

Nanoscale Science and Engineering Forum 2014

Core Programming Area at the 2014 AIChE Annual Meeting

Atlanta, Georgia, USA
16-21 November 2014

ISBN: 978-1-5108-1265-9

Printed from e-media with permission by:

Curran Associates, Inc.
57 Morehouse Lane
Red Hook, NY 12571



Some format issues inherent in the e-media version may also appear in this print version.

Copyright© (2014) by AIChE
All rights reserved.

Printed by Curran Associates, Inc. (2015)

For permission requests, please contact AIChE
at the address below.

AIChE
120 Wall Street, FL 23
New York, NY 10005-4020

Phone: (800) 242-4363
Fax: (203) 775-5177

www.aiche.org

Additional copies of this publication are available from:

Curran Associates, Inc.
57 Morehouse Lane
Red Hook, NY 12571 USA
Phone: 845-758-0400
Fax: 845-758-2634
Email: curran@proceedings.com
Web: www.proceedings.com

TABLE OF CONTENTS

(14a) Casting Solvent Effects on Block Ionomer Morphology and Corresponding Property Changes	1
<i>Kenneth Mineart, Richard Spontak</i>	
(14b) Phase Separation Kinetics in Pressure Sensitive Adhesive Melts Containing Styrene-Diene Based Block Copolymers	2
<i>Ninad Dixit, Alicia Pape, Stephen M. Martin, Eugene Joseph</i>	
(14c) Impact of Conformational and Chemical Correlations on Microphase Segregation in Random Copolymers	3
<i>Andrew J. Spakowitz, Shifan Mao, Steve He, Elyse Coletta, Michael Essien, Curtis W. Frank</i>	
(14d) Sequential Infiltration Synthesis into Native -OH Containing Block Copolymer	4
<i>Caleb Breaux, Clifford L. Henderson, Richard A. Lawson, Peter Ludovice</i>	
(14e) Kinetically-Controlled Dynamics in Block Polymer Micelles	5
<i>Thomas H. Epps III, Elizabeth G. Kelley, Ryan P. Murphy, Millicent O. Sullivan</i>	
(14f) Small Angle Scattering Studies of Nanoparticle Packing into Block Copolymer Micelles	6
<i>Gauri M. Nabar, Matthew S. Souva, Barbara E. Wyslouzil, Jessica O. Winter, Randall Winans, Sönke Siefert</i>	
(14g) Surface-Initiated Polymerization of Ionic Liquid Monomers to Achieve Films with Tunable Properties	7
<i>Ian G. Njoroge, Paul A. Kempler, G. Kane Jennings</i>	
(14h) Synthesis of Anion-Exchange Membranes for Applications Artificial Photosynthesis and in CO₂ Capture	8
<i>Siwei Liang, Meenesh R. Singh, Daniel J. Miller, Nathaniel A Lynd</i>	
(14i) Polymerized Ionic Liquid Membranes for CO₂ Capture: The Effect of Water Vapor	9
<i>Luca Ansaloni, Jacob Nykaza, Matteo Minelli, Yossef A. Elabd, Marco Giacinti Baschetti</i>	
(14j) Effect of the First Layer on Polyelectrolyte Multilayer Properties and Function	11
<i>Amy M. Peterson, Ramiro Magboo</i>	
(22a) Development of Chitosan/PVA Electrospinning Nanoporous Nanofibers for Improving Wound Healing	12
<i>Mian Wang, Thomas J. Webster</i>	
(22b) Fabrication of Polyaniline/Poly(ethylene oxide)/Graphene Nanofibers Via Electrospinning	13
<i>Ali Moayeri, Abdellah Ajji</i>	
(22c) Wafer-Scale Epitaxial Graphene on SiC: Synthesis, Transfer, and Devices	14
<i>Christos Dimitrakopoulos, Jeehwan Kim, Hongsik Park</i>	
(22d) In-Situ Gisaxs Study of Pore Orientation Effect on Thermal Transformation Mechanism of Surfactant Templated Mesoporous Titania Thin Films	15
<i>Saikat Das, Suraj Nagpure, Ravinder Garlapalli, Syed Islam, Qingliu Wu, Joseph Strzalka, Stephen E. Rankin</i>	
(22e) Scalable Directed Assembly of Electrospayed Nanoparticles By Durotaxis	16
<i>Jonathan P. Singer, Robert W. Style, Hanqiong Hu, Rostislav Boltyskiy, Eric R. Dufresne, Chinedum O. Osuji</i>	
(22f) Versatile Surface Functionalization and Micropatterning Enabled By Microcontact Printing of Poly-4-Aminostyrene	17
<i>Zhibin Wang, Junfei Xia, Sida Luo, Zhiwei Xiao, Tao Liu, Jingjiao Guan</i>	
(22g) Sub-10nm Graphoepitaxial Directed Self-Assembly of PS-PDMS By Laser Spike Annealing	24
<i>Jing Jiang, Brandon Wenning, Michael Thompson, Christopher K. Ober</i>	
(22h) Scalable Nanofabrication of Biomimetic Broadband Anti-Reflection Coatings	25
<i>Blayne Phillips, Peng Jiang</i>	
(25a) Selenium Nanoparticles and Nanocomposites As Scaffolds to Alter Cancer Proliferation and the Tumor Microenvironment	26
<i>Michelle Stolzoff, Thomas J. Webster</i>	
(25b) Preparation of a Nano-Patterned Polymer Replica for Reducing Catheter Associated Inflammation and Infection	28
<i>Luting Liu, Batur Ercan, Siyu Ni, Linlin Sun, Thomas J. Webster</i>	
(25d) MgO Nanoparticles Enhance Osteoblast Functions on Hydroxyapatite Nanocomposites for Antibacterial Orthopedic Tissue Engineering Applications	30
<i>Daniel J. Hickey, Batur Ercan, Linlin Sun, Thomas J. Webster</i>	
NSEF Young Investigator Award Presentation: Engineered Hydrogels for Regenerative Medicine Applications	43
<i>Ali Khademhosseini</i>	
NSEF Forum Award Presentation: Nanoscale Organic Hybrid Materials	44
<i>Lynden A. Archer</i>	

