Malancha Gupta, PhD
925 Bloom Walk, HED 216
Los Angeles, CA 90089-1211
malanchg@usc.edu, 213-740-2067

Academic Positions

Associate Professor, April 2015-present
Mork Family Department of Chemical Engineering and Materials Science
Holder of the Jack Munushian Early Career Chair
Courtesy appointment in the Department of Chemistry
University of Southern California
Assistant Professor, August 2009-April 2015
Mork Family Department of Chemical Engineering and Materials Science
University of Southern California
Postdoctoral Fellow, **July 2007–August 2009**
Department of Chemistry and Chemical Biology
Harvard University
Advisor: *George M. Whitesides*
Research Assistant, **September 2002–July 2007**
Department of Chemical Engineering
Massachusetts Institute of Technology
Advisor: *Karen K. Gleason*

Education

PhD in Chemical Engineering, 2007
Massachusetts Institute of Technology, Cambridge, MA
Thesis Title: Initiated chemical vapor deposition of fluoropolymer coatings for the surface modification of complex geometries, *Advisor*: Karen K. Gleason
MS in Chemical Engineering, 2004
Massachusetts Institute of Technology, Cambridge, MA
BS in Chemical Engineering, *summa cum laude*, 2002
The Cooper Union, New York City, NY

Awards and Honors

USC Viterbi School of Engineering Junior Faculty Award, 2014
National Science Foundation CAREER Award, 2013-2018
Jack Munushian Early Career Chair, 2013-2018
American Chemical Society Petroleum Research Fund Doctoral New Investigator, 2012-2014
Selected Participant in NAE Frontiers of Engineering Education (FOEE) symposium, 2012
MIT Chemical Engineering Special Service Award, 2004
Elmer J. Badin Chemistry Award, Cooper Union, 2002
Howard M. Siegel Memorial Prize in Chemical Engineering, Cooper Union, 2002

Peer-Reviewed Publications

(40) "All-Dry Fabrication of Poly(methacrylic acid)-Based Membranes with Controlled Dissolution Behavior," S. Seidel, P. Kwong, **M. Gupta**, *Macromolecular Materials and Engineering*, 2015, in press.
(39) "Effect of Transition Metal Salts on the Initiated Chemical Vapor Deposition of Polymer Thin Films," P. Kwong, S. Seidel, **M. Gupta**, *Journal of Vacuum Science & Technology A*, 2015, 33, 031504.

