDX vapor using a conjugated polymer network.” *J. Am. Chem. Soc.* **2013**, *135*, 8357–8362. *This paper was highlighted in a video documentary produced by the American Chemical Society “Breakthrough Science” series.*
41. Novotney, J. L.; Dichtel, W. R. “Conjugated porous polymers for TNT vapor detection.” *ACS Macro Lett.* **2013**, *2*, 423–426.
40. Bunck, D. N.; Dichtel, W. R. “Postsynthetic functionalization of 3D covalent organic frameworks.” *Chem. Comm.* **2013**, *49*, 2457–2459.
39. Alava, T.; Mann, J. A.; Théodore, C.; Benitez, J. J.; Dichtel, W. R.; Parpia, J. M.; Craighead, H. G. “Control of the graphene-protein interface is required to preserve absorbed protein function.” *Anal. Chem.* **2013**, *85*, 2754–2759.
38. Mann, J. A.; Alava, T.; Craighead, H.; Dichtel, W. R. “Preservation of antibody selectivity on graphene by conjugation to a tripod monolayer.” *Angew. Chem. Int. Ed.* **2013**, *52*, 3177–3180. *The editors of Angewandte Chemie designated this work as a “Hot Paper”.*
37. Bunck, D. N.; Dichtel, W. R. “Mixed linker strategies for organic framework functionalization.” *Chem. Eur. J.* **2013**, *19*, 818–827. (*Invited Review*)
36. Arslan, H.; Saathoff, J. Bunck, D. N.; Clancy, P.; Dichtel, W. R. “Highly efficient benzannulation of poly(phenylene ethynylene)s.” *Angew. Chem. Int. Ed.* **2012**, *51*, 12051–12054.
35. Koo, B. T.; Dichtel, W. R.; Clancy, P. “A classification scheme for the stacking of two-dimensional covalent organic frameworks.” *Chem. Mater.* **2012**, *22*, 17460–17469. (*Highlighted on Journal Cover*)
34. Uribe-Romo, F. J.; Dichtel, W. R. “Two-dimensional materials: Polymers stripped down.” *Nature Chem.* **2012**, *4*, 244–245.
33. Rodríguez-López, J.; Ritzert, N. L.; Mann, J. A.; Tan, C.; Dichtel, W. R.; Abruña, H. D.; “Quantification of the surface diffusion of tripodal binding motifs on graphene using scanning electrochemical microscopy.” *J. Am. Chem. Soc.* **2012**, *134*, 6224–6236.
32. Bunck, D. N.; Dichtel, W. R. “Internal functionalization of 3D covalent organic frameworks.” *Angew. Chem. Int. Ed.*, **2012**, *51*, 1855–1859. **The editors of Angewandte Chemie designated this work as a “Hot Paper”.*

31. Spitler, E. L.; Colson, J. W.; Woll, A. R.; Giovino, M. R.; Saldivar, A.; Dichtel, W. R. "Pore expansion of highly oriented zinc phthalocyanine covalent organic framework films." *Angew. Chem. Int. Ed.*, **2012**, *51*, 2623–2627.
30. Spitler, E. L.; Koo, B.; Novotney, J. L.; Colson, J. W.; Uribe-Romo, F. J.; Gutierrez, G. D.; Clancy, P.; Dichtel, W. R. "Covalent organic frameworks with 4.7 pores and insight into their interlayer stacking." *J. Am. Chem. Soc.* **2011**, *133*, 19416–19421.
29. Mann, J. A.; Rodriguez-Lopez, J.; Abruña, H. D.; Dichtel, W. R. "Multivalent binding motifs for the noncovalent functionalization of graphene" *J. Am. Chem. Soc.*, **2011**, *133*, 17614–17617.
28. Spitler, E. L.; Giovino, M. R.; White, S.; Dichtel, W. R.; "Lewis acid-catalyzed formation of boronate ester-linked covalent organic frameworks." *Chem. Sci.*, **2011**, *2*, 1588–1593.
27. Colson, J. W.; Woll, A. R.; Mukherjee, A.; Levendorf, M. A.; Spitler, E. L.; Shields, V. S.; Spencer, M. A.; Park, J.; Dichtel, W. R.; "Oriented 2D covalent organic framework thin films on single layer graphene." *Science*, **2011**, *332*, 228–231. *This work was highlighted in *Nature Nanotech.* in May 2011 (2011, 6, 261) and June 2011 (2011, 6, 333–335). This paper was recognized as a "Highly Cited Paper" by ISI Web of Science in December 2014, which places it among the top 1% of papers in the field of chemistry for its publication year.
26. Spitler, E. L.; Dichtel W. R.; "Lewis acid-catalysed formation of two-dimensional phthalocyanine covalent organic frameworks." *Nature Chem.* **2010**, *2*, 672–677. This paper was recognized as a "Highly Cited Paper" by ISI Web of Science in December 2014, which places it among the top 1% of papers in the field of chemistry for its publication year.

