Kyle J. M. Bishop

Associate Professor
Department of Chemical Engineering
Columbia University
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New York, NY 10027

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Education

Northwestern University, Evanston, IL
Ph.D. in Chemical and Biological Engineering 2009
Dissertation: "Beyond colloids: Interparticle forces at the nanoscale and their application to self-assembly"
Advised by **Bartosz A. Grzybowski**

University of Virginia, Charlottesville, VA
B.S. in Chemical Engineering 2003
with Highest Distinction

Appointments

Columbia University, New York, NY
Associate Professor of Chemical Engineering 2016–

Pennsylvania State University, University Park, PA
Dorothy Quiggle Career Development Assistant Professor of Chemical Engineering 2015–2016
Assistant Professor of Chemical Engineering 2010–2015

Harvard University, Cambridge, MA
Post-Doctoral Fellow, Department of Chemistry & Chemical Biology 2009–2010
Advised by **George M. Whitesides**

Awards and Honors

NSF CAREER Award 2013
3M Non-Tenured Faculty Award 2012–2014
Outstanding Graduate Student Award, Northwestern University 2008
Visiting Scholar, International Centre for Theoretical Physics, Trieste, IT 2008
Northwestern University Fellow 2008
NSF Graduate Research Fellow 2005–2008

NSF-IGERT Dynamics of Complex Systems Graduate Fellow 2004–2005

Rodman Scholar, University of Virginia 1999–2003

Peer Reviewed Publications

Dr. Bishop has an *h*-index of 28 with an average of 57 citations per article; citation statistics were obtained from Google Scholar on March 23, 2016. Underlined names represent supervised students and post-docs.

Submitted or In preparation

69. A. Brooks, S. Sabrina, K.J.M. Bishop*, Shape-directed dynamics of active colloids.
68. S. Pandey, M. Kowalik, K.J.M. Bishop*, The electrostatics of particle dispersions between parallel boundaries.
67. C.A. Cartier, J. Graybill, K.J.M. Bishop*, Powering droplet microfluidics with contact charge electrophoresis.

2016

66. M. Kowalik, K.J.M. Bishop*, Ratcheted electrophoresis of Brownian particles. ***Appl. Phys. Lett.*** 108, 203103 (2016) 10.1063/1.4950801
65. K.J.M. Bishop*, Hierarchical self-assembly for nanomedicine. ***Angew. Chem. Int. Ed.*** 55, 2–5 (2016) 10.1002/anie.201510751

2015

64. S. Sabrina, M. Spellings, S.C. Glotzer*, K.J.M. Bishop*, Coarsening dynamics of binary liquids with active rotation. ***Soft Matter***, 11, 8409-8416 (2015) 10.1039/C5SM01753J
63. M. Spellings, D. Klotsa, M. Engel, S. Sabrina, A.M. Drews, N.H.P. Nguyen, K.J.M. Bishop*, S.C. Glotzer*, Shape control and compartmentalization in active colloidal cells. ***Proc. Natl. Acad. Sci. U.S.A.*** 112, E4642–E4650 (2015) 10.1073/pnas.1513361112
62. S.H.R. Shin†, H.-Y. Lee†, K.J.M. Bishop*, Amphiphilic nanoparticles control the growth and stability of lipid bilayers with open edges. ***Angew. Chem. Int. Ed.*** 54, 10816–10820 (2015) 10.1002/anie.201504362
61. K.J.M. Bishop*, Nanoscale self-assembly: Seeing is understanding. ***ACS Cent. Sci.*** 1, 16–17 (2015) 10.1021/acscentsci.5b00087
60. A.M. Drews, C.A. Cartier, K.J.M. Bishop*, Contact Charge Electrophoresis: Experiment and Theory. ***Langmuir*** 31, 3808–3814 (2015) 10.1021/acs.langmuir.5b00342
59. L. Cademartiri*, K.J.M. Bishop, Programmable self-assembly. ***Nature Mater.*** 14, 2-9 (2015) 10.1038/nmat4184
58. T.H. Hermans, K.J.M. Bishop, P.S. Stewart, S.H. Davis, B.A. Grzybowski*, Vortex Flows impart chirality-specific lift forces. ***Nature Comm.*** 6, 5640 (2015) 10.1038/ncomms6640