(38) "Copolymerization of 1-Ethyl-3-vinylimidazolium bis(trifluoromethylsulfonyl)imide via Initiated Chemical Vapor Deposition," L. C. Bradley, **M. Gupta**, *Macromolecules*, 2014, 47, 6657
(37) "Synthesis of Polymer Nanoparticles via Vapor Phase Deposition onto Liquid Substrates," P. D. Haller, **M. Gupta**, *Macromolecular Rapid Communications*, 2014, 35, 2000.
(36) "Systematic Study of the Growth and Morphology of Vapor Deposited Porous Polymer Membranes," S. Seidel, **M. Gupta**, *Journal of Vacuum Science & Technology A*, 2014, 32, 041514.
(35) "Fluoropolymer surface coatings to control droplets in microfluidic devices," C. T. Riche, C. Zhang, **M. Gupta**, N. Malmstadt, *Lab on a Chip*, 2014, 14, 1834-1841.
(34) "Formation of Three-Dimensional Parylene C Structures via Thermoforming" B.J. Kim, B. Chen, **M. Gupta**, E. Meng, *Journal of Micromechanics and Microengineering*, 2014, 24, 065003.
(33) "Patterned Fluoropolymer Barriers for Containment of Organic Solvents within Paper-Based Microfluidic Devices," B. Chen, P. Kwong, **M. Gupta**, *ACS Applied Materials & Interfaces*, 2013, 5, 12701-12707.
(32) "Solventless Fabrication of Porous-on-Porous Materials," P. Kwong, S. Seidel, **M. Gupta**, *ACS Applied Materials & Interfaces*, 2013, 5, 9714-9718.
(31) "Effect of Surface Tension, Viscosity, and Process Conditions on Polymer Morphology Deposited at the Liquid–Vapor Interface," P. Haller, L. Bradley, **M. Gupta**, *Langmuir*, 2013, 29, 11640-11645.
(30) "Formation of Polymer-Ionic Liquid Gels Using Vapor Phase Precursors," R. Frank-Finney, L. Bradley, **M. Gupta**, *Macromolecules*, 2013, 46, 6852-6857
(29) "Formation of Heterogeneous Polymer Films via Simultaneous or Sequential Depositions of Soluble and Insoluble Monomers onto Ionic Liquids," L. Bradley, **M. Gupta**, *Langmuir*, 2013, 29, 10448-10454.
(28) "Hybrid Microcavity Humidity Sensor," S. Mehrabani, P. Kwong, **M. Gupta**, A.M. Armani, *Applied Physics Letters*, 2013, 102, 241101.
(27) "Simultaneous Polymerization and Solid Monomer Deposition for the Fabrication of Polymer Membranes with Dual-Scale Porosity," S. Seidel, P. Kwong, **M. Gupta**, *Macromolecules*, 2013, 46, 2976-2983.
(26) "Responsive Polymer Welds via Solution Casting for Stabilized Self-Assembly," B. Chen*, C. T. Riche*, M. Lehmann*, **M. Gupta**, *ACS Applied Materials & Interfaces*, 2012, 4, 6911-6916.
(25) "Vapor Phase Deposition of Functional Polymers onto Paper-Based Microfluidic Devices for Advanced Unit Operations," P. Kwong, **M. Gupta**, *Analytical Chemistry*, 2012, 84, 10129-10135.
(24) "Encapsulation of Ionic Liquids within Polymer Shells via Vapor Phase Deposition," L.C. Bradley, **M. Gupta**, *Langmuir*, 2012, *28*, 10276-10280.
(23) "Two-Phase Microfluidic Droplet Flows of Ionic Liquids for the Synthesis of Gold and Silver Nanoparticles," L.L. Lazarus, C.T. Riche, B.C. Marin, **M. Gupta**, N. Malmstadt, R.L. Brutchey, *ACS Applied Materials & Interfaces*, 2012, *4*, 3077-3083. (**Front Cover**)
(22) "Ultrathin Free-Standing Polymer Films Deposited onto Patterned Ionic Liquids and Silicone Oil," R.J. Frank-Finney, P.D. Haller, **M. Gupta**, *Macromolecules*, 2012, *45*, 165-170.
(21) "Self-Assembly of Pillars Modified with Vapor Deposited Polymer Coatings," B. Chen, S. Seidel, H. Hori, **M. Gupta**, *ACS Applied Materials & Interfaces*, 2011, *3*, 4201-4205. (**Front Cover**)
(20) "Directed Deposition of Functional Polymers onto Porous Substrates Using Metal Salt Inhibitors," P. Kwong, C.A. Flowers, **M. Gupta**, *Langmuir*, 2011, *27*, 10634-10641.
(19) "Vapor Deposition of Cross-linked Fluoropolymer Barrier Coatings onto Pre-assembled Microfluidic Devices," C.T. Riche, B.C. Marin, N. Malmstadt, **M. Gupta**, *Lab on a Chip*, 2011, *11*, 3049-3052. (**Front Cover**)
(18) "Vapor-Phase Free Radical Polymerization in the Presence of an Ionic Liquid," P.D. Haller, R.J. Frank-Finney, **M. Gupta**, *Macromolecules*, 2011, *44*, 2653-2659.
(17) "Three-dimensional patterning of porous materials using vapor phase polymerization," P. D. Haller, C. A. Flowers, **M. Gupta**, *Soft Matter*, 2011, *7*, 2428-2432.
(16) "Patterned Paper as a Template for the Delivery of Reactants in the Fabrication of Planar Materials," P.J. Bracher, **M. Gupta**, G.M. Whitesides, *Soft Matter*, 2010, *6*, 4303-4309.

