

JÖRG LAHANN, PH.D.

Dow Corning Assistant Professor of Chemical Engineering,

Department of Chemical Engineering, Materials Science and Engineering, Biomedical Engineering
and Macromolecular Science and Engineering

University of Michigan

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EDUCATION

- 1995-1998 RWTH Aachen, Germany; Ph.D. (Summa Cum Laude), Macromolecular
Chemistry (Advisor: Hartwig Hoecker)
1993-1995 RWTH Aachen, Germany; M.S. (Summa Cum Laude), Chemistry
1989-1993 University of Saarland, Germany; B.S., Chemistry

GRADUATE AND POSTDOCTORAL TRAINING

- 2002-2003 Postdoctoral Fellow, Harvard-MIT Division of Health Sciences and Technology,
(Mentor: Bob Langer)
1999-2001 Postdoctoral Associate, Chemical Engineering, MIT (Mentor: Bob Langer)
1996-1998 Graduate Assistant, Neuroradiology and Interdisciplinary Center of Clinical
Research on Biomaterials, RWTH Aachen

ACADEMIC APPOINTMENTS

- 2005-Present Dow Corning Assistant Professor of Chemical Engineering (Endowed
Professorship)
2003-Present Assistant Professor, Chemical Engineering, Materials Science and Engineering,
and Macromolecular Science and Engineering, University of Michigan

AWARDS, HONORS, AND FELLOWSHIPS

- 2007 AIChE Nanoscale Science and Engineering Forum (NSEF) Young Investigator Award
2007 Kodak Emerging Technologies Lecture
2006 Departmental Faculty Excellence Award, Chemical Engineering, University of Michigan
2006 Finalist, NIH Director's Pioneer Award
2006 One of the Midwest's top 20 researchers (Bio 2006, Chicago), selected by
Midwest Research University Network
2006 IDEA Award for Highly Innovative Breast Cancer Research (Department of Defense)
2005 Dow Corning Assistant Professorship of Chemical Engineering
2004 NSF CAREER Award (DMR)
2004 TR35 Award (The TR35 is an annual selection of 100 creative individuals under age 35
chosen annually by Technology Review)
2003 Research listed as Research Highlight of 2003 in C&EN News (vol. 81 (51), 12/22/2003),
cover of C&EN News (same issue, 12/22/2003)
2001 Justus-Liebig Fellowship of the Fonds of the German Industry (FCI), 2000-2001
1999 German Science Foundation Postdoctoral Grant
1998 Borchers Prize of the RWTH Aachen (for outstanding graduate student performance)
1998 Young Student Achievement Award of the Fonds of the German Industry (for excellent
undergraduate and graduate student performance)

INVITED PARTICIPATION IN WORKSHOPS AND PUBLIC PANELS

- 2007 Invited Panelist, Peer Consultation Public Meeting on the Material Characterization of Nanoscale Materials, Environmental Protection Agency, September 5-6, Washington, DC.
- 2007 Frontiers of Engineering Symposium, 10th National Academy of Engineering and German Humboldt Foundation, Hamburg, April 26-29, Germany.
- 2007 In-Q-Tel CEO Summit, IC Research Meeting, March 13-14, San Francisco, CA.
- 2006 Lux Executive Summit on Nanotechnology, October 16-17, Cambridge, MA.
- 2006 National Academies Keck Futures Initiative Smart Prosthetics Conference, November 9-11, Irvine, CA.
- 2006 Frontiers of Engineering Symposium, 9th National Academy of Engineering and German Humboldt Foundation, May 4-6, Murray Hill, NJ.
- 2005 International Workshop on Emerging Technologies and Developments in Biomimetic Materials, Australian Academy of Technological Sciences and Engineering, December 8-12, Sydney, Australia (participation declined due to conflict with teaching)
- 2005 Dust Mitigation Technology Focus Group Meeting, NASA, May 18-19, Golden, CO.

PUBLICATIONS (*: UNDERGRADUATE RESEARCHER)

2008

1. L.G. Villa-Diaz, H. Nandivada, J. Ding, K.S. O'Shea, J. Lahann, G.D. Smith, Synthetic Polymer Coatings for Long-term Maintenance of Undifferentiated Human Embryonic Stem Cell Growth, *Nature* **2008** (under revision).
2. H.Y. Chen, A.A. McClelland, Z. Chen, J. Lahann, Solventless Adhesive Bonding Using Reactive Polymer Coatings, **2008**, (*submitted*).
3. X. Jiang, H.-Y. Chen, G. Galvan*, M. Yoshida, J. Lahann, Vapor-based initiator coatings for atom transfer radical polymerization, *Advanced Functional Materials* **2008**, *18*, 27-35.

2007

4. P. Podsiadlo, A.K. Kaushik, E.M. Arruda, A.M. Waas, B.S. Shim, J. Xu, H. Nandivada, B.G. Pumplun, J. Lahann, A. Ramamoorthy, N.A. Kotov, Ultrastrong and stiff layered polymer nanocomposites, *Science* **2007**, *318* (5847), 80-83.
5. H.Y. Chen, J. Lahann, Vapor-Assisted Micropatterning in Replica Structures: A Solventless Approach towards Topologically and Chemically Designable Surfaces, *Advanced Materials* **2007**, *19*, 3801-3808.
6. P. Katira, A. Agarwal, T. Fischer, H.Y. Chen, X. Jiang, J. Lahann, H. Hess, Quantifying the performance of protein-resisting surfaces at ultra-low protein coverages using kinesin motor proteins as probes, *Advanced Materials* **2007**, *19*, 3171-3176 (**invited paper**).
7. S. Thévenet, H.-Y. Chen, J. Lahann, F. Stellacci, A generic approach towards nanostructured surfaces based on Supramolecular NanoStamping on reactive polymer coatings, *Advanced Materials* **2007**, *19*, 4333-4337.
8. H. Nandivada, X. Jiang, J. Lahann, Click Chemistry: Versatility and control in the hands of materials scientists, *Advanced Materials* **2007**, *19*, 2197-2208 (**invited review**).

