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**Education**

- 2/81 Ph.D. Chem. Eng. University of Rochester, Rochester, N.Y.  
 Thesis: Transport Phenomena in Liquids Evaporating at Low Pressures  
 Advisor: Harvey J. Palmer
- 5/76 B.Tech. Chem. Eng. Indian Institute of Technology, Kanpur, India.  
 Graduated First Division with distinction

**Professional Experience**

- 1/17 – 8/17 Visiting Professor, Department of Chemical and Biomolecular Engineering, University of California, Berkeley (sabbatical leave).
- 6/17 - Cofounder and Chief Scientific Advisor, Audiance, Inc.
- 8/17 – Director, Rhode Island Consortium for Nanoscience and Nanotechnology.
- 9/15 – 12/15 Interim Chair, Department of Chemical Engineering, University of Rhode Island, Kingston, RI (Chair on sabbatical leave for Fall 2015)
- 3/11 - Distinguished Professor of Engineering, University of Rhode Island, Kingston, RI.
- 1/11 – 6-12 Director, Rhode Island Consortium for Nanoscience and Nanotechnology (joint effort between URI and Brown University)
- 1/09 - Advisory Board, Institute for Immunology and Informatics, University of Rhode Island
- 7/04 – 6-09 Chair, Department of Chemical Engineering, University of Rhode Island, Kingston, RI

- 7/09 - 12/10 Visiting Fellow, Cabot Corporation, Billerica, MA (sabbatical leave/leave of absence)
- 7/92 - Professor, Department of Chemical Engineering, University of Rhode Island, Kingston, R.I.
- 7/02 - 6/04 Visiting Senior Scientist, Cabot Corporation, Billerica, MA (sabbatical leave/leave of absence)
- 8/95 - 9/96 Visiting Scientist, Department of Chemical Engineering, Massachusetts Institute of Technology, Cambridge, MA (sabbatical leave with Prof. T.A. Hatton).
- 7/96 - 9/96 Station Director, MIT Practice School, Molten Metal Technology Station.
- 7/87- 6/92 Associate Professor, Department of Chemical Engineering, University of Rhode Island, Kingston, R.I. (tenure 7/87).
- 1/89 - 9/89 Visiting Scientist, Department of Chemical Engineering, Massachusetts Institute of Technology, Cambridge, MA (sabbatical leave with Prof. R.A. Brown).
- 9/82 - 6/87 Assistant Professor, Department of Chemical Engineering, University of Rhode Island, Kingston, R.I.
- 2/81 - 8/82 Research Engineer, E.I.du Pont de Nemours & Co., Textile Fibers Department, Seaford, DE.

### **Honors**

- 2012 URITC Researcher of the Year
- 2011 URI Outstanding Researcher Award
- 2011 College of Engineering, Outstanding Researcher Award
- 2008, 2014 URI Outstanding Intellectual Property Award
- 2000 Vincent and Estelle Murphy Award for Faculty Excellence, College of Engineering, University of Rhode Island
- 1993 Horizons Lecturer, Kimberly-Clark Corporation
- 1991 Vincent and Estelle Murphy Award for Faculty Excellence, College of Engineering, University of Rhode Island
- 1986 Summer Faculty Fellow, University of Rhode Island.
- 1990

- 1985 - 86 Lilly Teaching Fellow, University of Rhode Island.
- 1978 - 79 Elon Huntington Hooker Fellow, University of Rochester.
- 1976 - 78 Graduate Fellow, Department of Chemical Engineering, University of Rochester  
1979 - 80
- 1971 National Science Talent Scholar, India.

### **Editorial responsibilities**

- 2003 - 2008 Associate Editor, **IEE Transactions in Nanotechnology**
- 2003 - 2006 Editorial Board, **Journal of Surface Science and Technology**  
2015 -

### **Publications** (Google Scholar h-index = 41, total citations 5,786)

1. "Bulk Phase and Intrinsic Interfacial Resistances to Evaporation Under Vacuum", H.J. Palmer and A. Bose, **J. Colloid Interface Sci.**, 84, 291, (1981).
2. "Interfacial Stability of Binary Liquids Evaporating at Low Pressures", A. Bose and H.J. Palmer, **J. Fluid Mech.**, 126, 491, (1983).
3. "Stability of Binary Liquids Evaporating at Low Pressures - the Moving Boundary Mechanism", A. Bose and H.J. Palmer, in **Interfacial Transport Phenomena**, Eds.:J.C. Chen, S.G. Bankoff, **ASME HTD-83**, 7, (1983).
4. "Evaporation of Binary Mixtures From a Laminar Jet", A.Bose and H.J.Palmer, **ASME 83-WA/HT-69**, 1, (1983).
5. "Influence of Heat and Mass Transfer Resistances on the Separation Efficiency of Molecular Distillations", A. Bose and H.J. Palmer, **Industrial and Engng. Chem. Fundamentals**, 23, 459, (1984).
6. "Oscillatory Instabilities in a Rapidly Solidifying Binary Mixture - the Role of Diffusion in the Solid", A. Bansal and A. Bose, in **Beam Solid Interactions and Phase Transformations**, **MRS Vol.51**, Eds.: H.Kurz, J.M.Poate, G.L.Olson, 191,(1986).
7. "Dynamic Effects of Surfactants in the Spreading of Liquids on Solid Surfaces", B.S. Damania and A. Bose, **J.Colloid Interface Sci.**, 113, 321, (1986).

8. "Sessile Drops on Non-horizontal Solid Surfaces", H.V.Nguyen, S.Padmanabhan, W.J.Desisto and A.Bose, **J.Colloid Interface Sci.**, 115, 410, (1987).
9. "Sessile Drops Of Surfactant Solutions On Non-horizontal Solid Surfaces", S.Padmanabhan, A.Bose, **J.Colloid Interface Sci.**, 123, 451,(1988).
10. "The Importance Of Direct Measurement of Dynamic Contact Angles During the Wetting of Solids by Surfactant Solutions", S.Padmanabhan, A.Bose, **J.Colloid Interface Sci.**, 126, 164, (1988).
11. "Rayleigh-Benard and Interfacial Instabilities in Two Immiscible Liquid Layers", S. Wahal, A.Bose, **Phy. Fluids**, 31, 3502, (1988).
12. "Synthesis of Submicrometer Crystals of Aluminum Oxide by Aqueous Intravesicular Precipitation", S. Bhandarkar, A. Bose, **J. Colloid and Interface Sci.**, 135, 531, (1990).
13. "Synthesis of Nanocomposite Ceramic Particles by Intravesicular Coprecipitation", S.Bhandarkar, A.Bose, **J. Colloid Interface Sci.**,139, 541, (1990).
14. "On the Anamolous Behavior of Contaminated Liquids on Solid Surfaces", S.Padmanabhan, A.Bose, **J. Colloid Interface Sci.**, 139, 535, (1990).
15. "Precipitation in Single Compartment and Multilamellar Vesicles - Magnetic Particles and Alumina", S.Bhandarkar, I.Yacob, A.Bose, **Better Ceramics Through Chemistry IV, MRS Vol. 180**, Eds.: B.J.J.Zelinski, C.J. Brinker, D.E. Clark, D.R. Ulrich, 637 (1990).
16. "Calculations of Viscoelastic Flow in a Horizontal Partially Filled Cylinder", D.Rajagopalan, R.Phillips, R.C.Armstrong, R.A.Brown, A.Bose, **J. Fluid Mech.**, 235, 611 (1992).
17. "Electric Field Induced Variations in the Wetting Behavior of Ionic Surfactant Solutions", S. Wahal, C.A.Owiti, A.Bose, **J. Adhesion Sci. and Tech.**, 7, 519 (1993).
18. "Electric Field Induced Variations in the Wetting Behavior of Ionic Surfactant Solutions", S. Wahal, C.A.Owiti, A.Bose, in **Contact Angles, Wettability and Adhesion, K.L. Mittal Ed.**, 295, (1993).
19. "Wetting by Solutions", in **Wettability**, A. Bose, Ed.: J.C.Berg, Marcel Dekker, 149 (1993).
20. "Precipitation of Aluminum Hydroxide Nanoparticles in Spontaneously Generated Vesicles", I. Yaacob, S. Bhandarkar, A.Bose, **J. Materials Research**, 8, 573 (1993).
21. "Production of Antibody Receptor Coated Magnetic Vesicles", D.T. Grow, S.V. Sonti, A. Bose, K. Raj, **J. Mag. Magnetic Mat.**, 122, 343 (1993).