(15) “Patterning Precipitates of Reactions In Paper,” P.J. Bracher, **M. Gupta**, G.M. Whitesides, *Journal of Materials Chemistry*, 2010, *20*, 5117-5122.
(14) “Heterogeneous Films of Ionotropic Hydrogels Fabricated from Delivery Templates of Patterned Paper,” P.J. Bracher, **M. Gupta**, E.T. Mack, G.M. Whitesides, *ACS Applied Materials & Interfaces*, 2009, *1*, 1807-1812.
(13) “Measuring Densities of Solids and Liquids Using Magnetic Levitation: Fundamentals,” K.A. Mirica, S.S. Shevkoplyas, S.T. Phillips, **M. Gupta**, G.M. Whitesides, *Journal of the American Chemical Society*, 2009, *131*, 10049-10058.
(12) “Shaped Films of Ionotropic Hydrogels Fabricated Using Templates of Patterned Paper,” P.J. Bracher, **M. Gupta**, G.M. Whitesides, *Advanced Materials*, 2009, *21*, 445-450.
(11) “Surface Modification of High Aspect Ratio Structures with Fluoropolymer Coatings Using Chemical Vapor Deposition,” **M. Gupta**, K.K. Gleason, *Thin Solid Films*, 2009, *517*, 3547-3550.
(10) “Egg Beater as Centrifuge: Isolating Human Plasma from Whole Blood in Resource-poor Settings,” A.P. Wong, **M. Gupta**, S.S. Shevkoplyas, G.M. Whitesides, *Lab on a Chip*, 2008, *8*, 2032-2037, also featured in Science, Popular Science, and BBC News.
(9) “FLASH: A Rapid Method for Prototyping Paper-Based Microfluidic Devices,” A.W. Martinez, S.T. Phillips, B.J. Wiley, **M. Gupta**, G.M. Whitesides, *Lab on a Chip*, 2008, *8*, 2146-2150, also featured in Nature Chemistry.
(8) “Initiated Chemical Vapor Deposition (iCVD) of Conformal Polymeric Nanocoatings for the Surface Modification of High-Aspect-Ratio Pores,” **M. Gupta**, V. Kapur, N.M. Pinkerton, K.K. Gleason, *Chemistry of Materials*, 2008, *20*, 1646-1651.
(7) “Decorated Electrospun Fibers Exhibiting Superhydrophobicity,” M. Ma, **M. Gupta**, Z. Li, L. Zhai, K.K. Gleason, R.E. Cohen, M.F. Rubner, G.C. Rutledge, *Advanced Materials*, 2007, *19*, 255-259.
(6) “Initiated Chemical Vapor Deposition of Poly(Furfuryl Methacrylate),” G. Chen, **M. Gupta**, K. Chan, K.K. Gleason, *Macromolecular Rapid Communications*, 2007, *28*, 2205-2209.
(5) “Initiated Chemical Vapor Deposition (iCVD) of Polymeric Nanocoatings,” T.P. Martin, K.K.S. Lau, K. Chan, Y. Mao, **M. Gupta**, W.S. O’Shaughnessy, K.K. Gleason, *Surface and Coatings Technology*, 2007, *201*, 9400-9405.
(4) “Mechanistic Study of the Initiated Chemical Vapor Deposition (iCVD) of Poly(1H,1H,2H,2H-Perfluorodecyl Acrylate) (PPFDA) Thin Films,” **M. Gupta**, K.K. Gleason, *Langmuir*, 2006, *22*, 10047-10052.
(3) “Large Scale Initiated Chemical Vapor Deposition of Poly(glycidyl methacrylate) Thin Films,” **M. Gupta**, K.K. Gleason, *Thin Solid Films*, 2006, *515*, 1579-1584.
(2) “Superhydrophobic Fabrics Produced by Electrospinning and Chemical Vapor Deposition,” M. Ma, Y. Mao, **M. Gupta**, K.K. Gleason, G.C. Rutledge, *Macromolecules*, 2005, *38*, 9742-9748.
(1) “Conformation and Dynamics of Single DNA in Parallel-Plate Slit Microchannels,” Y.-L. Chen, M.D. Graham, J.J. de Pablo, G.C. Randall, **M. Gupta**, P.S. Doyle, *Physical Review E*, 2004, *70*, 060901.

Book Chapters and Review Articles

(1) "Deposition of Polymers onto New Substrates," **M. Gupta**, book chapter in "CVD Polymers" published by Wiley and edited by Karen Gleason, 2015.
(2) "Initiated Chemical Vapor Deposition of Polymers Onto Liquid Substrates," L. C. Bradley, **M. Gupta**, *Nanoscience and Nanotechnology Letters*, 2015, 7, 2015.
(3) “Chemical Vapor Deposition of Polymer Films,” S. Seidel, C.T. Riche, **M. Gupta**, Encyclopedia of Polymer Science and Technology, 2011, pp.1-26.

Patents

(4) “Porous Polymer Structures and Methods and Articles Relating Thereto,” **Gupta, M.**; Seidel, S.S.; Kwong, P., Patent Application 14/170,874

(3) "Microfluidic Devices Having Solvent-Resistent Coating and Method of Manufacture Thereof," Riche, C.; Malmstadt, N.; Marin, B.; **Gupta, M.**, Patent Application 20140030165
(2) "Density-Based Methods for Separation of Materials, Monitoring of Solid Supported Reactions and Measuring Densities of Small Liquid Volumes and Solids," Phillips, S.T.; Whitesides, G.M.; Mirica, K.A.; Carrilho, E.; Martinez, A. W.; Shevkopylas, S. S.; Snyder, P.W.; Perez-Castillejos, R.; **Gupta, M.**; Winkleman, A.; Gudiksen, K.L., Patent Application EP2167216 A2
(1) "Superhydrophobic Fibers Produced By Electrospinning and Chemical Vapor Deposition," Gleason, K.K.; Rutledge, G.C.; **Gupta, M.**; Ma, M.; Mao, Y., United States Patent 7651760 B2

