

## Jiyu Fang

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### Appointments

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- 2011-present *Associate Professor*, Advanced Materials Processing and Analysis Center and Department of Materials Science and Engineering  
University of Central Florida, Orlando, Florida.
- 2003 -2011 *Associate Professor*, Advanced Materials Processing and Analysis Center and Department of Mechanical, Materials and Aerospace Engineering  
University of Central Florida, Orlando, Florida.
- 1998 - 2003 *Scientist*, Center for Biomolecular Science and Engineering  
Naval Research Laboratory, Washington, DC.
- 1994 - 1998 *Postdoctoral Fellow*, Department of Chemistry and Biochemistry  
University of California, Los Angeles.
- 1992 - 1994 *Postdoctoral Fellow*, Department of Chemistry, Iowa State University. Ames, Iowa.

### Education

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- 1989-1992 Ph.D. Key Laboratory of Biomolecular Electronics, School of Biomedical Engineering, Southeast University, China.
- 1986-1989 M. S. Physics, Chinese Academy of Science.
- 1979-1983 B. S. Department of Physics, Nanjing Normal University, China.

### Current Research Interests

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- Hierarchical self-assembly of soft and biomimetic materials
- Liquid-crystal based probes for the optical detection of biomarkers
- Artificial light-harvesting antenna for biosensor applications
- Stimuli-responsive drug delivery vehicles

### Recent Professional Activities

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Editorial Board Member: *Journal of Materials Science and Chemical Engineering*, *Advances in Chemistry*, and *ISRN Nanotechnology*

Proposal Reviews/Panels: NSF-solid state and materials chemistry program, NSF-biosensing panel, NSF-Catalysis and Biocatalysis panel, and NSF-Interfacial processes and thermodynamics panel, ACS-PRF, and DOE-biomolecular material program.

Journal Paper Review: ACS Applied Materials and Interfaces, ACS Nano, Advanced Materials, Advanced Functional Materials, Advanced healthcare Materials, Angewandte Chemie, Applied Physics Letters, Biophysics Journal, Chemical Reviews, Chemistry-A European Journal, Langmuir, Journal of the American Chemical Society, Journal of Applied Physics, Journal of Chemical Physics, Journal of Physical Chemistry, Journal of Materials Chemistry, Macromolecular Rapid Communications, Nano Letters, Nanotechnology, Physical Chemistry Chemical Physics, Physical Review, Polymer International, RSC Advance, Small, and Soft Matter.

## Publications

96. Y. Yu, X. Wu, D. Guo, J. Y. Fang, "Synthesis of Flexible, Light and Hydrophobic Aerogels with Methyltriethoxysilane Precursors". Submitted.
95. Y. Yu, H. Wang, J. Y. Fang, L. An, "Effect of Thermal Initiator Concentrations on the Optical Band Gap of Polyvinylsilazane-Derived Amorphous SiCNO Ceramics". Submitted.
94. S. He, W. Liang, J. Y. Fang, S. T. Wu "Interactions of Bile Acids and Surfactants at the Liquid Crystal/Aqueous Interface". Submitted.
93. W. Liang, S. He, J. Y. Fang, "Self-Assembly of J-aggregate Nanotubes and Their Applications for Sensing Dopamine". *Langmuir* **2014**. ASAP article (DOI:10.1021/la404022q).
92. Y. Yu, H. Wang, J. Y. Fang, L. An, "A Facile Route to the Synthesis of SiCO Nanoparticles with Tunable Sizes". *International Journal of Applied Ceramic Technology* **2014**. ASAP article (DOI:10.1111/ijac.12169).
91. W. Liang, S. He, J. Y. Fang, "Morphology and Shape Control of Porous Silica Nanostructures with Dual-templating Approaches". *Journal of Nanoscience and Nanotechnology*. **2014**, *14*, 4424.
90. T. Bera, J. Y. Fang, "Self-Assembled Palladium Nanoparticle-Organic Composite Nanofibers and Their Applications as a Recyclable Catalyst". *RSC Advances*. **2013**, *3*, 21567.
89. S. He, W. Liang, J. Y. Fang, S. T. Wu, "Influence of Chain Lengths of Liquid Crystals on Cholic Acid Detection". *Proceedings of SPIE*. **2013**, 8828, 88281G.
88. S. He, W. Liang, C. Tanner, J. Y. Fang, S. T. Wu, "Liquid Crystal Biosensors for detecting Cholic Acid". *Analytic Methods*. **2013**, *5*, 4126.
87. T. Bera, J. Y. Fang, "Optical Detection of Lithocholic Acid with Liquid Crystal Emulsions". *Langmuir* **2013**, *29*, 387.
86. S. He, W. Liang, C. Tanner, S. T. Wu, J. Y. Fang, "Liquid Crystal-Based Biosensors for Bile Acid Detection". *Proceedings of SPIE*. **2013**, 8642, 86420P.
85. T. Bera, J. Y. Fang, "Polyelectrolyte Coated Liquid Crystal Droplets for Detecting Charged Macromolecules". *Journal of Materials Chemistry* **2012**, *22*, 6807.
84. T. Bera, W. Liang, J. Y. Fang, "Ring Patterns in Liquid Crystals Aligned with Two-Component Monolayers". *Colloids and Surfaces A* **2012**. *395*, 32. This work was highlighted in *Advances in Engineering* (**2012**)
83. X. Zhang, W. Liang, T. Bera, J. Y. Fang, "Longitudinal Zipping/Unzipping of Self-Assembled Organic Tubes". *Journal of Physical Chemistry B* **2011**, *115*, 14445.
82. J. Zou, T. Bera, A. Davis, W. Liang, J. Y. Fang, "Director Configuration Transition of Polyelectrolyte Encapsulated Liquid-Crystal Droplets". *Journal of Physical Chemistry B* **2011**. *115*, 8970.

