

**Eugene R. Zubarev**  
Department of Chemistry  
Rice University  
Houston, Texas 77005

## Education

Moscow State University	Chemistry	M. S., 1993
Russian Academy of Sciences	Chemistry	Ph.D., 1997

## Professional Experience

2005 – present	Norman and Gene Hackerman Assistant Professor of Chemistry, Rice University
2002-2005	Assistant Professor of Materials Science and Engineering, Iowa State University
2000-2002	Research Associate, Northwestern University
1997-2000	Postdoctoral Fellow, University of Illinois

## Research Interests

Chemistry of nanomaterials and supramolecular chemistry, molecular self-assembly, organic-inorganic hybrid structures, nanoparticle catalysts, amphiphilic polymers. Experimental: organic synthesis, polymerization, synthesis of inorganic nanostructures, TEM, NMR, AFM, GPC, SEM.

## Honors and Awards

- Alfred P. Sloan Research Fellowship (2008)
- Norman and Gene Hackerman Junior Faculty Chair (2008)
- John L. Margrave Innovation and Excellence Award (2008)
- National Science Foundation CAREER Award (2006)
- Norman Hackerman – Welch Young Investigator (2005)
- Soros International Science Foundation Award (1997)
- Russian Academy of Sciences Fellowship for Young Scientists (1996)
- Moscow State University Excellence Fellowship (1993)

## Funding

1. Synthesis and Self-Organization of Hybrid Nanocrystals (\$50,000, 2008-2010, PI). Alfred P. Sloan Foundation.
2. Optimizing Delivery of Paclitaxel in Head and Neck Cancer Treatment through Nanoparticle Delivery (\$286,000, 2008-2010, Co-PI). Alliance for Nanohealth.
3. Soluble Assemblies of Catalytically-Active Nanocrystals (\$150,000, 2008-2011, PI). Robert A. Welch Foundation.
4. CAREER: Amphiphilicity-Driven Organization of Nanoparticles into Discrete Assemblies (\$528,147, 2006-2011, PI), National Science Foundation.
5. NIRT: Bioinspired Flex Nanomembranes for Multifunctional Microsensors, (\$1,100,000, 2005-2009, Co-PI), National Science Foundation.
6. Welch Foundation Investigatorship in Nanoscience and Technology (\$150,000, 2005-2008, PI), Robert A. Welch Foundation.
7. Synthesis of Self-Assembling Hybrid Structures (\$35,000, 2004-2006, PI), ACS Petroleum Research Fund.
8. Synthesis of Star-Shaped Polymers and their Use as Drug Delivery Carriers (\$18,000, 2003-2004, PI) University Research Grant, Iowa State University.

## PUBLICATIONS

### Peer-Refereed Articles

1. Chang, W.-S.; Slaughter, L. S.; Khanal, B. P.; Manna, P.; Zubarev, E. R.; Link, S. "One-Dimensional Coupling of Gold Nanoparticle Plasmons in Self-Assembled Ring Superstructures" *Nano Lett.* **2009**, *9*, 1152-1157. ([Journal Impact Factor 9.6](#))
2. Khanal, B. P.; Zubarev, E. R. "Purification of High Aspect Ratio Gold Nanorods: Complete Removal of Platelets" *J. Am. Chem. Soc.* **2008**, *130*, 12634-12635. ([Journal Impact Factor 7.9](#))
3. Kozlovskaya, V.; Kharlampieva, E.; Khanal, B. P.; Manna, P.; Zubarev, E. R.; Tsukruk, V. V. "Ultrathin Layer-by-Layer Hydrogels with Incorporated Gold Nanorods as pH-Sensitive Optical Materials" *Chem. Mater.* **2008**, *20*, 7474-7485. ([Journal Impact Factor 4.9](#))
4. Gibson, J. D.; Khanal, B. P.; Zubarev, E. R. "Paclitaxel-Functionalized Gold Nanoparticles" *J. Am. Chem. Soc.* **2007**, *129*, 11653-11661. Highlighted by *C&E News*, *NSF News*, and *ACS Journals in the News* ([Journal Impact Factor 7.9](#))
5. Khanal, B. P.; Zubarev, E. R. "Rings of Nanorods" *Angew. Chem. Int. Ed.* **2007**, *46*, 2195-2198. (**Inside Cover Article**). Highlighted by *Angew. Chem.* Press Release, *MRS Bulletin*, and National Science Foundation; made the list of Most-Accessed Articles in March 2007. ([Journal Impact Factor 10.0](#))
6. Zubarev, E. R.; Xu, J.; Sayyad, A.; Gibson, J. D. "Amphiphilicity-Driven Organization of Nanoparticles into Discrete Assemblies" *J. Am. Chem. Soc.* **2006**, *128*, 15098-15099. Highlighted by *MRS Bulletin*, *CBC News*, and *Science Daily*. ([Journal Impact Factor 7.9](#))
7. Zubarev, E. R.; Xu, J.; Sayyad, A.; Gibson, J. D. "Amphiphilic Gold Nanoparticles with V-Shaped Arms" *J. Am. Chem. Soc.* **2006**, *128*, 4958-4959. Highlighted by *SpectroscopyNow* ([Journal Impact Factor 7.9](#))
8. Zubarev, E. R.; Xu, J.; Gibson, J. D.; Sayyad, A. "From Small Building Blocks to Complex Molecular Architecture" *Org. Lett.* **2006**, *8*, 1367-1370. ([Journal Impact Factor 4.8](#))
9. Genson, K. L.; Holzmueller, J.; Jiang, C.; Xu, J.; Gibson, J. D.; Zubarev, E. R.; Tsukruk, V. V. "Langmuir-Blodgett Monolayers of Gold Nanoparticles with Amphiphilic Shells from V-Shaped Binary Polymer Arms" *Langmuir* **2006**, *22*, 7011-7015. ([Journal Impact Factor 4.0](#))
10. Zubarev, E. R.; Sone, E. D.; Stupp, S. I. "The Molecular Basis of Self-Assembly of Dendron-Rod-Coils into One-Dimensional Nanostructures" *Chem. Eur. J.* **2006**, *12*, 7313-7327. (**Cover Article**) ([Journal Impact Factor 5.3](#))
11. Lin, Y.-H.; Teng, J.; Zubarev, E. R.; Shulha, H.; Tsukruk, V. V. "In-situ Observation of Switchable Nanoscale Topography for Y-Shaped Binary Brushes in Fluids" *Nano Lett.* **2005**, *5*, 491-495. ([Journal Impact Factor 9.6](#))