9. M. Yoshida, J. Lahann, Surface Engineering of Microfluidic Devices Using Reactive Polymer Coatings, in *Biological Applications of Microfluidics*, ed. Frank A. Gomez, Wiley-Interscience **2007**, (invited book chapter, in press).
 10. K.H. Roh, M. Yoshida, J. Lahann, Compartmentalized, Multiphasic Nanocolloids with Potential Applications in Drug Delivery and Biomedical Imaging, *Materialwissenschaften und Werkstofftechnik* **2007**, 38, 1008-1011 (invited contribution).
 11. H. Nandivada, H.-Y. Chen, J. Lahann, "Reactive Polymer Coatings for Biological Applications", in *Polymers for Biomedical Applications*, Eds.: A.Mahapatro, A.S. Kulshretha, ACS Publishing, **2007** (invited book chapter, in press).
 12. D.K. Peng, J. Lahann, Chemical, Electrochemical, and Structural Stability of Low-Density Self-Assembled Monolayers, *Langmuir* **2007**, 23, 10184-10189.
 13. H.Y. Chen, J.M. Rouillard, E. Gullari, J. Lahann, Colloids with High-Definition Surface Structures, *Proceedings of the National Academy of Sciences*, **2007**, 104, 1173-11178.
 14. D.K. Peng, S.T. Yu*, D.J. Alberts*, J. Lahann, Switching the Electrochemical Impedance of Low-Density Self Assembled Monolayers, *Langmuir* **2007**, 23, 297-304 (invited paper).
 15. K-H Roh, M. Yoshida, J. Lahann, Water-stable Biphasic Nanocolloids with Potential Use as Anisotropic Imaging Probes, *Langmuir* **2007**, 23, 10, 5683-5688 (cover article).
 16. M. Yoshida, K.H. Roh, J. Lahann, Short-term Biocompatibility of Biphasic Nanocolloids with Potential Use as Anisotropic Imaging Probes, *Biomaterials* **2007**, 28 (15), 2446-2456 (invited paper).
 17. L. Villa-Diaz, H. Nandivada, J. Ding, S. O'Shea, J. Lahann, G. Smith, Culture and passage of human embryonic stem cells on an artificial synthetic matrix composed of polykedsah hydrogel. *Biology of Reproduction* **2007**, 186-186.
 18. K.-H. Roh, J. Lahann, Anisotropic encapsulation of supermagnetic nanocrystals in polymeric biphasic nanocolloids, *Polymer Preprints* **2007**, 48, 209-210.
 19. P. Podsiadlo, L. Sui, Y. Elkasabi, P. Burgardt, J. Lee, A. Miryala, W. Kusumaatmaja, M.R. Carman, M. Shtein, J. Kieffer, J. Lahann, N. Kotov, Layer-by-Layer Assembled Films of Cellulose Nanowires with Antireflective Properties, *Langmuir* **2007**, 23, 15, 7901-7906.
- 2006**
20. H.-Y. Chen, Y. Elkasabi, J. Lahann, Surface Modification of Confined Microgeometries via Vapor-Deposited Polymer Coatings. *Journal of the American Chemical Society* **2006**, 128(1), 374-380.
 21. J.M. Wu*, Y. Chung, K.J. Belford*, G.D. Smith, S. Takayama, J. Lahann, A Surface-Modified Sperm Sorting Device with Long-Term Stability. *Biomedical Microdevices* **2006**, 8, 99-107.
 22. Y. Elkasabi, H.-Y. Chen, J. Lahann, Multi-Potent Polymer Coatings Based On Chemical Vapor Deposition Co-Polymerization. *Advanced Materials* **2006**, 18, 1521-1526 (cover article).
 23. Y. Wang, Z. Tang, P. Podsiadlo, Y. Elkasabi, J. Lahann, N.A. Kotov, Mirror-like Photoconductive LBL Thin films of Te Nanorods: The Fusion of Semiconductor, Metal and Insulator Properties, *Advanced Materials* **2006**, 18, 518-522.
 24. H. Nandivada, H.-Y. Chen and J. Lahann, Reactive polymer coatings that "click", *Angewandte Chemie International Edition*, **2006**, 45, (20), 3360-3363.
 25. K.-H. Roh, D. C. Martin, J. Lahann, Triphasic Nanocolloids. *Journal of the American Chemical Society*, **2006**, 128, 21, 6796-6797.

26. J. Lahann, Vapor-Based Polyreactions with Use For Biomedical Applications. *Polymer International*, **2006**, 55 (12): 1361-1370. (**invited review**).
27. J. Lahann, Reactive Polymer Coatings for Biomimetic Surface Engineering, *Chemical Engineering Communications* **2006**, 193, 1457-1468. (**invited review**).
28. M. Yoshida, R. Langer, A. Lendlein, J. Lahann, From Advanced Biomedical Coatings to Intelligent Biomaterials, *Polymer Reviews* **2006**, 46, 347-375. (**invited review**).
29. K.-H. Roh, D.C. Martin, J. Lahann, Multiphasic nanocolloids based on electrified co-jetting, *PMSE Preprints* **2006**, 95, 987-988.
30. H.-Y. Chen, J.M. Rouillard, E. Gulari, J. Lahann, High-precision surface of three-dimensional geometries using photodefinable, ultrathin polymer coatings, *PMSE Preprints* **2006**, 95, 125-126.
31. Y. Elkasabi, H.-Y. Chen, J. Lahann, Multifunctional Coatings based on chemical vapor deposition co-polymerization, *Polymer Preprints* **2006**, 47, 1093.
32. H. Nandivada, H.-Y. Chen, J. Lahann, Reactive Coatings for surface modification via spatially controlled Husigen 1,3-dipolar cycloaddition, *Polymer Preprints* **2006**, 47, 348.
33. K.-H. Roh, J. Lahann, Thermal imidazation combined with electrified co-jetting for the synthesis of water stable biphasic nanocolloids, *Polymer Preprints* **2006**, 47, 1093.

2005

34. L. Bondarenko, J.W. Kampf, J. Lahann, The Synthesis of Brominated Tetrafluoro [2.2] paracyclophanes, *European Journal of Chemistry*, **2006**, 5499-5504. **2005**
35. K.-H. Roh, D.C. Martin, J. Lahann, Biphasic Janus Particles with Nanoscale Anisotropy. *Nature Materials* **2005**, 4(10), 759-763.
36. H. Nandivada, H. Y Chen, J. Lahann. Vapor-Based Synthesis of Poly[(4-formyl-p-xylylene)-co-(p-xylylene)] and Its Use for Biomimetic Surface Modifications. *Macromolecular Rapid Communications* (2005) 26, 1794-1799.
37. J. Lahann, R. Langer, Smart Materials With Dynamically Controllable Surfaces, *MRS Bulletin* **2005**, 30(3), 185-188, (**invited paper, cover article**).
38. H.Y. Chen, J. Lahann, Preparation of Non-Fouling Coatings Made by Chemical Vapor Deposition Polymerization. *Polymer Preprints* **2005**, 46(2), 1280-1281.
39. J. Lahann, Bio-Functional Polymer Coatings Based on Chemical Vapor Deposition, *PMSE Preprints* **2005**, 92, 39-40.
40. H.Y. Chen, J. Lahann, Fabrication of Discontinuous Surface Patterns within Microfluidic Channels Using Photodefinable Vapor-Based Polymer Coatings. *Analytical Chemistry* **2005**, 77(21), 6909-6914. (This article has been highlighted in the same issue of *Analytical Chemistry*.)