(107a) Lipidic Templates and Coatings for Designing Nanotheranostics	45
<i>Geoffrey D. Bothun</i>	
(107b) Invited: Engineering the Protein/Nanomaterial Interface for Biosensors and Biofuel Cells	46
<i>Scott A. Banta</i>	
(107c) Invited: Tailored Virus-like Particles for Biomedicine and Catalysis	47
<i>M.G. Finn</i>	
(133a) Characterization of Graphene, Graphene Oxide and Nanographite Dispersions Using NMR Solvent Relaxation	48
<i>David Fairhurst, Terence Cosgrove</i>	
(133b) Designer Stabilizer for Preparation of Pristine Graphene/Polysiloxane Films and Networks	58
<i>Dorsa Parviz, Micah Green, Ziniu Yu, Ronald Hedden</i>	
(133c) Award Submission - Molecular Order in Graphene-Oxide Suspensions and Graphene-Based Films: What Do We Learn from It?	59
<i>Rachel Tkacz, Rudolf Oldenbourg, Shalin B Mehta, Mainak Majumder</i>	
(133d) Microstructural Variations of Various Commercial Single-Walled Carbon Nanotubes Dispersed in Unsaturated Polyester Resin	61
<i>Joyanta Goswami, Virginia A. Davis</i>	
(133e) Behavior of Polymer – Carbon Nanotube Hybrid Particle in Porous Media	62
<i>Minh Vo, Dimitrios V. Papavassiliou</i>	
(133f) Merging Tertiary Amine with Palladium Complex on Graphene Oxide for Promoted Tsuji-Trost Allylation	64
<i>Qingshan Zhao, Yang Li, Guoliang Zhang, Fengbao Zhang, Xiaobin Fan</i>	
(133g) Novel Organometallic-Nanocarbon Complexes for Electrochemical Applications	76
<i>Zhongtao Zhang, Haining Liu, C. Heath Turner</i>	
(167a) Nanostructured and Dynamic Biomaterials for Controlling the Cell Microenvironment	77
<i>April M. Kloxin</i>	
(167b) DNA-Based Nanostructures As Versatile Delivery Vehicles	78
<i>Harry Bermudez</i>	
(167c) Designer Biomaterial Surfaces for Drug Delivery and Regenerative Medicine	79
<i>Anita Shukla</i>	
(189a) Phonon-Limited Transport Coefficients in Extrinsic Graphene	80
<i>Enrique Munoz</i>	
(189b) Study on the Surface Energy of Supported Graphene By Contact Angle Measurements	81
<i>Lei Li, Andrew Kazbial, Zhiting Li, Feng Zhou, Vahid Vahdat, Haitao Liu</i>	
(189c) A 2D Equation-of-State Model for Corona Phase Molecular Recognition on Single Walled Carbon Nanotube Surfaces	82
<i>Zachary Ulissi, Michael S. Strano, Jingqing Zhang, Vishnu Sresht, Daniel Blankschtein</i>	
(189d) Characterization of Carbon-Based Nanomaterials By Vapor Sorption Methods	83
<i>Daniel J. Burnett, Armando R. Garcia, Majid Naderi</i>	
(189e) Molecular Dynamics Simulations of Natural Gas Transport in Carbon Nano-Pore Structures	84
<i>Shuai He, Jacinta C. Conrad, Guan Qin</i>	
(189f) The Mobility Vs. Carrier Density Trend in Wafer-Scale Epitaxial Graphene on SiC, and How It Can be Defeated	85
<i>Christos Dimitrakopoulos, Timothy J. McArdle, Damon Farmer, Alfred Grill, Dirk Pfeiffer, Phaedon Avouris</i>	
(189g) Molecular Barrier Functions of Graphene Oxide in Liquid-Liquid Systems	86
<i>Megan A. Creighton, Finn van Krieken, Robert Hurt</i>	
(189h) Surface Properties of Carbon Nanotubes Adsorbed at an Air-Water Interface	87
<i>Sahil Vora, Brice Bognet, Huseini Patanwala, Francisco Chinesta, Anson W. K. Ma</i>	
(241b) Award Submission: Development of Peptide-Conjugated Iron Oxide Nanoparticles for Hyperthermia Treatment of Cancer	88
<i>Anastasia M. Kruse, Samantha A. Meenach, Kimberly W. Anderson, James Z. Hilt</i>	
(241c) Award Submission: Viscosity Increase in Concentrated Mab Solutions Due to Large Transient Clusters	89
<i>P. Douglas Godfrin, Peter Falus, Lionel Porcar, Jonathan Zarzar, Isidro (Dan) Zarraga, Norman J. Wagner, Yun Liu</i>	
(241d) Award Submission: Electronic Platform to Quantify Cellular Mechanisms Associated with Carbon Nanotubes Exposure in Real-Time	90
<i>Reem Eldawud, Chenbo Dong, Yon Rojanasakul, Cerasela Zoica Dinu</i>	
(241e) Award Submission: Poly(Lactide-co-Glycolide) Iron Oxide Microspheres for MRI-Monitored Delivery of Sorafenib to Liver Tumors in a Rabbit VX2 Model	91
<i>Jeanne Chen</i>	

