

J. CARSON MEREDITH

Professor
School of Chemical & Biomolecular Engineering
Georgia Institute of Technology

I. EARNED DEGREES

University of Texas at Austin	Ph.D. Chemical Engineering	1998
Georgia Institute of Technology	B. Chemical Engineering	1993

II. EMPLOYMENT

1/2012 - present **Associate Chair for Graduate Studies**, School of Chemical & Biomolecular Engineering, Georgia Institute of Technology, Atlanta, GA
4/2011 - present **Professor**, School of Chemical & Biomolecular Engineering, Georgia Institute of Technology, Atlanta, GA
7/2005 – 4/2011 **Associate Professor**, School of Chemical & Biomolecular Engineering, Georgia Institute of Technology, Atlanta, GA
7/2000 – 6/2005 **Assistant Professor**, School of Chemical & Biomolecular Engineering, Georgia Institute of Technology, Atlanta, GA
7/1998 - 7/2000 **NRC/NIST Postdoctoral Research Associate**, Supervisor: Eric Amis
Polymers Division, NIST, Gaithersburg, MD
7/1989 - 3/1992 **Process Engineer**, Cooperative Student Program
Star Enterprise (Texaco) Oil Refinery, Convent, LA

III. TEACHING

A. INDIVIDUAL STUDENT GUIDANCE

Postdoctoral Fellows

1. *Dr. Pratyay Basak*, 9/27/05 – 4/30/06, Current position: Indian Institute of Chemical Technology, Hyderabad, India.
2. *Dr. Santanu Chattopadhyay*, 11/15/02 – 9/28/04, Current position: Assistant Professor, Indian Institute of Technology, Kharagpur, India.
3. *Dr. Sangil Han*, 9/1/10 – 4/15/2012, Current Position: Post doc, MIT CHE Dept.
4. *Dr. Haisheng Lin*, 10/15/10 – present, Project: “Bio-enabled particle adherents for interrogative spectroscopy”
5. *Dr. Shan hong Xu*, 11/14/11 – present, Project: “Fundamental characterization of polymer-CNC nanocomposites for aerospace materials”

Graduate Students

Ph.D.s Completed : 9

1. *Joe-Lahai Sormana*, *Ph.D.*
Current position: Dow Chemical, Springhouse, PA
M.S. Advisement began: Fall 2000, Defended Summer, 2002
Project “High-Throughput Measurement of Mechanical Properties of Combinatorially Prepared Segmented Poly(urethaneurea)”

- Ph.D.** Advisement began: Fall 2000, Defended Summer, 2005
Project: "Combinatorial Characterization of Polymer Nanocomposites"
2. *Krishna Tej Marla, Ph.D.*
Current position: Intel Corporation, Hillsboro, OR
Ph.D. Advisement began: Fall 2000, Defended August 6, 2004
Project: "Modeling Organically-Stabilized Nanoparticle Colloids"
 3. *Jing Su, Ph.D.*; co-advised by Dr. Larry McIntire, BME
Current Position: postdoc at U. Massachusetts, Amherst, Dr. Michael Henson
Ph.D. Advisement began: Fall 2002, Defended December 12, 2007
Project: "Combinatorial Measurement of Cell-Polymer Surface Interactions"
 4. *Gracy Wingkono*
Current position: Hewlett Packard, San Diego, CA
M.S. Advisement began: Fall 2002, Defended July 1, 2004
Project: "Combinatorial Technique for Biomaterial Design"
Ph.D. Advisement began: Fall 2002, Defended May 6, 2008
Project: "Combinatorial Measurement of Cell-Polymer Surface Interactions"
 5. *Charlene Rincon, Ph.D.*
Current position: Amgen Corporation, Puerto Rico
Ph.D. Advisement began: Fall 2003, Defended August 7, 2008
Project: "Development of Semi-Conducting Polymers for Biomaterials"
 6. *Reginald Thio, Ph.D.*
Current position: Assistant Professor, Singapore University of Technology & Design
M.S. Advisement began: Fall 2003, Defended August 2005
Ph.D. Advisement began: Fall 2005, Defended October 2008
Project: "AFM Determination of Bioparticle Adhesion to Nylon"
 7. *Pedro Zapata, Ph.D.*
Current position: Intel Corporation, Hillsboro, OR
M.S. Advisement began: Fall 2001, Defended July 7, 2004
Project: "Combinatorial Measurement of Cell-Polymer Surface Interactions"
Ph.D. Advisement began: Fall 2003, Defended: January 2009
Project: "Design of Polymer Electrode Membranes for Fuel Cells"
 8. *Keith Reed*
Current position: ExxonMobil, Houston, TX
Ph.D. Advisement began: Fall 2004, Defended: Oct. 9, 2009
Project: "High-Throughput Screening of Proton Exchange Membranes for Fuel Cells"
 9. *Jung Hyun Lee*
Current position: Scientist at KIST, Seoul, S. Korea
Ph.D. Advisement began: Fall 2006, Defended: May 2010
Project: "Interfacial Characterization of Mixed Matrix Membranes for Gas Separations"

M.S. (terminal) Completed: 1

1. *Carlos Quant, M.S.*
Current position: BP Corporation, Houston, TX
M.S. Advisement began: Fall 2002, **Defended August 16, 2004**
Project: "Modeling Organically-Stabilized Nanoparticle Colloids"

Current Students: 6

1. *Yi Zhang (co-advised with Sven Behrens)*
Ph.D. Advisement began: Fall 2012, Graduation expected: Summer 2016
Project: "High-Strength, Low-Weight Cellulosic Nanocomposites from Colloidal Assembly"
2. *Donglee Shin*

Ph.D. Advisement began: Fall 2012, Graduation expected: Summer 2016
Project: "Bioenabled Microparticle Adhesion"

3. *Natalie Girouard*

Ph.D. Advisement began: Fall 2011, Graduation expected: Summer 2015
Project: "Fundamental characterization of polymer-CNC nanocomposites for aerospace materials"

4. *Timi Fadiran*

Ph.D. Advisement began: Fall 2010, Graduation Expected: Summer 2014
Project: "Bioinspired Sustainable Optical Materials"

5. *Jie Wu (MSE)*

Ph.D. Advisement began: Fall 2009, Graduation Expected: Summer 2013
Project: "Bioinspired Sustainable Optical Materials"

6. *Ismael Gomez*

Ph.D. Advisement began: Fall 2008, Graduation expected: Summer 2013
Project: "Process for Nanoparticle Attachment to Polymers"

Undergraduate Student Researchers (20): Odion Edeki (Summer 2001), Ernest McIntyre (Fall 2001 – Spring 2002), Farhana Yasmin (Spring – Summer 2002), Zachary Kraus (Summer – Fall 2003), Phil Good (Summer 2005), Elizabeth Almon (Summer – Fall 2006), Daniel Pelletier (Fall 2006), Bridget Goode (Spring-Summer 2007), Lance Rodeman (Fall 2007, Spring-Summer 2008), Mitesh Patel (Summer 2008), Chanel Rogers (Summer 2008), Jennifer Lamont (Fall 2008; Spring 2009), Nishal Patel (Spring 2009, Fall 2009), Joowan Lee (Spring 2009, Summer 2009), Brandon Suttle (Summer 2009, Fall 2009, Summer 2010), Inez Brockman (Spring 2010), Seol Lee (Fall 2010, Spring 2011), Kaitlin Cook (Spring 2011, Fall 2011, Spring 2012), Katelyn Roberts (Spring 2012), Shikin Lockman (Spring 2013)