2014

57. H.Y. Lee†, S.H.R. Shin†, A.M. Drews, A.M. Chirsan, S.A. Lewis, K.J.M. Bishop*, Self-assembly of adaptive nanoparticle amphiphiles with tunable valence. ***ACS Nano*** 8, 9979–9987 (2014) 10.1021/nn504734v

56. C.A. Cartier, A.M. Drews, K.J.M. Bishop*, Microfluidic mixing of nonpolar liquids by contact charge electrophoresis. ***Lab Chip*** 14, 4230-4236 (2014) 10.1039/C4LC00811A

55. A.M. Drews, M. Kowalik, K.J.M. Bishop*, Charge and force on a conductive sphere between two parallel electrodes: a Stokesian dynamics approach. ***J. Appl. Phys.*** 116, 074903 (2014) 10.1063/1.4893308

2013

54. A.M. Drews, L. Cademartiri, G.M. Whitesides, K.J.M. Bishop*, Electric winds driven by AC corona discharges. ***J. Appl. Phys.*** 114, 143302 (2013) 10.1063/1.4824748

53. A.M. Drews, H.Y. Lee, K.J.M. Bishop*, Ratcheted electrophoresis for rapid particle transport. ***Lab Chip*** 13, 4295-4298 (2013) 10.1039/C3LC50849H

52. K.J.M. Bishop*, N.R. Chevalier, B.A. Grzybowski*, When and why like-sized, oppositely-charged particles assemble into diamond-like crystals. ***J. Phys. Chem. Lett.*** 4, 1507-15111 (2013) 10.1021/jz4006114

51. H.Y. Lee, S.H.R. Shin, L.L. Abezgauz, S.A. Lewis, A.M. Chirsan, D. Danino, K.J.M. Bishop*, Integration of gold nanoparticles into bilayer structures via adaptive surface chemistry. ***J. Am. Chem. Soc.*** 135, 5950-5953 (2013) 10.1021/ja400225n

2012

50. A.M. Drews, L. Cademartiri, M.L. Chemama, M.P. Brenner, G.M. Whitesides, K.J.M. Bishop*, AC fields drive steady flows in flames. ***Phys. Rev. E*** 86, 036314 (2012) 10.1103/PhysRevE.86.036314

49. M. Kowalik, C.M. Gothard, A.M. Drews, N.A. Gothard, B.A. Grzybowski*, K.J.M. Bishop*, Parallel optimization of synthetic pathways within the network of organic chemistry. ***Angew. Chem. Int. Ed.*** 51, 7928-7932 (2012) 10.1002/anie.201202209

48. L. Cademartiri, G. Geurin, K.J.M. Bishop, M.A. Winnik*, G.A. Ozin*, Polymer-like conformation and growth kinetics of Bi_2S_3 nanowires. ***J. Am. Chem. Soc.*** 134, 9327-9334 (2012) 10.1021/ja301855z

47. D.M. Andala, S.H.R. Shin, H.Y. Lee, K.J.M. Bishop*, Templated synthesis of amphiphilic nanoparticles at the liquid-liquid interface. ***ACS Nano*** 6, 1044-1050 (2012) 10.1021/nn202556b

46. L. Cademartiri*, K.J.M. Bishop, P.W. Snyder, G.A. Ozin, Using shape for self-assembly. ***Phil. Trans. R. Soc. A*** 370, 2824-2847 (2012) 10.1098/rsta.2011.0254