2004

41. D. Klee, N. Weiss, J. Lahann, „Vapor-Based Polymerization Of Functionalized [2.2]Paracyclophanes: A Unique Approach Towards Surface-Engineered Microenvironments” in *Paracyclophanes*, H. Hopf (ed.), VCH Weinheim, **2004**.
42. K. Schürmann, J. Lahann, J. Meyer, H. Klosterhalfen, D. Vorwerk, D. Klee, R.W. Günther, Polymer-Coated Stents Examined in the Iliac Arteries of Sheep. *Radiology* **2004**, 230(1), 151-162.
43. K. Suh, R. Langer, J. Lahann, A Novel Photodefinable Reactive Polymer Coating And Its Use For Microfabrication Of Hydrogel Elements, *Advanced Materials* **2004** 16, 1401.

2003

44. K. Suh, R. Langer, J. Lahann, Fabrication Of Elastomeric Stamps With Polymer-Reinforced Sidewalls Via Chemically Selective Vapor Deposition Polymerization Of Poly(*p*-xylylene), *Applied Physical Letters* **2003**, 83(20), 4250-4252.
45. J. Lahann, S. Mitragotri, T. Tran, H. Kaido*, J. Sundaran, S. Hoffer, G. A. Somorjai, R. Langer, A Reversibly Switching Surface. *Science* **2003**, 299, 371-374.
46. J. Lahann, M. Balcells, H. Lu, T. Rodon, K.F. Jensen, R. Langer, Reactive Polymer Coatings: A First Step Toward Surface Engineering Of Microfluidic Devices. *Analytical Chemistry* **2003**, 75, 2117-2122.
47. K. Schurmann, A. Roos, J. Meyer, B. Ries, J. Lahann, B. Hermanns, A. Kulisch, D. Vorwerk, D. Klee, R.W. Gunther, A Novel Hirudin Coating Of Vascular Endoprostheses: Experimental Results *ROFO-Fortschritte auf dem Gebiet der Rontgenstrahlen und bildgebenden Verfahren* **2003**, 175, 262-270.

2002

48. J. Lahann, R. Langer, Novel Poly(*p*-xylylenes): Films with Tailored Chemical and Optical Properties. *Macromolecules* **2002**, 35(11), 4380-4386.
49. J. Lahann, M. Balcells, T. Rodon, J. Lee, I.S. Choi, K.F. Jensen, R. Langer, Reactive Polymer Coatings: A Platform for Patterning Proteins and Mammalian Cells onto a Broad Range of Materials. *Langmuir* **2002**, 18(9), 3632-3638.
50. D. Klee, J. Lahann, W. Plüster, „Dünne Beschichtungen auf Biomaterialien“ in *Medizintechnik mit biokompatiblen Werkstoffen und Verfahren*, E. Wintermantel, S.-W. Ha (Eds.) Springer Verlag Berlin Heidelberg, New York, 347-360, **2002**.
51. J. Lahann, M. Balcells, H. Lu, T. Radon, R. Langer, and K.F. Jensen, Functionalized Parylene Coatings For Microfluidic Applications, *Proceedings of the microTAS 2002 Symposium*, **2002**.
52. J. Lahann, W. Plüster, T. Rodon, M. Fabry, D. Klee, H.-G. Gattner, H. Höcker, Universal Approach Towards r-Hirudin Derivatives with High Anti-thrombin Activity based on Chemical Differentiation of Primary Amino Groups, *Macromolecular Bioscience* **2002**, 2(2), 82-87.

2001

53. J. Lahann, R. Langer, Micro-Engineered Surfaces for Biomedical Applications Based on a Polymeric Active Ester. *Polymer Preprints* **2001**, 42 (2), 113-114.
54. J. Lahann, H. Höcker, R. Langer, Synthesis of Amino[2.2]paracyclophanes: Beneficial Monomers for Bioactive Coating of Medical Implant Materials. *Angew. Chem., Int. Ed.* **2001**, 40(4), 726-728.
55. J. Lahann, I.S. Choi, J. Lee, K. Jensen, R. Langer, A New Method toward Micro-Engineered Surfaces Based on Reactive Coatings. *Angew. Chem., Int. Ed.* **2001**, 40, 3166-3169.
56. J. Lahann, R. Langer, Surface-initiated Ring Opening Polymerization of ϵ -Caprolactone from a Patterned Poly[(hydroxymethyl)-*p*-xylylene]. *Macromolecular Rapid Communications* **2001**, 22 (12), 968-971.
57. J. Lahann, W. Plüster, D. Klee, H. Höcker, Bioactive Immobilization of r-Hirudin on CVD-coated Metallic Implant Devices. *Biomaterials* **2001**, 22, 817-826.
58. J. Lahann, W. Plüster, H. -G. Gattner, D. Klee, H. Höcker, Immobilization of the Thrombin Inhibitor r-Hirudin Conserving its Biological Activity. *Journal of Material Science: Materials in Medicine* **2001**, 12 (9): 807-810.

1998-2000

59. J. Lahann, D. Klee, H. Thelen, H. Bienert, D. Vorwerk, H. Höcker, Improvement of the Blood Compatibility of Metallic Stents by Polymer Coating. *Journal of Material Science: Materials in Medicine* **1999**, 10 (7), 443-448.

60. J.F. Dyet, K. Schürmann, J. Lahann: "The Physical and Biological Properties of Metallic Stents" in *Textbook of Endovascular Procedures*, Eds: Dyet, Ettles, Wilson, Churchill Livingstone, New York, Edinburgh, London, Philadelphia, 20-25, **2000**.
61. J. Lahann, D. Klee, H. Höcker, CVD-Polymerization of a Functionalized Poly(p-xylylene). A Generally Applicable Method for the Immobilization of Drugs on Medical Implants. *Materialwissenschaften und Werkstofftechnik* **1999**, 30, (12) 763-766.
62. J. Lahann, "Verfahren zur Ausrüstung von Metallimplantaten mit bioaktiven Oberflächen", Shaker Verlag, Maastricht, ISBN 3-8265-4496-X, **1998**.
63. J. Lahann, D. Klee, H. Höcker, Chemical Vapor Deposition Polymerization of Substituted [2.2] Paracyclophanes. *Macromolecular Rapid Communications* **1998**, 19, 441-444.