22. "Synthesis of Magnetic Nanoparticles by Intravesicular Precipitation", I. Yaacob, A.C. Nunes, A. Bose, D.O. Shah, **J. Coll. Int. Sci.**, 168, 241 (1994).
23. "Cell Separations Using Protein-A Coated Magnetic Nanoclusters", S.V. Sonti, A. Bose, **J. Coll. Int. Sci.**, 170, 575 (1995).
24. "Magnetic Nanoparticles in Spontaneous Vesicles - Room Temperature Synthesis and Characterization", I.Yaacob, A.C. Nunes, A. Bose, **J. Coll. Int. Sci.**, 171, 73 (1995).
25. "Large Scale Plant Expression Vector Cassette Isolation Using Triple Helix Magnetic Affinity Capture", S. Sonti, M.Griffor, T. Ito, S. Narayanaswami, A.Bose, C.R. Cantor, A.P. Kausch, **Nucl. Acids Res.**, 23, 3995 (1995).
26. "Examination of Mixed Cat-anionic Surfactant Solutions Using Cryogenic Transmission Electron Microscopy", I. Yaacob, A. Bose, **J. Coll. Int. Sci.**, 178, 378 (1996).
27. "Investigation of Wetting Hydrodynamics Using Numerical Simulations", D.E. Finlow, P.R. Kota, A. Bose, **Phys. Fluids**, 8, 302 (1996).
28. "DNA Separation Using Avidin Coated Magnetic Nanoclusters", S. Sonti, A. Bose, **Colloids and Surfaces B.**, 8, 199 (1997).
29. "Dynamics of Phase Transitions in Mixed Cationic/anionic Surfactant Systems", A.J. O'Connor, T.A. Hatton, A. Bose, **Langmuir**, 13, 6931(1997).
30. "Thermodynamics of Aggregate Structures in Catanionic Surfactant systems Using Titration Microcalorimetry", R.J. Meagher, T.A. Hatton, A. Bose, **Langmuir**, 14, 4081, (1998).
31. "Numerical Investigation of Boundary Conditions for Moving Contact Line Problems", S. Somalinga, A. Bose, **Phys. Fluids**, 12, 499 (2000).
32. "Flow -Through, Hybrid Magnetic Field Gradient Rotating Wall Device for Colloidal Magnetic Affinity Separations", A. Ghebremeskel, A. Bose, **Separation Science and Technology**, 35, 1811 (2000).
33. "Structured Materials Synthesis in a Self-assembled Surfactant Mesophase", S. Li, G. Irwin, B. Simmons, V. John, G. McPherson, A. Bose, **Colloids and Surfaces A**, 174, 275 (2000)
34. "The Use of Surfactant Self-assembly in the Enzymatic Synthesis of Novel Polymers", S. Li, G. Irwin, B. Simmons, V. John, G. McPherson, A. Bose, in **Reactions in Surfactant Systems**, Ed. J. Texter, Marcel Dekker, NY (2000).

35. “Amphiphilic Templates in the Synthesis of Nanostructured Composites – From Particles to Extended Structures, in Functional Gradient Materials”, S. Li, G. Irvin, B. Simmons, V. John, G. McPherson, A. Bose, P. Johnson, **NATO Science Series II**, 16, 61 (2001).
36. “A Small-Angle Neutron Scattering (SANS) Study of Microstructural Transitions in a Surfactant Based Rigid Mesophase”, B. Simmons, G. C. Irvin, S. Li, V. T. John, G.L. McPherson, N. Balsara, V. Agarwal, A. Bose, **Langmuir**, 18, 624 (2002).
37. “The Role of Size on the Mechanical Properties of Cenosphere/Polyester Composites”, R. Carduso, A. Bose, A. Shukla, **J. Material Science**, 37, 603 (2002).
38. “Magnetic Colloid Mediated Recovery Of Cadmium Ions From An Aqueous Solution Using A Flow-Through Hybrid Field-Gradient Device”, **Separation Science and Technology**, 37, 555 (2002).
39. “Morphology of CdS Nanoparticles Synthesized in a Mixed Surfactant System”, B. Simmons, S. Li, V. John, G. McPherson, A. Bose, **Nanoletters**, 2, 263 (2002).
40. “Processing and Characterization of a Lightweight Concrete Using Cenospheres”, S. McBride, A. Bose, A. Shukla, **J. Material Science**, 37, 4217 (2002).
41. "Microstructure Evolution in the SOS/CTAB and HDBS/CTAB Mixed Surfactant Systems", Y. Xia, I. Goldmints, P.W. Johnson, T.A. Hatton, A. Bose, **Langmuir**, 18, 3822 (2002).
42. A Small Angle Neutron Scattering Study of Mixed AOT + Lecithin Reverse Micelles, B. Simmons, V. Agarwal, G. McPherson, V. John, Arijit Bose, **Langmuir**, 18, 8345, (2002)
43. "Nanostructured Materials Synthesis in a Mixed Surfactant Mesophase", L. Liu, S. Li, V. John, G. McPherson, A. Bose, P. Johnson, **J. Dispersion Sci and Tech.** 23, 441 (2002).
44. "Recent Developments in Materials Synthesis in Surfactant Systems", John, V., Simmons, B., McPherson, G., Bose, A., **Current Opinion in Colloid and Interface Science**, 7, 288 (2002).
45. "Templating Nanostructure through the Self-Assembly of Lipids", B. Simmons, L. Liu, G. McPherson, V. John, A. Bose, V. Agarwal, D. Schwartz, C. Taylor. in "**Synthesis, Functionalization and Surface Treatment of Nanoparticles**", M.I. Baraton (Ed.), American Scientific Publishers, 51 (2003).
46. “A Continuous, Hybrid Field-Gradient Device For Magnetic Colloid Based Separations, A. Ghebremeskel, A. Bose”, **J. Mag. Mag. Materials**, 261, 66 (2003).

47. "Processing and Mechanical Characterization of Lightweight Polyurethane composites", V. Chalivendra, A. Shukla, V. Parameswaran, A. Bose, **Journal of Material Science**, 38, 1631 (2003).
48. "Uptake and Loss of Water in a Cenosphere - Concrete Composite Material", N. Barbare, A. Shukla, A. Bose, **Cement and Concrete Research**, 33, 1681 (2003).
49. "A Biomolecular Approach to Polymer Encapsulation in Mesoporous Materials", C. Ford, L. Liu, J. He, V. John, G. McPherson, A. Bose, **Polymer Mat. Sci. Engin**, 88, 255 (2003).
50. "Organogels as Templates for Materials Synthesis", G. Tan, N. Sahinir, V. John, G. McPherson, A. Bose, **Polymer Mat. Sci. Engin**, 88, 370 (2003).
51. "Enzymatic Polymerization in Spontaneously Formed CTAB-HDBS Vesicle Bilayers", M. Singh, V. Agarwal, C. Ford, L. Liu, G. McPherson, P. Johnson, V. John, A. Bose, **Polymer Mat. Sci. Engin**, 88, 112 (2003).
52. "Microstructure Evolution in a Mixed Surfactant Mesophase Using Time-dependent Small-angle Neutron Scattering", B. Simmons, M. Singh, V. Agarwal, G. McPherson, V. John, A. Bose, **Langmuir**, 19, 6329 (2003).
53. "The Kinetics and Mechanism of Vesicle Self-assembly in Aqueous SDS/DTAB Mixtures", M. Wan, A.J. O'Connor, F. Greiser, A. Bose, in **Self Assembly**, Ed. B. Robinson, IOS Press, Amsterdam, 454 (2003).
54. "Self-Assembly of Surfactants to Organogels", V. John, G. McPherson, A. Bose, in **Self Assembly**, Ed. B. Robinson, IOS Press, Amsterdam, 311 (2003).
55. "Microstructure Evolution in an AOT/Lecithin/D<sub>2</sub>O/Isooctane Mesophase", A. Bose, V. John, G. McPherson, in **Self Assembly**, Ed. B. Robinson, IOS Press, Amsterdam, 152 (2003).
56. "Acoustic Properties of Cenosphere Reinforced Cement and Asphalt Concrete", V. Tiwary, A. Shukla, A. Bose, **Applied Acoustics**, 65, 263 (2004).
57. "Freeze Fracture Direct Imaging of a Viscous Surfactant Mesophase", V. Agarwal, M. Singh, G. McPherson, V. John, A. Bose, **Langmuir**, 20, 11 (2004).
58. "Alignment and Materials Synthesis in a Crystalline Surfactant Mesophase", L. Liu, M. Singh, G. McPherson, A. Bose, V. John, **J. American Chemical Soc.**, 126, 2276 (2004).
59. "Shear-Induced Orientation of a Rigid Surfactant Mesophase," Singh, M.; Agarwal, V.; De Kee, D.; McPherson, G.; John, V.; Bose, A. **Langmuir**, 20, 5693 (2004).

60. "Structural Evolution of a Two-Component Organogel," Singh, M.; Tan, G.; Agarwal, V.; Fritz, G.; Maskos, K.; Bose, A.; John, V.; McPherson, G., **Langmuir**, 20, 7392 (2004).
61. "Structural Evolution in Cationic Micelles upon Incorporation of a Polar Organic Dopant," Singh, M.; Ford, C.; Agarwal, V.; Fritz, G.; Bose, A.; John, V. T.; McPherson, G. L. **Langmuir**, 20, 9931 (2004).
62. "Biocatalysis in the development of functional polymer-ceramic nanocomposites," Ford, C.; Singh, M.; Lawson, L.; He, J.; John, V.; Lu, Y.; Papadopoulos, K.; McPherson, G.; Bose, A. **Colloids and Surfaces, B: Biointerfaces**, 39, 143 (2004).
63. "Platelet Self-Assembly of an Amphiphilic A-B-C-A Tetrablock Copolymer in Pure Water," Gomez, E. D.; Rappl, T. J.; Agarwal, V.; Bose, A.; Schmutz, M.; Marques, C. M.; Balsara, N. P. **Macromolecules**, 38, 3567 (2005).
64. "A simple extrusion method for the synthesis of aligned silica nanowires using the template of a rigid surfactant mesophase," Liu, L.; Tan, G.; Agarwal, V.; Bose, A.; He, J.; McPherson, G. L.; John, V. T. **Chemical Communications**, 4517 (2005).
65. "Transition from Unilamellar to Bilamellar Vesicles Induced by an Amphiphilic Biopolymer, Lee, J.-H.; Agarwal, V.; Bose, A.; Payne, G. F.; Raghavan, S. R., **Physical Review Letters**, 96, 048101 (2006).
66. "Microstructure evolution in aqueous solutions of cetyl trimethylammonium bromide (CTAB) and phenol derivatives," Agarwal, V.; Singh, M.; McPherson, G.; John, V.; Bose, A. **Colloids and Surfaces, A: Physicochemical and Engineering Aspects**, 281, 246 (2006).
67. "Synthesis and assembly of monodisperse high-coercivity silica-capped FePt nanomagnets of tunable size, composition, and thermal stability from microemulsions," Yan, Q.; Purkayastha, A.; Kim, T.; Kroger, R.; Bose, A.; Ramanath, G. **Advanced Materials**, 18, 2569 (2006).
68. "Rapid exploration of phase behavior in surfactant systems using flow in microchannels", J. Lee, A. Bose, A. Tripathi, **Langmuir**, 22, 11412 (2006).
69. Mesophase Separation and Probe Dynamics in Protein-Polyelectrolyte Coacervates, Kayitmazer, A.B.; Bohidar, H.B.; Mattison, K.M.; Bose, A.; Sarkar, J.; Hashidzume, A.; Russo, P.S.; Jaeger, W.; Dubin; P.L., **Soft Matter**, 8, 1064-1076 (2007).
70. Rod-shaped assemblies of FePt-PtTe<sub>2</sub> through dynamic templating. Yan, Q.; Raghuvver, M. S.; Li, H.; Singh, B.; Kim, T.; Shima, M.; Bose, A.; Ramanath, G., **Advanced Materials (Weinheim, Germany)**, 19, (24), 4358-4363 (2007).