45. B. Kowalczyk, K.J.M. Bishop, I. Lagzi, D. Wang, Y.H. Wei, S. Han, B.A. Grzybowski*, Charged nanoparticles as supramolecular surfactants for controlling the growth and stability of microcrystals. ***Nature Mater.*** 11, 227-232 (2012) 10.1038/nmat3202

2011

44. H. Nakanishi, D.A. Walker, K.J.M. Bishop, Y. Yan, P.J. Wesson, S. Soh, S. Swaminathan, B.A. Grzybowski*, Dynamic internal gradients control and direct electric currents within nanostructured materials. ***Nature Nano.*** 6, 740-746 (2011) 10.1038/nnano.2011.165

43. W. Choi, M. Hashimoto, A.K. Ellerbee, X. Chin, K.J.M. Bishop, P. Garstecki, H.A. Stone, G.M. Whitesides*, Bubbles flowing through networks of microchannels. ***Lab Chip*** 11, 3970-3978 (2011) 10.1039/C1LC20444K

42. C. Stan, S. Tang, K.J.M. Bishop, G.M. Whitesides*, Externally-applied electric fields up to 1.6×10^5 V/m do not affect the homogeneous nucleation of ice in supercooled water. ***J. Phys. Chem. B*** 115, 1089–1097 (2011) 10.1021/jp110437x

2010

41. K.P. Browne, D.A. Walker, K.J.M. Bishop, B.A. Grzybowski*, Self-division of macroscopic droplets partitions nanoscopic cargo into nanoscale micelles. ***Angew. Chem. Int. Ed.*** 49, 6756-6759 (2010) 10.1002/anie.201002551
40. D.A. Walker, C.E. Wilmer, B. Kowalczyk, K.J.M. Bishop, B.A. Grzybowski*, Precision assembly of oppositely- and like-charged nanoobjects mediated by charge-induced dipole interactions. ***Nano Lett.*** 10, 2275-2280 (2010) 10.1021/nl1012079
39. M.M. Apodaca, P.J. Wesson, K.J.M. Bishop, M.A. Ratner, B.A. Grzybowski*, Contact electrification between identical materials. ***Angew. Chem. Int. Ed.*** 49, 946-949 (2010) 10.1002/anie.200905281
38. M.-G. Song, K.J.M. Bishop, A.O. Pinchuk, B. Kowalczyk, B.A. Grzybowski*, Formation of dense nanoparticle monolayers mediated by AC electric fields and electro-hydrodynamic flows. ***J. Phys. Chem. C*** 114, 8800-8850 (2010) 10.1021/jp1008253
37. S. Huda, S.K. Smoukov, H. Nakanishi, B. Kowalczyk, K.J.M. Bishop, B.A. Grzybowski*, Antibacterial Nanoparticle Monolayers Prepared on Chemically Inert Surfaces by Cooperative Electrostatic Adsorption (CELA). ***ACS Appl. Mater. Interfaces*** 2, 1206-1210 (2010) 10.1021/am100045v