SELECTED PATENTS AND PATENT APPLICATIONS

- 2007 L. Villa-Diaz, H. Nandivada, J. Lahann, G. Smith, "Artificial Matrix Hydrogel Culture Surfaces for Embryos and Embryonic Stem Cells", Provisional US Patent Application.
- 2006 Y. Elkasabi, H.Y. Chen, J. Lahann, "Multifunctional CVD Coatings", US Patent Application.
- 2006 H. Nandivada, H.Y. Chen, J. Lahann, "Reactive Coating for Regioselective Surface Modification", US Patent Application.
- 2006 H.Y. Chen, J. Lahann, "Dry Adhesive Bonding by CVD Coatings", US Patent Application and PCT Patent Application.
- 2006 J. Lahann, „Multiphasic Biofunctional Nanocomponents and Methods for Use Thereof“, US Patent Application and PCT Patent Application.
- 2005 M. Meyerhoff, H. Nandivada, M. Reunolds, S. Merz, "Nitric Oxide Generating Biomedical Coatings", US Patent Application and PCT Patent Application.
- 2004 J. Lahann, D.C. Martin, K. Roh, "Multiphasic Nanoparticles", US Patent Application, PCT application, US 2006201390, 2006.
- 2004 J. Lahann, R. Langer, "Endovascular Device Coatings", US patent application.
- 2001 J. Lahann, K.F. Jensen, R. Langer, "Reactive Polymer Coatings", US patent and PCT application.
- 2001 J. Lahann, S. Mitragotri, R. Langer, "Switchable Surfaces", US patent and PCT application.
- 2001 J. Lahann, J. Reul, "Embolization element for the occlusion of vascular malformations", German Patent Application.
- 2000 J. Lahann, "Procedure for the reversible local arrangement of defined, aligned molecule sequences of a polymer or reversible local arrangement of cationic and anionic states of a metal", DE 99-19905792, (German patent application).
- 2000 J. Lahann, A. Lendlein, "Procedure for the selective release of materials encapsulated in polymers", DE 99-19905793 (German patent application).
- 2000 J. Lahann, A. Lendlein, "Method for the controlled swelling of polymers in hydrophilic environment for the usage as hemostatic dressings", DE19905796 (German patent application).
- 2000 J. Lahann, A. Lendlein, "Inorganic/organic hybrid system with adjustable boundary surface characteristics", DE19905795 (German patent application).
- 1999 J. Lahann, W. Plüster, D. Klee, H. Höcker, "Method for targeted immobilization of the thrombogenic inhibitor hirudin on polymer surfaces", WO9932080.
- 1998 W. Krause, H. Höcker, J. Lahann, D. Klee, (Schering AG), "Polymer-coated stents, processes for producing the same and their use in restenosis prevention", WO9848852.

- 1998 W. Krause, H. Höcker, D. Klee, J. Lahann, (Schering AG), “Stents coated with fluoroalkyl groups, method for producing same and the use thereof in the prophylaxis of restenosis”, EP98936352.
- 1996 H. Höcker, J. Lahann, D. Klee, G. Lorenz, “Antithrombogenic coating for extra- or intracorporeal medical devices”, DE 19604173 (German patent).

INVITED SEMINARS (selected examples)

- 2008 J. Lahann, Multifunctional Coatings for Tissue Engineering, Society for Physical Regulation in Biology and Medicine, 26th Annual conference, Miami Beach.
- 2007 J. Lahann, “Engineering the biointerface: From switchable surfaces to multiphase Polymer particles”, Materials Science and Engineering, MIT.
- 2007 J. Lahann, “Designer Biointerfaces: Bridging the Gap between Man-made Materials and Biological Systems“, Technical University Karlsruhe, Germany.
- 2007 J. Lahann “Young Investigator Award Seminar: Enabling Novel Technologies through Nano- and Meso-Scale Designed Materials”, AIChE Annual Meeting Salt Lake City, UT.
- 2007 J. Lahann “Multifunctional Micro- and Nanoparticles Made by Electrified Co-Jetting,” Plenary Lecture in Bionanotechnology, AIChE Annual Meeting Salt Lake City, UT.
- 2007 J. Lahann, “Fine-tuning Interfacial Properties with Reversible Switching Surfaces“, IUMACRO, New York.
- 2007 J. Lahann, “From multiphase nanoparticles to switchable surfaces”, Emerging Technologies Lecture, Kodak Research Laboratories, Rochester, NY.
- 2007 J. Lahann, “Designer Materials: Engineering Biointerfaces with Controlled Properties“, University of Florida, Materials Science and Engineering.
- 2007 J. Lahann, “Modular Design of Multifunctional Stent Coatings, Smart Polymers“, Conference, Orlando, FL.
- 2007 J. Lahann. “A novel class of polymers with potential for biomimetic and spatially directed surface engineering”, Brewer Science, Rolla, Missouri.
- 2007 J. Lahann, “A novel class of polymers with potential for biomimetic and spatially directed surface engineering“, Dow Corning, Midland, MI.
- 2007 J. Lahann, “From Multiphase Nanoparticles to Switchable Surfaces”, Dow Corning, Midland, MI.
- 2007 J. Lahann, “Polymers that exhibit smart properties”, Frontiers in Engineering, Hamburg, Germany.
- 2007 J. Lahann, “Reactive Polymer Coatings and their use in biomedical applications“, SMTA Medical Electronics Symposium, Minneapolis, MN.
- 2006 J. Lahann, “Multiphase Nanoparticle Technology“, Lux Nanotechnology Summit, Boston, MA.
- 2006 J. Lahann, “Engineering Biointerfaces with Controlled Properties“, Annual Meeting of the German Society of Biomaterials, Essen.
- 2006 J. Lahann, “Engineering Biointerfaces with Controlled Properties“, University of Michigan Medical School, Department of Internal Medicine.
- 2006 J. Lahann, “Engineering Biointerfaces with Controlled Properties“, Bio 2006, Chicago.
- 2006 J. Lahann, “Engineering Biointerfaces with Controlled Properties“, Laval University.
- 2006 J. Lahann, “Engineering Biointerfaces with Controlled Properties“, University of Southern Mississippi.
- 2006 J. Lahann, “Engineering Biointerfaces with Controlled Properties“, ACS Central Regional Meeting and 39th Silicon Symposium Frankenmuth, MI.
- 2006 J. Lahann, “Designer Materials: Engineering Biointerfaces with Controlled Properties“, European Coatings Conference "Smart Coatings V", Berlin, Germany.