(241f) Award Submission: Identification of Kinase Inhibitors for Enhanced Polymer-Mediated Transgene Expression	92
<i>Matthew Christensen, Jacob Elmer, Seron Eaton, Laura Gonzalez, Joshua LaBaer, Kaushal Rege</i>	
(268a) Detecting Temperature-Dependent Desorption with Carbon Nanotube Cluster Coated Microsphere Sensors	93
<i>Maria V. Chistiakova, Andrea M. Armani</i>	
(268b) An Integrated Ionic Logic Circuit for Addressing/Reading Multiplex Sensor Platform	95
<i>Gongchen Sun, Zdenek Slouka, Hsueh-Chia Chang</i>	
(268c) Self-Referenced Detection of Cu²⁺ Using a Crossbar Array of Protein-Stabilized Gold Nanocluster and a Thermoplastic	96
<i>Junfei Xia, Zhibin Wang, Danting Huang, Peipei Zhang, Brett Kirkland, Jingjiao Guan</i>	
(268d) Low-Power Microflow Sensor Using Thermal Capacitance	103
<i>Wen-Chi Lin, Mark A. Burns</i>	
(268e) Poly (ethylene-glycol) Based Hydrogels for on-Chip Microsensors	104
<i>Paige Fischer, Bingzhao Xia, John Oakey</i>	
(268f) A Microfluidic Technique for Measuring the Wax Appearance Temperature (WAT) of Crude Oils	105
<i>Shahnawaz Molla, Farshid Mostowfi</i>	
(268g) Molecular Sensing at Graphene Grain Boundaries	106
<i>Poya Yasaei, Bijandra Kumar, Artem Baskin, Nikita Repnin, Petr Král, Amin Salehi-Khojin</i>	
(268h) Pt Nanowire Array Coated with Au Nanoparticles As a Novel Electrochemical Sensor	107
<i>Zhiyang Li, Fan Gao, Zhiyong Gu</i>	
(268i) Functionalization of Carbon Nanotube Thin-Film Transistors Fabricated By Material Recognition Property of Peptide Aptamer	108
<i>Yuichiro Shimada, Akane Hosokawa, Daisuke Kobayashi, Atsushi Shono, Katsuto Otake</i>	
(268j) Sequence-Specific DNA Detection at 10 Fm By Electromechanical Signal Transduction	109
<i>Leyla Esfandiari, Jacob Schmidt, Harold G. Monbouquette</i>	
(273a) Atomic Layer Deposited Highly Dispersed Platinum Nanoparticles Supported on Multiwalled Carbon Nanotubes for Liquid Phase Reactions	110
<i>Xinhua Liang, Chengjun Jiang</i>	
(273b) Temporal and Spatial Reactors for Atomic Layer Deposition on Particles	111
<i>J. Ruud van Ommen, Fabio Grillo, David Valdesueiro, Dirkjan Kooijman, Mojgan Talebi, Aristeidis Goulas</i>	
(273c) Metallic Co ALD Catalysts for Fuels from Syngas	113
<i>Staci A. Van Norman, J. Ruud van Ommen, John L. Falconer, Alan W. Weimer</i>	
(273d) Chemical Vapour Impregnation- a Versatile Route to High Redox Activity Nanoparticle Catalysts	114
<i>Michael Forde, Graham J. Hutchings, Chris K. Kiely, Qian He, Nikolaos Dimitratos, Ren Su, Lokesh Kesavan</i>	
(273e) Preparation of Carbon Supported Pt Nanoparticles By Atomic Layer Deposition	127
<i>Alia M. Lubers, Christopher L. Muhich, Kelly M. Anderson, Alan W. Weimer</i>	
(273f) Particle Size and Support Effect of Platinum Catalyst in a Proton Exchange Membrane Fuel Cell	128
<i>Shibely Saha, Dongmei (Katie) Li</i>	
(273g) Carboxyl Multi-Walled Carbon Nanotubes Stabilized Palladium Nanocatalysts for Fuel Cell Application	130
<i>Zhanhu Guo, Yiran Wang, Qingliang He, Jiang Guo, Huige Wei, Xingru Yan, Suying Wei</i>	
(290a) Impact of Support, Nanoparticle Size, and Carbon Precursor on the Nanotube Growth Mechanism: Viability of Controlling Nanotube Structure	131
<i>Diego A. Gomez Gualdron, Jenni M. Beetge, Juan C. Burgos, Perla B. Balbuena</i>	
(290b) Role and Stability of a Metal Carbide Catalyst in the Growth of Single-Walled Carbon Nanotubes	132
<i>Jose L. Gomez-Ballesteros, Pin Ann Lin, Matthieu Picher, Renu Sharma, Perla B. Balbuena</i>	
(290c) Diffusion Boundary Layer in the Growth of Centimeter-Tall Carbon Nanotube Forests	133
<i>Jaegun Lee, Eugene Oh, Kun-Hong Lee</i>	
(290d) Architectural Design of Hollow Mesoporous Composite Nanotubes As Robust Catalysts for Benzyl Alcohol Oxidation	135
<i>Guowu Zhan, Hua Chun Zeng</i>	
(290e) Synthesis of Carbon Nanofibers from Light Liquid Paraffins Using the Liquid Pulse Injection Technique	136
<i>Shin R. Mukai, Ryoto Hirahashi, Yuusuke Rikima, Riku Furukawa, Shinichiro Iwamura, Isao Ogino</i>	
(290f) Stabilizing Effect of Sulfur Incorporation on Multi- and Single-Wall Carbon Nanotubes	138
<i>Magdalena M. Majewska</i>	