B. OTHER TEACHING ACTIVITIES

1. *Direct-2-Discovery*, Barrow County science enrichment program.
2. *Science Quest* Speaker, Lovinggood Middle School (Cobb). Spent 1 day giving lectures about nanotechnology research to middle school students, December 22, 2011.
3. Service as CETL/BP Junior Faculty Mentor for Mark Styczynski.
4. Service on 80+ M.S. and Ph.D. Thesis Committees.
5. Hesburgh Award Teaching Fellow, 2010
6. Instructor for Teaching Practicum: Farhana Yasmin, Spring 2011, Donifan Barahona, Spring 2008.
7. GT-Lorraine ChBE Summer Program, Metz, France, 2007. Taught two courses, ChBE 3200 (Transport I) and ChBE 3110 (Thermo II).
8. 2004 Junior Teaching Fellow, CETL.
9. Assisted in teaching two existing graduate surface science courses, ME 7226 and CHE 6210 in 2001.
10. Developed and taught a new ChBE graduate course, "**Colloid Science and Engineering**", offered Fall 2003 and offered in Fall 2005. This course is now being taught by ChBE faculty member Sven Behrens.
11. Co-developed and co-taught a new ChBE undergraduate / graduate course, "**Nanotechnology in Chemical Engineering**", offered Fall 2003 and 2004. Course organizer was Sankar Nair, other faculty were Chris Jones, Joe Schork.
12. Co-developed and taught a new ChBE undergraduate course, "**Product Design, Optimization, and Engineering**", offered Fall 2004 – 2006, 2008 - present.

IV. SCHOLARLY ACCOMPLISHMENTS

A. PUBLISHED BOOKS AND PARTS OF BOOKS

1. Meredith, J.C., Han, S., Gomez, I., Leisen, J., Beckham, H., "Non-Biomedical Applications of Materiomics", in *Materiomics High-Throughput Screening of Biomaterial Properties*, Jan de Boer and Clemens van Blitterswijk, editors, Cambridge University Press, Cambridge, **2012**, in press.
2. Gomez, I., Basak, P., and Meredith, J.C., "Polymer Thickness and Composition Gradients", in *Soft Matter Gradient Surfaces: Methods and Applications*, Genzer, J., Ed., Wiley, **2012**.
3. Wingkono, G. and J.C. Meredith, "Optimization of Microdomain Structure to Control Osteoblast Attachment on Poly(ethylene glycol)-poly(caprolactone) polyurethanes" in *Polymers for Biomedical Applications*, Mahapatro, A. and Kulshrestha, A.S., Eds., *ACS Symposium Series* 977, **2008**, 299-309. (ISI Listed)
4. Su, Jing and Meredith, J.C., "Knowledge Discovery Applications in High-Throughput Polymer Characterization", in *Combinatorial Methods and Informatics in Materials Science*, M. Fasolka, Ed. Materials Research Society, Warrendale, PA, **2006**, 0894-LL05-04.
5. A. Karim, A. Sehgal, J. C. Meredith, A. J. Crosby, and E. J. Amis, "Image analysis for high-throughput materials science" in *High-Throughput Analysis: A Tool for Combinatorial Materials Science*, R. A. Potyrailo and E. J. Amis, Eds., Kluwer, Dordrecht, **2003**.
6. A. Karim, J. C. Meredith, A. Sehgal, and E. J. Amis, "Combinatorial mapping of polymer blend phase behavior" in *Experimental Design for Combinatorial and High-Throughput Materials Development*, J. N. Cawse, Ed., Wiley, New York, **2002**.
7. J. C. Meredith, A. P. Smith, A. J. Crosby, E. J. Amis, and A. Karim "Combinatorial Methods for Polymer Science" in *Encyclopedia of Polymer Science and Technology*, Wiley, New York, **2002**.
8. J. C. Meredith, A. P. Smith, A. Karim, and E. J. Amis "Combinatorial Polymer Science: Synthesis and Characterization", *ACS Symposium Series*, **2001**, 814, 23-47. (ISI Listed)
9. J. C. Meredith and K. P. Johnston, "Modeling and Theory of Colloidal Stability in Supercritical Solvents" in *Supercritical Fluids: Fundamentals and Applications*, E. Kiran, P. Debenedetti, and C. Peters, Eds., *NATO Science Series E*, Kluwer Academic Publishers, Dordrecht, **2000**, 366, 211-227.

B. REFEREED JOURNAL PUBLICATIONS AND ISI-INDEXED PROCEEDINGS

Thompson-Reuters Researcher ID: B-3323-2009

H-Index = 21

Citations = 1,644

1. Haisheng Lin, Ismael Gomez and J. Carson Meredith, "Pollenkitt Wetting Mechanism Enables Species-Specific Tunable Pollen Adhesion", *Langmuir*, **2013**, in press.
2. Sangil Han, Yougui Huang, Taku Watanabe, Sankar Nair, Krista S. Walton, David S. Sholl, J. Carson Meredith, "MOF Stability and Gas Adsorption as a Function of Exposure to Water, Humid Air, SO₂, and NO₂", *Microporous and Mesoporous Materials*, **2013**, in press.
3. Leisen, J., Gomez, I., Roper, J, Meredith, J.C., and H. Beckham, "Spatially Resolved Solid-State ¹H NMR for Evaluation of Gradient-Composition Polymeric Materials", *ACS Combinatorial Science*, **2012**, 14, 415–424.
4. Han, S.; Huang, Y.; Watanabe, T.; Dai, Y.; Walton, K.; Nair, S.; Sholl, D., and J.C. Meredith, "High-Throughput Screening of MOFs for CO₂ Separation", *ACS Combinatorial Science*, **2012**, 14, 263–267.