- 2006 J. Lahann, "Engineering Biointerfaces with Controlled Properties", University of Aachen (RWTH), Germany.
- 2005 K.-H. Roh, S. Olano, D.C. Martin, J. Lahann (speaker), "Biphasic Polymer Nanocolloids", MRS Fall Meeting, Boston.
- 2005 J. Lahann, "Anisotropic Nanoparticles", APS Spring Meeting, Los Angeles.
- 2005 J. Lahann, "Bifunctional Biomedical Coatings Based on CVD Polymerization", ACS Spring Meeting, San Diego.
- 2005 J. Lahann, "Biphasic Nanomaterials", Regenerative Medicine Symposium, University of Michigan.
- 2005 J. Lahann, "Molecular Control of Materials and Materials Interfaces", Wayne State University, Physics.
- 2005 J. Lahann, "Molecular Control of Materials and Materials Interfaces", University of Michigan, Chemistry.
- 2004 J. Lahann, "Designer Surfaces: Engineering Spatially and Dynamically Controlled Properties", Dartmouth College, Chemistry.
- 2004 J. Lahann, "Designer Surfaces: Engineering Spatially and Dynamically Controlled Properties", UCLA, School of Pharmacology.
- 2004 J. Lahann (speaker), B. Langer, "Smart Materials for Automotive Applications", MIT Industrial Liaison Program, MIT, Cambridge MA.
- 2004 J. Lahann, "Smart Biomaterials", CIMIT, Boston, MA.
- 2004 J. Lahann, "Designer Surfaces: Engineering Spatially and Dynamically Controlled Properties", Rensselaer Polytech Institute, Chemical Engineering.
- 2003 J. Lahann, "Designer Surfaces: Engineering Spatially and Dynamically Controlled Properties", ETH Zuerich, Materials Science.
- 2003 J. Lahann, "Engineering Biomimetic Surfaces with Spatially and Dynamically Controlled Properties", Drexel University, Materials Science and Engineering.
- 2003 J. Lahann, "Designer Surfaces: Engineering Spatially and Dynamically Controlled Properties", University of South Carolina, Chemical Engineering.
- 2003 J. Lahann, "Designer Surfaces: Engineering Spatially and Dynamically Controlled Properties", North Carolina State University, Chemical Engineering.
- 2003 J. Lahann, "Designer Surfaces: Engineering Spatially and Dynamically Controlled Properties", University of Michigan, Chemical Engineering.
- 2003 J. Lahann, "Designer Surfaces: Engineering Spatially and Dynamically Controlled Properties", University of California, Davis, Biomedical Engineering.
- 2003 J. Lahann, "Designer Surfaces: Engineering Spatially and Dynamically Controlled Properties", University of California, Irvine, Chemical Engineering.
- 2003 J. Lahann, "Designer Surfaces: Engineering Spatially and Dynamically Controlled Properties", Arizona State University, Chemistry.
- 2003 J. Lahann, "Designer Surfaces: Engineering Spatially and Dynamically Controlled Properties", University of Delaware, Chemistry.

REFEREED CONFERENCE SUMMARIES OR ABSTRACTS

1. J. Lahann, M. Yoshida, K.-H. Roh, "Short-Term Biocompatibility of Multiphasic Nanocolloids", AIChE Annual Meeting Salt Lake City, UT **2007**.
2. Y. Elkasabi, M. Yoshida, J.Lahann, "Reactive Poly(p-xylylene) Copolymer Coatings: Combinations Of Functionalities In Defined Ratios", AIChE Annual Meeting Salt Lake City, UT **2007**.

3. J. Lahann, H. Nandivada, L. Villa-Diaz, G. Smith, "Synthetic Polymer Coatings For Long-Term Culture Of Human Embryonic Stem Cells", AIChE Annual Meeting Salt Lake City, UT **2007**.
4. Y. Elkasabi, J. Lahann, "Biomedical Coatings with Reactive Surface Composition Gradients", AIChE Annual Meeting Salt Lake City, UT **2007**.
5. X. Jiang, H.-Y. Chen, M. Yoshida, J. Lahann, "ATRP-Initiator Coatings Based On CVD Polymerization", AIChE Annual Meeting Salt Lake City, UT **2007**.
6. J. Lahann, H.-Y. Chen, E. Gulari, J.-M. Rouillard, "Patterning The Surfaces of Microspheres Using Vapor-Based Polymer Coatings", AIChE Annual Meeting Salt Lake City, UT **2007**.
7. D. Peng, J. Lahann, "Analyte Binding, Surface Patterning, and Long-Term Stability of Stimuli-Responsive Self-Assembled Monolayers". Cellular Biotechnology Training Program Annual Symposium, Ann Arbor, MI **2007**
8. Y. Elkasabi, H.Y. Chen, J. Lahann. "Multipotent polymer coatings based on chemical vapor deposition copolymerization." Microfluidics Seminar Series, University of Michigan, Ann Arbor **2007**
9. K.H. Roh, J. Lahann, "Anisotropic Encapsulation of supermagnetic nanocrystals in polymeric Biphasic Nanocolloids", ACS Annual Meeting. Chicago, IL. April **2007**.
10. H. Nandivada, H-Y. Chen and J. Lahann, "Clicking biomolecules onto alkyne-functionalized surfaces", AIChE Annual Meeting San Francisco, CA **2006**.
11. H. Nandivada, H-Y. Chen, Y. Elkasabi, J. Lahann, "Biologically-active surfaces using chemical vapor deposition (CVD)", Annual Meeting of the Society for Biomaterials **2006**.
12. Y. Elkasabi, H.-Y. Chen, J. Lahann, "Multi-potent polymer coatings based on chemical vapor deposition co-polymerization", 38th Central Regional Meeting of the American Chemical Society, Frankenmuth, MI, May 16-20, **2006**.
13. H-Y. Chen, J-M. Rouillard, E. Gulari, and J. Lahann. "High-precision surface modification of three-dimensional geometries using photodefinable ultra-thin polymer coatings", 232nd ACS National Meeting, San Francisco, **2006**.
14. H-Y. Chen, J. Lahann, "Vapor-based polymer coatings for surface engineering of microfluidic devices", Microfluidics Interdisciplinary Seminar Series Presentation, University of Michigan **2006**.
15. J. Lahann, H-Y. Chen, H. Nandivada, "Reactive coatings for surface modification via spatially controlled Huisgen 1,3-dipolar cycloaddition", 232nd ACS National Meeting, San Francisco, CA, **2006**.
16. J. Lahann, Y. Elkasabi, H.-Y. Chen, "Multifunctional coatings based on chemical vapor deposition co-polymerization", 232nd ACS National Meeting, San Francisco, CA, **2006**.
17. H. Nandivada, H-Y. Chen, J. Lahann. "Clicking" biomolecules onto alkyne-functionalized surfaces AIChE Annual Meeting **2006**.
18. H. Nandivada, H-Y. Chen, S. Hwang, C. White, M. M. Reynolds, S. Merz, M. E. Meyerhoff, J. Lahann, "Nitric oxide generating coatings for implantable biomaterial devices", AIChE Annual Meeting **2006**.
19. H.-Y. Chen, Y. Elkasabi, J. Lahann, "Chemical vapor deposition within confined microgeometries", AIChE Annual Meeting **2006**.
20. D. Peng, J. Lahann, "Binding of Hydrophobic Analytes Using Electrically-Responsive Self-Assembled Monolayers," AIChE Annual Meeting, San Francisco, CA **2006**.