(290g) Synthesis of Holey Graphene Via Gold Nanoparticle-Catalyzed Hydroxyl Radical Attack	139
<i>James G. Radich, Prashant V. Kamat</i>	
(290h) Synthesizing Few Atom Thick Boron Based Nanostructures Isostructural to Chemically Modified Graphene Sheets	140
<i>Saroj Kumar Das, Amita Bedar, Asha Liza James, Kabeer Jasuja</i>	
(309b) Award Submission - Molecular Order in Graphene-Oxide Suspensions and Graphene-Based Films: What Do We Learn from It?	141
<i>Rachel Tkacz, Rudolf Oldenbourg, Shalin B Mehta, Mainak Majumder</i>	
(309c) Award Submission: Molecular Barrier Functions of Graphene Oxide in Liquid-Liquid Systems	143
<i>Megan A. Creighton, Finn van Krieken, Robert H. Hurt</i>	
(309d) Study on the Surface Energy of Supported Graphene By Contact Angle Measurements	144
<i>Lei Li, Andrew Kazbial, Zhiting Li, Feng Zhou, Wahid Vahdat</i>	
(309e) Strengthened Magnetic Epoxy Nanocomposites with Protruding Nanoparticles on the Graphene Nanosheets	145
<i>Xi Zhang, Ouassima Alloul, Suying Wei, Zhanhu Guo</i>	
(328a) A Model for Nanoscale Friction on Few Layer Graphene	146
<i>Sesha Hari Vemuri, Pil Seung Chung, Myung S. Jhon, Robert Smith</i>	
(328b) Crumpling and Unfolding Behavior of Spray Dried Pristine Graphene Sheets	147
<i>Micah Green, Dorsa Parviz, Sriya Das, Fahmida Irin</i>	
(328c) Quantitative Theory of Adsorptive Separation for the Electronic Sorting of Single-Walled Carbon Nanotubes	148
<i>Rishabh Jain, Kevin Tvrdy, Rebecca Han, Zachary Ulissi, Michael S. Strano</i>	
(328d) Evaluation of Critical Parameters in the Separation of Single-Wall Carbon Nanotubes through Selective Adsorption Onto Hydrogels	149
<i>Justin G. Clar, Tianyu Yuan, Yang Zhao, Jean-Claude J. Bonzongo, Kirk J. Ziegler</i>	
(328e) Two Phase Extraction Separation of Single-Wall Carbon Nanotubes	150
<i>Jeffrey A. Fagan, Erik Haroz, Ming Zheng</i>	
(328f) DNA-Controlled Carbon Nanotube Purification in Polymer Aqueous Two-Phase Systems	151
<i>Geyou Ao, Constantine Khripin, Ming Zheng</i>	
(328g) Separation Mechanism of Carbon Nanotubes Via Aqueous Two-Phase Method: Towards Simple Isolation	152
<i>Juan G. Duque, Navaneetha Subbaiyan, Sofie Cambre, Erik Haroz, Stephen Doorn, Nicholas Parra-Vasquez</i>	
(341a) Lifetime and Catalytic Reactivity of Fe-Ni Nanoparticles	153
<i>Lauren F. Greenlee, Nikki S. Rentz</i>	
(341b) Controlled Deposition of Iron Oxide Nanoparticles Using a Novel Gas-Expanded Liquid (GXL) Process to Generate Supported Fischer-Tropsch Catalysts	154
<i>Pranav S. Vengsarkar, Rui Xu, Christopher B. Roberts</i>	
(341c) Controlling Metal Nanoparticles in Fischer Tropsch Synthesis	155
<i>Freek Kapteijn, Jorge Gascon</i>	
(341d) Coke-Resistant Core-Shell Catalysts for Dry Reforming of Methane	156
<i>Junsheng Zhang, Fanxing Li</i>	
(341e) Reactions Catalyzed By Metal Particles Supported on Functionalized Carbon Nanotubes in Biphasic Systems	157
<i>Nicholas Briggs, Javen Weston, Zheng Zhao, Deepika Venkataramani, Clint P. Aichele, Jeffrey Harwell, Daniel Resasco, Steven Crossley</i>	
(341f) Solid State Chemistry Mass Production of Platinum Group Metal Catalysts with Tailored Particle Morphology	158
<i>Zhenmeng Peng, Changlin Zhang, Sang Youp Hwang</i>	
(341g) Optimization of Green Synthesis of Gold Nanoparticles Using Delonix Regia Leaf Extract and Evaluation of Their Catalytic Activity	159
<i>Mausumi Mukhopadhyay, Preeti Dauthal</i>	
(383a) Elastic Properties and Fracture Mechanics of Graphene Nanomeshes	164
<i>Dimitrios Maroudas, Corinne Carpenter, Spencer Wyant, Lin Hu, Andre R. Muniz, Ashwin Ramasubramaniam</i>	
(383b) Mechanical Behavior of Interlayer-Bonded Nanostructures Obtained from Bilayer Graphene	165
<i>Andre R. Muniz, Alyne Machado, Dimitrios Maroudas</i>	
(383c) Award Submission: Encapsulation of Particle Ensembles in Graphene Nanosacks As a New Route to Multifunctional Materials	166
<i>Yantao Chen</i>	
(383d) Thermal Properties of Graphene Nanomeshes	167
<i>Lin Hu, Dimitrios Maroudas</i>	
(383e) Building a 3D Graphene/Graphene Oxide Matrix for Cooperative Catalysis	168
<i>DelRae Haag, Harold H. Kung</i>	