5. Zapata, P., Lee, J.-H. and J.C. Meredith, "Composite Proton Exchange Membranes from Zirconium-Based Solid Acids and PVDF/Acrylic Polyelectrolyte Blends", *Journal of Applied Polymer Science*, **2012**, 124, E241–E250.
6. Lee, J.-H., and J.C. Meredith, "Non-DLVO Silica Interaction Forces in NMP-Water Mixtures: Part II. Asymmetric System", *Langmuir*, **2011**, 27, 10000-10006.
7. Lee, J.-H., Gomez, I., Sitterle, V. and J.C. Meredith, "Title: Dye-Labeled Polystyrene Latex Microspheres Prepared via a Combined Swelling-Diffusion Technique", *Journal of Colloid and Interface Science*, **2011**, 363, 137-144.
8. Lee, J.-H., Gomez, I. and J.C. Meredith, "Non-DLVO Silica Interaction Forces in NMP-Water Mixtures: Part I. Symmetric System", *Langmuir*, **2011**, 27, 6897–6904.
9. Lee, J.-H., Suttle, B., Kim, H.-J. and J.C. Meredith, "Pollen: A Novel, Biorenewable Filler for Polymer Composites", *Macromolecular Materials and Engineering*, **2011**, 296, 1055–1062.
JOURNAL COVER
10. Lee, J.-H., Zapata, P., Choi, S.H. and J.C. Meredith, "Effect of Nanowhisker-Modified Zeolites on Mechanical and Thermal Properties of Poly(vinyl acetate) Composites with Pure-Silica MFI", *Polymer*, **2010**, 51, 5744-5755.
11. Zapata, P., Mountz, D., and J.C. Meredith, "High Throughput Characterization of Novel PVDF/Acrylic Polyelectrolyte Semi-Interpenetrated Network Proton Exchange Membranes", *Macromolecules*, **2010**, 43, 7625–7636.
12. Thio, B.J.R., Lee, J.-H., Meredith, J.C., and A. Keller, "Influence of solution chemistry on the adhesion of Au nanoparticles to mica using colloid probe atomic force microscopy", *Langmuir*, **2010**, 26, 13995–14003.
13. Rincon, C. and J.C. Meredith, "Effect of FeCl₃ Doping of Poly(3-octylthiophene) Thin Films on Osteoblast Adhesion and Proliferation", *Macromolecular Bioscience*, **2010**, 10, 1536–1543.
14. Rincon, C. and J.C. Meredith, "Osteoblast Adhesion and Proliferation on Poly(3-octylthiophene) Thin Films", *Macromolecular Bioscience*, **2010**, 10, 258-264.
15. Lee, Jung-Hyun, Mahmoud, M., Sitterle, V., Sitterle, J., and J.C. Meredith, "Highly-scattering, SERS-active metal nanoparticle-coated polymers prepared via combined swelling-heteroaggregation", *Chemistry of Materials*, **2009**, 21, 5654-5663.
16. Lee, Jung-Hyun, Thio, Reginald, Bae, Tae-Hyun, and J.C. Meredith, "Role of Lewis Basicity and van der Waals Forces in Adhesion of Silica MFI Zeolites (010) with Polyimides", *Langmuir*, **2009**, 25, 9101-9107.
17. Su, J., Zapata, P., and J.C. Meredith, "Local Cell Metrics: A Novel Method for Analysis of Cell-Cell Interactions", *BMC Bioinformatics*, **2009**, 10, 350.
18. Thio, B.J.R., Lee, Jung-Hyun, and J.C. Meredith, "Characterization of ragweed pollen adhesion to polyamides and polystyrene using atomic force microscopy", *Environmental Science and Technology*, **2009**, 43, 4308–4313.
19. Lee, Jung-Hyun, Mahmoud, M., Sitterle, V., Sitterle, J., and J.C. Meredith, "Facile Preparation of Highly-Scattering Metal Nanoparticle-Coated Polymer Microbeads and Their Surface Plasmon Resonance", *Journal of the American Chemical Society*, **2009**, 131, 5048-5049.
20. Zapata, P., Basak, P., and J.C. Meredith, "High-Throughput Screening of Ionic Conductivity in Polymer Membranes", *Electrochimica Acta*, **2009**, 54, 3899-3909.
21. J.C. Meredith, "Advances in Combinatorial and High-Throughput Screening of Biofunctional Polymers for Gene Delivery, Tissue Engineering and Anti-Fouling Coatings", *Journal of Materials Chemistry*, **2009**, 19, 34-45. **FEATURE ARTICLE**
22. Su, J. and J.C. Meredith, "Local Histogram Analysis: Detecting Cell-Microstructure Interactions on Combinatorial Biomaterial Libraries", *Combinatorial Chemistry and High-Throughput Screening*, **2009** 12, 626-633.

23. Thio, B.J.R. and J.C. Meredith, "Quantification of E. coli Adhesion to Polyamides and Polystyrene with Atomic Force Microscopy," *Colloids and Surfaces B: Biointerfaces*, **2008**, 65, 308-312.
24. Sormana, J.-L., Chattopadhyay, S., and J.C. Meredith, "Mechanical and Thermal Properties of Poly(urethane urea) Nanocomposites Prepared with Diamine-Modified Laponite" *Journal of Nanomaterials*, **2008**, 2008, 869354.
25. Quant, C.A., Marla, K.T., and J.C. Meredith, "Osmotic pressure and chemical potential of silica nanoparticles in aqueous poly(ethylene oxide) solution" *Colloids and Surfaces A: Physicochemical and Engineering Aspects*, **2008**, 317, 129-135.
26. Thio, B.J.R. and J.C. Meredith, "Measurement of polyamide and polystyrene adhesion with coated-tip atomic force microscopy", *Journal of Colloid and Interface Science*, **2007**, 314, 52-62.
27. P. Zapata, J. Su, A. Garcia, J.C. Meredith, "Quantitative High-Throughput Screening of Osteoblast Attachment, Spreading, and Proliferation on Demixed Polymer Blend Micropatterns", *Biomacromolecules*, **2007**, 8, 1907-1917.
28. Marla, Krishna T. and J.C. Meredith, "Simulation of Interaction Forces between nanoparticles in the Presence of Lennard-Jones Polymers. Grafted Modifiers" *Journal of Chemical Theory and Computation*, **2006**, 2, 1624 - 1631.
29. Su, J., and J.C. Meredith, "Knowledge Discovery Applications in High-Throughput Polymer Characterization", *Materials Research Society Proceedings*, **2005**, 894, LL05-04.
30. Sormana, J.-L., Chattopadhyay, S., and J.C. Meredith, "High-Throughput Mechanical Characterization of Free-Standing Polymer Films" *Review of Scientific Instruments*, **2005**, 76, 062214. **INVITED**
31. Quant, C.A., Marla, K.T., and J.C. Meredith, "Expanded Ensemble Monte Carlo Simulation of Attractive Nanocolloid-Polymer Mixtures: Comparison to a Modified Perturbed Lennard-Jones Equation of State" *Macromolecules*, **2005**, 38, 167-173.
32. H.J. Sung, J. Su, J.D. Berglund, B.V. Russ, J.C. Meredith and Z.S. Galis, "The use of temperature-composition combinatorial libraries to study the effects of biodegradable polymer blend surfaces on vascular cells" *Biomaterials*, **2005**, 26, 4557-67.
33. Marla, Krishna T. and J.C. Meredith, "Simulation of Interaction Forces between nanoparticles in the Presence of Lennard-Jones Polymers. I. Freely-adsorbing Homopolymer Modifiers" *Langmuir*, **2005**, 21, 487-497.
34. Chattopadhyay, S. and J. C. Meredith, "Combinatorial Detection of van der Waals Instability in Organic Electronic Thin Films" *Measurement Science and Technology*, **2005**, 16, 128-136. **INVITED**
35. Chattopadhyay, S. and J. C. Meredith, "High-Throughput Characterization of Dewetting and Stability of Semiconducting-Insulating Polymer Thin Film Bilayers" *Macromolecular Rapid Communications*, **2004**, 25, 275-279. **INVITED**
36. Krishna Tej Marla and J. C. Meredith, "Nanoscale Colloids in a Freely Adsorbing Polymer Solution: A Monte Carlo Simulation Study" *Langmuir*, **2004**, 20, 1501 - 1510.
37. J. L. Sormana and J. C. Meredith, "High-Throughput Discovery of Structure-Mechanical Property Relationships for Segmented Poly(urethane-urea)s" *Macromolecules*, **2004**, 37, 2186.
38. H-J. Sung, J. C. Meredith, C. Johnson, Z. S. Galis, "The effect of scaffold degradation rate on three-dimensional cell growth and angiogenesis for the engineering of vascular scaffolds" *Biomaterials*, **2004**, 25, 5735-42.
39. J. C. Meredith, "A Perspective on High-Throughput Polymer Science" *Journal of Materials Science*, **2003**, 38, 4427-37.