2009

36. Y. Wei, K.J.M. Bishop, J. Kim, S. Soh, Bartosz A. Grzybowski*, Making Use of Bond Strength and Steric Hindrance in Nanoscale Synthesis. ***Angew. Chem. Int. Ed.*** 48, 9477–9480 (2009) 10.1002/anie.200903864
35. H.Nakanishi, K.J.M. Bishop, B. Kowalczyk, A. Nitzan, E.A. Weiss, K.V. Tretiakov, M.M. Apodaca, R. Klajn, J.F. Stoddart, B.A. Grzybowski*, Photoconductance and inverse photoconductance in films of functionalized metal nanoparticles. ***Nature*** 460, 371-375 (2009) 10.1038/nature08131
34. K.J.M. Bishop, C.E. Wilmer, S. Soh, B.A. Grzybowski*, Nanoscale forces and their uses in self-assembly, ***Small*** 5, 1600-1630 (2009) 10.1002/smll.200900358
33. B.A. Grzybowski*, K.J.M. Bishop, B. Kowalczyk, C.E. Wilmer, The 'wired' universe of organic chemistry. ***Nature Chem.*** 1, 31-36 (2009) 10.1038/nchem.136
32. G. Mahmud, C.J. Campbell, K.J.M. Bishop, Y.A. Komarova, O. Chaga, S. Soh, S. Huda, K. Kandere-Grzybowska, B.A. Grzybowski*, Directing cell motions on micropatterned ratchets. ***Nature Phys.*** 5, 606-612 (2009) 10.1038/nphys1306
31. R. Klajn, P.J. Wesson, K.J.M. Bishop, B.A. Grzybowski*, Writing self-erasing images using metastable nanoparticle 'inks'. ***Angew. Chem. Int. Ed.*** 48, 7035-7039 (2009) 10.1002/anie.200901119
30. B. Kowalczyk, K.J.M. Bishop, S. Smoukov, B.A. Grzybowski*, Synthetic popularity reflects chemical reactivity: Reactivity measures based on the counts of literature-reported reactions. ***J Phys. Org. Chem.*** 22, 897-902 (2009) 10.1002/poc.1535
29. P.J. Wesson, S. Soh, R. Klajn, K.J.M. Bishop, T.P. Gray, B.A. Grzybowski*, 'Remote' fabrication via three-dimensional reaction-diffusion: Making complex core-and-shell particles and assembling them into open-lattice crystals. ***Adv. Mater.*** 21, 1911-1915 (2009) 10.1002/adma.200802964
28. B.A. Grzybowski*, C.E. Wilmer, J. Kim, K. Browne, K.J.M. Bishop, Self-assembly: From crystals to cells. ***Soft Matter*** 5, 1110-1128 (2009) 10.1039/B819321P
27. K.V. Tretiakov, K.J.M. Bishop, B.A. Grzybowski*, The dependence between forces and dissipation rates mediating dynamic self-assembly. ***Soft Matter*** 5, 1279-1284 (2009) 10.1039/B811254A

26. K.V. Tretiakov, K.J.M. Bishop, B. Kowalczyk, A. Jaiswal, M.A. Poggi, B.A. Grzybowski*, Mechanism of the cooperative adsorption of oppositely charged nanoparticles. ***J. Phys. Chem. A*** 113, 3799-3803 (2009) 10.1021/jp809447m

25. B. Kowalczyk, A.M. Kalsin, R. Orlik, K.J.M. Bishop, A.Z. Patashinskii, A. Mitus, B.A. Grzybowski*, Size-selection during crystallization of oppositely charged nanoparticles. ***Chem. Eur. J.*** 15, 2032-2035 (2009) 10.1002/chem.200990022

24. C.J. Campbell, M. Fialkowski, K.J.M. Bishop, B.A. Grzybowski*, Mechanism of reactive wetting and direct visual determination of the kinetics of self-assembled monolayer formation. ***Langmuir*** 25, 9-12 (2009) 10.1021/la800726p

23. K.J.M. Bishop, B. Kowalczyk, B.A. Grzybowski*, Precipitation of oppositely charged nanoparticles by dilution and/or temperature increase. ***J. Phys. Chem. C*** 113, 1413-1417 (2009) 10.1021/jp8056493

22. K.V. Tretiakov, K.J.M. Bishop, B.A. Grzybowski*, Additivity of the excess energy dissipation rate in a dynamically self-assembled system, ***J. Phys. Chem. B*** 113, 7574-7578 (2009) 10.1021/jp811473q

21 B.A. Grzybowski*, K.J.M. Bishop, Micro- and nanoprinting into solids using reaction-diffusion etching and hydrogel stamps. ***Small*** 5, 22-27 (2009) 10.1002/smll.200800914

2008

20. S. Soh, K.J.M. Bishop, B.A. Grzybowski*, Dynamic self-assembly in ensembles of camphor boats. ***J. Phys. Chem. B*** 112, 10848-10853 (2008) 10.1021/jp7111457