(383f) Carbon Black-Derived Graphene Quantum Dots As an Efficient and a Stable Catalyst for I₃⁻/I⁻ Redox Couple	169
<i>Chun-Chieh Wang, Shih-Yuan Lu</i>	
(383g) Strengthened Magnetic Epoxy Nanocomposites with Protruding Nanoparticles on the Graphene Nanosheets	170
<i>Xi Zhang, Ouassima Alloul, Suying Wei, John Zhanhu Guo</i>	
(383h) High Electrical Conductive Ethylene 1-Octene Copolymers Reinforced with Low Loading Carbon Nanotubes	171
<i>Xingru Yan, Xi Zhang, HuiGe Wei, Qingliang He, Suying Wei, Zhanhu Guo</i>	
(391a) Development and Characterization of β-Dicalcium Silicate Nanoparticles for Greener Cementitious Materials	172
<i>Scarlett Widgeon, Mariané Silva de Miranda, Rahul P. Sangodkar, Elizabeth Cisneros, Flávio A. Rodrigues, Bradley F. Chmelka</i>	
(391b) Multiscale Modeling for Nanoclearcoat Curing	173
<i>Hao Song, Jie Xiao, Yinlun Huang</i>	
(391c) Continuous Sizing and Characterization of Suspension-Based Nanomaterials	174
<i>Fanxu Meng, Victor M. Ugaz</i>	
(391e) Novel Exposure and Toxicological Methods to Define the End-of-Life Environmental Health and Safety Implications of Nano-Enabled Products	175
<i>Georgios A. Sotiriou, Dilpreet Singh, Fang Zhang, Wendel Wohlleben, Philip Demokritou</i>	
(404a) Self-Assembly of Aqueous Surfactants on Chemical and Morphological Heterogeneous Surfaces	176
<i>Manaswee Suttipong, Brian P. Grady, Alberto Striolo</i>	
(404b) Folding By Design	177
<i>Paul Dodd, Pablo F. Damasceno, Sharon C. Glotzer</i>	
(404c) Chiral Templating of Self-Assembling Nanostructures By Circularly Polarized Light	178
<i>Jihyeon Yeom</i>	
(404d) A Multiresolution Approach to Optimally Control the Dynamic Directed Self-Assembly of Nanostructures	179
<i>Sivaraman Ramaswamy, Paul I. Barton, George Stephanopoulos</i>	
(404e) Multiscale Modeling Approach to Determine the Role of Amphiphilic Building Block in the Stability of Paclitaxel Drug Delivery Nanocarriers	180
<i>Shikha Nangia, Wenjuan Jiang</i>	
(404f) Predicting Process Windows for Block Copolymer Directed Self-Assembly with Chemoepitaxial Guiding Underlayers with Pattern Density Multiplication	181
<i>Benjamin Nation, Andrew J. Peters, Richard A. Lawson, Peter J. Ludovice, Clifford L. Henderson</i>	
(404g) Worm-like Micelles of Polymerizable Surfactant As a Template for Polymerization	182
<i>Simonetta Rima, Marco Lattuada</i>	
(404h) Simultaneous Synthesis and Assembly of Noble Metal Nanoclusters with Variable Micellar Templates	183
<i>Yao Zhou</i>	
(420a) Nanocrystals and Nanostructures for Study of Catalysis	184
<i>Yijin Kang, Christopher B. Murray, Peidong Yang, Nenad Markovic, Vojislav Stamenkovic</i>	
(420aa) Scalable Process Control of Highly Luminescent and Environmentally Friendly ZnS Quantum Dot Synthesis By Anaerobic Bacteria in Aqueous Solutions	185
<i>Gyoung gug Jang, Ilia N. Ivanov, Harry M. Meyer III, Michelle K Kidder, David E. Graham, Ji-Won Moon</i>	
(420ab) Real-Time Analysis of the Cellular Mechanisms Associated with Carbon Nanotubes Exposure	186
<i>Reem Eldawud, Chenbo Dong, Yon Rojanasakul, Cerasela Zoica Dinu</i>	
(420ac) Thermal Management in MEMS/Nems	187
<i>Sesha Hari Vemuri, Myung S. Jhon</i>	
(420ad) Gold Nanoparticle Interactions with Model Biological Membranes	188
<i>Christina Bailey, Elaheh Kamaloo, Kellie Waterman, Kathleen Wang, Terri A. Camesano</i>	
(420ae) Preparation of High Performance Graphene Fibers By Wet-Spinning Method	189
<i>Chunyan Zhao, Songzhao Tong, Shenbin Mo, Jian Wang, Tianju Fan, Wei Tang, Chunqiu Yuan, Yidong Liu, Yong G. Min</i>	
(420af) Accelerated Generation of Free Radicals By Iron Oxide Nanoparticles in the Presence of an Alternating Magnetic Field	190
<i>Robert J. Wydra, Kimberly W. Anderson, Thomas D. Dziubla, J. Zach Hilt</i>	
(420ag) Mechanism of Nanoparticle Assembly in Polymer Thin Films from Quantitative SEM Image Analysis	191
<i>Chaitanya Murthy, Gaurav Arya</i>	

(420ah) Catalyst-Free Growth of Ultra-High Density ZnO Nanowires for Dye-Sensitized Solar Cells	192
<i>Cheng Xu, Yang Zhao, Luping Li, Kirk J. Ziegler</i>	
(420ai) Steps Towards Achieving Uniform Electrodeposition in Nanoporous Aluminum Oxide Templates	193
<i>Justin C. Wong, Kirk J. Ziegler</i>	
(420aj) Self-Assembly of Amphiphilic Peptide (AF)6H5K15: Roles of Hydrophobic and Hydrophilic Residues	194
<i>Naresh Thota, Jianwen Jiang</i>	
(420ak) Self Assembly in of Soft Particle Fluids, and Hard-Soft Particle Mixtures	195
<i>Mukta Tripathy</i>	
(420al) Different Ways of Looking at the Force Between Nano Particles	196
<i>Alexander Lange, Gernot Bauer, Fabian Danecker, Joachim Gross</i>	
(420am) Preparation and Characterization of Curcumin Loaded Polymeric Nanoparticles By Rapid Precipitation Method	197
<i>Maulick Chopra, Sonal Mazumder</i>	
(420an) Rheological Study of Order to Disorder Transition (ODT) in Microphase Separated Block Copolymer Surfactant-Functional Small Molecule Additive Complexes	198
<i>Rohit Kothari, H. Henning Winter, James J. Watkins</i>	
(420ao) Analysis of Lipid Transfer Rates of Phospholipid Nanodiscs (Bicelles) Using Time-Resolved Differential Scanning Calorimetry and Small Angle Neutron Scattering	205
<i>Yan Xia, Kamil Charubin, Ying Liu, Ming Li, Frederick A. Herberle, Drew Marquardt, John Katsaras, Mu-Ping Nieh</i>	
(420ap) Mesoporous Magnetic Nano-Assemblies for Thermo-Chemotherapy	206
<i>Sunil Kumar</i>	
(420aq) Structure and Transport Property of Sodium Dodecyl Sulfate Micelle in Water Phase: Molecular Dynamics Simulation Approach	207
<i>ByeongJae (Ben) Chun, Seung Soon Jang</i>	
(420ar) Linking the Electronic Character of Single-Wall Carbon Nanotubes to Their Biological Impacts Using a Model Aquatic Organism	208
<i>Justin G. Clar, Jean-Claude J. Bonzongo, Kirk J. Ziegler, Carlos Silvera-Batista, Sejin Youn, Sarah Gustitus</i>	
(420au) Rheology of Nanodiamond Particles Aligned in DC Electric Fields	209
<i>Carl McIntyre, Ericson Pereira</i>	
(420av) Structure, Dynamics and Rheology of Surfactant Micelle and Micelle-Nanoparticle Solutions from Molecular Dynamics Simulations	210
<i>Abhinandan Sambasivam, Subas Dhakal, Radhakrishna Sureshkumar</i>	
(420aw) Equilibrium and Non-Equilibrium Self-Assembly of Nanostructured Materials	211
<i>Bartosz A. Grzybowski</i>	
(420b) Synthesis FeCo Nanoparticles By NaBH₄ Reduction in Oleylamine	212
<i>Xia Xu, Jihoon Park, Yang-Ki Hong, Alan Lane</i>	
(420c) Water-Soluble RADA16-I Peptide Species within RADA16-I Designer Nanofiber Hydrogels	213
<i>Benjamin C. Hudson, Anant K. Paravastu</i>	
(420d) The Impacts of pH and Tryptophan Concentration on Controllable Synthesis of Gold Nanoparticles	214
<i>Leilei Dai, Fang Cai, Hao Lv, Jinsheng Sun, Jie He, Xijia Cao</i>	
(420f) Purification of DNA-Wrapped Carbon Nanotubes in Polymer Aqueous Two-Phase Systems	228
<i>Geyou Ao, Ming Zheng</i>	
(420g) A Biofabrication Approach for Controlled Synthesis of Silver Nanoparticles with High Catalytic and Antibacterial Activities	229
<i>Cuixian Yang, Sukwon Jung, Hyunmin Yi</i>	
(420h) Low Temperature Catalysts for Direct Remediation of H₂S Malodor in Air	230
<i>Kei Bo Cheung, Hao Chen, Wei Han, King Lun Yeung</i>	
(420i) Block Copolymer Templating of Hydrothermally-Grown ZnO Nanorod Arrays with Controlled Density for Photovoltaic Devices	231
<i>Candice Pelligra, Su Huang, Noga Kornblum, Chinedum Osuji</i>	
(420j) Designing Composite Polymer Electrolyte Interfaces for Stable Electrodes	232
<i>Guang Yang, Daniel T. Hallinan Jr.</i>	
(420k) Experimental Characterization and Multiphysics Modeling of Surface Tethered, Environmentally Responsive Poly(acrylic acid) Brushes on Thin Film Au and Cellulose Substrates	233
<i>Vanessa Wood Braband, Steven Schneiderman, Navaraj Gurung, Suvarna Talluri, Todd Menkhaus</i>	
(420m) Triboelectric Nanogenerators from Carbon Nanotubes	234
<i>Moses Oguntoye, Lawrence R. Pratt, Noshir S. Pesika</i>	