25 Publications as a graduate student and postdoctoral researcher available upon request

Patents

6. Dichtel, W. R.; Alsbaiee, A.; Smith, B. J. Hinestroza, J.; Alzate-Sanchez, D.; Xiao, L.; Ling, Y.; Helbling, D. E. "Porous Cyclodextrin Polymeric Materials and Methods of Making and Using Same." U.S. Patent No 9624314 issued April 20, 2016. Licensed to CycloPure, Inc.
5. Dichtel, W. R.; Gopalakrishnan, D. "Fluorescent Polymer Capable of Detecting Trace Explosives" PCT Filed February 28, 2014, Cornell Center for Technology Enterprise and Commercialization
4. Dichtel, W. R.; Arslan, H.; Uribe-Romo, F. J. "Graphene nanoribbons, methods of making same, and uses thereof." PCT/US2012/035368 filed April 27, 2012. European Patent 2702005 issued April 27, 2016.
3. Dichtel, W. R.; Colson, J. W.; Spitler, E. L.; Mukherjee, A.; Levendorf, A.; Woll, A. R.; Park, J. "Covalent Organic Framework Films, and Methods of Making and Uses of Same" PCT/US11/051350 filed September 15, 2011, Cornell Center for Technology Enterprise and Commercialization.
2. Dichtel, W. R.; Spitler, E. L. "Lewis acid-catalyzed formation of 2D phthalocyanine covalent organic frameworks." PCT/US11/31603 filed April 2011, Cornell Center for Technology Enterprise and Commercialization.
1. (WO/2009/094580) Nanodevices having releasable seals for controlled release of molecules (with J. Zink and F. Stoddart at UCLA).

Presentations

G. External Lectures and Conference Talks

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| 131. University of Chicago
Chicago, IL (Invited) | 04/2018 |
| 130. Marquette University
Milwaukee, WI (Invited) | 04/2018 |
| 129. American Physical Society National Meeting | 03/2018 |