12. LeMieux, M. C.; Lin, Y.-H.; Cuong, P. D.; Ahn, H.-S.; Zubarev, E. R.; Tsukruk, V. V. "Microtribological and Nanomechanical Properties of Switchable Y-Shaped Amphiphilic Polymer Brushes" *Adv. Funct. Mater.* **2005**, *15*, 1529-1540. ([Journal Impact Factor 7.5](#))
13. Sone, E. D.; Zubarev, E. R.; Stupp, S. I. "Semiconductor Nanohelices Templated by Supramolecular Nanoribbons" *Small* **2005**, *1*, 694-697. ([Journal Impact Factor 6.4](#))
14. Stendahl, J. C.; Zubarev, E. R.; Arnold, M. S.; Hersam, M. C.; Sue, H.-J.; Stupp, S. I. "Structural Modifications to Polystyrene via Self-Assembling Molecules" *Adv. Funct. Mater.* **2005**, *15*, 487-493. (**Cover Article**) ([Journal Impact Factor 7.5](#))
15. Xu, J.; Zubarev, E. R. "Supramolecular Assemblies of Starlike and V-Shaped PB-PEO Amphiphiles" *Angew. Chem., Int. Ed.* **2004**, *43*, 5491-5496. ([Journal Impact Factor 10.0](#))
16. Genson, K. L.; Hoffman, J.; Teng, J.; Zubarev, E. R.; Vaknin, D.; Tsukruk, V. V. "Interfacial Micellar Structures from Novel Amphiphilic Star Polymers" *Langmuir* **2004**, *20*, 9044-9052. ([Journal Impact Factor 4.0](#))
17. Teng, J.; Zubarev, E. R. "Synthesis and Self-Assembly of a Heteroarm Star Amphiphile with 12 Alternating Arms and a Well-Defined Core" *J. Am. Chem. Soc.* **2003**, *125*, 11840-11841. ([Journal Impact Factor 7.9](#))
18. Julthongpiput, D.; Lin, Y.-H.; Teng, J.; Zubarev, E. R.; Tsukruk, V. V. "Y-Shaped Amphiphilic Brushes with Switchable Micellar Surface Structures" *J. Am. Chem. Soc.* **2003**, *125*, 15912-15921. ([Journal Impact Factor 7.9](#))
19. Julthongpiput, D.; Lin, Y.-H.; Teng, J.; Zubarev, E. R.; Tsukruk, V. V. "Y-Shaped Polymer Brushes: Nanoscale Switchable Surfaces" *Langmuir* **2003**, *19*, 7832-7836. ([Journal Impact Factor 4.0](#)) Highlighted by Science Magazine (Editors' Choice) *Science* **2003**, *301*, 1159.
20. Li, L. M.; Beniash, E.; Zubarev, E. R.; Xiang, W.; Rabatic, B. M.; Zhang, G.; Stupp, S. I. "Assembling a Lasing Hybrid Material with Supramolecular Polymers and Nanocrystals" *Nature Materials* **2003**, *2*, 689-694. ([Journal Impact Factor 19.8](#))
21. Zubarev, E. R.; Stupp, S. I. "Dendron Rodcoils: Synthesis of Novel Organic Hybrid Structures" *J. Am. Chem. Soc.* **2002**, *124*, 5762-5773. ([Journal Impact Factor 7.9](#))
22. Sone, E. D.; Zubarev, E. R.; Stupp, S. I. "Semiconductor Nanohelices Templated by Supramolecular Nanoribbons" *Angew. Chem., Int. Ed.* **2002**, *41*, 1705-1709. ([Journal Impact Factor 10.0](#))
23. Zubarev, E. R.; Pralle, M. U.; Sone, E. D.; Stupp, S. I. "Scaffolding of Polymers by Supramolecular Nanoribbons" *Adv. Mater.* **2002**, *14*, 198-203. ([Journal Impact Factor 8.2](#))
24. de Gans, B. J.; Wiegand, S.; Zubarev, E. R.; Stupp, S. I. "A light Scattering Study of the Self-Assembly of Dendron Rodcoil Molecules" *J. Phys. Chem. B* **2002**, *106*, 9730-9736. ([Journal Impact Factor 4.1](#))