71. Directed synthesis of micro-sized nanoplatelets of gold from a chemically active mixed surfactant mesophase, J. Sarkar, G. Ramanath, V. John and A. Bose, in "**Interfacial processes, phenomena and molecular aggregation**" ed. R. Narayanan, Springer, Heidelberg, 231-246 (2008).
72. Surfactant Solubilization and the Direct Encapsulation of Interfacially Active Phenols in Mesoporous Silicas. Tan, G.; Ford, C.; John, V. T.; He, J.; McPherson, G. L.; Bose, A., **Langmuir**, 24, 1031-1036 (2008).
73. Three-Dimensional Confinement-Related Size Changes to Mixed-Surfactant Vesicles Jha, A. K.; Lee, J.; Tripathi, A.; Bose, A., **Langmuir**, 24, 6013-6017 (2008).
74. Surfactant-templated synthesis and catalytic properties of ordered nanoporous titania supports loaded with platinum nanoparticles, J. Sarkar, V. T. John, C. Brooks, J. He, G. Ramanath, A. Bose, **Chemistry of Materials**, 20, 5301–5306 (2008).
75. Imaging New Transient Nanostructures Using a Microfluidic Chip Integrated with a Controlled Environment Vitrification System for Cryogenic Transmission Electron Microscopy, Jinkee Lee, Ashish K. Jha, Arijit Bose, and Anubhav Tripathi, **Langmuir**, 24, 12738 (2008).
76. Microstructure Control in Amphiphilic Systems Using Adsorption on Surface-functionalized Polystyrene Spheres, Ashish K. Jha, Arijit Bose, **Langmuir**, 25, 123 (2009).
77. "Controlled Release from Bilayer-Decorated Magnetoliposomes *via* Electromagnetic Heating, Y. Chen, A. Bose, G. Bothun, **ACS Nano**, 4, 3215 (2010).
78. Structural markers in prostate cancer serum imaged *ex vivo* using cryogenic transmission electron microscopy, Aziz, N., Jha, A. K., Thanos, C., Basha, R., Bose, A., **Journal of Electron Microscopy**, 1-6 (2010)
79. A Microfluidic Device for Bacteria Detection in Aqueous Samples, Jha, A. K. Tripathi, A., Bose, A., **Environmental Technology**, 32, 1661 (2011).
80. Water-in-Trichloroethylene Emulsions Stabilized by Uniform Carbon Microspheres, Venkataraman, P., Sunkara, B., St. Dennis, J. E., He, J., John, V. T., Bose, A., **Langmuir**, 28, 1058–1063 (2012).
81. Shear Free and Blotless Cryo-TEM Imaging: A New Method for Probing Early Evolution of Nanostructures, Lee, J., Saha, A., Pancera, S.M., Kempster, A., Rieger, J., Bose, A., Tripathi, A., **Langmuir**, 28, 4043–4046 (2012).
82. New Insights into the Transformation of Calcium Sulfate Hemihydrate to Gypsum Using Time-Resolved Cryogenic Transmission Electron Microscopy, Saha, Lee, J. . Pancera, S.

- M., Bräeu, M. F., Kempter, A., Tripathi, A., Bose, A., **Langmuir**, 28,11182–11187 (2012).
83. Long Range Ordering of Symmetric Block-Copolymer Domains by Chaining of Superparamagnetic Nanoparticles in External Magnetic Fields, Raman, V., Bose, A., Hatton, T.A., Olsen, B.D., **Macromolecules**, 45, 9373-9382 (2012).
84. Lithium Ion Battery Graphite Solid Electrolyte Interphase Revealed by Microscopy and Spectroscopy, M. Nie, D. Chalasani, D. Abraham, Y. Chen, A. Bose, B. L. Lucht, **J. Phys. Chem. C**, 117, 1257-1267 (2013).
85. Oil Emulsification by Surface-Tunable Carbon Black Particles, A. Saha, A. Nikova, P. Venkataraman, V. T. John, A. Bose, **ACS Applied Materials and Interfaces**, 5, 3094-3100 (2013).
86. Attachment of a Hydrophobically Modified Biopolymer at the Oil–Water Interface in the Treatment of Oil Spills, P. Venkataraman, J. Tang, E. Frenkel, G. L. McPherson, J. He, S. R. Raghavan, V. Kolesnichenko, A. Bose, V. T. John, **ACS Appl. Mater. Interfaces**, 5, 3572–3580 (2013).
87. The Response of Carbon Black Stabilized Oil-in-Water Emulsions to the Addition of Surfactant Solutions, H. Katepalli, V. John, A. Bose, **Langmuir**, 29, 6790-97 (2013).
88. Silicon Solid Electrolyte Interphase (SEI) of Lithium Ion Battery Characterized by Microscopy and Spectroscopy, M. Nie, D. P. Abraham, Y. Chen, A. Bose, B. L. Lucht, **J. Phys. Chem. C**, 117, 13403–13412 (2013).
89. A platform for retaining native morphology at sub-second time scales in cryogenic transmission electron microscopy, D. Croote , M. P. Godfrin , A. Bose , A. Tripathi, J. Lee, **Rev. Sci. Inst.**, 84, 053707-053713 (2013).
90. Shear-Directed Assembly of Graphene Oxide in Aqueous Dispersions into Ordered Arrays, M. Godfrin, F. Guo, I. Chakraborty, N. Heeder, A. Shukla, R. Hurt, A. Bose, A. Tripathi, **Langmuir**, 29, 13162-13167 (2013).
91. Role of Solution Structure in Solid Electrolyte Interphase Formation on Graphite with  $\text{LiPF}_6$  in Propylene Carbonate, M. Nie, D. P. Abraham, D. M. Seo, Y. Chen, A. Bose, B. L. Lucht, **J. Phys. Chem. C**, 117, 25381-25389 (2013).
92. Low-Dose Chemotherapy of Hepatocellular Carcinoma through Triggered-Release from Bilayer-Decorated Magnetoliposomes, Y. Chen, Y. Chen, D.S. Xiao, A. Bose, R. Deng, G. D. Bothun, **Colloids and Surfaces**, 116, 452-458 (2014).

93. Highly Conductive Graphene-based Segregated Composites Prepared by Particle Templating, N. Heeder, A. Yussuf, F. Guo, I. Chakraborty, M. Godfrin, R. Hurt, A. Tripathi, A. Bose, A. Shukla, **J. Materials Science**, 49, 2567-2570 (2014).
94. Homogeneous percolation *versus* arrested phase separation in attractively-driven nanoemulsion colloidal gels, M.E. Helgeson, Y. Gao, S. E. Moran, J. Lee, M. Godfrin, A. Tripathi, A. Bose, P. S. Doyle, **Soft Matter**, 10, 3122-3133 (2014).
95. Two dimensional materials as emulsion stabilizers: interfacial thermodynamics and molecular barrier properties, M. A. Creighton, Y. Ohata, J. Miyawaki, A. Bose, Hurt, R. H., **Langmuir**, 30, 3687-3696 (2014).
96. High capacity, stable silicon/carbon anodes for lithium-ion batteries prepared by emulsion templating, Y. Chen, M. Nie, B.L. Lucht, A. Saha, P.R. Guduru, A. Bose, **ACS Applied Materials and Interfaces**, 6, 4678-4683 (2014).
97. Fixed angle rotary shear as a new method for tailoring electromechanical properties of template graphene-polymer composites, N. Heeder, A. Yussuf, I. Chakraborty, M. Godfrin, R. Hurt, A. Tripathi, A. Bose, A. Shukla, **Composites Science and Technology**, 100, 70-75 (2014).
98. Massive Electrical Conductivity Enhancement of Multilayer Graphene/Polystyrene Composites Using a Non-Conductive Filler, I. Chakraborty, K. J. Bodurtha, N. J. Heeder, M. P. Godfrin, A. Tripathi, R. H. Hurt, A. Shukla, A. Bose, **ACS Applied Materials and Interfaces**, 6, 16472 – 16475 (2014).
99. Phase and Steady Shear Behavior of Dilute Carbon Black Suspensions and Carbon Black Stabilized Emulsions, M. P. Godfrin, A. Tiwari, A. Bose, A. Tripathi, **Langmuir**, 30, 15400-15407 (2014).
100. Enzymatic synthesis: nanostructured polymers and composites, C. Ford, V.T. John, G. McPherson, J. He, J. Akkara, D. Kaplan, A. Bose, **Dekker Encyclopedia of Nanoscience and Nanotechnology** (3rd Edition) Ed: S.E. Lyshevski, 2, 1409-1421 (2014).
101. Release of Surfactant Cargo from Interfacially Active Halloysite Clay Nanotubes for Oil Spill Remediation, O. Owoseni, E. Nyankson, Y. Zhang, S. J., J. He, G.L. McPherson, A. Bose, R.B. Gupta, V.T. John, **Langmuir**, 30, 13533-13541 (2014).
102. A Quantitative Insight into the Growth of *Alcanivorax Borkumensis* under Different Inoculation Conditions, M. Bookstaver, M.P. Godfrin, A. Bose, A. Tripathi, **Journal of Petroleum Science and Engineering**, 129, 153-158 (2015).
103. The interaction of *Alcanivorax Borkumensis* with a Surfactant Decorated Oil-water interface, M. Bookstaver, A. Bose, A. Tripathi, **Langmuir**, 31, 5785-5781 (2015).