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- Los Angeles, CA (Invited)
128. Yale Chemical Engineering
New Haven, CT (Invited) 02/2018
127. Exxon
Houston, TX (Invited) 02/2018
126. UC-Davis
Davis, CA (Invited) 01/2018
125. Simon Fraser University
Vancouver, BC (Invited) 01/2018
124. University of British Columbia
Vancouver, BC (Invited) 01/2018
123. ACS POLY Workshop on Polymers and Nanotechnology
San Diego, CA (Invited) 12/2017
122. Leo Hendrik Baekeland Award Symposium
Newark, NJ (Award Lecture) 12/2017
121. Arkema Chemical Company
King of Prussia, PA (Invited) 12/2017
120. Dow Chemical Company (Electronic Materials Division)
Marlborough, MA (Invited) 10/2017
119. Chicago Organic Symposium
Chicago, IL (Invited) 09/2017
118. UT-San Antonio Department of Chemistry
San Antonio, TX (Invited) 09/2017
117. Texas A&M Department of Chemistry
College Station, TX (Student Invited Seminar) 09/2017
116. ACS National Meeting – PMSE Division (Mark Award to Garrett Miyake)
Washington, DC (Invited) 08/2017
115. ACS National Meeting – PMSE Division (Stimuli Responsive Polymers Symposium)
Washington, DC (Invited) 08/2017
114. ACS National Meeting – PMSE Division (JPS Award to Luis Campos)
Washington, DC (Invited) 08/2017
113. ACS National Meeting – PMSE Division (Henkel Award to John Colson)
Washington, DC (Invited) 08/2017
112. Blavatnik National Award Symposium
New York, NY (Invited) 07/2017
111. International Symposium on Novel Aromatic Systems (ISNA)
Stony Brook, NY (Keynote Presentation) 07/2017
110. Functional Pi Systems 13 (F-Pi-13)
Hong Kong (Keynote Presentation) 06/2017
109. Supramolecular Gordon Conference
Les Diablerets, Switzerland (invited) 05/2017

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| 108. | Eastman Chemical Company
Kingsport, TN (invited) | 05/2017 |
| 107. | Johns Hopkins University
Baltimore, MD (invited) | 02/2017 |
| 106. | 8 th International Conference on Advanced Materials and Nanotechnology (AMN8)
Queenstown, New Zealand (Keynote Presentation) | 02/2017 |
| 105. | Purdue University
West Lafayette, IN (Invited) | 02/2017 |
| 104. | University of Calgary
Calgary, AB (Invited) | 01/2017 |
| 103. | University of Alberta
Edmonton, AB (Invited) | 01/2017 |
| 102. | University of Florida
Gainesville, FL (Invited) | 01/2017 |
| 101. | Linus Pauling Medal Symposium in honor of Timothy M. Swager
Tacoma, WA (Invited) | 11/2016 |
| 100. | Southeastern Regional ACS Meeting (SERMACS) – Cope Award Symposium
Columbia, SC (Invited) | 10/2016 |
| 99. | Southeastern Regional ACS Meeting (SERMACS) – MOF Symposium
Columbia, SC (Invited) | 10/2016 |
| 98. | Virginia Tech
Blacksburg, VA (Invited) | 10/2016 |
| 97. | Metal Organic Frameworks 2016
Long Beach, CA (Keynote) | 9/2016 |
| 96. | ACS National Meeting – PMSE Division (Henkel Award to Maxwell Robb)
Philadelphia, PA (Invited) | 8/2016 |
| 95. | ACS National Meeting – ENFL Division
Philadelphia, PA (Invited) | 8/2016 |
| 94. | ACS National Meeting – PMSE Division
Philadelphia, PA (Invited) | 8/2016 |
| 93. | 2 nd International Symposium on Two-Dimensional Polymers
Nara, Japan (Invited) | 6/2016 |
| 92. | 2015 MacArthur Fellows Conference
Racine, WI (Invited) | 5/2016 |
| 91. | Dartmouth College
Hanover, NH (Invited) | 4/2016 |
| 90. | Southern Illinois University – Distinguished Arnold Lecturer
Carbondale, IL (Invited) | 4/2016 |
| 89. | California Environmental Protection Agency, Environmental Chemistry Laboratory
Berkeley, CA (Invited) | 3/2016 |
| 88. | Stanford University | 3/2016 |