25. Stendahl, J. C.; Li, L. M.; Zubarev, E. R.; Chen, Y. R.; Stupp, S. I. "Toughening of Polymers by Self-Assembling Molecules" *Adv. Mater.* **2002**, *14*, 1540-1543. ([Journal Impact Factor 8.2](#))
26. Li, L. M.; Zubarev, E. R.; Acker, B. A.; Stupp, S. I. "Chemical Structure and Nonlinear Optical Properties of Polar Self Assembling Films" *Macromolecules* **2002**, *35*, 2560-2565. ([Journal Impact Factor 4.4](#))
27. Zubarev, E. R.; Pralle, M. U.; Sone, E. D.; Stupp, S. I. "Self-Assembly of Dendron Rodcoil Molecules into Nanoribbons" *J. Am. Chem. Soc.* **2001**, *123*, 4105-4106. ([Journal Impact Factor 7.9](#))
28. Hartgerink, J. D.; Zubarev, E. R.; Stupp, S. I. "Supramolecular One-Dimensional Objects" *Curr. Opin. Solid State Mater. Sci.* **2001**, *5*, 355-361. ([Journal Impact Factor 1.7](#))
29. Stupp, S. I.; Pralle, M. U.; Tew, G. N.; Li, L. M.; Sayar, M.; Zubarev, E. R. "Self-Assembly of Organic Nano-Objects into Functional Materials" *MRS Bulletin* **2000**, *25*, 42-48. ([Journal Impact Factor 5.2](#))
30. Merekalov, A. S.; Berkman, J.; Zubarev, E. R.; Plate, N. A.; Talroze, R. V.; Finkelmann, H. "Pretransitional Phenomena in Acrylate-Based Liquid Crystal Networks" *Liquid Crystals* **2000**, *27*, 921-927. ([Journal Impact Factor 1.4](#))
31. Zubarev, E. R.; Pralle, M. U.; Li, L. M.; Stupp, S. I. "Conversion of Supramolecular Clusters to Macromolecular Objects" *Science* **1999**, *283*, 523-526. ([Journal Impact Factor 26.4](#))
32. Zubarev, E. R.; Kuptsov, S. A.; Yuranova, T. I.; Talroze, R. V.; Finkelmann, H. "Monodomain Liquid Crystalline Networks: Reorientation Mechanism from Uniform to Stripe Domains" *Liquid Crystals* **1999**, *26*, 1531-1540. ([Journal Impact Factor 1.4](#))
33. Talroze, R. V.; Zubarev, E. R.; Kuptsov, S. A.; Merekalov, A. S.; Yuranova, T. I.; Plate, N. A.; Finkelmann, H. "Liquid Crystal Acrylate-Based Networks: Polymer Backbone – LC Order Interaction" *Reactive & Functional Polymers* **1999**, *41*, 1-11. ([Journal Impact Factor 1.7](#))
34. Zubarev, E. R.; Talroze, R. V.; Yuranova, T. I.; Plate, N. A.; Finkelmann, H. "Influence of Network Topology on Polydomain-Monodomain Transition in Side Chain LC Elastomers with Cyanobiphenyl Mesogens" *Macromolecules* **1998**, *31*, 3566-3570. ([Journal Impact Factor 4.4](#))
35. Lebedeva, T. L.; Zubarev, E. R.; Rogovoi, V. N.; Talroze, R. V. "Conformational Effects in Mesogenic Fragments in LC Side Chain Polymers and Networks" *Macromolecules* **1998**, *31*, 3081-3087. ([Journal Impact Factor 4.4](#))
36. Merekalov, A. S.; Zubarev, E. R.; Talroze, R. V.; Plate, N. A. "The Kerr Effect in a Radiation Crosslinked Liquid Crystalline Comb-Shaped Polymer" *Vysokomol. Soedin.* **1998**, *40*, 884-885. ([Journal Impact Factor 0.7](#))
37. Chalykh, A. B.; Vasilets, V. V.; Stepanenko, V. A.; Yuranova, T. I.; Aliev, A. I.; Zubarev, E. R.; Talroze, R. V. "The Effect of Vacuum UV-Irradiation on the Surface Energy, Solubility, and Interdiffusion of Components in a Fluoropolymer-Mesogenic Monomer-Polymer System" *Vysokomol. Soedin.* **1998**, *40*, 1349-1354. ([Journal Impact Factor 0.7](#))