40. K. M. Ashley, J. C. Meredith, E. J. Amis, D. Raghavan and A. Karim, "Combinatorial investigation of dewetting: polystyrene thin films on gradient hydrophilic surfaces" *Polymer*, **2003**, *44*, 769-772.
41. K. E. Michael, V. N. Vernakar, B. G. Keselowsky, J. C. Meredith, R. A. Latour, and Andrés J. García, "Adsorption-Induced Conformational Changes in Fibronectin Due to Interactions with Well-Defined Surface Chemistries" *Langmuir*, **2003**, *19*, 8033-8040.
42. J. C. Meredith, J. L. Sormana, B. Keselowsky, A. Garcia, A. Tona, A. Karim, and E. J. Amis "Combinatorial Characterization of Cell Interactions with Polymer Surfaces" *Journal of Biomedical Materials Research*, **2003**, *66*, 483-490.
43. Sormana, J. L. and J. C. Meredith, "High-Throughput Mechanical Characterization of Polymers" *Materials Research Innovations*, **2003**, *7*(5), 295 - 301.
44. Sormana, J. L. and J. C. Meredith, "High-Throughput Impact Measurement of Temperature Gradient Polymer Libraries" *Macromolecular Rapid Communications*, **2003**, *24*, 118-122.
INVITED
45. Marla, K. T. and J. C. Meredith, "Monte Carlo Calculation of Colloidal Nanoparticle Chemical Potentials: Hard Sphere Potential" *Journal of Chemical Physics*, **2002**, *117*, 5443-5451.
46. J. C. Meredith, A. Karim, and E. J. Amis "Combinatorial Methods for Investigations in Polymer Materials Science" *MRS Bulletin*, **2002**, *27*, 330-335.
47. Wang, H., Shimizu, K., Hobbie, E. K., Wang, Z.-G., Meredith, J. C., Karim, A., Amis, E. J., Hsiao, B. S., Hsieh, Han, C. C. "Phase Diagram of a Nearly Isorefractive Polyolefin Blend", *Macromolecules*, **2002**, *35*, 1072-1078.
48. Karim, A., Yurekli, K., Meredith, J. C., Amis, E., Krishnamoorti, R., "Combinatorial Methods for Polymer Materials Science: Phase Behavior of Nanocomposite Blend Films", *Polymer Engineering and Science*, **2002**.
49. Franziska Gröhn, Xiaohong Gu, Holger Gröll, J. C. Meredith, Barry J. Bauer, Alamgir Karim, and Eric J. Amis "Organization of Hybrid Dendrimer-Inorganic Nanoparticles on Amphiphilic Surfaces" *Macromolecules*, **2002**, *35*, 4852-4854.
50. A. P. Smith, J. F. Douglas, J. C. Meredith, E. J. Amis and A. Karim "Combinatorial Study of Surface Pattern Formation in Thin Block Copolymer Films" *Physical Review Letters*, **2001**, *87*, 15503-015506.
51. A. P. Smith, J. F. Douglas, J. C. Meredith, E. J. Amis and A. Karim "High-throughput Characterization of Pattern Formation in Symmetric Diblock Copolymer Films" *J. Polym. Sci. Part B Polym. Phys.*, **2001**, *39*, 2141-2158.
52. J. C. Meredith, A. Karim, and E. J. Amis "High-Throughput Measurement of Polymer Blend Phase Behavior" *Macromolecules*, **2000**, *33*, 5760-5762.
53. J. C. Meredith and E. J. Amis, "LCST Phase Separation in Biodegradable Polymers: Poly(D,L-lactide) and Poly(ϵ -caprolactone)" *Macromol. Chem. Phys.*, **2000**, *201*, 733-739.
54. J. C. Meredith, A. P. Smith, A. Karim, and E. J. Amis "Combinatorial Materials Science for Polymer Thin-Film Dewetting" *Macromolecules*, **2000**, *33*, 9747-9756.
55. J. C. Meredith and K. P. Johnston, "Density Dependence of Homopolymer Adsorption and Colloidal Interaction Forces in a Supercritical Solvent: Monte Carlo Simulation" *Langmuir*, **1999**, *15*, 8037-44.
56. J. C. Meredith and K. P. Johnston, "Theory of Polymer Adsorption and Colloidal Stabilization in Supercritical Fluids 1. Homopolymer Stabilizers" *Macromolecules*, **1998**, *31*, 5507-17.
57. J. C. Meredith and K. P. Johnston, "Theory of Polymer Adsorption and Colloidal Stabilization in Supercritical Fluids 2. Copolymer and Grafted Stabilizers" *Macromolecules*, **1998**, *31*, 5518-28.

58. J. C. Meredith, I. C. Sanchez, J. J. de Pablo, and K. P. Johnston, "Monte Carlo Simulations of Grafted Chains and Colloid Stability in a Compressible Solvent" *J. Chem. Phys.*, **1998**, *109*, 6424-34.
59. G. Luna-Barcenas, D. G. Gromov, J. C. Meredith, I. C. Sanchez, J. J. de Pablo, and K. P. Johnston, "Polymer Chain Collapse near the Lower Critical Solution Temperature" *Chem. Phys. Lett.*, **1997**, *278*, 302-306.
60. G. Luna-Barcenas, J. C. Meredith, D. G. Gromov, I. C. Sanchez, J. J. de Pablo, and K. P. Johnston, "Relationship between Polymer Conformation and Phase Behavior Near the Lower Critical Solution Temperature" *J. Chem. Phys.*, **1997**, *107*, 1-11.
61. J. C. Meredith, K. P. Johnston, J. M. Seminario, S. G. Kazarian, and C. A. Eckert, "Quantitative Equilibrium Constants between CO₂ and Lewis Bases from FTIR Spectroscopy" *J. Phys. Chem.*, **1996**, *100*, 10837-48.
62. K. P. Johnston, J. C. Meredith, and K. L. Harrison, "Spectroscopy: the Fourth Vertex on the Molecular Thermodynamics Tetrahedron" *Fluid Phase Equilibria*, **1996**, *116*, 385-94.

C. OTHER PUBLICATIONS

N/A

D. PRESENTATIONS

INVITED PRESENTATIONS

1. "Pollen as a Novel Biomimetic Adhesive System", Adhesive and Sealant Council, October 23, **2012**, Louisville, KY
2. "Graduate Research Opportunities at Georgia Tech ChBE", Georgia State University Chemistry Club, November, **2012**
3. "Cellulose Nanocomposites for Lightweight Aerospace Applications", USDA FPL-University Research Consortium, Purdue University, March 29, **2012**.
4. "Structure and Transport Properties of Zeolite-Polymer Composite Membranes for Energy Efficient Separations", Nanocomposite Interfaces and Characterization session, TMS2012 Annual Meeting, Orlando, FL, March 13, **2012**.
5. "Alternative Methods for Materiomics", Materiomics Meeting, Amsterdam, Netherlands, April 15, **2011**.
6. Fundamental Topics in Polymeric Composites: Synthesis, Characterization and Processing Session, 2011 Spring American Chemical Society National Meeting, Anaheim, CA, March 30, **2011**.
7. Purdue University-USFS Forestry Nanotechnology Research Program, April 26, **2011**.
8. Biomedical Applications of Polymers Session, 2010 American Chemical Society National Meeting, Boston, August 22-26, **2010**.
9. Combinatorial and High-Throughput Development of Polymeric Biomaterials Session, 2010 Central Regional Meeting of the American Chemical Society, Dayton, OH, June 17, **2010**.
10. University of Delaware, CHE Departmental Seminar, May 14, **2010**, Newark, DE.
11. University of Rochester, CHE Departmental Seminar, September 16, **2009**, Rochester, NY.
12. NIST National Combinatorial Methods Center Workshop, *Screening Tools for PEM Development and Design*, November 6, **2008**, Gaithersburg, MD.
13. American Physical Society, Instructor: *High-Throughput Polymer Development Short Course*, March 7-8, **2008**, New Orleans, LA.
14. Nano@Tech Seminar, *High-Throughput Screening of Advanced Polymeric Materials*, February 12, **2008**, MiRC, Georgia Tech
15. MRS National Meeting, *Session LL: Combinatorial Methods and Informatics in Materials Science*, December **2007**, Boston, MA.
16. Honda R & D Corporation, *Combinatorial Toolkit for Development of PEM Fuel Cell Membranes*, November 14 **2007**, Palo Alto, CA.