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- Stanford, CA (Invited)
87. University of California, Berkeley 3/2016
Berkeley, CA (Invited)
86. Lawrence Berkeley National Laboratory Distinguished Lecturer Series 3/2016
Berkeley, CA (Invited)
85. Miller Institute for Basic Science 2/2016
Berkeley, CA (Invited)
84. University of Colorado at Boulder 9/2015
Boulder, CO (Invited)
83. University of Pennsylvania 9/2015
Philadelphia, PA (Invited)
82. Northwestern University 8/2015
Evanston, IL (Invited)
81. ACS National Meeting – Analytical Chemistry Division 8/2015
Boston, MA (Invited)
80. ACS National Meeting – Energy and Fuels Division 8/2015
Boston, MA (Invited)
79. ACS National Meeting – Kavli Emerging Leader in Chemistry Lecture 8/2015
Boston, MA (Keynote Speaker)
78. Physical Organic Chemistry Gordon Research Conference 6/2015
Holderness, NH (Invited)
77. Polymers Gordon Research Conference 6/2015
South Hadley, MA (Invited)
76. 2015 American Chemical Society Northeast Regional Meeting 6/2015
Ithaca, NY (Keynote Speaker)
75. Cornell Center for Materials Research Symposium 5/2015
Ithaca, NY (Co-organizer and Speaker)
74. ACS National Meeting: Design Principles of Functional Macromolecular Materials (PMSE) 3/2015
Denver, CO (Invited)
73. ACS National Meeting – Graphene and Carbon Nanotubes (PMSE) 3/2015
Denver, CO (Invited)
72. ACS National Meeting – Geoff Coates Applied Polymer Science Award (PMSE) 3/2015
Denver, CO (Invited)
71. Smart Coatings 2015 2/2015
Orlando, FL (Invited)
70. Ohio State University 2/2015
Columbus, OH (Invited)
69. University of Tokyo – Inaugural BASF Innovation Lecturer 12/2014
Tokyo, Japan (Invited)
68. Institute for Molecular Science 12/2014
Okazaki, Japan (Invited)

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67. 10th SPSJ International Polymer Conference (IPC2014) 12/2014
Tsukuba, Japan (Invited)
 66. Massachusetts Institute of Technology – Program in Polymer Science Lecture 10/2014
Cambridge, MA (Invited)
 65. ACS National Meeting – Porous Polymers (PMSE Division) 8/2014
San Francisco, CA (Invited)
 64. ACS National Meeting – National Fresenius Award Symposium and Lecture 8/2014
San Francisco, CA (Award Lecture)
 63. 2014 IUPAC World Polymer Congress (MACRO 2014) 7/2014
Polymer International – IUPAC Polymer Award Symposium, Chiang Mai, Thailand (Award Lecture)
 62. Telluride Meeting: Metal-Organic Frameworks 7/2014
Telluride, CO (Invited)
 61. The 35th Reaction Mechanisms Conference (ACS Organic Division) 6/2014
Davis, CA (Invited)
 60. International Symposium on Synthetic Two-Dimensional Polymers 6/2014
Zurich, Switzerland (Invited)
 59. University of Texas at Dallas 3/2014
Dallas, TX (Invited)
 58. University of North Carolina at Chapel Hill 2/2014
Chapel Hill, NC (Invited)
 57. University of Iowa 12/2013
Iowa City, IA (Invited)
 56. University of California, Berkeley 11/2013
Berkeley, CA (Invited)
 55. University of Rochester 11/2013
Rochester, NY (Invited)
 54. University of Southern California 10/2013
Los Angeles, CA (Invited)
 53. UCLA 10/2013
Los Angeles, CA (Invited)
 52. California Institute of Technology 10/2013
Pasadena, CA (Invited)
 51. University of Nevada, Reno 10/2013
Reno, NV (Invited)
 50. ACS National Meeting – Porous Materials for Energy Conversion and Storage 08/2013
Indianapolis, IN (Invited)
 49. ACS National Meeting – Cope Scholar Award Symposium 08/2013
Indianapolis, IN (Award Address)
 48. Canadian Society for Chemistry Annual Meeting 05/2013
Quebec City, Quebec (Invited)
 47. PPG Industries, Inc. 04/2013