38. Kovalchuk, A. N.; Vasilets, V. V.; Yuranova, T. I.; Zubarev, E. R.; Talroze, R. V. "Plasmochemical Initiation of the Grafting Polymerization of Mesogen-Containing Monomers on Poly(tetrafluoroethylene) Surface" *Vysokomol. Soedin.* **1998**, *40*, 1228-1230. (Journal Impact Factor 0.7)
39. Zubarev, E. R.; Talroze, R. V.; Plate, N. A. "Phase Behavior of Nematic Liquid Crystalline Polymer Networks" *Polymer Sci.* **1997**, *39*, 1031-1037. (Journal Impact Factor 0.7)
40. Yuranova, T. I.; Vasilets, V. V.; Kovalchuk, A. N.; Savenkov, G. A.; Talroze, R. V.; Zubarev, E. R.; Otmakhova, O. A. "Regularities of  $\gamma$ -Induced Polymerization for Two Mesogen Containing Acrylic Monomers" *Macromol. Chem. Phys.* **1997**, *198*, 2121-2128. (Journal Impact Factor 2.0)
41. Talroze, R. V.; Plate, N. A.; Zubarev, E. R.; Vasilets, V. V.; Yuranova, T. A.; Kovalchuk, A. N. "A New Approach to the Preparation of Liquid Crystal Composites Based on Comb-Shaped Polymers" *Polymer Sci.* **1997**, *39*, 55-61. (Journal Impact Factor 0.7)
42. Zubarev, E. R.; Talroze, R. V.; Yuranova, T. I.; Vasilets, V. V.; Plate, N. A. "Influence of Network Topology on Phase Behavior of Acrylate-Based LC Elastomers" *Macromol. Chem., Rapid Commun.* **1996**, *17*, 43-49. (Journal Impact Factor 3.4)
43. Talroze, R. V.; Zubarev, E. R.; Rogunova, M. A.; Litvinov, I. L.; Plate, N. A.; Udipi, K.; Kruse, R. "Comb-Shaped Polymers as Effective Flow Modifiers for Thermoplastic Polymers" *Polym. Adv. Technol.* **1996**, *7*, 182-186. (Journal Impact Factor 1.5)
44. Vasilets, V. V.; Kovalchuk, A. N.; Yuranova, T. I.; Ponomarev, A. V.; Talroze, R. V.; Zubarev, E. R.; Plate, N. A. "Sandwich Structure Containing Liquid Crystal Polymer Grafted on Polymer Support" *Polym. Adv. Technol.* **1996**, *7*, 173-176. (Journal Impact Factor 1.5)
45. Talroze, R. V.; Rogunova, M. A.; Zubarev, E. R.; Litvinov, I. L.; Plate, N. A.; Udipi, K.; Kruse, R. "Rheology Behavior of Nematic Side-Chain Polymers in Blends with Thermoplastics" *Polym. Adv. Technol.* **1996**, *7*, 187-192. (Journal Impact Factor 1.5)
46. Plate, N. A.; Talroze, R. V.; Rogunova, M. A.; Zubarev, E. R. "Rheological Behavior of Comb-Shaped Mesophase Polymers and Their Modifying Role in the Blends with Thermoplastics" *Macromol. Symp.* **1995**, *96*, 61-77. (Journal Impact Factor 0.9)

### Book Reviews

47. Zubarev, E. R. "Book Review: Functional Molecular Nanostructures. Topics in Current Chemistry, 245 Edited by A. Dieter Schlüter (ETH-Honggerberg, Zürich)" *J. Am. Chem. Soc.* **2005**, *127*, 12747-12748.
48. Zubarev, E. R. "Book Review: Templates in Chemistry II. Topics in Current Chemistry, 249 Edited by C. A. Schalley, F. Vogtle, and K. H. Dotz (Kekule-Institut für Organische Chemie und Biochemie, Bonn)" *J. Am. Chem. Soc.* **2006**, *128*, 5586-5587.

### **Invited Book Chapters**

49. Lin, Y.-H.; Teng, J.; Zubarev, E. R.; Peleshanko, S.; Tsukruk, V. V. "Controlling Selective Adsorption on Patterned Gradient Y-Shaped Amphiphilic Brushes" in *Responsive Polymer Materials: Design and Applications*, Ed. S. Minko, Blackwell Publishing, Oxford (2006): 137-146.

### **Patents**

50. Zubarev, E. R.; Khanal, B. P. "Gram-Scale Synthesis of Well-Defined Gold Nanorods" *WO 2008925586*, PCT Int. Appl. 2008. 11 pp.
51. Stupp, S. I.; Messmore, B. W.; Arnold, M. S.; Zubarev, E. R. "Encapsulation of Carbon Nanotubes via Self-Assembled Nanostructures", *US Patent 6,890,654*. Issued May 10, 2005.
52. Stupp, S. I.; Li, L. M.; Beniash, E.; Zubarev, E. R. "Self-Assembled Hybrid Nanocomposite, its Preparation, and Lasing Medium Prepared Thereby", *WO 2004024778*, PCT Int. Appl. 2004, 29 pp.