17. Technical University of Eindhoven, Department of Chemical Engineering and Chemistry, *High Throughput Screening and Informatics of Polymeric Biomaterials*, November 12, **2007**, Eindhoven, Netherlands.
18. FLAMAC Workshop on High Throughput Polymer Screening, September **2007**, Ghent, Belgium.
19. Arkema Corporation, Research and Development Center, *Combinatorial Toolkit for Development of PEM Fuel Cell Membranes*, May **2007**, King of Prussia, PA.
20. North Dakota State University, Department of Coatings and Polymer Science, Combinatorial Methods Center, April **2007**, Fargo, ND
21. 3rd International Workshop on Combinatorial Materials Development, December **2006**, San Juan, Puerto Rico.
22. MRS National Meeting, *Session LL: Combinatorial Methods and Informatics in Materials Science*, December **2005**, Boston, MA.
23. Arkema Corporation, Research and Development Center, Serquigny, France, August 23, **2005**. *High-Throughput Measurements for Polymers*
24. ACS National Meeting, Session: *Combinatorial Materials Development: Biomaterials*, Sept 1, **2005**, Washington, D.C.
25. 2005 Midwest Thermodynamics and Statistical Mechanics Conference, Purdue University, West Lafayette, IN, May 25-27, **2005**.
26. University of Texas, Dept. of Chemical Engineering Weekly Seminar, Austin, TX, April 6, **2005**.
27. Solvay Advanced Polymers, Inc., Alpharetta, GA, January 24, **2005**.
28. Third US-Japan Workshop on Combinatorial Materials Science, Okinawa, Japan, December 8-10, **2004**. declined invitation due to scheduling conflicts
29. Albany International, Inc., Boston, MA, *High-throughput polymer screening*, September 21, **2004**.
30. University of Florida, Dept. of Chemical Engineering Weekly Seminar, Gainesville, FL, September 20, **2004**.
31. ATOFINA Chemicals, Inc., King of Prussia, PA, *High-throughput mechanical characterization of nylon and PVDF*, ATOFINA Corporate Technical Meeting, September 13, **2004**.
32. ATOFINA Petrochemicals Inc., La Porte, TX, June **2004**, *High-throughput mechanical screening of polymers*.
33. 7th World Biomaterials Congress, May **2004**, Sydney, Australia, *Combinatorial and Computational Approaches to Biomaterials Design Session*
34. Eastman Chemical, Co, April **2004**, Kingsport, TN, *High-throughput mechanical screening of polymers*.
35. ACS National Meeting, March **2004**, Anaheim, CA, *Combinatorial Approaches to Materials Session*, **LEAD SPEAKER**
36. Adhesion Society National Meeting, February **2004**, Raleigh, NC, *Combinatorial Methods in Adhesion Session*
37. MRS National Meeting, Dec **2003**, Symposium JJ: Combinatorial Materials Development, Boston, MA
38. United Technologies Corporation, Hartford, CT February **2003**, "High-Throughput Screening of Polymers"
39. DuPont Inc., Lycra Spandex and Nylon Research Facility, Waynesville, VA May **2003**, "High-Throughput Characterization of Poly(urethaneureas)"
40. Hybrid 2003 Workshop on Inorganic-Organic Hybrid Materials, Mishima, Japan, May 11 -14, **2003**.
41. Atofina Chemicals, Inc., "Combinatorial and High-Throughput Polymer Science", King of Prussia, PA, October 29, **2002**.
42. Air Products and Chemicals, Inc., "High-Throughput Screening of Polyurethaneurea Mechanical Properties", Allentown, PA, October 14, **2002**.
43. Gordon Research Conference on Combinatorial & High Throughput Materials Science, Kimball Union Academy, Meriden, NH June 30 - July 5, **2002**.
44. New Technology Forum, ANTEC2002, Society of Plastics Engineers (SPE), San Francisco, CA, May 5 – 9, **2002**
45. Combinatorial and Composition Spread Techniques in Materials and Device Development III, SPIE-Photonics West, San Jose, CA, January 19-25, **2002**.

46. POLYCHAR-10 World Forum on Polymer Applications and Theory, University of North Texas, Denton, TX, January 8-11, **2002**
47. Combinatorial and Highly Parallel Methods for Materials, ACS National Meeting, Chicago, IL, August, **2001**
48. High-throughput screening of polymers, Milliken, Spartanburg, SC July **2001**
49. Opportunities and Needs in Polymer Science for Measurement Techniques, Standards, and Future Technologies, ACS National Meeting, San Diego, CA, April 1, **2001**
50. Modeling Supercritical Fluids Symposium, COMP Division, 220th ACS National Meeting, August 23, **2000**, Washington, D.C.
51. Workshop on Biodegradable Polymer Microstructures, May 16, **2000**, University of Minnesota-Minneapolis
52. Bio/Environmentally Degradable Polymer Society, 8th Annual Meeting, New Orleans, LA, August 19, **1999**, "LCST Phase Separation in Biodegradable Polymer Blends: Poly(D,L-lactide) and Poly(caprolactone)"
53. Gordon Conference on Reactive Polymers, Ion Exchange, and Adsorbents, Henniker, NH, July 19, **1999**, "Combinatorial Characterization of Thin Polymer Films"
54. NIST Polymers Division, February 2, **1998**, "Steric Stabilization of Colloids in Supercritical Fluids"

CONTRIBUTED PRESENTATIONS (SINCE 2005) (SPEAKER UNDERLINED)

1. Effects of Structure and Chemistry on Pollen Adhesion I. Gomez, H. Lin and C. Meredith, AIChE Annual Meeting, Pittsburgh, PA, October 2012.
2. "High-Throughput Screening of MOFs for CO₂ Separation", C. Meredith, S. Han, Y. Hwang, D. Sholl, K. Walton, B. Koros, S. Nair, AIChE Annual Meeting, Pittsburgh, PA, October 2012.
3. "High-Throughput Screening of MOFs for CO₂ Separation", C. Meredith, S. Han, Y. Hwang, D. Sholl, K. Walton, B. Koros, S. Nair, 7th International Workshop on Combinatorial Materials Science and Technology, October 22, 2012.
4. "Pollen Adhesion to Surfaces: Dependence on Pollen Structure and Pollenkitt", I. Gomez, H. Lin, C. Meredith, MRS National Meeting, San Francisco, CA, April 2012.
5. "Dependence of pollen adhesion to surfaces on pollen structure and pollenkitt", H. Lin and C. Meredith, 243rd ACS National Meeting that will be held in San Diego, California, March 25-29, 2012.
6. "High-throughput screening of metal organic frameworks (MOFs) for CO₂ separation", S. Han, Y. Hwang, C. Meredith, D. Sholl, K. Walton, B. Koros, S. Nair, 243rd ACS National Meeting that will be held in San Diego, California, March 25-29, 2012.
7. "Effects of Structure and Chemistry on Pollen Adhesion", C. Meredith, 2012 Adhesion Society Annual Meeting, New Orleans, LA, February 14, 2012.
8. "High Throughput Screening of Polyurethane Coating Mechanical Properties", I. Gomez, C. Meredith, 2011 AIChE Annual Meeting, Minneapolis, MN, October, 2011.
9. "Pollen as an Advanced Material: Understanding its Adhesion with Polymers", C. Meredith, 2011 Adhesion Society Annual Meeting, Savannah, GA, February 14, 2011.
10. "Mechanical, Structural and Thermal Properties of Polymer Composites Containing Short Ragweed Pollen Grains," B. Suttle, J.H. Lee, C. Meredith, AIChE Annual Meeting, November 2010.
11. "Composite Proton Exchange Membranes From Zirconium-Based Solid Acids and PVDF/Acrylic Polyelectrolyte Blends," P. Zapata, J.H. Lee, C. Meredith, AIChE Annual Meeting, November 2010.
12. "The role of non-DLVO forces in silica interactions in NMP-water mixtures," J.H. Lee, C. Meredith, AIChE Annual Meeting, November 2010.
13. "PVDF-Acrylic Semi-Interpenetrating Network Proton Exchange Membranes," P. Zapata, P. Basak, C. Meredith, AIChE National Meeting, Nashville, TN, 11/9/09.
14. "Role of Specific and Van Der Waals Interactions in Adhesion of Silica MFI Zeolites (010) with Polyimides," J.H. Lee, C. Meredith, AIChE National Meeting, Nashville, TN, 11/12/09.
15. "Facile Preparation of Highly-Scattering Metal-Nanoparticle Coated Polystyrene Latex Beads," J.H. Lee, C. Meredith, AIChE National Meeting, Nashville, TN, Nov. 11, 2009.