Invited Seminars

(19) **M. Gupta**. "Directed Deposition of Functional Polymers onto Structured Materials and Liquid Surfaces," *2015 Polymers Gordon Research Conference*, South Hadley, Massachusetts, June 15, 2015.
(18) **M. Gupta**. "Directed Deposition of Functional Polymers onto Structured Materials and Liquid Surfaces," *UC Irvine*, February 20, 2015.
(17) **M. Gupta**. "Directed Deposition of Functional Polymers onto Structured Materials and Liquid Surfaces," *University of Houston*, December 5, 2014.
(16) **M. Gupta**. "Directed Deposition of Functional Polymers onto Structured Materials and Liquid Surfaces," *University of Texas at Austin*, October 7, 2014.
(15) **M. Gupta**. "Directed Deposition of Functional Polymers onto Structured Materials and Liquid Surfaces," *UC Berkeley*, August 15, 2014.
(14) **M. Gupta**. "Deposition of Functional Polymer Coatings onto Microstructured Surfaces," *UC Santa Barbara*, March 10, 2014.
(13) **M. Gupta**. "Directed Deposition of Functional Polymers onto Structured Materials and Liquid Surfaces," *Princeton University*, February 26, 2014.
(12) **M. Gupta**. "Directed Deposition of Functional Polymers onto Structured Materials and Liquid Surfaces," *Cornell University*, February 24, 2014.
(11) **M. Gupta**. "Directed Deposition of Functional Polymers onto Structured Materials and Liquid Surfaces" *The Hong Kong University of Science and Technology*, December 9, 2013.
(10) **M. Gupta**. "Directed Deposition of Functional Polymers onto Structured Materials and Liquid Surfaces," *International Symposium of the American Vacuum Society*, Long Beach, California, October 31, 2013.
(9) **M. Gupta**. "Directed Deposition of Functional Polymers onto Structured Materials and Liquid Surfaces," *UCLA*, October 18, 2013.
(8) **M. Gupta**. "Directed Deposition of Functional Polymers onto Structured Materials and Liquid Surfaces," *Tufts University*, October 3, 2013.
(7) **M. Gupta**. "Directed Deposition of Functional Polymers onto Structured Materials and Liquid Surfaces," *Massachusetts Institute of Technology*, October 2, 2013.
(6) **M. Gupta**. "Initiated Chemical Vapor Deposition of Functional Polymers onto Porous Materials and Liquid Surfaces", *University of Alabama*, April 11, 2013.
(5) **M. Gupta**. "Directed Deposition of Functional Polymers onto Ionic Liquid Surfaces," *Canadian Chemistry Conference and Exhibition*, Calgary, Canada, May 28, 2012.
(4) **M. Gupta**. "Directed Deposition of Functional Polymers onto Porous Materials and Ionic Liquid Surfaces," *Columbia University*, April 10, 2012.
(3) **M. Gupta**. "Directed Deposition of Functional Polymers onto Porous Materials and Ionic Liquid Surfaces," *The Cooper Union*, April 11, 2012.
(2) **M. Gupta**. "Three-Dimensional Patterning of Porous Materials Using Vapor Phase Polymerization" *HRL Laboratories*, Malibu, CA, March 15, 2011.
(1) **M. Gupta**. "Fabrication of Thin Polymer Films and Composites via Vapor Phase Polymerization" *General Atomics*, San Diego, CA, August 16, 2011.

Contributed Conference Talks

(* indicates presenting author)

(19) S. Seidel*, P. Kwong and **M. Gupta**. "Functional porous polymer membranes grown by vapor phase polymerization," *American Chemical Society National Meeting*, San Francisco, California, August 2014.

(18) P. Haller*, L. Bradley and **M. Gupta**. "Vapor-Phase Deposition of Polymers Onto Liquid Substrates," *American Institute of Chemical Engineers 2013 Annual Meeting*, San Francisco, California, November 2013.

(17) S. Seidel*, P. Kwong and **M. Gupta**. "Porous Polymer Membranes By Simultaneous Polymerization and Solid Monomer Deposition," *American Institute of Chemical Engineers 2013 Annual Meeting*, San Francisco, California, November 2013.

(16) S. Seidel* and **M. Gupta**. "Vapor phase deposition of polymer coatings onto porous materials," *American Chemical Society National Meeting*, New Orleans, Lousiana, April 2013.