19. G. Mahmud, K.J.M. Bishop, Y. Chegel, S.K. Smoukov, B.A. Grzybowski*, Wet-stamped precipitant gradients control the growth of protein microcrystals in an array of nanoliter wells. ***J. Amer. Chem. Soc.*** 130, 2146-2147 (2008) 10.1021/ja078051k

2007

18. S.K. Smoukov, K.J.M. Bishop, B. Kowalczyk, A.M. Kalsin, B.A. Grzybowski*, Electrostatically 'patchy' coatings via cooperative adsorption of charged nanoparticles. ***J. Amer. Chem. Soc.*** 129, 15623-15630 (2007) 10.1021/ja075456w

17. K.J.M. Bishop, B.A. Grzybowski*, 'Nanoions': fundamental properties and analytical applications of charged nanoparticles. ***ChemPhysChem*** 8, 2171-2176 (2007) 10.1002/cphc.200700349

16. R. Klajn†, K.J.M. Bishop†, B.A. Grzybowski*, Light-controlled self-assembly of reversible and irreversible nanoparticle suprastructures. ***Proc. Natl. Acad. Sci. U.S.A.*** 104, 10305-10309 (2007) 10.1073/pnas.0611371104

15. R. Klajn†, K.J.M. Bishop†, M. Fialkowski, M. Paszewski, C.J. Campbell, T.P. Gray, B.A. Grzybowski*, Plastic and moldable metals by self-assembly of sticky nanoparticle aggregates, ***Science*** 316, 261-264 (2007) 10.1126/science.1139131

2006

14. K.J.M. Bishop, T.P. Gray, M. Fialkowski, B.A. Grzybowski*, Microchameleons: Nonlinear chemical microsystems for amplification and sensing, ***Chaos*** 16, 037102 (2006) 10.1063/1.2240142

13. K.J.M. Bishop, B.A. Grzybowski*, Localized chemical wave emission and mode switching in a patterned excitable medium. ***Phys. Rev. Lett.*** 97, 128702 (2006) 10.1103/PhysRevLett.97.128702

12. A. Kalsin, M. Fialkowski, M. Paszewski, S.K. Smoukov, K.J.M. Bishop, B.A. Grzybowski*, Electrostatic self-assembly of binary nanoparticle crystals with a diamond-like lattice. ***Science*** 312, 420-424 (2006) 10.1126/science.1125124

11. C.J. Campbell, S.K. Smoukov, K.J.M. Bishop, B.A. Grzybowski*, Direct printing of 3D and curvilinear micrometer-sized architectures into solid substrates with sub-micrometer resolution. ***Adv. Mater.*** 18, 2004-2008 (2006) 10.1002/adma.200600716
10. K.J.M. Bishop, R. Klajn, B.A. Grzybowski*, The core and most useful molecules in organic chemistry. ***Angew. Chem. Int. Ed.*** 45, 5348-5354 (2006) 10.1002/anie.200600881
9. M. Fiałkowski, K.J.M. Bishop, R. Klajn, S.K. Smoukov, C.J. Campbell, B.A. Grzybowski*, Principles and implementations of dissipative (dynamic) self-assembly. ***J. Phys. Chem. B*** **110**, 2482-2496 (2006) 10.1021/jp054153q