104. Synthesis of Co-Electrospun Lead Selenide / Titania—Core / Sheath Nanowires for Advanced Photovoltaics, E. Wujcik, S. Aceto, D. Heskett, A. Bose, **Fibers**, 3, 173-183 (2015).
105. Radio Frequency-Activated Nanoliposomes for Controlled Combination Drug Delivery, S. Malekar, A. Sarode, A. Bach, A. Bose, G. Bothun, D.R.Worthen, **AAPS PharmSciTech**, 16, 1335-1343, (2015).
106. An All-Aqueous Directed Assembly Strategy for Forming High Capacity, Stable Silicon/Carbon Anodes for Lithium Ion Batteries, Y. Chen, M. Xu, Y. Zhang, Y. Pan, B. L. Lucht, A. Bose, **ACS Applied Materials and Interfaces**, 7, 21391-21397 (2015).
107. In situ Assembly of Hydrophilic and Hydrophobic Nanoparticles at Oil-Water Interfaces as a Versatile Strategy to form Stable Emulsions, A. Saha, V.T. John. A. Bose, **ACS Applied Materials and Interfaces**, 7, 21010-21014 (2015).
108. Effect of Vinylene Carbonate and Fluoroethylene Carbonate on SEI Formation on Graphitic Anodes in Li-Ion Batteries, Nie, M., Demeaux, J., Young, B.T., Heskett, D.R., Chen, Y., Bose, A., Woicik, J., Lucht, B.L., **Journal of the Electrochemical Society**, 162, A7008-A7014 (2015).
109. Tuning the wettability of halloysite clay nanotubes by surface carbonization for optimal emulsion stabilization, Owoseni, O., Zhang, Y., Su, Y., He, J., McPherson, G.L.; Bose, A., John, V.T., **Langmuir**, 31, 13700-13707(2015).
110. Interfacial adsorption and surfactant release characteristics of magnetically functionalized halloysite nanotubes for responsive emulsions, Owoseni, O., Nyanksen, E., Zhang, Y., Adams, D.J., He, J., Spinu, L., McPherson, G.L., Bose, A., Gupta, R.B., John, V.T., **J. Colloid Interface Science**, 463, 288-298 (2016).
111. Facile Synthesis and Characterization of Nanoporous Titania Supports loaded with Monometallic and Bimetallic Alloy Nanoparticles, A. Saha, V. John, A. Bose, **Colloids and Surfaces: A**, 491, 57-61 (2016).
112. Core-shell Rubbery Fillers for Massive Electrical Conductivity Enhancement and Toughening of Polystyrene-Graphene Nanoplatelet Composites, I. Chakraborty, A. Shukla, A. Bose, **J. Materials Science**, 51, 10555-10560 (2016).
113. Destabilization of Oil-in-Water Emulsions Stabilized by Nonionic Surfactants: Effect of Particle Hydrophilicity, Katepalli, H., Bose, A., Hatton, T. A., Blankschtein, D., **Langmuir**, 32, 10694-10698 (2016).
114. Patchy layersomes formed by layer-by-layer coating of liposomes with strong biopolyelectrolytes, Kashcooli, Y., Park, K., Bose, A., Greenfield, M., Bothun, G., **Biomacromolecules**, 17, 3838-3844 (2016).

115. Lead Selenide Nanostructures Self-Assembled Across Multiple Length Scales and Dimensions" Wujcik, E.K., Aceto, S.R., Narayanan, R., Bose, A., **Journal of Nanomaterials**, vol. 2016, Article ID 9575839, 6 pages, (2016).
116. Nanostructured materials: surfactant mesophases shear alignment and templated synthesis, Liu, Limin; Tan, Grace; Singh, Mohit; John, Vijay T.; McPherson, Gary; Agarwal, Vivek; Bose, Arijit, **Encyclopedia of Surface and Colloid Science** (3rd Edition) 7, 4946-4960 (2016).
117. Microstructure and Rheology of Particle Stabilized Emulsions: Effect of Particle Shape and Inter-particle Interactions, H. Katepalli, V.T. John, A. Tripathi, A. Bose, **J. Colloid Interface Science**, 485, 11-17 (2017).
118. Towards Reducing Carbon Content in Silicon/Carbon Anodes for Lithium Ion Batteries, Zhang, Y., Pan, Y., Chen, Y., Lucht, B. L., Bose, A., **Carbon**, 112, 72-78 (2017).
119. Impact of Nearly Water-insoluble Additives on the Properties of Microstructures in Vesicle Suspensions, A. Saha, S. Chaudhuri, M. Godfrin, M. Mamak, B. Reeder, T. Hodgdon, P. Saveyn, A. Tripathi, A. Bose, **Industrial and Engineering Chemistry Research**, 56, 899-906 (2017).
120. Near Infrared Responsive Gold-Layersome Nanoshells, A. Abbasi, K. Park, G. D. Bothun, A. Bose, **Langmuir**, 33, 5321-5327 (2017).
121. Influence of the Oil on the Structure and Electrochemical Performance of Emulsion-Templated Tin/Carbon Anodes for Lithium Ion Batteries, Y. Zhang, Y. Pan, Y. Dong, B.L. Lucht, A. Bose, **Langmuir** 33, 8869-8876 (2017).
122. Design analysis of hybrid silicon-on-nothing photonic crystal-nanoantenna structures for engineering of mid-infrared radiative properties, D. Jensen, P. Hard, D.C. Kim, J.C. Lee, G.D. Bothun, A. Bose, K. Park, **J. Nanophotonics** 12, 026005-1 – 026005-12 (2018).
123. Microstructural Characteristics of Surfactant Assembly into a Gel-like Mesophase for Application as an Oil Spill Dispersant, O.G. Owoseni, Y. Zhang; M. Omarova, X. Li, J. Lal, G. L. McPherson, S. Raghavan, A. Bose, V.T. John, **J. Colloid Int. Science**, 524, 279-288 (2018).
124. Attachment of *Alcanivorax borkumensis* to Hexadecane-in-Artificial Sea Water Emulsion Droplets, A. Abbasi, G.D. Bothun, A. Bose, **Langmuir**, 34, 5352-5357 (2018).
125. Behavior of Marine Bacteria in Clean Environment and Oil Spill Conditions, M. P. Godfrin, M. Sihlabela, A. Bose, A. Tripathi, **Langmuir**, 34, 9047–9053 (2018).
126. Hexagonally patterned mixed surfactant template room temperature synthesis of titania-lead selenide nanocomposites, Aceto, Stephanie R.; Lu, Yang; Narayanan, Radha; Heskett, David R.; Wujcik, Evan K., Bose, Arijit, **Advanced Composites and Hybrid Materials**, 1, 389-396 (2018).

127. Biofilm Formation by Hydrocarbon-Degrading Marine Bacteria and its Effects on Oil Dispersion, Omarova, Marzhana; Swientoniewski, Lauren; Mkam Tsengam, Igor Kevin; Blake, Diane; John, Vijay; McCormick, Alon; Bothun, Geoffrey; Raghavan, Srinivasa; Bose, Arijit, **ACS Sustainable Chemistry and Engineering**, 7, 14490-14499 (2019).
128. Massive and Sustained Enhancement of the Electrical Conductivity of Polystyrene Using Multilayer Graphene at Low Loadings, and Carbon Black as a Dispersion Aid, **Colloids and Surfaces A: Physicochemical and Engineering Aspects**, 580, 123727 (2019).
129. Targeted and Stimulus-Responsive Delivery of Surfactant to the Oil-Water Interface for Applications in Oil Spill Remediation, Farinmade, Azeem; Ojo, Olakunle; Trout, James; He, Jibao; John, Vijay; Blake, Diane; Lvov, Yuri M.; Zhang, Donghui; Nguyen, Duy; Bose, Arijit, **ACS Applied Materials and Interfaces**, 12, 1840-1849 (2020)
130. Carbon black template gold nanoparticles as highly active SERS substrates, A. Abbasi, G. Bothun, A. Bose, **ACS Applied Nanomaterials** 3, 2605-2613 (2020).
131. Rheology and microscopy of multiparticle suspensions used in lithium ion batteries, Y. Zhang, J. Sullivan, A. Bose, **Colloids and Surfaces A**, 592, 124591 (2020).
132. Interaction of Cyanobacteria with Nanometer and Micron Sized Polystyrene Particles in Marine And Fresh Water, Tania Thalysa Silva de Oliveira, Irene Andreu, Mary C. Machado, Gina Vimbela, Anubhav Tripathi, Arijit Bose, **Langmuir**, 36, 3963-3969 (2020).
133. The Response of *Synechococcus sp.* PCC 7002 to Microplastic Polyethylene Particles - Investigation of a Key Anthropogenic Stressor, M. C. Machado, G. V. Vimbela, T. T. S. de Oliveira, A. Bose, A. Tripathi, in press, **PLOS One** (2020).
134. The impact of an oil droplet on an oil layer on water, Kim, Dohyung; Lee, Jinseok; Bose, Arijit; Kim, Ildoo; Lee, Jinkee, submitted to **J. Fluid Mechanics**, (2020)
135. Rheological Characterization and Electrochemical Performance of Lithium Ion Battery Anode Slurries Containing Graphite and Carbon Black, J. Sullivan, A. Bose, submitted to **J. Power Sources** (2020).