81. Y. Yu, C. Xu, J. Y. Fang, L. An, "Synthesis of Nanocrystalline Silicon Carbide at Ultralow Temperature using Self-Assembled Polymer Micelles as a Precursor". *Journal of Materials Chemistry* **2011**, *21*, 17619. This paper was selected for the Sep. 16, 2011 issue of the *Virtual Journal of Nanoscale Science & Technology*.
80. X. Zhang, K. Tamhane, T. Bera, J. Y. Fang, "Transcription of pH-Sensitive Supramolecular Assemblies into Silica: From straight, Coiled, and Helical Tubes to Single and Double Fan-Like Bundles". *Journal of Materials Chemistry* **2011**, *21*, 13973.
79. J. Zou, J. Y. Fang, "Adhesive Polymer Dispersed Liquid Crystal Films". *Journal of Materials Chemistry* **2011**, *21*, 9149. This work was highlighted in *European Coating News* (2012-02-10)
78. Y. Yu, Y. Chen, C. Xu, J. Y. Fang, L. An, "Synthesis of Spherical Non-oxide Silicon Carbonitride Particles from Self-Assembling Polysilazane Precursors". *Journal of the American Ceramic Society* **2011**, *94*, 2779.
77. W. Liang, T. Bera, X. Zhang, A. J. Gesquiere, J. Y. Fang, "Boojum and Stripe Textures in Long Range Orientationally Ordered Monolayers on substrates". *Langmuir* **2011**, *27*, 1051.
76. X. Zhang, J. F. Fang, "Assembly of Vesicles into Fractal and Prong Patterns on Solid Substrates". *Soft Matter* **2010**, *6*, 2139.
75. K. Tamhane, X. Zhang, J. Zou, J. Y. Fang, "Assembly and Disassembly of Tubular Spherulites". *Soft Matter* **2010**, *6*, 1224.
74. J. Zou, J. Y. Fang, "Director Configuration in Liquid-Crystals Droplets Encapsulated with Polyelectrolytes". *Langmuir* **2010**, *26*, 7025.
73. X. Zhang, M. Mathew, A. J. Gesquiere, J. Y. Fang, "Synthesis of Fluorescent Composite Tubes with pH-Controlled Shapes". *Journal of Materials Chemistry* **2010**, *20*, 3716.
72. Z. Zhang, J. Zou, K. Tamhane, F. Kobzeff, J. Y. Fang, "Self-Assembly of pH-Switchable Spiral Tubes: Supramolecular Springs". *Small* **2010**, *6*, 217.
71. Y. Zhao, L. An, J. Y. Fang, "Buckling Instability of Lipid Tubules with Multibilayer walls under Local Radial Indentation". *Physical Review E* **2009**, *80*, 021911. (This paper was selected for publication in the August 24, **2009** issue of the *Virtual Journal of nanoscale Science & Technology* and in the October 15, **2009** issue of the *Virtual Journal of Biological Physics Research*).
70. Y. Zhao, Z. Ge, J. Y. Fang, "Elastic Modulus of Viral Nanotubes". *Physical Review E* **2008**, *78*, 031914. This paper was selected for publication in the September 29, **2008** issue of the *Virtual Journal of Nanoscale Science & Technology* and in the October 1, **2008** issue of the *Virtual Journal of Biological Physics Research*.
69. Y. H. Lin, H. Ren, Y. H. Wu, S. T. Wu, Y. Zhao, J. Y. Fang, "Electrically Tunable Wettability of Liquid Crystal/Polymer Composite Films". *Optics Express* **2008**, *16*, 17591. This paper was selected for publication in the December 1, **2008** issue of the *Virtual Journal for Biomedical Optics*.
68. H. Wang, Z. Xie, W. Yang, J. Y. Fang, L. N. An, "Morphology Control in Vapor-Liquid- Solid