16. "Facile Preparation of Highly-Scattering Metal-Nanoparticle Coated Polystyrene Latex Beads and Their Optical Properties," J.H. Lee, C. Meredith, AIChE National Meeting, Nashville, TN, 11/11/09. (poster)
17. "Facile Preparation Method for Optically-Active Metal Nanoparticle Coated Polymer Beads," C. Meredith, J.H. Lee, V. Sitterle, J. Sitterle, M. Mahmoud, DFG-NSF Research Conference 2009: Sustainable Use of Nanomaterials for Novel Engineering Solutions, New York, NY, 10/16/09. (poster)
18. "Facile Preparation of Highly-Scattering Metal-Nanoparticle Coated Polystyrene Latex Beads," J.H. Lee, C. Meredith, 83rd ACS Colloid and Surface Science Symposium, New York, NY, 6/18/09.
19. "Characterization of Pollen Adhesion to Polyamides Using Atomic Force Microscopy," R. Thio, C. Meredith, 82nd ACS Colloid and Surface Sci Symp, Raleigh, NC, 6/17/08.
20. "Algorithms for Screening Large Databases of Cell-Cell and Cell-Surface Interactions," J. Su, C. Meredith, World Biomaterials Congress, Amsterdam, 5/31/08
21. Development of Semi-Conductive Biomaterials for Regulating Cell Growth, C. Rincon, C. Meredith, World Biomaterials Congress, Amsterdam, 5/29/08.
22. "Characterization of Pollen Adhesion to Polyamides and Polystyrene Using Atomic Force Microscopy," B. R. Thio, J.H. Lee, C. Meredith, AIChE National Meeting, Philadelphia, PA 11/17/08.
23. "High-Throughput Bioinformatics Toolset for Local Cell Interactions," C. Meredith, IBSI Chalk Talk, Georgia Tech, 9/3/08.
24. "Osteoblast Attachment and Proliferation on Poly(3-octylthiophene) Thin Films," C. Rincón, C. Meredith, 16th Suddath Symposium, Georgia Tech, 3/7/08.
25. "Development of semiconductive biomaterials for regulating cell growth," C. Rincón, C. Meredith, ACS Spring National Meeting, New Orleans, LA, 4/9/08.
26. "Quantification of bioparticle adhesion to polyamides with atomic force microscopy," R.Thio, C. Meredith, 81st ACS Colloid & Surface Sci. Meeting, Newark, DE, 6/26/07.
27. "Development of Semi-Conductor Biomaterials for Regulating Cell Growth," C. Rincón, S. Chattopadhyay, C. Meredith, AIChE Annual Meeting, Salt Lake City, UT, 11/5/07.
28. "Development of Semi-Conductor Biomaterials for Regulating Cell Growth," C. Rincón, S. Chattopadhyay, C. Meredith, BIO 2007 Annual International Convention, Boston, 5/7/07.
29. "High-Throughput Water Uptake Characterization of Proton Exchange Membranes," K. Reed, P. Zapata, C. Meredith, ACS Spring National Meeting, 2007
30. "Combinatorial Investigation of Osteoblast Response to Nano- and Microstructured Biomaterials," C. Meredith, Su, J., Zapata, P., Wingkono, G., Society for Biomaterials National Meeting, Chicago, IL, April 2007.
31. "Combinatorial Characterization of Osteoblast Attachment Study on Micropatterned Polyurethanes," G. Wingkono, C. Meredith, J. Su, P. Zapata, Society for Biomaterials National Meeting, Chicago, IL, April 2007.
32. "Development of Polymeric Biomaterials Using Combinatorial Methods," C. Rincon, J. Su, G. Wingkono, P. Zapata, and C. Meredith, BIO 2006 International Convention, June 2006, Chicago, IL.
33. "Quantification of bioparticle adhesion to polyamides and polystyrene with atomic force microscopy", R. Thio, C. Meredith, 80th ACS Colloid and Surface Sci Symp, June 2006, Boulder, CO.
34. "High-Throughput Discovery of Cell-Surface Interactions", C. Meredith, Assay Development & High-throughput Screening Conference, June 2006, San Francisco, CA.
35. "Combinatorial Characterization of Micropatterned Polyurethane Cell-Biomaterial Interfaces" G. Wingkono, C. Meredith, September 2006, ACS National Meeting, PMSE Division, San Francisco, CA
36. "Combinatorial toolkit for development of fuel cell proton exchange membranes" P. Zapata, K. Reed, P. Basak, C. Meredith, September 2006, ACS National Meeting, Division of Polymer Chemistry, San Francisco, CA
37. "Cell-Surface Informatics", J.Su and C. Meredith, 1st Gordon Research Conference on Biointerface Science, , October 2006, Les Diablerets, Switzerland.

38. "Combinatorial Biosurface Chips for Quantitative Characterization of Polymer - Cell Interactions", C. Rincon, P. Zapata, J. Su, A. J. Garcia, C. Meredith, November 2006, AIChE National Meeting, San Francisco, CA.
39. "Integrating a High-Throughput Screening Lab and Case-Studies into Product Design Courses", C.W. Jones, C. Meredith, M.J. Realff, November 2006, AIChE National Meeting, San Francisco, CA.
40. "Combinatorial Study of Blended Membranes for PEM Fuel Cells" P. Zapata, P. Basak, K. Reed, C. Meredith, November 2006, AIChE National Meeting, San Francisco, CA.
41. Informatics and Data Mining of Combinatorial Datasets for Cell-Material Interactions, J. Su, P. Zapata, C. Meredith, November 2006, AIChE National Meeting, San Francisco, CA.
42. "Combinatorial cell screening" C. Meredith, Society for Biomaterials Annual Meeting, May 2005, Memphis, TN.
43. "Knowledge Discovery Applications in Combinatorial Biomaterials Screening," J. Su, C. Meredith, AIChE National Meeting, Cincinnati, OH, 2005.
44. "High-Throughput Mechanical Characterization of Polymers," P. Zapata, J. Sormana, C. Meredith, AIChE National Meeting, Cincinnati, OH, 2005.
45. "Quantification of Bioparticulate Adhesion on Polymeric Surfaces Using Atomic Force Microscopy," R. Thio, C. Meredith, AIChE National Meeting, Cincinnati, OH, 2005.
46. "Knowledge Discovery Applications in Combinatorial Biomaterials Screening," J. Su, C. Meredith, 3rd Gordon Conference on Combinatorial Materials Development, Oxford, England, August, 2005.
47. "Combinatorial Biosurface Chip to Study Polymer - Cell Interactions," Zapata, P., Su, J., Chattopadhyay, S., Rincón, C., García, A., Meredith, C., BIO 2005 Annual International Convention, Philadelphia, PA, June 22, 2005.