### **Patents**

1. "Separation of cells and biological macromolecules by antibody targeted magnetic vesicles and ferritin conjugates", Arijit Bose, **US Patent 5,248,589**; October, 1991.
2. "Flow Through, Hybrid Magnetic Field Gradient Rotating Wall Device for Colloidal Magnetic Affinity Separations", Arijit Bose, **US Patent 6,346,196**; February, 2002.

3. "Continuous Hybrid Magnetic Field Gradient Rotating Wall Device for Colloidal Magnetic Affinity Separations", Arijit Bose, **US Patent 6,635,181**; October, 2003.
4. Systems and methods of identifying biomarkers for subsequent screening and monitoring of diseases, A. Bose, N. Aziz, **US Patent 7,507,533**, March, 2009.
5. Modified freeze fracture direct imaging apparatus and technique, Arijit Bose, **US Patent 7,816,141**, October, 2010.
6. Nanocomposite support materials, Brooks; Christopher, Bose; Arijit, Sarkar; Jayashri, Ramanath; Ganapathiraman, John; Vijay T., **US Patent 8,003,567**, August, 2011.
7. Oil Emulsification and Polyaromatic Hydrocarbon Adsorption Using Fine Particles as Dispersants, A. Bose, V. John, A. Nikova, **US Patent 9,233,862**, January, 2016.
8. Microfluidic blotless cryo TEM device and method, A. Bose, A. Tripathi, J. Lee, **US Patent 9,355,813**, May, 2016.
9. Highly Conductive Graphene-Based Polymer Composite, A. Bose, I. Chakraborty, **US Patent 9,786,407**, November, 2017.

### **Invited Talks**

1. "Instabilities in Binary Mixtures", **Department of Chemical Engineering - Transport Processes Group**, M.I.T., Cambridge (1983).
2. "The Morphological Stability of a Rapidly Solidifying Binary Melt", **Department of Chemical Engineering - Transport Processes Group**, M.I.T., Cambridge (1984).
3. "Surfactants and Wettability", **Department of Chemical Engineering**, University of New Hampshire, Durham (1985).
4. "Wetting of Solids by Surfactant Solutions", **Department of Physics**, University of Rhode Island, (1986).
5. "Rayleigh-Benard and Interfacial Instabilities in Multiple Liquid Layers", **Department of Mechanical Engineering**, University of Rhode Island, November (1987).
6. "Surfactants, Substrate Charge and Wettability", **Gordon Conference on Organic Thin Films**, Oxnard (1988).
7. "Wetting of Solids by Contaminated Solutions", **Gordon Conference on Chemistry at Interfaces** (1989).

8. "Synthesis of Colloidal Ceramic Particles in Constrained Domains", **Department of Chemical Engineering**, University of Florida, (1989).
9. "Colloidal and Interfacial Phenomena Research at URI", **3M Company**, St.Paul, (1989).
10. "Synthesis of Colloidal Ceramic Particles in Surfactant Constrained Domains", **Department of Chemical Engineering**, University of Connecticut, (1990).
11. "Vesicle Mediated Synthesis of Colloidal Particles", **M.R.S. Annual Meeting**, San Francisco, (1990).
12. "Controlled Crystallization in Multilamellar and Single Compartment Vesicles", **Gordon Conference on Chemistry at Interfaces**, New London (1990).
13. "Wetting by Solutions", **NASA Workshop on Microgravity Fluid Dynamics**, NASA Lewis Research Center, Cleveland (1990).
14. "Vesicle Mediated Synthesis and Applications of Ceramic Nanoparticles", **ALCOA Research Laboratories**, Alcoa City (1991).
15. "Vesicle Mediated Synthesis and Applications of Ceramic Nanoparticles", **Department of Chemical Engineering**, University of Florida, Gainesville (1991).
16. "Wetting by Solutions", **NSF/BEP Workshop on Interfacial Phenomena and Rheology**, Washington (1991).
17. "Vesicle Mediated Synthesis and Applications of Ceramic Nanoparticles", **Department of Chemical Engineering**, University of Rochester, Rochester (1991).
18. "Vesicle Mediated Synthesis and Applications of Ceramic Nanoparticles", **Eastman Kodak Research Laboratories**, Rochester (1991).
19. "Precipitation of Ceramic Nanoparticles in Spontaneous Vesicles", **Materials Research Society Meeting**, Boston (1991).
20. "Effect of Electric Fields on the Wetting of Ionic Surfactant Solutions", **ACS Annual Meeting**, San Francisco (1992).
21. "Wetting by Complex Liquids", **Horizons Lecture**, Kimberly-Clark Corporation, Roswell (1993).
22. "Intravesicular Synthesis and Characterization of Ceramic Nanoparticles", Department of Chemical Engineering, **Clarkson University** (1993).
23. "Numerical Simulations as a Novel Tool for Understanding Fluid Physics in The Vicinity of Dynamic Contact Lines", **Clarkson University** (1993).



24. "Intravesicular Synthesis and Characterization of Ceramic Nanoparticles", Department of Chemistry, **University of Rhode Island** (1993).
25. "Magnetic Nanoparticles - Intravesicular Synthesis and Characterization of Anomalous Properties", European Research Foundation Conference on 'Reactivity in Organized Microstructures', **Mt. Ste. Odile, France** (1994).
26. "Numerical Simulations as a Novel Tool for Understanding Fluid Physics in The Vicinity of Dynamic Contact Lines", **Laboratoire du Aerothermique**, Paris (1994).
27. "Magnetic Nanoparticles - Intravesicular Synthesis and Characterization of Anomalous Properties", **MIT Department of Chemical Engineering**, Colloids and Surfaces Group (1995).
28. "Magnetic Nanoparticles - Intravesicular Synthesis and Characterization of Anomalous Properties", **US Army Natick Research Laboratories** (1995).
29. "Wetting - Statics and Dynamics", **Arkwright Corporation** (1996).
30. "Kinetics and Thermodynamics of Phase Transitions in Mixed Surfactant Systems," Department of Physics, **University of Rhode Island** (1996).
31. "Kinetics and Thermodynamics of Phase Transitions in Mixed Surfactant Systems," **NSF/NIST Workshop on Nanotechnology**, Washington (1997).
32. "Magnetic Colloidal Separations", **Engineering Foundation Conference on Separations**, Davos, Switzerland (1997).
33. "Its a Small, Small, Small, Small World - Promises of Nanotechnology", **Sigma Xi Lecture**, University of Rhode Island (1997).
34. "Numerical Investigation of Dynamic Wetting - Microscopic Physics and Macroscopic Boundary Conditions", **Levich Institute**, New York (1998).
35. "Interfacial and Colloids Research at URI", **National Science Foundation** (1998).
36. "Microstructure Evolution in Mixed Surfactant Systems", **US Army Workshop on Templated Nanostructures and Reactivity**, Aberdeen (1999).
37. "Hard and Soft Nanocolloids – Synthesis, Characterization and Evolution of Aggregate Microstructures”, **Tufts University**, Medford (2000).
38. A New Hybrid Magnetic Field Gradient Device for Enhanced Colloidal Magnetic Affinity Separations, **Handy and Harman**, Providence (2000).

39. Nanostructured Materials – Synthesis and Characterization, **Indian Institute of Technology**, Kanpur (2001).
40. Nanostructured Materials – Synthesis and Characterization, **Naval Undersea Warfare Center**, Newport (2001).
41. Microstructure Evolution in Self-Assembled Mixed Surfactant Systems, **Self-Assembly – the Future**, Massa Maritima, Italy (2002).
42. Microstructure Evolution and Materials Synthesis in a Mixed-surfactant Mesophase, **Cabot Corporation**, (2002).
43. Microstructure Evolution and Materials Synthesis in a Mixed-surfactant Mesophase, Squishy Physics Seminar, **Harvard University**, (2002).
44. Reciprocal Space and Direct Imaging of Soft Nanocolloids, US-Japan Symposium on Nanotechnology, **Cornell University**, Ithaca (2003).
45. Microstructure Evolution and Materials Synthesis in a Mixed-surfactant Mesophase, **Indian Society for Surface Science and Technology**, March (2003).
46. Self-assembly for Nanomanufacturing, Indo-US Forum on Advanced Manufacturing, **Indian Institute of Technology, Kanpur**, March 2004.
47. Microstructure Evolution and Materials Synthesis in a Mixed-surfactant Mesophase, Department of Materials Science, **Rensselaer Polytechnic Institute**, April (2004)
48. Microstructure Evolution and Materials Synthesis in a Mixed-surfactant Mesophase, Division of Engineering, **Brown University**, April (2004)
49. Microstructure Evolution and Materials Synthesis in a Mixed-surfactant Mesophase, **French-German Network Meeting on Complex Fluids**, Toulouse, May (2004).
50. Nanostructured Materials, **Brown University Enterprise Forum**, September (2004).
51. Imaging of Soft Matter, **International Conference on Soft Matter**, Kolkata, November (2004).
52. Microstructure Evolution and Materials Synthesis in a Mixed-surfactant Mesophase, **MRS Boston Meeting**, December (2004).
53. Microstructure Evolution and Materials Synthesis in a Mixed-surfactant Mesophase, **Joint Meeting, American Institute of Chemical Engineers and Indian Institute of Chemical Engineers**, Mumbai, December (2004).