(420n) Fabrication of Graphene Nanofiber from Graphene Oxide By Ice Template	235
<i>Tianju Fan, Wei Tang, Chunqiu Yuan, Songzhao Tong, Shenbin Mo, Chunyan Zhao, Jian Wang, Yidong Liu, Yong Min</i>	
(420o) Preparation of Large Area Transparent Conductive Graphene Film Utilizing Langmuir-Blodgett Method	236
<i>Tianju Fan, Chunqiu Yuan, Wei Tang, Songzhao Tong, Yidong Liu, Yong Min, Arthur Epstein</i>	
(420p) Effectiveness and Toxicity of Magnetic Micelles for Use As Cancer Therapy Agents	237
<i>Rhythm R. Shah, Christopher S. Brazel</i>	
(420q) MODEL for the Synthesis of and Macrophage Responses to Nanoscale Hydroxyapatite	238
<i>Garima Bhardwaj, Thomas J. Webster, Arthur Gonzales</i>	
(420r) The Role of Structure and Surface Composition on the Contact Angle and Wetting Characteristics of Carbon Nanofiber Coatings	241
<i>Akanksha Visi, Aditya Sharma, Sonal Mazumder</i>	
(420s) The Effects of Synthesis Method on the Physical and Chemical Properties of Iron Oxide Nanoparticles	242
<i>Anastasia M. Kruse, Ronita Mathias, Kimberly W. Anderson, James Z. Hilt</i>	
(420t) Porous Carbon Microsphere-Encapsulated ZnO-Coo Nanoparticles Anode for High-Performance Lithium-Ion Batteries	243
<i>Lianjun Liu, Cunyu Zhao, Huilei Zhao, Qianyi Zhang, Ying Li</i>	
(420u) Characterization of Complex Solution-Nanotube Interfaces Using AUC and SANS.....	244
<i>Stephanie Lam, Jeffrey A. Fagan</i>	
(420v) Scalable Synthesis Methods to Produce Janus Nanoparticles	245
<i>Alan Hanley, Allan David</i>	
(420w) Evaluating the Potential of Dynamic Magnetic Susceptometry for Ricin B Detection	246
<i>Lorena Maldonado-Camargo, Srinand Sreevatsan, Carlos Rinaldi</i>	
(420x) Magnetic Nanoparticles for Non-Invasive Quantification of Prostate Cancer Aggressiveness	247
<i>Tareq Anani, Allan David, Young S. Choi</i>	
(420y) Simulations of Phenol-Capped Alkanethiol-Coated Gold Nanoparticles in Organic Solvents	248
<i>Albert L. Kwansa, Danielle S. Stallings, Yaroslava G. Yingling</i>	
(420z) Catalytic Conversion of Methane to Methanol on Metal Phthalocyanine Functionalized Graphene	249
<i>Sierra Headrick, Pabitra Choudhury</i>	
(449a) Poly(Lactide-co-Glycolide) Iron Oxide Microspheres for MRI-Monitored Delivery of Sorafenib to Liver Tumors in a Rabbit VX2 Model.....	250
<i>Jeanne Chen, Sarah B. White, Kathleen R. Harris, Woon Teck Yap, Robert J. Lewandowski, Lonnie D. Shea, Andrew C. Larson</i>	
(449b) Controlling Ferrofluids Permeabilities to Cross an in Vitro Blood-Brain Barrier Model.....	251
<i>Di Shi, Linlin Sun, Gujie Mi, Soumya Bhattacharya, Suprabha Nayar, Thomas J. Webster</i>	
(449c) Development of Peptide-Conjugated Iron Oxide Nanoparticles for Hyperthermia Treatment of Cancer.....	254
<i>Anastasia M. Kruse, Samantha A. Meenach, Kimberly W. Anderson, James Z. Hilt</i>	
(449d) Preparation, Characterization and Properties of Janus Magnetic Liposomes	255
<i>Christophe Monnier, Marco Lattuada, Alke Fink</i>	
(449e) In Situ Evaluation of Nanoparticle-Protein Interactions By Dynamic Magnetic Susceptibility Measurements	268
<i>Ana Bohorquez, Carlos Rinaldi</i>	
(449f) Synthesis of a Polymer-Magnetic Particle Platform for "Tailored" Multimodal Materials for Imaging and Treatment	269
<i>O. Thompson Mefford</i>	
(455a) Nanostructured Size-Selective Catalysts Prepared By Molecular Layer Deposition.....	270
<i>Xinhua Liang, Zeyu Shang, Rajankumar Patel</i>	
(455b) Platinum Nanoparticles Supported on Multiwalled Carbon Nanotubes Encapsulated By Cerium Oxide: A Highly Reactive and Stable Catalytic System.....	271
<i>Chao Wan, Dangguo Cheng, Fengqiu Chen, Xiaoli Zhan</i>	
(455c) Using Active Site Confinement and Organic Ligand Approaches to Control Catalysis.....	279
<i>Michael M. Nigra, Alexander Katz, Marc-Olivier Coppens</i>	
(455d) Sinter-Resistant Metal Nanoparticles Encapsulated By Zeolite Nanoshell.....	280
<i>Shilpi Saxena</i>	
(455e) Controlling Metal Nanoparticle Dispersion with 'Nanocavity' Oxide Supports.....	282
<i>Zhenyu Bo, Cassie George, Gallagher James R., Jeffrey T. Miller, Peter C. Stair, Justin M. Notestein</i>	