### **Non-Refereed Articles**

53. Zubarev, E. R.; Khanal, B. P., Gibson, J. D. "Covalent Functionalization of Nanocrystals and Their Self-Assembly" *PMSE Preprints* 2008, 98, 172-173.
54. Zubarev, E. R.; Khanal, B. P. "Polymer-Functionalized Gold Nanorods and Their Self-Organization into Ring-Like Arrays" *Polymer Preprints* 2007, 48, 658-659.
55. Zubarev, E. R. "Mesoscopic Arrays of Gold Nanostructures" *Polymer Preprints* 2006, 47, 875-76.
56. Zubarev, E. R. "Hybrid Supramolecular Assemblies" *PMSE Preprints* 2006, 94, 189-190.
57. Zubarev, E. R. "Supramolecular Assemblies Based on Y-Shaped Amphiphiles" *Polymer Preprints* 2005, 46, 1161.
58. Lin, Y. H.; LeMieux, M. C.; Zubarev, E. R.; Shulha, H.; Tsukruk, V. V. "Switchable Y-Shaped Brushes and Nanomechanical Properties in Selective Fluids" *Polymer Preprints* 2005, 46, 95.
59. Genson, K. L.; Huffman, J.; Teng, J.; Zubarev, E. R.; Vaknin, D.; Tsukruk, V. V. "Interfacial Behavior of 12-Arm Star Polymers with Alternating Arms" *PMSE Preprints* 2004, 91, 1002.
60. Zubarev, E. R.; Xu, J. "Well-Defined Heteroarm Star Amphiphiles and their Self-Organization in Selective Solvents" *PMSE Preprints* 2004, 91, 937-938.
61. Xu, J.; Zubarev, E. R. "Synthesis of Heteroarm Star-Shaped Amphiphiles with 12 Alternating Arms of Polybutadiene and Polyethylene Oxide" *Polymer Preprints* 2004, 45, 762-763.
62. Julthongpipit, D.; Lin, Y.-H.; Teng, J.; Zubarev, E. R.; Tsukruk, V. V. "Surface Properties of Novel Y-Shape Polymer Brush Grafted on Silicon Surface" *PMSE Preprints* 2003, 89, 344.
63. Genson, K. L.; Teng, J.; Zubarev, E. R.; Vaknin, D.; Tsukruk, V. V. "Interfacial Behavior of 12-Arm Star Polymers with Alternating Arms" *PMSE Preprints* 2003, 89, 257.

64. Zubarev, E. R.; Teng, J. "Synthesis and Self-Assembly of Star-Shaped Amphiphiles" *Polymer Preprints* **2003**, *44*, 496-497.
65. Sone, E. D.; Zubarev, E. R.; Stupp, S. I. "Mineralization of Helical Supramolecular Nanoribbons" *PMSE Preprints* **2001**, *84*, 929-930.
66. Stupp, S. I.; Zubarev, E. R.; Pralle, M. U.; Sone, E. D.; Li, L. M.; Hulvat, J. F.; Stendahl, J. C. "Dendritic Ingredients in Light Emitting Diodes, Oriented Polymers, and Nanohelices" *PMSE Preprints* **2001**, *84*, 219-220.
67. Stupp, S. I.; Zubarev, E. R. "Synthesis of Self-Assembling Additives to Modify Polymers" *PMSE Preprints* **2001**, *84*, 136.
68. Talroze, R. V.; Kuptsov, S. A.; Merekalov, A. S.; Shandryuk, G. A.; Zubarev, E. R.; Plate, N. A. "Mechanisms of the Mechanical Field Induced Director Reorientation in Liquid Crystal Elastomers" *PMSE Preprints* **2000**, *82*, 321.
69. Talroze, R. V.; Zubarev, E. R.; Merekalov, A. S.; Vasilets, V. N.; Yuranova, T. I.; Kovalchuk, A. "Crosslinked and Grafted Structures Based on Side Chain LC Polymers" *Polymer Preprints* **1996**, *37*, 54-55.

## INVITED PRESENTATIONS

1. "Synthesis and Self-Assembly of One-Dimensional Gold Nanostructures" Department of Chemistry, Max Planck Institute of Colloids and Interfaces, Potsdam, Germany. January 12, 2009.
2. "Zero- and One-Dimensional Hybrid Nanocrystals: Synthesis and Self-Assembly" Department of Chemistry, University of North Carolina, Chapel Hill. November 17, 2008.
3. "Synthesis and Self-Assembly of Functional Gold Nanostructures" 60<sup>th</sup> ACS Southeastern Regional Meeting, Nashville, TN. November 14, 2008.
4. "Self-Organization of Amphiphilic Molecules and Hybrid Nanostructures" Materials Research Laboratory, University of California, Santa Barbara. May 16, 2008.
5. "Self-Organization of Amphiphilic Molecules and Hybrid Nanostructures" Department of Chemistry, University of California, Los Angeles. May 15, 2008.
6. "Self-Organization of Amphiphilic Molecules and Hybrid Nanostructures" Department of Chemistry, Northwestern University. May 1, 2008.
7. "Synthesis and Self-Organization of Hybrid Nanocrystals" Department of Materials Science and Engineering, MIT. April 11, 2008.
8. "Zero- and One-Dimensional Hybrid Nanocrystals: Synthesis and Self-Assembly" Department of Chemistry and Chemical Biology, Harvard University. April 10, 2008.