(15) L. Bradley* and **M. Gupta**. "Vapor Phase Polymerization onto Liquid Surfaces," *American Institute of Chemical Engineers 2012 Annual Meeting*, Pittsburgh, Pennsylvania, October 2012.

(14) **M. Gupta***. "Three-Dimensional Coating and Patterning of Porous Materials Using Vapor Phase Polymerization," *Smart Coatings 2012*, Orlando, Florida, February 2012.

(13) **M. Gupta***. "Vapor-Phase Free Radical Polymerization In the Presence of An Ionic Liquid", *American Institute of Chemical Engineers 2011 Annual Meeting*, Minneapolis, Minnesota, October 2011.

(12) P. Kwong*, C. Flowers, and **M. Gupta**. "Directed Deposition of Functional Polymers Onto Porous Substrates Using Metal Salt Inhibitors," *American Institute of Chemical Engineers 2011 Annual Meeting*, Minneapolis, Minnesota, October 2011.

(11) C. Riche*, Noah Malmstadt, and **M. Gupta**. "Vapor-Phase Polymerization to Modify the Surfaces of Pre-Assembled Microfluidic Devices," *American Institute of Chemical Engineers 2011 Annual Meeting*, Minneapolis, Minnesota, October 2011.

(10) **M. Gupta***. "Free radical polymerization at the vapor/ionic liquid interface," *American Chemical Society National Meeting*, Denver, Colorado, August 2011.

(9) **M. Gupta***. "Vapor-Phase Free Radical Polymerization in the Presence of Ionic Liquids," *2011 IUPAC World Chemistry Congress*, San Juan, Puerto Rico, July 2011.

(8) **M. Gupta***. "Vapor-Phase Free Radical Polymerization in the Presence of Ionic Liquids," *American Physical Society Meeting*, Dallas, Texas, March 2011.

(7) P.D. Haller* and **M. Gupta**. "Vapor Phase Deposition of Polymeric Coatings for Nanostructured Devices", *American Institute of Chemical Engineers 2010 Annual Meeting*, Salt Lake City, Utah, November 2010.

(6) **M. Gupta***, P.J. Bracher, and G.M. Whitesides. "Shaped Films of Ionotropic Hydrogels Fabricated Using Templates of Patterned Paper," *American Institute of Chemical Engineers 2008 Annual Meeting*, Philadelphia, Pennsylvania., November 2008.

(5) **M. Gupta*** and K.K. Gleason. "Initiated Chemical Vapor Deposition of Fluoropolymer Coatings for the Surface Modification of Complex Geometries," *2008 International Conference on Hot-Wire CVD Process*, Cambridge, Massachusetts, August 2008.

(4) **M. Gupta*** and K.K. Gleason. "Surface Modification of Membranes by Initiated Chemical Vapor Deposition," *American Institute of Chemical Engineers 2006 Annual Meeting*, San Francisco, California, November 2006.

(3) **M. Gupta*** and K.K. Gleason. "Initiated Chemical Vapor Deposition of Thin Polymeric Coatings," *American Chemical Society National Meeting*, San Francisco, California, September 2006.

(2) **M. Gupta*** and K.K. Gleason. "Surface Modification of Membranes by Initiated Chemical Vapor Deposition," *American Chemical Society National Meeting*, San Francisco, California, September 2006.

(1) **M. Gupta*** and K.K. Gleason. "Roll-to-Roll Initiated Chemical Vapor Deposition (iCVD) of Functional, Flexible Nanomaterials," *American Institute of Chemical Engineers 2005 Annual Meeting*, Cincinnati, Ohio, November 2005.