2005

8. M. Fiałkowski, K.J.M. Bishop, V.A. Chubukov, C.J. Campbell, B.A. Grzybowski*, Architecture and evolution of organic chemistry. ***Angew. Chem. Int. Ed.*** 44, 7263-7269 (2005) 10.1002/anie.200502272
7. K.J.M. Bishop, M. Fiałkowski, B.A. Grzybowski*, Micropatterning chemical oscillations: waves, autofocusing and symmetry breaking. ***J. Am. Chem. Soc.*** 127, 15943-15948 (2005) 10.1021/ja054851o
6. B.A. Grzybowski*, K.J.M. Bishop, C.J. Campbell, M. Fialkowski, S.K. Smoukov, Micro- and nanotechnology via reaction-diffusion. ***Soft Matter*** 1, 114-128 (2005) 10.1039/B501769F
5. C.J. Campbell, S.K. Smoukov, K.J.M. Bishop, B.A. Grzybowski*, Reactive surface micropatterning by wet stamping. ***Langmuir*** 21, 2637-2640 (2005) 10.1021/la046942p
4. S.K. Smoukov, K.J.M. Bishop, R. Klajn, C.J. Campbell, B.A. Grzybowski*, Cutting into solids with micropatterned gels. ***Adv. Mater.*** 17, 1361-1365 (2005) 10.1002/adma.200402086
3. S.K. Smoukov, K.J.M. Bishop, C.J. Campbell, B.A. Grzybowski*, Freestanding three-dimensional copper foils prepared by electroless deposition on micropatterned gels. ***Adv. Mater.*** 17, 751-755 (2005) 10.1002/adma.200401010

2004

2. R. Klajn, M. Fialkowski, I.T. Bensemann, A. Bitner, C.J. Campbell, K.J.M. Bishop, S. Smoukov, B.A. Grzybowski*, Multicolour micropatterning of thin films of dry gelatin. ***Nature Mater.*** 3, 729-735 (2004) 10.1038/nmat1231
1. K.J.M. Bishop, J.P. O'Connell*, Aqueous cross second virial coefficients with the Hayden-O'Connell correlation. ***Ind. Eng. Chem. Res.*** 44, 630-633 (2005) 10.1021/ie049267n

* Denotes corresponding author(s)

† Denotes equal contributions

Patents and Patent Applications

B.A. Grzybowski, R. Klajn, P.J. Wesson, K.J.M. Bishop, Metastable nanoparticle ink compositions and images made therefrom. US Patent 8,496,323

B.A. Grzybowski, K.J.M. Bishop, B. Kowalczyk, C.E. Wilmer, Networks for Organic Reactions and Compounds. US Patent App. 12/717,801

S.K. Smoukov, K.J.M. Bishop, B. Kowalczyk, A.M. Kalsin, B.A. Grzybowski , Methods of coating surfaces with nanoparticles and nanoparticle coated surfaces. US Patent App. 12/230,902

L. Cademartiri, C.R. Mace, R. Shepherd, A.D. Mazzeo, K.J.M. Bishop, R.C. Chiechi, G.M. Whitesides, Manipulation of flames and related methods and apparatus. US Patent App. 14/119,560

Book Chapters

K.J.M. Bishop, C.J. Campbell, G. Mahmud, B.A. Grzybowski (2008) "Bioinspired Dynamic Self-Assembly" in Self-Assembly: Interdisciplinary Snapshots, Oxford: Elsevier.

Invited Lectures

11. Case Western Reserve, Department of Chemical Engineering, Cleveland, OH, 2016
10. University of North Carolina, Department of Applied Physical Sciences, Chapel Hill, NC, 2016
9. Center for Bioinspired Energy Science Research Symposium, Northwestern University, Evanston, IL, 2015
8. University of Maryland, Department of Chemical Engineering, College Park, MD, 2014
7. UC San Diego, Department of NanoEngineering, San Diego, CA, 2014
6. APS Division of Fluid Mechanics, Frontiers in Combustion Physics, Pittsburgh, PA 2013
5. Center for Integrated Nanotechnology, User Conference, Santa Fe, NM 2013
4. École Polytechnique Fédérale de Lausanne, Institute of Chemical Sciences and Engineering, Lausanne, Switzerland, 2013
3. Gordon Research Conference on Self-Assembly and Supramolecular Chemistry, Les Diablerets, Switzerland, 2013
2. Iowa State University, Department of Materials Science and Engineering, Aimes, IA, 2012
1. Center for the Chemistry of Integrated Systems (CCIS) Symposium, Northwestern University, Evanston, IL, 2010