- Growth of SiC Nanowires”. *Crystal Growth & Design* **2008**, *8*, 3893.
67. Y. Zhao, J. Y. Fang, “Zigzag Lipid Tubules”. *Journal of Physical Chemistry B* **2008**, *112*, 10964.
  66. Y. Zhao, K. Tamhane, X. Zhang, L. An, J. Y. Fang, “Radial Elasticity of Self-Assembled Lipid Tubules”. *ACS Nano* **2008**, *2*, 1466.
  65. Y. Zhao, J. Y. Fang, “Direct Printing of Lipid Tubules”. *Langmuir* **2008**, *24*, 5113.
  64. J. Y. Fang, “Ordered Arrays of Self-Assembled Lipid Tubules: Fabrication and Applications.” *Journal of Materials Chemistry*. **2007**, *17*, 3479. (Feature Article).
  63. Y. Zhao, L. An, J. Y. Fang, “Buckling of Self-Assembled Lipid Tubules in Shrinking Liquid Droplets”. *Nano Letters* **2007**, *7*, 1360.
  62. L. Guo, P. Chowdhury, J. Y. Fang, F. Gai, “Heterogeneous and Anomalous Diffusion of Molecules inside Lipid Tubules”. *Journal of Physical Chemistry B* **2007**, *111*, 14244.
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  59. Y. Zhao, N. Mahajan, J. Y. Fang, “Fabrication of Self-Assembled Cylindrical Lipid Tubules with Birefringent Core”. *Small* **2006**, *2*, 364.
  58. Y. Zhao, N. Mahajan, S. Long, Q. Wang, J. Y. Fang, “Stability and Deformation of Virus Nanoparticles under Applied Load with Atomic Force Microscope”. *Micro and Nano Letters* **2006**, *1*, 1.
  57. Y. Zhao, N. Mahajan, J. Y. Fang, “Bending and Radial Deformation of Self-Assembled Hollow Cylindrical Lipid Tubules”. *Journal of Physical Chemistry B* **2006**, *110*, 22060.
  56. N. Mahajan, Y. Zhao, T. B. Du, J. Y. Fang, “Nanoscale Ripples in Self-Assembled Lipid Tubules”. *Langmuir* **2006**, *22*, 1973.
  55. Y. Zhao, J. Y. Fang, “Alignment and Positioning of Lipid Tubules on Patterned Au Substrates under Flow and Confinement”. *Langmuir* **2006**, *22*, 1892.
  54. Y. H. Lin, H. W. Ren, Y. H. Wu, Y. Zhao, J. Y. Fang, S. T. Wu, “IPS-LCD Using A Glass Substrate and an Anisotropic Polymer Film”. *Journal of Display Technology* **2006**, *2*, 21.
  53. J. Y. Fang, “Self-Assembled Lipid Tubules: Synthesis, Characterization, and Ordered Arrays”. *Mater. Res. Soc. Symp. Proc.* **2006**, *922E-U05-02*.
  52. Y. Zhao, N. Mahajan, R. Lu, J. Y. Fang, “Liquid-Crystal Imaging of Molecular-Tilt Organization in

Self-Assembled Tubules of Chiral Phospholipids”. *Proceedings of the National Academy of Sciences USA* **2005**, *102*, 7438. (It is highlighted in *this Week of Proc. Natl. Acad. Sci. USA*).