Contributed Conference Posters

(* indicates presenting author)
(12) S. Seidel* and **M. Gupta**. "Fabrication of Functional and Responsive Porous Polymer Coatings for Microfluidic Devices and Implants," *Gordon Research Conference on Biointerface Science*, Lucca, Italy, June 2014.
(11) C.T. Riche*, C. Helix-Nielsen, **M. Gupta** and N. Malmstadt. "Direct Incorporation of Intrinsic Membrane Proteins in Giant Lipid and Polymer Vesicles," *Gordon Research Conference on Biointerface Science*, Lucca, Italy, June 2014.
(10) B. Chen*, P. Kwong, and **M. Gupta**. "Patterning Polymer Coatings within Porous Media via Chemical Vapor Deposition," *Society of Vacuum Coaters Annual Technical Conference*, Chicago, Illinois, May 2014.
(9) P. Kwong*, S. Seidel, and **M. Gupta**. "Porous Polymeric Materials Fabricated via Vapor Phase Deposition," *Society of Vacuum Coaters Annual Technical Conference*, Chicago, Illinois, May 2014.
(8) P. Haller* and **M. Gupta**. "Morphology of Polymer Deposited at the Liquid-Vapor Interface," *Gordon Research Conference on Colloidal, Macromolecular, and Polyelectrolyte Solutions*, Ventura, California, February 2014.
(7) L. Bradley*, P. Haller, R. Frank-Finney, **M. Gupta**. "Vapor Phase Polymerization onto Liquid Substrates," *International Symposium of the American Vacuum Society*, Long Beach, California, October 2013.
(6) C.T. Riche*, N. Malmstadt, and **M. Gupta**. "Microflows of Ionic Liquids," *Society of Rheology Annual Meeting*, Pasadena, California, February 2013.
(5) R. Frank-Finney* and **M. Gupta**. "Solventless Fabrication of Polymer-Ionic Liquid Composites," *Society of Rheology Annual Meeting*, Pasadena, California, February 2013.
(4) B. Chen*, S. Seidel, H. Hori, **M. Gupta**. "Self-Assembly of Pillars Modified with Vapor Deposited Polymer Coatings," *American Institute of Chemical Engineers 2011 Annual Meeting*, Minneapolis, Minnesota, October 2011.
(3) C. Riche*, B. Marin, L. Lazarus, R. Brutchey, **M. Gupta**, and N. Malmstadt. "Fluorinated Coatings for PDMS Microfluidic Devices," *Gordon Research Conference on the Physics and Chemistry of Microfluidics*, Waterville Valley, NH, July 2011.
(2) C. Riche*, B. Marin, L. Lazarus, R. Brutchey, **M. Gupta**, and N. Malmstadt. "Effects of surface chemistry on ionic liquid droplet formation in a microfluidic device for reaction synthesis," *American Chemical Society National Meeting*, Anaheim, California, March 2011.
(1) S. Seidel*, P. Kwong, P. Haller, C. Flowers, and **M. Gupta**. "Patterning Vapor-Deposited Polymers onto Porous Substrates," *Gordon Research Conference on Macromolecular Materials*, Ventura, California, January 2011.

Classes Taught at USC

- Fall 2014 *CHE445* Heat Transfer in Chemical Engineering Processes
- Fall 2014 *ENGR 102* Engineering Freshman Academy
- Fall 2013 *CHE445* Heat Transfer in Chemical Engineering Processes
- Fall 2013 *ENGR 102* Engineering Freshman Academy
- Spring 2013 *CHE599* Fundamental and Applied Concepts in Surface Science

- Fall 2012 *CHE445* Heat Transfer in Chemical Engineering Processes
- Spring 2012 *CHE443* Viscous Flow
- Fall 2011 *CHE445* Heat Transfer in Chemical Engineering Processes
- Fall 2010 *CHE445* Heat Transfer in Chemical Engineering Processes
- Fall 2010 *CHE487* Nanotechnology and Nanoscale Engineering Through Chemical Processes
- Fall 2009 *CHE445* Heat Transfer in Chemical Engineering Processes

Undergraduate Researchers Advised at USC

- Ravi Bhandia (January 2015-present)
- Sarah Bass (January 2015-present)
- Christopher Chu Cheong (January 2014-May 2015)
- Valerie Ives (August 2012- May 2013)
- Colin Nozaki (August 2012- May 2013)
- Christian Sanchez (August 2012- May 2013)
- Ariane Both (January 2010- May 2012)
- Marcus Lehmann (January 2010-May 2012)
- Cristofer Flowers (November 2009-May 2011)
- Jin Yoon (June 2010-November 2010)
- Meghan Keck (January 2010-May 2010)
- Catherine Murray (September 2009-May 2010)

PhD Students Advised at USC

- Patrick Haller (August 2009-August 2014)

Thesis Title: *Vapor Phase Deposition of Polymers in the Presence of Low Vapor Pressure Liquids*

Current Position: *Owens Corning*

- Philip Kwong (August 2010-May 2015)

Thesis Title: *The Patterning of Polymer Thin Films on Porous Substrates via Initiated Chemical Vapor Deposition*

Current Position: *Oakley*

- Carson Riche (August 2010-present)

Thesis Title: *Microfluidics for High-Throughput Manufacturing*

- Robert Frank-Finney (August 2010-present)

Thesis Title: *Polymerization of Vapor Phase Precursors Using Liquid Substrates*

- Scott Seidel (August 2010-present)