Conference Presentations

20. AIChE Annual Meeting, Salt Lake City, UT, 2015
19. DOE EFRC Principal Investigators' Meeting, Washington, DC 2015
18. 3M Science and Engineering Faculty Day, Minneapolis, MN, 2015
17. Gordon Research Conference on Self-Assembly and Supramolecular Chemistry, Lucca, Italy, 2015
16. ACS Colloid & Surface Science Symposium, Carnegie Mellon University, Pittsburgh, PA, 2015
15. AIChE Annual Meeting, Atlanta, GA 2014
14. ACS Colloid & Surface Science Symposium, University of Pennsylvania, Philadelphia, PA, 2014
13. Gordon Research Conference on Colloidal, Macromolecular & Polyelectrolyte Solutions, Ventura, CA, 2014
12. AIChE Annual Meeting, San Francisco, CA, 2013
11. APS Division of Fluid Mechanics Annual Meeting, Pittsburgh, PA 2013

10. DOE EFRC Principal Investigators' Meeting, Washington, DC 2013
9. 3M Science and Engineering Faculty Day, Minneapolis, MN, 2013
8. Gordon Research Conference on Self-Assembly and Supramolecular Chemistry, Les Diablerets, Switzerland, 2013
7. AIChE Annual Meeting, Pittsburgh, PA, 2012
6. AIChE Annual Meeting, Minneapolis, MN, 2011
5. AIChE Annual Meeting, Salt Lake City, UT, 2010
5. ACS Colloid & Surface Science Symposium, Columbia University, New York, NY, 2009
4. Gordon Research Conference on Thin Film & Crystal Growth Mechanisms, South Hadley, MA, 2007
3. AIChE Annual Meeting, Salt Lake City, UT, 2007
2. AIChE Annual Meeting, San Francisco, CA, 2006
1. AIChE Annual Meeting, Cincinnati, OH, 2005

Grants Awarded

6. DARPA: "Make-It", Automated System for Knowledge-based Continuous Organic Synthesis, 1/1/16−12/31/19, PI: Klavs Jensen, **$409,878** to Bishop
5. NSF-CBET, CAREER: Contact charge electrophoresis for mobile microfluidics, 8/1/14−7/31/19, **$436,944**, 1351704
4. DOE-BES, EFRC: Center for Bio-inspired Energy Science, 8/1/14−7/31/18, $12,000,000 (**$600,000** to Bishop), DE-SC0000989-0002
3. Penn State MRSEC, Nanostructured phase change building blocks for optical metamaterials, 1/1/11−12/31/11, Co-PI: Ray Schaak, $50,0000 (**$25,000** to Bishop)
2. DOE-BES, EFRC: Non-equilibrium Energy Research Center, 8/1/09−7/31/14, $19,000,000 (**$471,875** to Bishop), DE-SC0000989
1. DARPA, Instant Fire Suppression, PI: George Whitesides, 8/15/10−12/31/11, **$311,900** to Bishop, W944NF-09-1-0005

Students and Postdoctoral Associates

Graduate Students

9. Yong Dou, Chemical Engineering 2015−
8. Yang Gu, Chemical Engineering 2015−
7. Shashank Pandey, Chemical Engineering 2014−
6. Wenjie Fei, Chemical Engineering 2014−
5. Allan Brooks, Chemical Engineering 2014−
4. Sabrina Syeda, Chemical Engineering 2012−
3. Charles Cartier, Chemical Engineering 2012−
2. Sun Hae Ra Shin, Chemical Engineering 2010−2015
   Adaptive nanoparticle amphiphiles as multifunctional particle surfactants

Post-doc, Chemical Engineering, Pennsylvania State University

1. Aaron Drews, Chemical Engineering 2009–2014
   Ratcheted contact charge electrophoresis
   Lecturer PSOE, NanoEngineering, UC San Diego