54. Microstructure Evolution in a Mixed-surfactant Mesophase, Department of Chemistry, **Purdue University/Indiana University**, April (2005).
55. Microstructure Evolution in a Mixed-surfactant Mesophase, Department of Chemistry, **National Institute of Materials Science**, Tsukuba, Japan, June (2005).
56. Single-Step Synthesis of Catalyst Support Nanostructured Materials – **Honda America**, November (2005).
57. Microstructure Evolution and Materials Synthesis in a Mixed-surfactant Systems, **College of Pharmacy, URI**, December (2005).
58. Microstructure Evolution and Materials Synthesis in a Mixed-surfactant Mesophase, **Department of Chemistry, University of Massachusetts**, Amherst, May (2006).
59. Microstructure Evolution and Materials Synthesis in a Mixed-surfactant Mesophase, **Department of Chemical Engineering, Ohio State University**, Columbus, September (2006).
60. Microstructure Evolution and Materials Synthesis in a Mixed-surfactant Systems, **Department of Chemical Engineering, University of Florida**, Gainesville, September (2006).
61. Microstructure Evolution and Materials Synthesis in a Mixed-surfactant Mesophase, **Department of Chemical Engineering, Tufts University**, Medford, October (2006).
62. Microstructure Evolution and Materials Synthesis in a Mixed-surfactant Mesophase, **Saha Institute**, Kolkata, India, March (2007).
63. Microstructure Evolution and Materials Synthesis in a Mixed-surfactant Mesophase, Institute of Materials Science, **University of Connecticut**, Storrs, April (2007).
64. Microstructure Evolution and Materials Synthesis in a Mixed-surfactant Mesophase, Institute of Materials Science, **University of Massachusetts**, Dartmouth, October (2007).
65. Microstructures in Complex Fluids – International Conference in Sort Matter, **Jadavpur University**, February (2008).
66. Microstructures in Complex Fluids – Department of Chemical Engineering, **Rensselaer Polytechnic Institute**, April (2008).
67. Templated Synthesis of Inorganic Nanocomposites, **Cabot Corporation Conference on Templated Synthesis**, Billerica, MA (2008).

68. Microstructures in Complex Fluids, Plenary Lecture, **BUET Conference in Chemical Engineering**, Dhaka, (2008).
69. Microstructures in Complex Fluids- Imaging and Applications, **UMass, Lowell**, (2009)
70. Microstructures in Complex Fluids- Imaging and Applications, Sigma Xi lecture, **US Army Soldier Systems Command**, Natick, (2009).
71. Microstructures in Complex Fluids- Imaging and Applications, **Cabot Corporation**, Billerica, (2010).
72. Microstructures in Complex Fluids- Imaging and Applications, **Yale University**, New Haven, (2010).
73. Self-Healing Concrete, **IMPLAST 2010**, Providence (2010).
74. pH Responsive Particles For Making Emulsions And Their Deployment For Partitioning of Aromatic Hydrocarbons, **Particles 2011**, Berlin (2011).
75. Self-Healing Concrete, **NEMSEA**, Providence (2011).
76. Nanoparticle Assembly at Oil-Water Interfaces – Challenges and Application to Oil Emulsification, **Indo-US Conference on Nanoparticle Assembly**, New Delhi (2011).
77. Pickering Emulsions – New Insights and Applications, **University of Connecticut**, (2013).
78. Understanding Surfactant- and Nanoparticle-containing Soft Materials by Microfluidic Blotless Cryo-TEM & Other Techniques, **Procter and Gamble**, (2013).
79. Emulsions, Electrodes and Polymer Composites Using Carbon Black and Graphene-Based Materials, **Cabot Corporation**, (2014).
80. Emulsions, Electrodes and Polymer Composites Using Carbon Black and Graphene-Based Materials, **Arizona State University**, (2014).
81. Emulsions, Electrodes and Polymer Composites Using Carbon Black and Graphene-Based Materials, **Illinois Institute of Technology**, (2014).
82. Emulsions, Electrodes and Polymer Composites Using Carbon Black and Graphene-Based Materials, **University of Florida**, (2014).
83. Microstructure and Rheology Evolution of Multilamellar Vesicle Suspensions upon Addition of Modifiers, **Procter and Gamble**, (2014).

84. Emulsions, Electrodes and Polymer Composites Using Carbon Black, Silica and Graphene-Based Materials, **TU- Braunschweig**, (2015).
85. Emulsions and Electrodes Using Carbon Black and Graphene-Based Materials, **UC Berkeley** (2017).
86. Emulsions and Electrodes Using Carbon Black and Graphene-Based Materials, **UCLA** (2017).
87. Emulsions, Electrodes and Sensors Using Particles – 3 Stories, **Stevens Institute of Technology**, (2018).
88. Batteries – why do we need them and what are we doing about it, **University of Rhode Island** (2019).
89. Energy storage – accomplishments and challenges, **Brown University** (2020).

### **Consulting**

Cabot Corporation, A.T. Cross Company; Kimberly-Clark Corporation, US Army Natick Research Laboratories, Arkwright Corporation, GTECH Corporation, Vitrimark, NanoSoft Materials

### **Research Awards**

1. The Role of Surfactants in the Spreading of Liquids on Solid Surfaces - **National Science Foundation Research Initiation Grant**, \$51,000; 6/83 - 11/85.
2. Dynamic Effects of Surfactants in the Spreading of Liquids on Solid Surfaces - **ACS Petroleum Research Fund**, \$15,000; 6/84 - 6/86.
3. A Novel Technique for the Measurement of Diffusion Coefficients of Surfactants - **URI Foundation Grant**, \$600; 1/86 - 3/86.
4. Novel Surface Production by Laser Processing of Polymers - **URI Faculty Research Grant**, \$2500; 6/86 - 8/86
5. Critical Sessile Drop Volumes on Inclined Solid Surfaces - **ACS-Project SEED**, \$1500; 7/86 - 9/86.
6. Wetting of Solids by Surfactant Solutions - **ACS-Petroleum Research Fund**, \$35,000; 6/86 - 8/88.
7. Effects of Solid Substrate Charge on Static and Dynamic Contact Angles - **URI Research Council Award**, \$750; 6/87 - 8/87.

8. Interfacially Mediated Synthesis of High  $T_c$  Superconductors in Single Compartment Vesicles - **National Science Foundation**, \$30,000; 5/88 - 9/89.
9. Surfactants, Substrate Charge and Wettability - **ACS Petroleum Research Fund**, \$40,000; 1/89 - 12/90.
10. Analysis and Novel Applications of Langmuir-Blodgett Coating for Electronic and Optical Device Fabrication - **R.I. Center for Thin Film and Interface Research**, \$10,000; 1/90 - 12/90.
11. Fiber Wetting - **Kimberly-Clark Corporation**, \$10,400; 1/90 - 12/90.
12. Separation of Cells and Biological Macromolecules by Antibody Targeted Magnetic Vesicles - **URI Foundation**, \$9,100; 6/90 - 12/90.
13. Separation of Cells and Biological Macromolecules by Antibody Targeted Magnetic Vesicles - **Rosensweig Research Grant, Ferrofluidics Corporation**, \$5,000; 9/90 - 12/90.
14. Preparation of Ultrafine Magnetic Particles in Microemulsions and Vesicles (with D.O.Shah, University of Florida) - **National Science Foundation**, \$220,000; 9/90 - 8/92.
15. Separation of Cells and Biological Macromolecules by Antibody Receptor Coated Magnetic Vesicles, **National Science Foundation**, \$36,153; 7/91 - 10/92.
16. Fiber Wetting, **Kimberly-Clark Corporation**, \$8,400; 7/91 - 9/91.
17. Precipitation and Isolation of Silver Halide Nanoparticles, **Eastman Kodak Company**, \$17,000; 9/91 - 3/92.
18. Intravesicular Synthesis and Characterization of Ceramic Nanoparticles, **ALCOA Foundation**, \$7,500; 6/92 - 5/93.
19. Engineering Research Equipment: Cryogenic Stage and Controlled Environment Vitrification System for Cryo-electron Microscopy, **National Science Foundation**, \$50,600; 9/92.
20. Prevention of Backflow in Ink Refills, **A.T. Cross Company**, \$10,845; 9/92 - 12/92.
21. Production of Ultrafine Magnetic Particles in Microemulsions and Vesicles (with D.O. Shah, University of Florida), **National Science Foundation**, \$270,000; 11/92 - 4/95.
22. Engineering Research Equipment: Laser Light Scattering Apparatus, **National Science Foundation**, \$78,000; 4/95 - 8/96.

23. Hybrid Magnetic Field Gradient Rotating Wall Device for Bioseparations, **National Science Foundation**, \$60,000; 3/97 - 9/98
26. Hybrid Magnetic Field Gradient Rotating Wall Device for Bioseparations, **URI Foundation**, \$6,000; 3/97 - 9/97
25. An Automated Instant Lottery Ticket Detection System (with P. Schwartzek), **GTECH Corporation**, \$40,000; 6/97 - 5/98.
26. Investigation of Fluid Physics Around Dynamic Contact Lines, **NASA Lewis Research Center**, \$10,000; 1/98 - 6/98.
27. Engineering Research Equipment: Time-resolved Cryogenic Transmission Electron Microscopy, **National Science Foundation**, \$34,200, 9/98 - 8/00.
28. Robust Modeling of Dynamic Wetting Processes, **National Center for Microgravity Research**, \$40,000, 9/98 – 8/00.
29. Numerical Simulations for the Design of Terrestrial and Microgravity Wetting Microhydrodynamics Experiments, **NASA Lewis Research Center**, \$31,044, 12/98 – 11/00.
30. Lightweight, High Strength Concrete Using Cenospheres", **RI Department of Transportation**, \$78,000, 9/99-8/00 (with A. Shukla).
31. Lightweight, High Strength Composite Materials Using Cenospheres for Acoustic Applications", **URI Transportation Research Center**, \$75,000, 12/99-11/00 (with A. Shukla).
32. Lightweight, High Strength Composite Materials Using Cenospheres", **National Science Foundation**, \$238,825, 9/99-8/02 (with A. Shukla).
33. Numerical Simulations of Moving Contact Line Processes, \$25,633, **NASA** subcontract from CMU, 8/00 – 12/01.
34. Nanostructured Materials Synthesis in a Self-assembled Surfactant Mesophase', **National Science Foundation**, \$469,247, 1/00 - 12/03 (with V. John and G. McPherson, Tulane)
35. Digital Imaging and Analysis for Transmission Electron Microscopy, **National Science Foundation**, \$160,000, 9/00 – 8/02.
36. A New Hybrid Magnetic Field Gradient Rotating Wall Device for Continuous Magnetic Affinity Separations, \$14,000, **URI Foundation**, 1/01- 12/01.
37. Cenosphere-Concrete Composites in Extreme Environments, \$75,000, **RI Department of Transportation**, 6/01 – 5/02 (with A. Shukla).