21. D. Peng, J. Lahann, "Analyte Binding Analysis and Surface Patterning of Stimuli-Responsive Self-Assembled Monolayers", Cellular Biotechnology Training Program Annual Symposium, Ann Arbor, MI **2006**
22. Y. Elkasabi, H.Y. Chen, J. Lahann, "Multipotent polymer coatings based on chemical vapor deposition copolymerization." AICHE Annual Meeting, San Francisco, CA **2006**
23. Y. Elkasabi, H.Y. Chen, J. Lahann, "Multipotent polymer coatings based on chemical vapor deposition copolymerization." Engineering Graduate Student Symposium, University of Michigan, Ann Arbor **2006**
24. Y. Elkasabi, H.Y. Chen, J. Lahann, "Multipotent polymer coatings based on chemical vapor deposition copolymerization." Midwest Biomedical Engineering Conference, Ann Arbor, MI **2006**.
25. M. Yoshida, K.-H. Roh, J. Lahann,. Characterization of anisotropic biphasic nanoparticles for biomedical applications. American Institute of Chemical Engineers Annual Meeting. San Francisco, CA. Nov **2006**.
26. KH Roh, J. Lahann, "Anisotropic Encapsulation of Magnetite Nanocrystals in Biphasic Nanocolloids by electrified co-jetting", American Institute of Chemical Engineers Annual Meeting. San Francisco, CA. Nov **2006**.
27. KH Roh, S. Valluri, J. Lahann, "Biphasic nanocarriers for multiple drug delivery with complex release profiles in a controlled manor", American Institute of Chemical Engineers Annual Meeting. San Francisco, CA. Nov **2006**.
28. KH Roh, M. Yoshida, D. Martin, J. Lahann, "Multiphasic nanoparticles with potential use for drug targeting", American Institute of Chemical Engineers Annual Meeting. San Francisco, CA. Nov **2006**.
29. M. Yoshida, H.C. Chen, G. Galvan, J. Lahann, "Patterned chemical vapor deposition polymerization of functionalized poly-p-xylylenes for spatially controlled adsorption of proteins", AICHE Annual Meeting. San Francisco, CA. Nov **2006**.
30. D. Peng, J. Lahann, "Lipid Intercalation in Switchable Self-Assembled Monolayers." Cellular Biotechnology Training Program Annual Symposium, Ann Arbor, MI **2005**
31. D. Peng, J. Lahann, "Lipid Intercalation in Switchable Self-Assembled Monolayers." Macromolecular Science and Engineering Program Annual Symposium, Ann Arbor, MI **2005**
32. D. Peng, J. Lahann, "Molecular Intercalation in Switchable Self-Assembled Monolayers." UM College of Engineering Graduate Student Symposium, Ann Arbor, MI **2005**.
33. H.-Y. Chen, J. Lahann, „Preparation of non-fouling coatings made by chemical vapor deposition polymerization", 230th ACS National Meeting, Washington, DC, United States, Aug. 28-Sept. 1, **2005**.
34. H-Y. Chen, J. Lahann, "Surface modification of confined microgeometries via vapor deposition of functionalized poly(p-xylylenes)", Macromolecular Science and Engineering Symposium, University of Michigan, **2005**.
35. H-Y. Chen, J. Lahann, "Vapor-based polymer coatings for surface engineering of microfluidic devices", AICHE Annual Meeting **2005**.
36. H. Nandivada, H-Y. Chen, J. Lahann, "Bioactive surfaces based on aldehyde-containing reactive polymer coatings", AICHE Annual Meeting **2005**.
37. A. A. McClelland, H-Y. Chen, J. Lahann, Z. Chen. "Molecular surface structures of poly (p-xylylene) coatings studied by sum frequency generation vibrational spectroscopy", 230th ACS National Meeting, Washington, DC, **2005**.

38. D. Peng, J. Lahann, "Molecular Intercalation in Switchable Self-Assembled Monolayers." AIChE Annual Meeting, Cincinnati, OH **2005**.
39. Y. Elkasabi, H-Y Chen and J. Lahann, "Chemical Vapor Deposition Copolymerization of Functionalized Paracyclophanes: An Approach Towards Multivalent Surface Coatings". AICHE Annual Meeting, Cincinnati, OH **2005**.
40. Y. Elkasabi, H.Y. Chen, J. Lahann. "Chemical vapor deposition copolymerization of functionalized paracyclophanes: an approach towards multivalent surface coatings." University of Michigan Macromolecular Science & Engineering 29th Annual Symposium, Ann Arbor, MI **2005**.
41. J. Lahann, "Bio-Functional Polymer Coatings Based on Chemical Vapor Deposition". 229th ACS National Meeting, San Diego CA, **2005**.
42. J. Lee, J. Bickel, J. Mirecki Millunchick, J. Mansfield, B. Shim, N. Kotov, T. Solomon, M. Solomon, J. Lahann, "Focused Ion Beam Characterization of Materials with Varying Crystallinity". MRS Spring Meeting, San Francisco, **2005**. (J.M.M. is submitting author)
43. H. Nandivada, H-Y Chen and J. Lahann, "Bioactive Surfaces on Aldehyde-Containing Reactive Polymer Coatings". AIChE Annual Meeting, Cincinnati, OH **2005**.
44. H-Y. Chen, H. Nandivada and J. Lahann, "Reactive polymer coatings for spatially-directed surface engineering," Macromolecular Science and engineering symposium, University of Michigan, **2004**.
45. D. Peng, J. Lahann, "Lipid Intercalation in Switchable Self-Assembled Monolayers". AIChE Annual Meeting, Austin, TX **2004**.
46. H. Nandivada and J. Lahann, "Keto-reactive polymer coatings", Annual engineering graduate student symposium, University of Michigan, **2004**.
47. H-Y. Chen, H. Nandivada, J. Lahann, "Reactive polymer coatings for spatially-directed surface engineering", Macromolecular Science and engineering symposium, University of Michigan, **2004**.
48. K. Roh, S. D'Olando, D.C. Martin, J. Lahann, "Nanofabrication Of Polymer Particles With Controlled Shapes Using Electrified Jetting". AICHE Annual Meeting, Austin TX, **2004**.
49. K. Suh, M. R. Langer, J. Lahann, "A Photodefinable Reactive Coating and its Use for Patterned Biomaterials". AICHE Annual Meeting, Austin TX, **2004**.
50. J. Lahann, K. Jensen, M. Balcells, R. Langer, "Surface Engineering and Microfluidic Applications". AICHE Annual Meeting, San Francisco, **2003**.
51. J. Lahann, S. Mitragotri, T. Tran, G. A. Somorjai, R. Langer, "A Reversibly Switching Surface". 225th ACS National Meeting, New Orleans, **2003**.
52. J. Lahann, C. Hodneland, A. Raphael, J. Beecher, S. Campbell, G. Kirk, "Defined Cellular Microenvironments for Bioassays Through Surface Engineering". 225th ACS National Meeting, New Orleans, **2003**.
53. J. Lahann, M. Balcells, R. Langer, "Patterning of Proteins and Mammalian Cells onto a Broad Range of Materials by CVD polymerization of functionalized [2.2]paracyclophanes". 5th International Meeting of the Tissue Engineering Society, Kobe, Japan, **2002** (M.B. presented).
54. J. Lahann, R. Langer, Micro-Engineered Surfaces for Biomedical Applications Based on a Polymeric Active Ester. 222nd ACS National Meeting, Chicago, IL, **2001**.
55. J. Lahann, M. Balcells, T. Radon, R. Langer, "Polymer-based Microengineered Surfaces". Annual Meeting of Surfaces in Biomaterials Society, Scottsdale, AZ, **2001**.