Thesis Title: *Simultaneous Monomer Deposition and Polymerization at Low Substrate Temperatures for the Formation of Porous Polymer Membranes*

- Benny Chen (August 2010-present)

Thesis Title: *Polymeric Coating Modification of Complex Geometries for Functional Surfaces*

- Laura Bradley (August 2011-present)

Thesis Title: *Fabrication of Polymer Films on Liquid Substrates via Initiated Chemical Vapor Deposition: Controlling Morphology and Composition*

- Golnaz Dianat (August 2014-present)

Thesis Title: *Fabrication of Porous Membranes of Controlled Porosity and Chemical Functionality*

- Mark DeLuna (August 2014-present)

Thesis Title: *Deposition of Functional Polymers onto Parylene Surfaces*

Current Funding

(8) *Title:* Kinetic and Mechanistic Study of Vapor-Phase Free Radical Polymerization onto Liquid Surfaces
Principal Investigator: **Malancha Gupta**
Funding Agency: Department of Energy
Duration: August 15, 2014-August 14, 2016
Amount: $250,000
This proposal aims to experimentally and computationally study polymerization on liquid surfaces.

(7) *Title:* CAREER: Integrating Research and Education via Low-Temperature Solventless Formation of Hierarchical Porous-on-Porous Materials
Principal Investigator: **Malancha Gupta**
Funding Agency: National Science Foundation, Award Number: 1252651
Duration: February 1, 2013-January 31, 2018
Amount: $459,590
The goal of this proposal is to study the deposition of porous polymer membranes by freezing the monomer while simultaneously polymerizing it.

(6) *Title:* EFRI-BioFlex: Hybrid polymer-paper based multi-sensor implants for continuous remote monitoring
Principal Investigator: Ellis Meng
Co-Principal Investigators: **Malancha Gupta**, James Weiland
Funding Agency: National Science Foundation, Award Number: EFRI-1332394
Duration: October 1, 2013-September 30, 2017
Amount: $660,000 to Gupta ($2,000,000 total)
The goal of this proposal is to develop durable wireless shunts for remote monitoring of hydrocephalus.

(5) *Title:* Green Solventless Fabrication of Ionic Liquid/Polymer Composites Using Vapor Phase Polymerization
Principal Investigator: **Malancha Gupta**
Funding Agency: American Chemical Society Petroleum Research Fund # 52352-DNI5
Duration: September 1, 2012-September 1, 2015
Amount: $100,000
The goal of this study is to fabricate composites composed of polymer and ionic liquids for use as ion conduction membranes for fuel cells.

(4) *Title:* Patterning Vapor Deposited Polymers onto Porous Microfluidic Devices using Transition Metal Salts
Principal Investigator: **Malancha Gupta**
Funding Agency: National Science Foundation, Award Number: 1069328
Duration: March 1, 2011-February 28, 2015
Amount: $299,610
The goal of this study is to understand the use of transition metal salts such as iron chloride and copper chloride to selectively inhibit vapor phase polymerization.

(3) *Title:* Low Soiling Transparent Coatings for Solar Applications
Principal Investigator: **Malancha Gupta**
Sponsor: PPG Industries
Duration: October 9, 2012-June 30, 2013
Amount: $47,650
The goal of this study is to develop self-cleaning hydrophobic coatings.

(2) *Title*: An Engineering Research Center for Biomimetic Microelectronic Systems
Principal Investigator: Mark Humayun
Senior Personnel: **Malancha Gupta**
Funding Agency: National Science Foundation, Award Number: 0310723
Duration: September 1, 2009-August 31, 2012
Amount: $178,421 to Gupta ($37,097,475 total)
The goal of this study is to develop thermoresponsive coatings for retinal implants for reversible adhesion during surgery.

(1) *Title*: Fabrication of Bio-Inspired Nanostructured Polymeric Materials
Principal Investigator: **Malancha Gupta**
Funding Agency: James H. Zumberge Faculty Research and Innovation Fund
Duration: July 1, 2010-June 30, 2011
Amount: $25,000
The goal of this study is to pattern polymers onto poly(dimethylsiloxane) structures.