38. Processing of Cenosphere-Cement/Asphalt Composite Materials and Evaluation of their Mechanical and Acoustic Properties, \$45,000, **URI Transportation Research Center**, 7/01/01 – 6/30/02.
39. Characterization and Manipulation of Asphalt Adhesion to Rock, \$14,850, **RI Department of Transportation**, 8/01 – 6/02.
39. Direct Mechanical Characterization of Asphalt Adhesion to Rock – Influence of Temperature, \$42,150, **RI Department of Transportation**, 6/02 – 5/03.
40. US-Japan Exchange Visit in Nanoscience and Nanotechnology, **National Science Foundation**, \$68,000, 12/03 – 11/04.
42. Surface Energy Measurement in Asphalt Rock Aggregates, **National Center for Highway Research**, \$50,000, 5/03- 4/04.
41. A Continuous Magnetic-Field Reactor for Scavenging Metals”, **Department of Energy**, \$55,106, 5/03-4/04.
42. Nanostructured Materials for Advanced Transportation Applications, **URI Transportation Center**, \$56,353.00.
43. Single-step Synthesis of Catalyst Nanocomposites, **URITC**, \$68,008, 11/05 – 6/07.
44. Single-step Synthesis of Catalyst Nanocomposites”, **Honda Initiation Grant**, \$50,000.
45. Acquisition of a New High Resolution Transmission Electron Microscope for Nanomaterials Research and Education, **National Science Foundation**, \$636,979, 8/06 – 7/08 (primary PI, 4 co-PIs).
46. Confinement effects in amphiphilic systems, **National Science Foundation**, \$174,999, 9/07 – 8/09.
47. Directed Synthesis of Lead Selenide - Titania Core-Shell Nano wire Heterostructures for High-efficiency Low-cost Solar Cells, **RI Space Grant Consortium**, \$28,271, 9/07 – 8/08 (excluding 1:1 match).
48. Single-step Synthesis of Catalyst Nanocomposites”, **Honda Research Institute**, 9/07 – 8/08, \$53,049.
49. Hybrid RF-controlled magnetic nanoparticle/lipid assemblies: Simple, tunable carriers for *in vivo* drug delivery, imaging, and therapy, \$30,770, **RI Space Grant Consortium**, 9/07 – 8/08 (co-investigator with G. Bothun).
50. A Microfluidic Technique for Detection of Bacteria in Ocean Water, **Partnership in**



- Ocean Instrumentation**, URI, 6/07 – 5/08, \$23,000.
51. Synthesis and Evaluation of Self-healing Concrete, 9/07 – 8/08, **RIDOT**, \$68,000,
  52. Synthesis of Nanowire Heterostructures for High-efficiency Low-cost Solar Cells, 9/08 – 8/09, **URITC**, \$45,411 (excluding 1:1 match).
  53. An Integrated Microfluidic Cryo-TEM System for Examination of Nanoscale Structures During Crystal Growth, **BASF Corporation**, (Co-PI: Anubhav Tripathi, Brown University), 9/08 – 8/10, \$168,000.
  54. Self-healing Concrete, **Department of Homeland Security (through Center of Excellence)**, 6/09-5/13, \$55,000 annually
  55. An Integrated Microfluidic Cryo-TEM System for Examination of Nanoscale Structures, **National Science Foundation**, 8/09 – 7/13, \$265,428
  56. Multifunctional and tunable lipid-nanoparticle assemblies, National Science Foundation, (co-PI, PI- G. Bothun) 9/09 – 8/13, \$316,388.
  57. RI Consortium for Nanoscience and Nanotechnology, **Department of Commerce**, 4/10-3/13, Total-\$1,250,000, \$625,000 to URI.
  58. Self-healing concrete, **URITC**, 1/1/11 – 12/31/13, \$100,000
  59. Graphene-Polymer Composite Materials, **RI STAC**, PI, co-PIs – A. Shukla (URI), R. Hurt, A. Tripathi (Brown U.), 5/12-4/14, \$200,000.
  60. Novel Dispersants for Oil Spills, **Gulf of Mexico Research Initiative**, Thrust group leader and co-PI; PI- V. John (Tulane), 9/11 – 12/15, Total - \$10,338,000; \$560,000 to URI.
  61. Fundamental Investigations of Mechanical and Chemical Degradation Mechanisms in Lithium Ion Battery Materials, **Department of Energy**, co-PI; PIs – P. Guduru (Brown), B. Lucht (URI), 10/11 – 9/17, Total - \$12,000,000; \$4,000,000 to URI.
  62. Multifunctional Colloidal Particles as Dispersants for Maximizing Biodegradation of Crude Oil, **Gulf of Mexico Research Initiative**, PI, co-PIs – M. Levine (URI), A. Tripathi (Brown U.), A. Chauhan (U. Florida), 10/12 – 12/15, \$1,248,000.
  63. Multifunctional and Stimuli-Responsive Core-Shell Nanoparticles Based on Liposome Templating, **National Science Foundation**, G. Bothun- PI, A. Bose, K. Park – co-PIs, 12/13 – 11/16, \$329,904.
  64. Microstructure Evolution in Soft Colloidal Systems, **Procter and Gamble**, 8/13-9/16, \$230,000.

65. An All-Solid Battery for Wearable Technology, **RI Innovation Voucher**, 6/18- 5/19, \$50,000.
66. The Response of Marine Bacteria in Narragansett Bay to Microplastics- a Key Anthropogenic Stressor, **RI STAC**, 7/18 – 6/19, \$80,000.
67. Templated Gold Nanoparticles as Sensitive Substrates for Surface Enhanced Raman Spectroscopy, **NSF C-AIM EPSCoR**, 7-17 – 6/22, \$100,000/yr.
68. All-solid Batteries for Unmanned Underwater Vehicles, **NIUVT**, 1/19 – 12/20, \$200,000.
69. Peering at the Nanoscale- A Scanning Transmission Electron Microscope for Cutting Edge Materials Research and Education, **NSF**, 9/19-8/22, \$2,300,000.
70. Modeling and Analysis of Air-independent Propulsion Systems, **NIUVT**, 2/20 – 1/21, \$50,000.
71. All-solid Batteries for Unmanned Underwater Vehicles, **EaglePicher Technologies**, 5/19 – 4/20, \$15,000

### Courses taught

#### **Graduate**

Hydrodynamic Stability- Linear stability analysis and its application to fluid flow, heat and mass transfer processes with and without free surfaces.

Text: Hydrodynamic and Hydromagnetic Stability - S.Chandrasekhar.

Advanced Transport Phenomena- Advanced concepts in transport processes including perturbation analysis, method of weighted residuals, nonlinear stability and bifurcation theory, FFT technique.

Advances in Interfacial and Colloidal Phenomena- Physical chemistry of surfaces and applications to various transport and colloidal systems.

Texts: Principles of Colloid and Surface Chemistry - P.Hiemenz, R. Rajagopalan, Surface and Intermolecular Forces, J. Israelachvili, Colloidal Forces, D. Evans, H. Wennestrom, Interfacial Phenomena - P.Neogi, C.A.Miller.

Transport Phenomena - Core graduate course covering basic concepts in fluid dynamics, heat and mass transfer.

Texts: Laminar Flow and Convective Transport Processes - L. Gary Leal; Transport Phenomena - R.B.Bird, W.E.Stewart, E.N.Lightfoot.

Mass Transfer - Advanced concepts in mass transfer unit operations.

Bionanotechnology (co-taught with G. Bothun): Graduate/Senior undergraduate class; includes colloidal phenomena, examples of applications of nanotechnology to biology and medicine.

### **Undergraduate**

Minicomputer Interfacing Laboratory- Use of personal computers for data acquisition and control of laboratory experiments.

Mass Transfer Operations - Unit operations in mass transfer.

Text : Mass Transfer Operations - R.E.Treybal.

Heat and Mass Transfer - Heat transfer by conduction, convection and radiation; heat exchanger design; heat transfer coefficients; non-dimensionalization of the energy equation; use of the species continuity equation for solution of mass transfer problems.

Text : Heat, Mass and Momentum Transfer - C.O.Bennet, J.E.Myers.

Introduction to Material and Energy Balances - Introductory course on heat and mass balances in chemical processes.

Unit Operations Laboratory - Laboratory course in fluid dynamics, heat and mass transfer unit operations.

Numerical methods – Mathematical modeling of chemical processes; solutions to those models using a range of numerical methods.

Introduction to Engineering - Freshman course introducing engineering analysis, experimentation, design.

Transport Phenomena I – Junior course in Fluid Mechanics.

Bionanotechnology (co-taught with G. Bothun)– Graduate/Senior undergraduate class; includes colloidal phenomena, examples of applications of nanotechnology to biology and medicine.

Nanotools (co-taught with G. Bothun, V. Craver): Undergraduate course exposing students to SEM, TEM, AFM and light scattering.

### **Professional Activities**

1982 - **Reviewer** for NSF, DOE and ACS-PRF proposals and manuscripts for Physics of Fluids, A.I.Ch.E. Journal, Journal of Colloid and Interface Science, Langmuir, Journal of Physical Chemistry, Industrial and Engineering Chemistry, Physicochemical Hydrodynamics, Chemical Engineering Science, Surface and

Colloids, Chemistry of Materials, ACS Applied Materials and Interfaces, Macromolecules, ACS Nano, Soft Matter, Nature Communications.