9. "Self-Assembly of Hybrid Nanocrystals" 235<sup>th</sup> ACS National Meeting, New Orleans, LA. April 7, 2008.
10. "Self-Organization of Amphiphilic Molecules and Hybrid Nanostructures" Department of Chemistry, Columbia University. March 25, 2008.
11. "Self-Organization of Amphiphilic Molecules and Hybrid Nanostructures" Department of Chemistry, University of California, San Diego. February 22, 2008.
12. "Synthesis and Self-Organization of Hybrid Gold Nanocrystals" Department of Chemistry, Scripps Research Institute. February 21, 2008.
13. "Synthesis and Self-Organization of Hybrid Gold Nanocrystals" Department of Chemistry, University of Texas, Dallas. January 29, 2008.
14. "Synthesis and Self-Organization of Hybrid Gold Nanocrystals" Department of Chemical Engineering, University of Michigan, Ann Arbor. January 25, 2008.
15. "Self-Organization of Core-Shell Hybrid Nanomaterials" Department of Materials Science, EPFL, Lausanne, Switzerland. January 21, 2008.
16. "Self-Organization of Core-Shell Hybrid Nanomaterials" Department of Chemistry, ETH, Zurich, Switzerland. January 18, 2008.
17. "Synthesis and Self-Organization of Hybrid Gold Nanocrystals" Beckman Institute for Advanced Science and Technology, University of Illinois. November 28, 2007.
18. "Synthesis and Self-Organization of Hybrid Gold Nanocrystals" Department of Chemistry, University of Utah. October 22, 2007
19. "Synthesis and Self-Organization of Hybrid Gold Nanocrystals" Department of Chemistry, University of Pittsburgh. October 4, 2007
20. "Self-Organization of Core-Shell Hybrid Nanomaterials" Department of Polymer Science, University of Massachusetts. September 21, 2007
21. "One-Dimensional Self-Assembly of Triblock Molecules" Schlumberger Inc., Sugar Land, TX. February 2007
22. "Synthesis of Taxol-Functionalized Gold Nanoparticles" 2006 NSF Workshop in Physical Organic Chemistry, UCLA Conference Center in Lake Arrowhead, CA. October 2006
23. "Mesoscopic Assemblies of Hybrid Polymer Shell-Gold Core Nanostructures" 62<sup>nd</sup> Southwest Regional ACS Meeting, Houston, TX. October 2006
24. "Mesoscopic Arrays of Gold Nanostructures" 232<sup>nd</sup> ACS National Meeting, San Francisco, CA. September 2006

25. "Formation of Ringlike Superstructures from Gold Nanorods" Laboratory for Nanophotonic, Rice University, Houston, TX. August 2006
26. "Formation of Ringlike Superstructures from Gold Nanorods" Carbon Nanotechnology Laboratory, Rice University, Houston, TX. August 2006
27. "Synthesis of Paclitaxel-Functionalized Gold Nanoparticles" Alliance for NanoHealth, Rice University, Houston, TX. July 2006
28. "Hybrid Supramolecular Assemblies" 231<sup>st</sup> ACS National Meeting, Atlanta, GA. March 2006
29. "Nano-Gold: The New Generation of Catalysts" Rice Alliance - 5<sup>th</sup> Annual Nanotechnology Venture Forum, Rice University, Houston, TX. January 2006
30. "Bridging the Gap of Mesoscale: From Individual Molecules and Nanoparticles to Functional Ensembles and Microcrystals" PacifiChem 2005, Honolulu, HI. December 2005
31. "Amphiphilicity-Driven Organization of Metallic Nanoparticles" NSF NanoTech Workshop, Iowa State University, Ames, IA. October 2005
32. "Supramolecular Assemblies Based on Y-Shaped Amphiphiles" 230<sup>th</sup> ACS National Meeting, Washington, DC. September 2005
33. "Bridging the Gap of Mesoscale: From Individual Molecules and Nanoparticles to Functional Ensembles and Microcrystals" Department of Chemistry, University of Toronto, Toronto, ON, CA. February 2005
34. "Bridging the Gap of Mesoscale: From Individual Molecules and Nanoparticles to Functional Ensembles and Microcrystals" Department of Chemistry, University of Toronto Mississauga, Mississauga, ON, CA. February 2005
35. "Bridging the Gap of Mesoscale: From Individual Molecules and Nanoparticles to Functional Ensembles and Microcrystals" Department of Materials Science and Engineering, University of Delaware, Newark, DE. January 2005
36. "Bridging the Gap of Mesoscale: From Individual Molecules and Nanoparticles to Functional Ensembles and Microcrystals" Department of Chemistry, Rice University, Houston, TX. January 2005
37. "Bridging the Gap of Mesoscale: From Individual Molecules and Nanoparticles to Functional Ensembles and Microcrystals" Department of Chemistry, Indiana University, Bloomington, IN. January 2005
38. "Bridging the Gap of Mesoscale: From Individual Molecules and Nanoparticles to Functional Ensembles and Microcrystals" Department of Chemistry, University of Central Florida, Orlando, FL. December 2004
39. "Star-Shaped Amphiphiles and Mineralization of Supramolecular Structures" Ames National Laboratory, Ames, IA. February 2004