(455f) Single-Walled Copper Silicate Nanotubes Doped with 3d Transition Metals for CO₂ Hydrogenation	283
<i>Yuan Sheng, Hua Chun Zeng</i>	
(455g) Computational Design of Highly Selective Transition Metal Catalysts Encapsulated By Metal-Organic Frameworks for Butane Oxidation to 1-Butanol	284
<i>Sean T. Dix, Rachel B. Getman</i>	
(457a) Semiconductor Nanowire Fabric	285
<i>Brian A. Korgel</i>	
(457b) Piezotronics and Piezo-Phototronics in Semiconductor Nanowires for Active Electronics and Optoelectronics	286
<i>Zhong Lin (ZL.) Wang, Wenzhuo Wu</i>	
(457c) The Hydrothermal Synthesis of Palladium Nanorods on the Tobacco Mosaic Virus: A Study of Its Kinetic Mechanism and Nanorod Properties	287
<i>Oluwamayowa Adigun, Alexander Freer, Michael T. Harris</i>	
(457d) Kinetic Control of Catalyst-Free Growth of Ultra-High Density ZnO Nanowires	288
<i>Cheng Xu, Yang Zhao, Luping Li, Kirk J. Ziegler</i>	
(457e) Interplay Between Defect Propagation and Surface Hydrogen in Si Nanowire Kinking Superstructures	289
<i>Nae Chul Shin, Miaofang Chi, Michael A. Filler</i>	
(457f) Controlled Chirality in Nanoscale Semi-Conducting CdTe Nanowires	290
<i>Ryan L. Marson, Greg van Anders, Yunlong Zhou, Nicholas Kotov, Sharon C. Glotzer</i>	
(457g) Solid-Liquid-Vapor Anisotropic Etching of Semiconductor Nanowires	291
<i>Ho Yee Hui, Ildar Musin, Michael A. Filler</i>	
(457h) Characterization and Effects of Barrier Layer Thinning and Pore Opening in Porous Aluminum Oxide for Nanowire Growth	292
<i>Justin C. Wong, Kirk J. Ziegler</i>	
(503a) Optimizing Heat Generation in Magnetic Iron Oxide Nanoparticles for Use in Cancer Hyperthermia	293
<i>Rhythm R. Shah, Todd P. Davis, David E. Nikles, Christopher S. Brazel</i>	
(503b) Magnetic Nanoparticles for Measuring Prostate Cancer Aggressiveness	294
<i>Tareq Anani, Allan David, Young S. Choi</i>	
(503c) Controlled, Wireless Heating of Iron Oxide Nanoparticle Composites	295
<i>Joel Coffel, Eric Nuxoll</i>	
(503d) Shape-Controlled Iron Oxide Nanoparticles For Bioimaging	296
<i>Yuping Bao, Jennifer Sherwood, Yaolin Yaolin, Thomas Macher, Ming Lee</i>	
(503e) Preparation and Characterization of Magnetic Gene Transfection Agents Consisting of Polyethyleneimine Coated Iron Oxide Nanoparticles	297
<i>Melissa Cruz-Acuña, Lorena Maldonado-Camargo, Jon Dobson, Carlos Rinaldi</i>	
(503f) Biocompatible Iron Oxide Nanoparticles Obtained Via the Non-Aqueous Synthesis in Hydrophilic Solvents for High Gradient Magnetic Protein Purifications	298
<i>Ingke-C. Masthoff, Mathias Kraken, Johannes Gädke, Rainer Krull, Jochen Litterst, Georg Garnweitner</i>	
(513a) Synthesis of p-Type ZnO Nanorods on an InP Substrate By Pulse Laser Deposition	300
<i>Yu Dongqi</i>	
(513b) Molecular Synthesis and Characterisation of Nanoparticles Using IR Spectrometry	307
<i>Muhammad Nuru Idris Sr.</i>	
(513c) Preparation of Drug Nanoparticles Stabilized By Polysaccharide Surfactant through Four-Inlet Vortex Mixer	329
<i>Mingwei Wang, Zhenyu Yuan, Jie Wang, Li Li, Xuhong Guo</i>	
(513d) Scale-up of Nanoparticle Manufacturing By Flame Spray Pyrolysis	330
<i>Karsten Wegner, Arto J. Gröhn, Sotiris E. Pratsinis</i>	
(513e) Numerical Analysis of Multicomponent Catalysts Production By Double Flame Spray Pyrolysis (DFSP)	331
<i>Dirceu Noriler, Maximilian J Hodapp, Florian Meierhofer, Henry F. Meier, Udo Fritsching</i>	
(582a) A Coarse Grain Model for Protein-Nanoparticle Interactions	332
<i>Shuai Wei, Charles L. Brooks III</i>	
(582b) Molecular Dynamics Simulations of Peptide-SWCNT Interactions: Role of Curvature	333
<i>Olukayode Karunwi, Saptarshi Chakraborty, Anthony Guiseppi-Elie</i>	
(582c) Enhanced Activity and Stability of Organophosphorus Hydrolase Via Interaction with an Amphiphilic Polymer	334
<i>Minkyu Kim, Manos Gkikas, Aaron Huang, Jeon Woong Kang, Nisaraporn Suthiwangcharoen, Ramanathan Nagarajan, Bradley D. Olsen</i>	