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50. N. Mahajan, J. Y. Fang, “Two-Dimensional Ordered Arrays of Aligned Lipid Tubules on Substrates with Microfluidic Networks”. *Langmuir* **2005**, *21*, 3153. (It is featured on *the cover of Langmuir* and is highlighted on *News Section of Analytical Chemistry*).
49. Y. H. Lin, H. W. Ren, Y. H. Wu, Y. Zhou, Y. Zhao, S. Gauza, J. Y. Fang, S. T. Wu, “Polarization-independent Liquid Crystal Phase Modulators using a Thin Polymer-Separated Double-Layered Structure.” *Optics Express* **2005**, *13*, 8746.
48. N. Mahajan, R. Lu, S. T. Wu, J. Y. Fang, “Patterning Polymerized Lipid Vesicles with Soft Lithography”. *Langmuir* **2005**, *21*, 3132.
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46. J. Y. Fang, “Viral Nanoparticles: Adsorption and Self-Organization on Surfaces”. *Ency of Nanoscience & Nanotechnology* **2004**, *5*, 3953. Invited Review Article.
45. J. Y. Fang, W. Ma, J. Selinger, R. Shashidhar, “Imaging Biological Cells Using Liquid Crystals”. *Langmuir* **2003**, *19*, 2865. (It is featured on *the cover of Langmuir* and highlighted in *Research News of Nature Materials* **2004** and *News of Biophotonics International Magazine* **2004**).
44. C. D. Geddes, Gao, H.; Gryczynski, I.; Gryczynski, J. Y. Fang, J. R. Lakowicz, “Metal-Enhanced Fluorescence due to Silver Colloids on a Planar Surface: Potential Applications of Indocyanine Green to in Vivo Imaging”. *Journal of Physical Chemistry A* **2003**, *107*, 3443.
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42. B. R. Ratna, C. M. Soto, L. Danner, A. S. Blum, J. Y. Fang, Lin, J. E. Johnson. “Complex Pattern Formation by Cowpea Mosaic Virus Nanoparticles” *Langmuir* **2003**, *19*, 489.
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- Biochemistry* **2003**, *315*, 160.
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  35. J. Y. Fang, M. S. Chen, R. Shashidhar, "Photodimerization-Induced Positional Order in Self-Assembled Monolayers of Alkylsilanes". *Langmuir* **2001**, *17*, 1549.
  34. J. Y. Fang, G. Whitaker, M. S. Chen, J. Naciri, R. Shashidhar, "Synthesis and Photodimerization of Self-Assembled Monolayers of 7-(8-Trimethoxysilane) Octenyloxy Coumarin". *Journal of Materials Chemistry* **2001**, *12*, 2992.
  33. J. Naciri, J. Y. Fang, D. Shenoy, C. Dulcey, R. Shashidhar, "Photosensitive Triethoxysilane Derivatives for Alignment of Liquid Crystals". *Chemistry of Materials* **2000**, *12*, 3288.
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24. J. Y. Fang, C. M. Knobler, M. Gingery, F. A. Eiserling, "Imaging Bacteriophage T4 Adsorbed on Patterned Self-Assembled Monolayers of Organosilanes by Scanning Force Microscopy". *Journal of Physical Chemistry B* **1997**, *101*, 8692.
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15. J. Y. Fang, Z. H. Lu, Y. Wei, P. Stroeve, "Alignment of Nematic Liquid Crystals by Pyrolyzed Polyimide Films". *Molecular Crystals and Liquid Crystals* **1993**, *226*, 1.
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- Photosensitive Polyimide Langmuir-Blodgett Films”. *Solid State Communications* **1992**, 82, 711.
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  3. J. Y. Fang, S. J. Xiao, Y. Wei, P. Stroeve, “Structure and Optical Properties of Langmuir-Blodgett Films with Alternating Bilayers of Hemicyanine Dye and Stearic Acid”. *Solid State Communications* **1991**, 79, 985.
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