E. OTHER SCHOLARLY ACCOMPLISHMENTS

1. Wu, J. and Carson Meredith, "Directed Assembly of Polysaccharide Nanofiber Dispersions to Form Materials with Controlled Porosity", GTRC ID 5974, US Provisional Patent Serial # 61/616,228, March 27, 2012.
2. Wu, J. and Carson Meredith, "Controlled-Temperature Freeze Drying of Polysaccharide Nanofiber Dispersions", GTRC ID 5975, US Provisional Patent Serial # 61/616,226, March 27, 2012.
3. Zapata, Pedro, Meredith, Carson, Goldbach, James, and David Mountz, "Organic/inorganic composite membrane compositions of polyelectrolyte blends with nanoparticles", U.S. Patent application, 2010, PCT/US10/38451.
4. Jeff Sitterle, Valerie Sitterle, Carson Meredith, JungHyun Lee, "Three-Dimensional Intraoral Scanning System", US Provisional Patent Application # 61/089,921, August 19, 2008
5. Sormana, J. and Carson Meredith, "Organically Modified Reactive Nanocomposites for Engineering Thermoset Polymers and Elastomers", US Provisional Patent Application, GTRC ID No. 3624, June 1, 2006.

V. SERVICE

A. PROFESSIONAL CONTRIBUTIONS

- Agenda 2020 Nanotechnology of Forest Products Team, 2008-present (American Forest and Paper Association)
- Member of: *AIChE, ACS, MRS, TMS*
- *Guest Editor*, October 2003 Issue of *The Journal of Materials Science*
- Session Chair
Adhesion Society 2012 National Meeting: *Bioinspired Adhesives II*
ACS Spring 2011: *Fundamental Topics in Polymeric Composites: Synthesis, Characterization*

and Processing

AIChE Fall 2007: *Combinatorial Methods in Polymer Science* (08A12)
AIChE Fall 2006: *Surfaces and Interfaces* (T6003)
AIChE Fall 2006: *Nanoscale Structure in Polymers IV: Polymer Nanocomposites* (TF020)
AIChE Fall 2005: *Polymers for Biofunctional Interfaces*
AIChE Fall 2005: *Thermodynamics of Polymers*
AIChE Fall 2004: *Thermodynamics of Polymers*
2nd Gordon Research Conference on Combinatorial & High Throughput
Materials Science, 2004: *Biologically Inspired Materials and Techniques*
Society for Biomaterials 2003 National Meeting: *Combinatorial Characterization of Biomaterials*
ACS 2003 Surfaces and Colloids Division Meeting: *Colloidal Phenomena*
AIChE Fall 2003: *Thermodynamics of Polymers*
AIChE Fall 2002: *Nanoscale Structure in Polymers: Self Organization of Polymers*
AIChE Fall 2001: *Combinatorial Studies of Complex Systems*
AIChE Fall 2000: *Thermodynamic and Transport Properties in Supercritical Fluids*

- Session Co-chair
 - AIChE Fall 2004: *Nanoscale self-organization at interfaces*
 - AIChE Fall 2006: *Nanoscale Structure in Polymers I: Self-organization of Polymers at Surfaces and Interfaces* (TF014)
 - AIChE Fall 2002: *Engineering in Combinatorial Chemistry*
 - AIChE Fall 2001: *Molecular Simulation at High Pressure*
- Reviewer for the following Journals:
 - *Journal of the American Chemical Society* -Soft Matter
 - *Langmuir* -*Journal of Colloid and Interface Science*
 - *Biomaterials* -*Biomacromolecules*
 - *Journal of Biomedical Materials Research* -*ACS Combinatorial Science*
 - *Journal of Chemical Physics* -*Macromolecules*
 - *Journal of Materials Chemistry* -*Journal of Membrane Science*
 - *Journal of Measurement Sci. &Tech.* -*Thin Solid Films*
 - *Macromolecular Rapid Communications* - *NanoLetters*
 - *Review of Scientific Instruments* -*ACS Applied Materials & Interfaces*
- Proposal Review Panels:
 - NIH Panel: Ruth Kirschstein National Research Service Awards, March 6,7, 2008
 - NIH Panel: Ruth Kirschstein National Research Service Awards, November 5-8, 2007
 - NIH Panel: Ruth Kirschstein National Research Service Awards, March 6,7 , 2007
 - NIH SBIR Review Panel, July 18-19, 2002
 - NSF Nanomanufacturing Review Panel, March 11, 2002
 - NIH Site Review: National Center for Research Resources, April 8-10, 2001
 - Mail review for ACS Petroleum Research Fund, ARO, and NSF Proposals

B. CAMPUS CONTRIBUTIONS

CHBE Graduate Admissions Committee (Member: 2000-2004, Chair: 2012-present): This committee oversees all aspects of review and acceptance of graduate applications.

CHBE Assessment Committee (2011-present): This committee, composed of present and former ChBE associate chairs, conducts school-level assessment of outcomes for the undergraduate and graduate programs. These assessments are assembled into reports for internal and external (ABET, SACS, OATS) accreditation reviews.

CHBE RPT Committee (2011-present): This committee oversees and conducts school-level evaluation of candidates for re-appointment, promotion and tenure.

IPST Coordinator for New Forest-Based Chemicals and Materials (April 2010-present): In this role, Dr. Meredith works directly with the Institute of Paper Science & Technology (IPST) director

to develop a research program focused on novel utilization of forest biomass in chemical products and materials, including forest nanotechnology initiatives. I traveled to Purdue to take part in their Forest Nanotechnology Review Program.

CHBE Ad Hoc Committee for Senior Design Course Sequence (June 2010-December 2010):

Assess capstone design course and related process and product design courses and recommend changes to the school chair and undergraduate curriculum committee.

CHBE Undergraduate Curriculum Committee (2008-2011), Chair:

Dr. Meredith chairs this committee, which is responsible for assessing the effectiveness of ChBE's curriculum and proposing changes to continually improve education of undergraduates. Activities included gathering information on and making changes to the curriculum to accommodate ABET requirements surrounding the 2008 Fall ABET review of the ChBE program. In 2010 and 2011, we made recommended changes in the structure of the ChBE design course sequence, and in the W,D,F rule.

CHBE Peer Review and Area Committees: 8

Area Committees: as member 3, as chair 3

Peer Review: as member 1, as chair 1

CHBE Faculty Advisory Committee (2007-2010), Chair:

This is an elected committee that serves independently and advises the chair on topics considered timely and relevant to the school. The main activities involved assessment and recommendations regarding graduate recruiting (resulting in changes made in 2009 recruiting) and planning of a faculty retreat for Fall 2009, for which Dr. Meredith was the primary facilitator.

CHBE Faculty Search Committee (2004-2008):

Duties involved screening of faculty candidate packages, determining compatibility with current faculty research profiles, accessing quality of recommendation letters, inviting limited number for interviews, and making final recommendations to the department chair for hiring.

CHBE Graduate Recruiting Weekend Chair (2003):

Organized and led graduate recruiting weekend event.

CHBE Safety Committee (2002-2003):

Activities include meeting at least once per semester to assess current level of laboratory safety in CHE, planning inspections, and announcements of safety issues and warnings.

CHBE Graduate Studies Committee (2000 – 2003):

Activities include selection of qualifying exam problems; proposing and implementing a new TA system; screening graduate student applications for admissions (India and Europe); and planning and executing the Graduate Recruiting Weekend.

COE Assistant to Associate RPT Committee (2005-2007)

Met twice annually to review RPT packages for assistant professor critical reviews and tenure cases.

COE Peer Review Assessment Committee (2008)

This committee met to assess the peer review process within COE at Georgia Tech, and drafted recommendations to Dean Giddens for changing the process to increase effectiveness and compliance with institute guidelines.

FOCUS Program (2002 – present):

Dr. Meredith participates in the FOCUS program by speaking to and encouraging minority and underrepresented students to pursue opportunities for graduate study in polymer and surface research in Chemical Engineering at Georgia Tech.

Specialty Separations Center (Since 2001):

Dr. Meredith is a member of the SSC, and participates in activities including group poster presentations at AIChE and faculty brown-bag discussions.

C. OTHER CONTRIBUTIONS

Inventive Designs, LLC.