56. J. Lahann, D. Klee, H. Höcker, "An One-step Coating and Functionalization Procedure as a General Tool for Drug Immobilization." 31st International Symposium of the American Society of Biomaterials, Providence, RI, **2000**.
57. J. Lahann, D. Klee, A. Ince, H. Höcker, J. Reul, "Development of a New Bioactively Coated Embolization Coil for the Therapy of Cerebral Aneurysms". 30th International Symposium of the American Society of Biomaterials, San Diego, CA, **1998**.
58. J. Lahann, D. Klee, H. Höcker, "Covalent Drug Immobilization on Stents and Embolization Coils". 1. Essener Symposium on Biomaterials, Essen, Germany, **1998**.
59. J. Lahann, D. Klee, H. Höcker, "Generally Applicable Technique for Drug Immobilization". Annual Meeting of the Society of Artificial Organs, Bologna, Italy, **1998**.
60. R. Engisch, J. Lahann, H. Bienert, D. Vorwerk, R.W. Günther, "Prevention of Restenosis after Stent Implantation by Local Drug Application – in vitro Experiments". Annual Meeting and Postgraduate Course of the Cardiovascular and Interventional Radiological Society of Europe, Venice, Italy, **1998**
61. D. Klee, J. Lahann, H. Thelen, H. Bienert, D. Vorwerk, H. Höcker, "Improvement of Blood Compatibility of Metallic Stents by Polymer Coating". 13th European Conference on Biomaterials, Göteborg, Sweden, **1997**.

FUNDED PROJECTS AND RESEARCH SUPPORT (Lahann as Principal Investigator)

"CAREER: An Integrated Research and Education Plan for the Advancement of Surface Engineering via Thin Polymer Films," NSF CAREER Award, DMR-0449462, **\$450,000** (2005-2010).

"Vapor Based Manufacturing Process of Multifunctional Coatings of Implants", NIH, STTR Phase I grant, **\$160,000** (with MC3, 2006-2007).

"Switchable Surfaces with Nano-Scale Design for Metabolome Analysis", NIH-R21, R21EB005732-01, **\$364,439** (2005-2007).

"Development of a Smart Diagnostics Platform for Early-Stage Screening of Breast Cancer Patients", BC05-IDEA, DOD, **\$448,835** (2006-2009).

"MRI: Acquisition of an X-ray Photoelectron Spectrometer for Multidisciplinary Materials Research at the University of Michigan" NSF-MRI, DMR-0420785, **\$539,083** (2004-2007).

"Interfacing Embryonic Stem Cells with Synthetic Prosthesis", Keck *Futures* Grant, National Academies Keck Futures Initiative, **\$75,000** (2007-2008).

"Scale-up of Biphasic Nanoparticle Technology", Engineering Technology Development Fund, UM, **\$46,000** (2007-2008).

"Acquisition of a surface plasmon resonance spectrometer", U of M Dean's Equipment Grant, UM, **\$95,000** (2006).

"Bioswitchable Surfaces: Novel Substrates for Biosensoric, Tissue Engineering, and Nanotechnology," Rackham Faculty Grant, UM, **\$15,000** (2004).

"Acquisition of a Fourier Transformation Infrared Spectrometer for Thin Film Characterization," OVPR Faculty Grant, UM, **\$21,000** (2004).

"Dynamically Controlled Surfaces for Biosensoric and Tissue Engineering," Rackham Spring/Summer Research Grant, UM, **\$4,000** (2004).

“Multivalent Drug Carriers for Cardiovascular Applications Based on Novel, Functionalized Polymer Coatings,” McKay Cardiovascular Center, University of Michigan, **\$23,950** (2004-2005).

“Fabrication and Characterization of Biphasic Nanoparticles for Self-Assembly,” College of Engineering Dean’s Office, UM, **\$19,980** (2005-2007).

Research Support Gift, Michigan Critical Care Consulting, **\$22,500** (2005).

Research Support Gift, Flint Ink Corporation, **\$25,000** (2006).

Research Support Gift, SurTec, **\$20,000** (2007).

LAHANN LAB MEMBERS:

High school summer students:

1. Lauren Fledger
2. Radica Laing
3. Maria Rahman

Undergraduate Students

- | | | |
|----------|---------------------|--|
| 1. 2008 | Conlan Hsu | “Magnetically responsive particles” |
| 2. 2007 | Kevin Lin | “Biphasic jetting from organic solvents” |
| 3. 2007 | Laura Chang | “Investigation of ultra-thin coatings” |
| 4. 2007 | Yuan Ma | “Multiphasic Nanoparticle system” |
| 5. 2007 | So Hyun Ahn | “Vapor-based photoresist project” |
| 6. 2007 | Kelly Marie Pollock | “Shape-control of biphasic nanoparticles” |
| 7. 2007 | Renu Rao | “Stimulus-responsive biphasic nanoparticles” |
| 8. 2007 | Joe Chia | “Superhydrophobic surface project” |
| 9. 2007 | Kevin Luchi | “Multiphasic Nanoparticle System” |
| 10. 2007 | Nathaniel Tindall | “Investigation of ultra-thin coatings” |
| 11. 2006 | Katie Cunningham | “Non-fouling surfaces using CVD polymerization” |
| 12. 2006 | Sandy Yu | “Switchable Surface Project” |
| 13. 2006 | Aaron Bennig | “Biphasic nanoparticle project” |
| 14. 2006 | John D’Arcy | “Superhydrophobic surfaces” |
| 15. 2005 | Samih Zaman | “Solvent-resistance of CVD-based poly- <i>p</i> -xylylene” |
| 16. 2005 | Eric Chang | “Nitric oxide releasing stent coatings” |
| 17. 2005 | Brian Coultier | “Solvent-resistance of CVD-based poly- <i>p</i> -xylylene” |
| 18. 2004 | Kim Belford | “Surface Modification of PDMS-based microfluidic devices” |
| 19. 2004 | Khek Khiang Chia | “Polymer/surface interactions” |
| 20. 2004 | Daniel Schmidt | “Modeling of switchable surfaces” |

Visiting Students:

- | | | |
|---------|------------------|--|
| 1. 2007 | Marc Aluma | “Receding droplets on functionalized thin films” |
| 2. 2007 | Augusti Panades | “Bioconjugation via click chemistry” |
| 3. 2006 | Gemma Galvan | “Vapor deposition of ATRP-initiator coatings” |
| 4. 2005 | Sonsoles d’Olano | “Stabilization of hydrogel nanoparticles” |
| 5. 2004 | Jason Wu | “A surface-modified sperm sorting device” |

Master Students:

- | | | |
|---------|-----------------|--|
| 1. 2007 | Sridhar Valluri | “Drug Release from Nanoparticles” |
| 2. 2007 | Joseph Lai | “Selective polymer deposition” |
| 3. 2007 | Wee Min Goh | “Integrated CVD polymerization system” |
| 4. 2006 | Lidia Edwards | “Biphasic colorants with optical dyes” |
| 5. 2006 | Dave Alberts | “Electrode materials for low-density monolayers” |
| 6. 2006 | Miraj Sheth | “Drug delivery from biphasic nanoparticles” |
| 7. 2005 | Kim Belford | “Hydrogel surfaces for stem cell culture” |
| 8. 2007 | Allen Ahmadi | “Long-term stability of low-density monolayers”. |

Graduate Students

- 1) Hsien-Yeh Chen, Chemical Engineering, Ph.D. candidate, “Reactive Polymer Coatings: A robust platform towards sophisticated surface engineering for biotechnology”, defense date: 10/24/2007, chair.
- 2) David K. Peng, Chemical Engineering, Ph.D. candidate, “Structure and function of switchable surfaces”, defense date: 10/18/2007, chair.
- 3) Himabindu Nandivada, Chemical Engineering, Ph.D. candidate, “CVD-based polymer coatings for endovascular devices”, (expected graduation: Summer 2008), chair.
- 4) Kyung-Ho Roh, Macromolecular Science and Engineering, Ph.D. candidate, “Surface-mediated self-assembly of nanoparticles”, (expected graduation: Spring 2008), chair.
- 5) Yaseen Elkasabi, Chemical Engineering, Ph.D. candidate, “Combinatorial polymer synthesis based on CVD polymerization”, (expected graduation: Winter 2008.), chair.
- 6) Allison Bourke, Chemical Engineering, Ph.D. pre-candidate, “Combinatorial biomaterials design”
- 7) Srijanani Bhaskar, Macromolecular Science and Engineering, Ph.D. pre-candidate, “Multiphasic nanoparticles for drug delivery”, chair.
- 8) Aftin Ross, Biomedical Engineering, Ph.D. pre-candidate, “Switchable surfaces as signal transduction systems for diagnostic applications”, chair.
- 9) Xiaopei Deng, Macromolecular Science and Engineering, Ph.D. pre-candidate, TBD, chair.
- 10) Susan Hsiong, Chemical Engineering, thesis defended at 4/11/07, “RGD Ligand Presentation from Alginate Hydrogels Differentially Regulates Stem Cell and Preosteoblast Phenotype”, co-chair, Dave Mooney is chair.
- 11) Jeffrey Hendricks, Biomedical Engineering, TBD, co-chair, David C. Martin is chair.

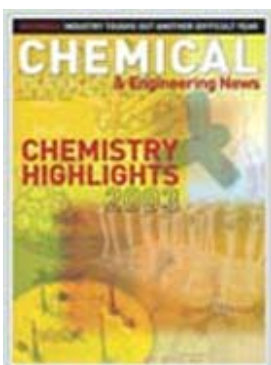
Postdoctoral Research Fellows:

1. Lidija Bondarenko (alumnus)
2. Mutsumi Yoshida
3. Xuwei Jiang (alumnus)
4. Abbass Kazemi
5. Aiwu Sun
6. Surpana Mandal
7. Dong Woo Lim

Visiting Professor on Sabbatical

Professor Lee (South Korea)

- SELECTION OF RESEARCH HIGHLIGHTS.

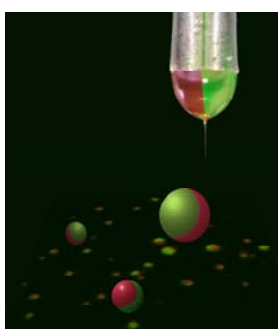


J. Lahann, S. Mitragotri, T. Tran, H. Kaido, J. Sundaran, S. Hoffer, G. A. Somorjai, R. Langer, A Reversibly Switching Surface. *Science* **2003**, 299, 371-374.

Featured in Science, Angew. Chem., Nature

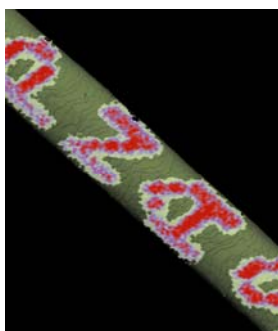
Highlighted as a major research breakthrough in 2003 (C&EN News)

219 citations



K.-H. Roh, D.C. Martin, J. Lahann, Biphasic Janus Particles With Nanoscale Anisotropy. *Nature Materials* **2005**, 4(10), 759-763.

Highlighted in Small



H.Y. Chen, J.M. Rouillard, E. Gullari, J. Lahann, "Colloids with High-Definition Surface Structures" *PNAS* **2007**, 104, 1173-11178.

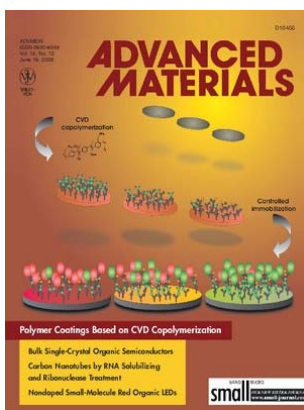
We report a simple, high-throughput approach for fabricating microstructured designer colloids with superb pattern fidelity. The image shows a human hair modified with a fluorescent protein.



J. Lahann, R. Langer, Smart Materials With Dynamically Controllable Surfaces, *MRS Bulletin* **2005**, 30(3), 185-188,

Invited review

Cover article



Y. Elkasabi, H.Y. Chen, J. Lahann. "Multi-potent polymer coatings based on chemical vapor deposition co-polymerization" *Advanced Materials* (2006) 18, 1521-1526.

Using chemical vapor deposition co-polymerization, we have developed a simple strategy towards multi-functional surfaces presenting two different biological ligands in controllable ratios. These modularly designable polymer coatings are applicable to a wide range of biomedical devices including microanalytical or diagnostic systems.

Cover article



K.H. Roh, M. Yoshida, J. Lahann. "Water-stable Biphasic Nanocolloids with Potential Use as Anisotropic Imaging Probes" *Langmuir* (2007) 23, 10, 5683-5688

Water- stable biphasic nanocolloids are prepared by electrified co-jetting of two jetting solutions through side-by-side capillaries and subsequent thermal imidization reaction.

Cover article