40. "Encapsulation of Carbon Nanotubes with Self-Assembling Molecules" NSF NSEC Workshop, Northwestern University, Evanston, IL. April 2002
41. "From Rodcoil Molecules to Zero-Dimensional Nanostructures and Functional Supramolecular Polymers" Department of Chemistry, University of Wisconsin, Madison, WI. February 2002
42. "Dendron Rodcoils and Functional Supramolecular Polymers" Department of Materials Science and Engineering, Iowa State University, Ames, IA. December 2001
43. "From Rodcoil Molecules to Zero-Dimensional Nanostructures and Functional Supramolecular Polymers" Department of Chemistry, Indiana University, Bloomington, IN. December 2001
44. "From Rodcoil Molecules to Zero-Dimensional Nanostructures and Functional Supramolecular Polymers" Department of Chemistry, University of Pittsburgh, Pittsburgh, PA. November 2001
45. "Dendron Rodcoils and Functional Supramolecular Polymers" Institute of Materials Research and Engineering, Singapore, October 2001
46. "From Rodcoil Molecules to Zero-Dimensional Nanostructures and Functional Supramolecular Polymers" Department of Chemistry, University of Tennessee, Knoxville, TN. October 2001
47. "Conversion of Supramolecular Clusters to Macromolecular Objects" Beckman Institute for Advanced Science and Technology, University of Illinois. June 1999
48. "Dendron Rodcoils: Synthesis and Characterization of Nano-Sized Molecules" 36<sup>th</sup> Allerton Conference, Monticello, IL, September 1998
49. "Internal Cross-linking of Supramolecular Clusters" Department of Materials Science and Engineering, University of Illinois, October 1997
50. "Synthesis of Acrylate-Based LC Networks and their Mechanical Orientation Properties" Institute of Macromolecular Chemistry, Freiburg University, Germany. May 1996

## **CONTRIBUTED PRESENTATIONS**

51. "Synthesis of Polymer Functionalization of Metallic and Bimetallic Nanorods" 233<sup>rd</sup> ACS National Meeting, Chicago, IL. March 2007
52. "Self-Assembly of Hybrid Organic-Inorganic Nanostructures" 233<sup>rd</sup> ACS National Meeting, Chicago, IL. March 2007
53. "Synthesis and Self-Assembly of Hybrid Rod-Like Nanostructures" 2006 MRS National Meeting, Boston, MA. November 2006
54. "Supramolecular Assemblies of Hybrid Amphiphilic Structures" PacifiChem 2005, Honolulu, HI. December 2005

55. "Switchable Y-shaped Brushes and Nanomechanical Properties in Selective Fluids" 230<sup>th</sup> ACS National Meeting, Washington, D. C. August 2005
56. "Self-Assembly of Gold Nanoparticles with Amphiphilic Y-shaped Arms" Gordon Research Conference, Polymer East, South Hadley, MA. June 2005
57. "Gold Nanoparticles with Amphiphilic Shells" 228<sup>th</sup> ACS National Meeting, Philadelphia, PA. August 2004
58. "Well-Defined Heteroarm Star Amphiphiles and their Self-Organization in Selective Solvents" 228<sup>th</sup> ACS National Meeting, Philadelphia, PA. August 2004
59. "Interfacial Behavior of 12-Arm Star Polymers with Alternating Arm" 228<sup>th</sup> ACS National Meeting, Philadelphia, PA. August 2004
60. "Synthesis of Heteroarm Star-Shaped Amphiphiles with 12 Alternating Arms of Polybutadiene and Polyethylene Oxide" 227<sup>th</sup> ACS National Meeting, Anaheim, CA. March 2004
61. "Synthesis and Self-Assembly of Star-Shaped Amphiphiles" 226<sup>th</sup> ACS National Meeting, New York, NY. September 2003
62. "Amphiphilic Star Polymers at Air-Water and Air-Solid Interfaces" 226<sup>th</sup> ACS National Meeting, New York, NY. September 2003
63. "Surface Properties of Novel Y-shaped Polymer Brush Grafted on Silicon Surface" 226<sup>th</sup> ACS National Meeting, New York, NY. September 2003
64. "Self-Assembly of Dendron Rodcoil Molecules into Nanoribbons" 223<sup>rd</sup> ACS National Meeting, Orlando, FL. April 2002
65. "Mineralization of Helical Supramolecular Nanoribbons" 221<sup>st</sup> ACS National Meeting, San Diego, CA. April 2001
66. "Dendritic Ingredients in Light Emitting Diodes, Oriented Polymers, and Nanohelices" 221<sup>st</sup> ACS National Meeting, San Diego, CA. April 2001
67. "Synthesis of Self-Assembling Additives to Modify Polymers" 221<sup>st</sup> ACS National Meeting, San Diego, CA. April 2001
68. "Mechanisms of the Mechanical field-Induced Director Reorientation in Liquid Crystal Elastomers" 219<sup>th</sup> ACS National Meeting, San Francisco, CA. March 2000
69. "Entropy-Driven Surface Segregation of Dendritic Molecules in Blends with Linear Polymers" MURI Annual Meeting, Army Research Laboratories, Aberdeen, MD. June 1999
70. "Self-Assembly of Dendritic and Rodcoil Molecules" 1998 MRS National Meeting, Boston, MA, November 1998

## SERVICE

### Department Committee Service

Fall 2005 – Present	Graduate Admissions Committee
Fall 2005 – Present	Undergraduate Advising Committee
Fall 2005 – 2007	Web Page Committee
Fall 2006 - Present	Student Awards Committee
Fall 2007	Faculty Search Committee
Fall 2007 - Present	Seminar Committee
Fall 2008 - Present	Chapman Committee