Sealed-Air Corporation

Owens Corning

Consulting:

Eastman Chemicals

Rohm & Haas

Smithers-Oasis

Milliken Company

ATOFINA Chemicals, Inc.

Solvay Advanced Polymers

Kimberly Clark

VI. GRANTS AND CONTRACTS (SEED GRANTS < \$10,000 OMITTED)

Meredith-only Cumulative Total: \$3.93 Million

Multi-PI Team Total: \$15.8 Million

A. AS PRINCIPAL AND CO-PRINCIPAL INVESTIGATOR

1. ***Effect of Substrate-Polymer Interactions on Thin Film Dewetting***
PI: Carson Meredith
ACS Petroleum Research Fund
\$25,000 9/1/00 – 8/31/02
2. ***Combinatorial Characterization of Polyurethane Nanocomposites***
PI: Carson Meredith
Air Products and Chemicals, Inc.
\$84,456 7/15/01 – 7/31/02
3. ***Combinatorial Characterization of Cell-Polymer Interactions: Effects of Chemistry, Microstructure, and Roughness***
PI: Carson Meredith
Rockefeller Brothers Fund, Charles Culpeper Biomedical Pilot Initiative
\$25,000 4/01/02 – 3/31/03
4. ***Combinatorial Measurement Technology for Cell Interactions at Polymer Surfaces***
PI: Carson Meredith
NIH / National Center for Research Resources
\$404,693 8/01/02 – 7/31/05
5. ***Rational Design of Surfaces that Enhance Use of Adult Bone Marrow Cell Progenitors for Endothelialization of Tissue Engineered Vascular Grafts***
Co-PIs: Carson Meredith and Zorina Galis (Emory University School of Medicine)
Emory-Georgia Tech Biomedical Technology Research Center
\$32,500 8/01/02 – 7/31/03
6. ***NER: Engineering Stable Nanoscale Conducting / Insulating Polymer Interfaces: Combinatorial Exploratory Research***
PI: Carson Meredith
NSF / ENG / CTS / Nanoscale Exploratory Research Grant
\$99,938 8/01/02 – 7/31/03
7. ***Molecular Simulation of Microparticle Retention with Cationic Polymer and Anionic Nanosilica***
Co-PIs: Carson Meredith and Yulin Deng (IPST)
GT-IPST Seed Grant
\$40,000 8/01/02 – 7/31/03
8. ***Molecular Design of Organic Modifiers for Directed Self-assembly of Nanocolloids***
PI: Carson Meredith
Molecular Design Institute / Georgia Tech Dept. of Chemistry
\$18,608 Student Fellowship 7/01/02 – 6/30/03
9. ***Biodegradable polymeric scaffolds and tissue engineering of viable hybrid vascular grafts***
PI: Zorina Galis, Emory School of Medicine CoPI: Carson Meredith
NIH / National Heart, Lung, and Blood Institute
\$150,000 (subcontract to Meredith) 7/01/02 – 6/31/06
10. ***High-Throughput Characterization of Core-Shell Modified Polymers***
PI: Carson Meredith
ATOFINA Chemicals, Inc.
\$95,111 10/01/03 – 9/30/04
11. ***Low Cost, Durable Membranes for Fuel Cells***
PI: Michel Fouré, ATOFINA Chemicals, Inc. ; CoPI: Carson Meredith
DOE
\$5,700,000 Total; \$397,000 to Meredith 11/01/03 – 10/30/06
12. ***Quantification of Bioparticulate Adhesion and Trapping Capacity of Carpet Fiber Using Atomic Force Microscopy***
PI: Carson Meredith
CCACTI / Georgia TIP
\$183,900 7/01/04 – 6/30/07

13. **Bioadhesion on Carpet Fiber Using Atomic Force Microscopy**
 PI: Carson Meredith
 Carpet and Rug Institute
 \$41,029 GTF gift 2/01/04 – unspecified
14. **Chemical Product Design, Optimization, and Engineering**
 CoPIs: Chris Jones, Carson Meredith, and Matthew Realff
 Proctor & Gamble Curriculum Development Award
 \$150,000 GTF gift 3/01/04 – 2/28/07
15. **High-Throughput Mechanical Characterization: Chemical Modifiers and Expanded Instrument Capability**
 PI: Carson Meredith
 Arkema Chemicals (formerly ATOFINA Chemicals)
 \$95,118 4/1/05 – 3/31/06
16. **High-Throughput Mechanical Characterization of Polymers**
 PI: Carson Meredith
 Specialty Minerals, Inc. : Gift to Ga Tech Foundation for Meredith research
 \$10,000 GTF gift
17. **Combinatorial Toolkit for Step-Change Innovation of PEM Fuel Cell Membranes**
 PI: Carson Meredith
 Honda : Honda Initiation Grant
 \$50,000 12/01/06 to 11/30/07
18. **Continued Development of Combinatorial Toolkit for PEM Fuel Cell Membranes**
 PI: Carson Meredith
 Honda R & D Corporation
 \$106,000 1/01/08 to 12/31/08
19. **Development of Fluorescent Microdots for Intraoral Scanning Imaging**
 PI: Jeffrey Sitterle (GTRI); Co PI: Valerie Sitterle (GTRI), Carson Meredith
 Kavo, GmbH
 \$53,000 to Meredith 1/01/08 to 6/30/08
20. **Effect of Surface Treatments on Bioparticle-Carpet Adhesion**
 PI: Carson Meredith
 Carpet and Rug Institute
 \$24,000 GTF gift 1/01/08 – unspecified
21. **High-Throughput Mechanical and NMR Characterization of Polyurethanes**
 PI: Carson Meredith; CoPI: Haskell Beckham
 Dow Chemical
 \$215,500 9/01/08 – 8/31/10
22. **Biomimetic Optical Coatings for High-Brightness Paper**
 PI: Carson Meredith
 IPST
 \$50,000 8/01/09 – 7/31/10
23. **Mixed Matrix Membranes for Gas Separations**
 PI: Bill Koros
 CoPIs: Sankar Nair, Chris Jones, Victor Breedveld, Carson Meredith
 ExxonMobil
 \$1,200,000 total; \$285,000 to Meredith 1/1/06 to 8/15/10
24. **High performance MOF/polymer composite membranes for carbon dioxide capture**
 PI: David Sholl
 CoPIs: Bill Koros, Sankar Nair, Chris Jones, Krista Walton, Carson Meredith
 DOE: ARPA-E
 \$1,000,000 total; \$~175,000 to Meredith 8/1/10 to 7/31/12
25. **BioPAINTS: Bioinspired Particle Adherents for Interrogative Spectroscopy**
 PI: Carson Meredith; CoPIs: Nils Kroger, Joe Perry, Nicole Poulsen, Ken Sandhage
 DOD: AFOSR: MURI Program
 \$7,500,000; \$1,000,000 to Meredith 9/29/10 to 9/28/15

26. ***Fundamental Aspects of Thermal Stability and Adhesion in Cellulose Nanocrystal-Based Aerospace Composites***
PI: Carson Meredith; CoPI: Meisha Shofner
USDA-FPL
\$300,000; \$150,000 to Meredith 9/1/11 to 8/31/14

VII. HONORS AND AWARDS

- Class of 1934 Teaching Effectiveness Award (2012)
- J. Carl Pirkle Senior Faculty Fellow (2011 – 2014)
- Hesburgh Award Teaching Fellow (2010)
- Honda Initiation Grant Award (2007) (1 of 5 awarded in US)
- 2005 Thompson-ISI® top 1% of cited authors in field
- 2004 CETL Junior Teaching Fellow
- James F. Simmons Faculty Fellow (2005 – 2008)
- Kimberly-Clark Young Faculty Award (2002 – 2003)