- 1985 "Transport Phenomena in Liquid-Solid and Solid-Vapor Systems", **Session Chair**, Annual A.I.Ch.E. Meeting, Chicago.
- 1989 **Faculty Affiliate**, Brown/URI Center for Thin Film and Interface Research.
- 1990 "Thin Solid Films - Fundamentals and Applications", **Session Chair**, Annual A.I.Ch.E. Meeting, Chicago.
- 1990 "Organic Thin Films ", **Session Chair**, 3<sup>rd</sup> International Conference on Thin Films and Solid Surfaces, Providence.
- 1990 "Applications of Surfactants to Emerging Technologies", **Session Chair**, 8<sup>th</sup> International Conference on Surfactants in Solution, Gainesville.
- 1991 **Invited speaker**, NSF/BEP Workshop on Interfacial Phenomena and Rheology, Washington.
- 1991 **Invited speaker**, NASA Microgravity Fluid Sciences Workshop, Cleveland.
- 1991 Invited to teach 2-day short course in **Interfacial Phenomena**, Kimberly-Clark Corporation, Neenah.
- 1997 **Invited speaker**, NSF/NIST Workshop on Nanotechnology, Washington.
- 1997 **Panel Member**, SBIR Phase I, National Science Foundation
- 1998 Applications of Microstructured Fluids, **Session Chair**, A.I.Ch.E. Meeting, Miami.
- 1999 **Panel Member** and Speaker, US Army Workshop on Nanostructured Materials
- 1999 **Panel Member**, Louisiana Board of Regents proposal Review Board.
- 2000 **Panel Member**, SBIR Phase I, National Science Foundation
- 2001 **Panel member**, AUI-ISSI Review of International Space Station activities
- 2001 **Session Chair**, 75<sup>th</sup> ACS Colloid and Surface Science Symposium, Carnegie Mellon University.
- 2003 Thermodynamics, **Session Co-Chair**, AIChE Meeting, New Orleans.

- 2003 **Invited Speaker**, US-Japan Workshop in Nanotechnology, Cornell University, Ithaca.
- 2003 **Panel Member**, Sensors and Sensor Networks, National Science Foundation
- 2003 **Team Leader**, US-Japan Exchange Program in Nanoscience and Nanotechnology
- 2004 **Team Member**, US-India Symposium on Nanomanufacturing and Nanotechnology, Indian Institute of Technology, Kanpur.
- 2004 **Advisory Committee**, International Conference on Soft Matter, Jadavpur University, Kolkata
- 2004 **Session Chair**, 78<sup>th</sup> ACS Colloid and Surface Science Symposium, Yale University.
- 2005 **Panel reviewer**, NSF - NIRT, March 2005
- 2005- **Advisor**, National Institute of Materials Science, International Center for Young Scientists, Tsukuba, Japan.
- 2006 **Co-founder**, Vitrimark.
- 2006 **Panel reviewer**, NSF- NIRT, March 2006
- 2007 **Panel reviewer**, NSF- MRI, NSF – MRSEC
- 2008 **Panel Reviewer**, NSF MRI
- 2008 Organized **New England Complex Fluids Symposium**, June 2008 (100 attendees from Harvard, Yale, Princeton, Brown, URI, UMass, Brandeis).
- 2008 Interviewed by **Science** magazine on Industry Funding of Academic Research, published, May 2008
- 2008 External Evaluator, Yale University, College of Engineering Dean Search
- 2008 External Reviewer, faculty candidate for promotion, University of Western Australia
- 2009 External Reviewer, faculty candidate for promotion, University of Southern California
- 2010 NSF PIRE on Microfluidics for Biomarker Discovery, Advisory Council Member
- 2010- Institute for Immunology and Informatics, Strategic Advisory Board.

- 2009, 2010,  
2015, 2016,  
2017, 2018  
2019, 2020 Panel reviewer, NSF CAREER, IDR, NSF CBET.
- 2016 Organizer, Particle Assemblies Sessions, ACS Colloid and Surface Science Symposium, Harvard University

### **Theses Supervised**

*Current students in italics*

#### **Ph.D.**

- 1989 S. Padmanabhan, (Cabot Microelectronics Corporation, Nalco)
- 1990 S. Bhandarkar, (Lucent Laboratories, Alfred University, Lawrence Livermore National Labs)
- 1991 S. Wahal, (Buckeye)
- 1993 P. Kota, (Kemicomp)
- 1994 I. Yaacob, (Univ. of Malaysia)
- 1995 S.V. Sonti, (APC)
- 1996 D.E. Finlow, (University of Scranton)
- 2000 A. Ghebremeskel, (Allergan)
- 2001 Y. Xia (Tufts University post-doctoral fellow, current position unknown)
- 2004 V. Agarwal (Cabot, Vertex); winner Outstanding Ph.D. thesis award, URI, 2005
- 2008 A. Jha (Chlorox, UC Berkeley, Post-doctoral fellow, URI Graduate Fellow, 2006-07)
- 2008 J. Sarkar (Honda Research Institute, SDC Materials), URI Graduate Fellow, 2007-08
- 2008 Thesis committee member, Jinkee Lee, Division of Engineering, Brown University
- 2014 H. Katepalli (MIT, Dow)  
Thesis committee member, Vinay Raman (MIT), Pamela Davies (Brown University)
- 2015 A. Saha (Brady Corporation, Intel)
- 2015 I. Chakraborty (Intel)
- 2015 Michael Godfrin (Brown University, Co-Advisor)
- 2017 Y. Zhang
- 2019 A. Abbasi (Brown), Winner of outstanding Ph.D. thesis Award, URI, (2020)

#### **Current Ph.D. students**

2018 - *Tania Thalyta de Oliveira*  
*Joseph Sullivan*  
*Daniel Keane*

Current MS student

*Ian Heino*

**Post-doctoral fellow**

2010-2016 Y. Chen

M.S.

1985 B.S. Damania (Honeywell)  
 1986 S. Padmanabhan.  
 1987 S.Wahal  
 1988 C.A. Odhiambo (winner URI Outstanding Achievement Award, 2008)  
 1992 I. Yaacob  
 1992 S.Sonti  
 1998 S.Somalinga  
 2001 S. Xiao  
 2002 V. Agarwal  
 W. Li  
 2003 N. Barbare  
 2005 A. Jha  
 2005 J. Sarkar  
 2008 G. Truengsatitwong  
 2008 M. Pelletier  
 2008 E. Wujcik  
 2011 I. Chakraborty  
 2011 A. Saha  
 2011 T. Bhattacharya  
 2011 S. Aceto  
 2012 S. Rienke  
 2013 L. Kleinfeldt  
 2014 P. Stellfeld  
 2017 J. Sullivan  
 2018 B. Zelaya-Rincon  
 2019 Sara Haupt  
 2019 Lukas Duwe (Winner of outstanding M.S. thesis Award, URI, 2020)

2002-2004 Professor S. B. Lee, Professor, Department of Chemical Engineering, Cheju University, S. Korea, spent his sabbatical leave with my group.

B.S. Over 35 students have completed research projects under my direction.

Served on numerous graduate thesis committees in the Departments of Chemical, Mechanical, Civil and Electrical Engineering, Chemistry, Physics and Pharmacy.

### **University and Departmental Activities**

- 2018 - URI Core Centers Governance Committee
- 2019 URI Sabbatical leave Review Committee
- 2019 Member, Faculty Search Committee, Mechanical Engineering
- 2016 Chair, Department Chair Search Committee
- 2015 (Fall) Interim Chair, Department of Chemical Engineering, University of Rhode Island
- 2012, 2014 - Member, Faculty Search Committee, Department of Chemical Engineering
- 2011 Member, Evaluation Committee for Vice President for Research and Economic Development
- 2007 Member, Provost Search Committee
- 2007 Member, Search Committee for Director of Industrial Technology Transfer
- 2004 - 2009 Department Chair, Department of Chemical Engineering
- 2004 – 2007 Advisor, Class of 2007
- 2005 - Chair, Faculty Search Committee, Department of Chemical Engineering
- 2006 - Faculty mentor for new Assistant Professor of Chemical Engineering
- 2002 - Faculty mentor for Victor J. Baxt Professor of Chemical Engineering.
- 2001- 02 Chair, Graduate Committee, Department of Chemical Engineering, University of Rhode Island.
- 2000 Member, Victor J. Baxt Professor Search Committee, Department of Chemical Engineering, University of Rhode Island.
- 1999 Chair, Victor J. Baxt Professor Search Committee, Department of Chemical Engineering, University of Rhode Island.
- 1998 Chair, Department Chair Search Committee, Department of Chemical Engineering, University of Rhode Island.
- 1998 Chair, Dean Evaluation Committee, University of Rhode Island.
- 1998 - 99 Chair, Undergraduate Committee, University of Rhode Island.



- 1994 - 95     Chair, Chester H. Kirk Professor Search Committee, Department of Chemical Engineering, University of Rhode Island.
- 1982 - 94     Member, Graduate Committee, Department of Chemical Engineering, University of Rhode Island.
- 1989 - 92     Chair, Graduate Committee, Department of Chemical Engineering, University of Rhode Island.
- 1984 - 86     Advisor, Chemical Engineering Class of 1986, University of Rhode Island.
- 1988 - 90     Advisor, Chemical Engineering Class of 1990, University of Rhode Island
- 2004 -         Advisor, Chemical Engineering Class of 2006, University of Rhode Island
- 1985 - 88     Member, Faculty Senate, University of Rhode Island.
- 1986 - 88     Chair, Computer Committee, Department of Chemical Engineering, University of Rhode Island.
- 1987 - 89     Departmental Representative, Engineering Computer Committee.

### **Personal**

Date of Birth         : July 31, 1955  
Married                : Nazneen Aziz  
Children                : Rahela (b. July 15, 1988); Razina (b. February 28, 1992)  
Citizenship            : USA