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- Pittsburgh, PA (Invited)
46. University of Minnesota – Center For Sustainable Polymers Symposium
St. Paul, MN (Invited) 04/2013
 45. ACS National Meeting - Carbon Nanotube and Graphene Symposium
New Orleans, LA (Invited) 04/2013
 44. ACS National Meeting – Porous Polymer Symposium
New Orleans, LA (Invited) 04/2013
 43. ACS National Meeting – Award Symposium for Craig Hawker
New Orleans, LA (Invited) 04/2013
 42. University of Houston
Houston, TX (Invited) 04/2013
 41. SUNY-Potsdam
Potsdam, NY (Invited) 03/2013
 40. Massachusetts Institute of Technology
Cambridge, MA (Invited) 02/2013
 39. Penn State University
State College, PA (Invited) 02/2013
 38. Tulane University
New Orleans, LA (Invited) 01/2013
 37. University of Texas
Austin, TX (Invited) 01/2013
 36. Princeton University
Princeton, NJ (Invited) 12/2012
 35. US-Japan Seminar on Polymer Synthesis
Santa Barbara, CA (Invited) 12/2012
 34. Zing Polymer Conference: From Biomedical Applications to Energy
Cancun, Mexico (Invited) 11/2012
 33. University of Michigan
Ann Arbor, MI (Invited) 11/2012
 32. Pennsylvania State University
State College, PA (Invited) 10/2012
 31. Humboldt-Universität zu Berlin
Berlin, Germany (Invited) 10/2012
 30. Technische Universität Berlin
Berlin, Germany (Invited) 10/2012
 29. BASF
Ludwigshafen, Germany (Invited) 10/2012
 28. Ludwig Maximilians University Munich
Munich, Germany (Invited) 10/2012
 27. University of South Florida
Tampa, FL (Invited) 10/2012

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26. ACS National Meeting: Organic and Metal-Organic Frameworks
Philadelphia, PA (Symposium organizer and speaker) 09/2012
 25. Challenges in Inorganic and Materials Chemistry (ISACS8)
Toronto, Ontario, Canada (Invited) 07/2012
 24. IUPAC World Polymer Congress
Blacksburg, VA (Invited) 06/2012
 23. University of Notre Dame
South Bend, IN (Invited) 05/2012
 22. Northwestern University
Evanston, IL (Invited) 05/2012
 21. Materials Research Society National Meeting: Section Z
San Francisco, CA (Invited) 04/2012
 20. New York University
New York, NY (Invited) 02/2012
 19. Columbia University
New York, NY (Invited) 02/2012
 18. Bryn Mawr College
Bryn Mawr, PA (Invited) 02/2012
 17. Wesleyan College
Middletown, CT (Invited) 02/2012
 16. Exxon-Mobil
Annandale, NJ (Invited) 02/2012
 15. Materials Research Society National Meeting: Section U
Boston, MA (Invited) 12/2011
 14. University of Chicago
Chicago, IL (Invited) 11/2011
 13. McGill University
Montreal, Canada (Invited) 09/2011
 12. Universite de Montreal
Montreal, Canada (Invited) 09/2011
 11. IUPAC International Chemistry Congress
San Juan, PR (Invited) 08/2011
 10. International Symposium on Novel Aromatic Compounds (ISNA)
Eugene, OR (Contributed) 07/2011
 9. UMass Amherst, Department of Polymer Science and Engineering
Amherst, MA (Invited) 05/2011
 8. The 3M Corporation
St. Paul, MN (Invited) 11/2010
 7. Xerox Research Centre
Mississauga, Ontario, Canada (Invited) 09/2010
 6. ACS National Meeting, Organic Division 08/2010

- Boston, MA (Contributed)
5. Gordon Conference, Electronic Processes in Organic Materials 07/2010
Mount Holyoke College, South Hadley, MA (Invited)
 4. University of California, Santa Barbara 05/2010
Santa Barbara, CA (Invited)
 3. Cornell University, Department of Materials Science and Engineering 04/2010
Ithaca, NY (Invited)
 2. University of South Carolina 04/2010
Columbia, SC (Invited)
 1. University of Scranton 03/2009
Scranton, PA (Invited)