### Other Department Service

2005-Present	Undergraduate Advisor, Class 2009
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### External Professional Service

Reviewer for Journals	Journal of the American Chemical Society Angewandte Chemie Nano Letters Advanced Materials Chemical Communications Chemistry – A European Journal Advanced Functional Materials Journal of Materials Chemistry Langmuir Soft Matter Macromolecules Journal of Polymer Science Part A: Polymer Chemistry
Reviewer for Proposals	NSF - CHE Division NSF - DMR Division ACS Petroleum Research Fund
December 2003	Co-Organizer of Symposium O “Nanostructured Organic Materials” at 2003 MRS National Meeting, Boston, MA
October 2006	Participant of the NSF-CHE workshop “ <i>Physical Organic Chemistry</i> ”, at UCLA Center Lake Arrowhead. The workshop was attended by approximately 20 established and young chemists with a broad interest in all aspects of physical organic chemistry.
March 2007	Co-organizer of the “ <i>Nanoscience: Characterization and Application</i> ” session at the 233 <sup>rd</sup> ACS National Meeting, Chicago, IL

April 2008

Co-organizer of the “Synthesis and Self-Assembly Approaches to Polymer-Inorganic hybrid Nanoparticles” at the 235<sup>th</sup> ACS National Meeting, New Orleans, LA.

## TEACHING

Fall 2008 Rice	CHEM 547 – <i>Supramolecular Chemistry</i>	graduate course
Fall 2008 Rice	CHEM 600 – <i>Graduate Seminars</i>	graduate course
Fall 2007 Rice	CHEM 547 – <i>Supramolecular Chemistry</i>	graduate course
Fall 2007 Rice	CHEM 600 – <i>Graduate Seminars</i>	graduate course
Spring 2007 Rice	CHEM 212 – <i>Organic Chemistry</i>	undergraduate course
Fall 2006 Rice	CHEM 547 – <i>Supramolecular Chemistry</i>	graduate courses
Fall 2006 Rice	CHEM 600 – <i>Graduate Seminars</i>	graduate courses
Fall 2005 Rice	CHEM 401 – <i>Advanced Organic Chemistry</i>	graduate/undergraduate course
Spring 2005 Iowa State	Mat E 453/553 – <i>Physical and Mechanical Properties of Polymeric Materials</i>	undergraduate/graduate course
Fall 2004 Iowa State	Mat E 351 – <i>Introduction to Polymeric Materials</i>	graduate course
Spring 2004 Iowa State	Mat E 272 – <i>Materials Science and Engineering</i>	undergraduate course
Fall 2003 Iowa State	Mat E 351 – <i>Introduction to Polymeric Materials</i>	undergraduate course
Spring 2003 Iowa State	Mat E 271/272 – <i>Principles of Materials Science and Engineering</i>	undergraduate course

Fall 2005

CHEM 401 Advanced Organic Chemistry

Number of Students Enrolled: 25

Fraction of Teaching Load: 0.5

Overall Effectiveness of the Instructor: 1.43

Overall Effectiveness of the Course: 1.73

Percent of Students Responded to Evaluations: 92 %

Fall 2006

CHEM 547 Supramolecular Chemistry

Number of Students Enrolled: 14

Fraction of Teaching Load: 0.5

Overall Effectiveness of the Instructor: 2.00

Overall Effectiveness of the Course: 1.75

Percent of Students Responded to Evaluations: 50 %

Spring 2007

CHEM 212 Organic Chemistry

Number of Students Enrolled: 167

Fraction of Teaching Load: 1.0

Overall Effectiveness of the Instructor: 1.82

Overall Effectiveness of the Course: 1.95

Percent of Students Responded to Evaluations: 89 %

Fall 2007

CHEM 547 Supramolecular Chemistry

Number of Students Enrolled: 20

Fraction of Teaching Load: 1.0

Overall Effectiveness of the Instructor: 2.11

Overall Effectiveness of the Course: 2.16

Percent of Students Responded to Evaluations: 90 %

Fall 2008

CHEM 547 Supramolecular Chemistry

Number of Students Enrolled: 7

Fraction of Teaching Load: 1.0

Overall Effectiveness of the Instructor: 1.60

Overall Effectiveness of the Course: 2.00

Percent of Students Responded to Evaluations: 72 %

#### **CURRENT AND FORMER GRADUATE STUDENTS**

Year	Name	Department	Current Position
2005-present	Bishnu P. Khanal	Chemistry, Rice	Rice University PhD
2005-present	Jacob D. Gibson	Chemistry, Rice	Rice University PhD
2005-present	Pramit Manna	Chemistry, Rice	Rice University PhD
2007-present	Leo Vigderman	Chemistry, Rice	Rice University PhD
2007-present	Hema Puppala	Chemistry, Rice	Rice University PhD
2005-2007	Arshad Sayyad	Chemistry, Rice	Rice University PhD
2003-2005	Jun Xu	Materials Science, ISU	College Park, Maryland Research Scientist
2003-2005	Huimeng Wu	Materials Science, ISU	University of Florida PhD student