Postdoctoral Associates

4. Dr. Sun Hae Ra Shin, Chemical Engineering 2015–
3. Dr. Mikołaj Kowalik, Computational Physics 2011–
2. Dr. Hee-Young Lee, Materials Chemistry 2011–2015
   Assistant Professor, Chemical Engineering, Kumoh Natl. Inst. Tech.
1. Dr. Dickson Andala, Materials Chemistry 2010–2011
   Lecturer, Chemistry, Kenyatta University

Undergraduate Students

7. Olivia Miller, Chemical Engineering 2015–
6. Jason Graybill, Chemical Engineering 2014–
5. Fernando Lopez, Chemical Engineering (NSF REU) 2015
4. Carly Morrison, Chemical Engineering (NSF REU) 2014
3. Aaron Chirsan, Chemical Engineering 2012–2014
2. Jon Cippel, Chemical Engineering 2012–2013
1. Sean Lewis, Chemical Engineering 2011–2013
   Self Assembly of amphiphilic nanoparticles and tubules

Courses Taught

ChE 544 General Transport Phenomena	FA12, FA13, FA14, FA15
ChE 230 Computational Tools for Chemical Engineering	SP14, SP15, SP16
ChE 360 Mathematical Modeling in Chemical Engineering	FA11, SP13
ChE 350 Process Heat Transfer	SP11, SP12
ChE 297 App Programming for Chemical Engineers	FA16

University Service

Faculty Advisor, Engineering Advising Center, College of Engineering, Pennsylvania State University, SP15, SP14, FA11

Faculty Advisor, Omega Chi Epsilon, Department of Chemical Engineering, Pennsylvania State University, 2015–

Chair, Graduate Studies & Research Committee, College of Engineering, Pennsylvania State University, 2013–2014

Member, Engineering Faculty Council, College of Engineering, Pennsylvania State University, 2012–2014

Member, Department Head Search Committee, Department of Chemical Engineering, Pennsylvania State University, 2013−2014

Member, Course Scheduling Committee, Department of Chemical Engineering, Pennsylvania State University, 2011−2014

Member, Graduate Transport Course Committee, Department of Chemical Engineering, Pennsylvania State University, 2011−2012

Member, Faculty Search Committee, Department of Chemical Engineering, Pennsylvania State University, 2011

Other Service

Conference Organizer, ACS Colloid and Surface Science Symposium, Pennsylvania State University, 2018, with Darrell Velegol and Seong Kim

Faculty Mentor, Upward Bound Math & Science (UBMS), Summer Experience in the Eberly College of Science (SEECoS), Pennsylvania State University, 2015

Instructor, NanoDays Teachers Workshop, Pennsylvania State University, 2012

Session Chair, Colloidal Dispersions, AIChE Annual Meeting, Salt Lake City, UT, 2015

Session Chair, Self- and Directed Assembly of Molecules and Particles, ACS Colloid & Surface Science Symposium, Carnegie Mellon University, Pittsburgh, PA, 2015

Session Chair, Colloidal Dispersions, AIChE Annual Meeting, Atlanta, GA, 2014

Session Chair, Fabrication of Colloidal Assemblies and Devices, ACS Colloid & Surface Science Symposium, Columbia University, New York, NY, 2009

Peer Reviewer for *Nature Chem, ACS Nano, J Am Chem Soc, Nature Comm, Adv Mater, Adv Mater Interfaces, Proc Natl Acad Sci USA, Chem Sci, Small, Phys Rev Lett, J Chem Phys Lett, Nanoscale, Chem Comm, ACS Appl Mater Interfaces, J Mater Chem, Anal Chem, Sci Reports, J Phys Chem, Langmuir, Chem Phys Lett, Phys Rev E*

Memberships

American Institute of Chemical Engineers (AIChE)

American Chemical Society (ACS)

American Association for the Advancement of Science (AAAS)