Service to Department

- Graduate Recruiting Committee, 2014-2015
- Student Symposium Committee, 2014
- Pings Lecture Organizer, 2014
- Faculty Search Committee, 2013-2014

- Pings Lecture Organizer, 2013
- Graduate Recruiting Committee, 2012-2013
- Faculty Search Committee, 2012-2013
- Graduate Recruiting Committee, 2011-2012
- Pings Lecture Organizer, 2012
- Graduate Recruiting Committee, 2010-2011
- Seminar Series Organizer, 2010-2011
- Graduate Recruiting Committee, 2009-2010

Service to USC

- Women in Science and Engineering (WiSE) Advisory Board, 2013-present
- Residential Faculty at Parkside Arts and Humanities Residential College, 2012-present
- STEM Faculty Judge for USC 6th Annual Graduate Research Symposium, 2014
- Viterbi Undergraduate Award selections committee, 2014
- Viterbi School of Engineering WiSE Committee, 2012-2013
- Faculty Judge for the Third Annual Graduate and Professional Student Senate (GPSS) Poster Symposium, 4/6/11
- Viterbi Academic Career Mentoring Panelist, 11/20/09
- AIChE-USC Career Mentoring Panelist, 9/29/09
- USC Women in Science and Engineering (WiSE) Career Mentoring Panelist, 9/16/09
- Thesis Committees:
  Farnoosh Fazlollahi (Chemical Engineering), Mirmohammadyousef Motamedhashemi (Chemical Engineering), Jeremy Cain (Mechanical Engineering), Jorge Osuna (Chemistry), Alireza Moshaverinia (Dentistry), Lessa Grunenfelder (Materials Science), Chi-Lin Lee (Chemical Engineering), Yasaman Dayani (Chemical Engineering), Bing Xu (Chemistry), Saptaparna Das (Chemistry), Maria Chistiakova (Chemical Engineering), Alia Latif (Chemistry), Matthew Greaney (Chemistry), Elena Ferri(Chemistry), Majid Monji (Chemical Engineering), Andrew Bartynski (Chemical Engineering), Curtis Lee (Biomedical Engineering), Ming Li (Chemistry), Piyush Deokar (Chemistry), Chupei Zhang (Chemical Engineering), Shalene Sankhagowit (Chemical Engineering), Jinxu Fang (Chemical Engineering), Yinghui Hu (Mechanical Engineering), Brian Kim (Biomedical Engineering)

Service to Professional Organizations

- Session Chair, *Polymer Thin Films and Interfaces*, American Institute of Chemical Engineers 2014 Annual Meeting, Atlanta, GA.
- Session Chair, *Nanostructured Polymer Films*, American Institute of Chemical Engineers 2014 Annual Meeting, Atlanta, GA.

- Session Chair, *Plasma Science and Gas Phase Deposition Techniques*, American Institute of Chemical Engineers 2014 Annual Meeting, Atlanta, GA.
- NSF Panel Reviewer, CMMI, April 2014
- Session Chair, *Polymer Thin Films and Interfaces I*, American Institute of Chemical Engineers 2013 Annual Meeting, San Francisco, CA.
- Session Chair, *Gas Phase Deposition Processes*, American Institute of Chemical Engineers 2013 Annual Meeting, San Francisco, CA.
- Discussion Leader, *Polymers with Natural Components*, 2013 Polymers Gordon Research Conference, Mount Holyoke College, South Hadley, MA.
- NSF Panel Reviewer, CMMI, June 2013
- Session Chair, *Gas Phase Deposition and Interfacial Phenomena*, American Institute of Chemical Engineers 2012 Annual Meeting, Pittsburgh, Pennsylvania.
- Session Chair, *Polymer Thin Films and Interfaces II*, American Institute of Chemical Engineers 2012 Annual Meeting, Pittsburgh, Pennsylvania.
- NSF Panel Reviewer, CMMI, June 2012
- Session Co-Chair, *Gas Phase Deposition*, American Institute of Chemical Engineers 2011 Annual Meeting, Minneapolis, Minnesota.
- Session Co-Chair, *Polymers For Energy Storage*, American Institute of Chemical Engineers 2011 Annual Meeting, Minneapolis, Minnesota.
- NSF Panel Reviewer, CMMI, May 2011
- Session Chair, *USC-DOE Materials for Energy Applications Conference*, Rancho Palos Verdes, California, March 2011
- NSF Panel Reviewer, CBET, November 2010
- Session Co-Chair, *Ionic Polymers and Gels*, American Institute of Chemical Engineers 2010 Annual Meeting, Salt Lake City, Utah.
- NSF Panel Reviewer, CBET, May 2010
- NSF Panel Reviewer, CMMI, January 2010
- Session Co-Chair, *Ionic Polymers and Gels*, American Institute of Chemical Engineers 2009 Annual Meeting, Nashville, Tennessee.
- Reviewer for American Chemical Society Petroleum Research Fund
- Reviewer for *ACS Applied Materials & Interfaces, Langmuir, The Journal of Physical Chemistry, Analytical Chemistry, Biomacromolecules, Macromolecules, Journal of Materials Chemistry A, Lab on a Chip*