(582d) Enabling Multi-Enzyme Biocatalysis Using Coaxial Electrospun Hollow Nanofibers: Design and Applications	335
<i>Songping Zhang, Xiaoyuan Ji, Ping Wang, Zhiguo Su, Guanghui Ma</i>	
(582e) Confinement Protection Effects of Mesoporous Silica, Inspired By Chaperonin Complexes	336
<i>Michele Lynch, Marc-Olivier Coppens</i>	
(582f) A Combinatorial Strategy Towards a Better Sugar-Powered Enzymatic Fuel Cell	337
<i>Zhiguang Zhu, Y.-H. Percival Zhang</i>	
(583a) Invited: Packing and Assembly of Particles: Nanowires and Beyond	338
<i>Sharon C. Glotzer</i>	
(583b) Forming Aligned Micellar Nanowires By De-Wetting on Micro-Pillars	339
<i>Pouyan E. Boukany</i>	
(583c) The New Liquid Crystals: Self-Assembly and Processing of Nanocylinder Dispersions	340
<i>Virginia Davis</i>	
(583d) Flow-Guided Template Manufacturing of Nanowire-Array Sensors	341
<i>Yingbo Zu, Juan Chen, kartik Kumar Rajagopalan, Shengnian Wang</i>	
(583e) Synthesis and Characterization of Silver Nanowire for Printable Conductive Media	342
<i>Shohreh Hemmati, Dale P. Barkey, Xiaowei Teng, Ryan Banfield</i>	
(583f) In Situ Formation of Silver Nanowire Networks on Paper and Plastic Substrates Using a Desktop Inkjet Printer	343
<i>Pushkaraj Joshi, Shravan Kumar Parmar, Venugopal Santhanam</i>	
(583g) Phase Transformation As a Strategy for the Synthesis and Assembly Via Welding of Single-Crystalline Metal Silicide Nanowires	344
<i>Sreeram Vaddiraju, Yongmin Kang, Venkata Vasiraju</i>	
(583h) Nanofiber-Based Dye Sensitized Solar Cells with a Novel Nano-Particle Scattering Layer	345
<i>Lijun Yang, Wallace Woon-Fong Leung</i>	
(618a) Hydrophobically Modified Chitosan Coated Liposomes for Gene Delivery	346
<i>Jaspreet S. Arora, Dibyadyuti Datta, Nirbhay Kumar, Vijay T. John</i>	
(618b) Local Sustained Knockdown for Accelerated Diabetic Wound Healing	347
<i>Steven Castleberry, Wei Li, Benjamin D. Almquist, Paula T. Hammond</i>	
(618c) Identification of Kinase Inhibitors for Enhanced Polymer-Mediated Transgene Expression	348
<i>Matthew Christensen, Jacob Elmer, Seron Eaton, Laura Gonzalez, Joshua LaBaer, Kaushal Rege</i>	
(618d) Protease-Activatable Viruses Based on Adeno-Associated Virus for Cardiovascular Disease Therapy	349
<i>Michelle L. Ho, Michael Lam, Momona Yamagami, Caitlin Guenther, Junghae Suh</i>	
(618e) Gold Nanoparticle Electroporation Enhanced Polyplex Delivery	350
<i>Shuyan Huang, Yingbo Zu, kartik Kumar Rajagopalan, Shengnian Wang</i>	
(618f) Near-Infrared-Actuated Devices for Remotely Controlled Drug Delivery	351
<i>Brian P. Timko, Daniel S. Kohane</i>	
(618g) Degradable Lipid Nanoparticles with Predictable in Vivo siRNA Delivery Activity	352
<i>Kathryn A. Whitehead, Daniel G. Anderson</i>	
(618h) Poly (propargyl L-glutamate) Based Linear-Dendritic Block Copolymers As pH-Responsive Hydrophobic Drug Carrier	353
<i>Mohiuddin Quadir, Stephen Morton, Lawrence Mensah, Kevin Shopsowitz, Paula T. Hammond</i>	
(618i) PLGA-Peg-Based pH Sensitive Nanoparticles for Targeted and Controlled Drug Delivery: In Vitro Evaluation	354
<i>Zilan Zhou, Apurva Badkas, Joo-Youp Lee</i>	
(646a) Molecular Bioelectronics: Enzyme-Swnt Conjugates for Bioanalytical Biochips	355
<i>Anthony Guiseppi-Elie, Olukayode Karunwi</i>	
(646b) Binding Between DNA and Carbon Nanotubes Strongly Depends upon Sequence and Chirality	356
<i>Akshaya Shankar, Jeetain Mittal, Anand Jagota</i>	
(646c) Thermodynamics of DNA Strands Encapsulated into Electrically Charged Nanotubes	357
<i>Fernando J.A.L. Cruz, José P.B. Mota</i>	
(646d) Effect of Organic Acids on Nucleation and Growth of Calcium Phosphate Crystals on Glutamic Acid Functionalized Nanofibers	362
<i>Danial Barati, Seyedsina Moeinzadeh, Esmail Jabbari</i>	
(646e) Biophysical Characterization of Immobilized, Self-Assembled Phospholipid Bilayer Based Structures in Sol-Gel Derived Silica	364
<i>Wade F. Zeno, Silvia L. Hilt, Kannan K. Aravagiri, Subhash H. Risbud, John C. Voss, Atul N. Parikh, Marjorie L. Longo</i>	
(646f) Computational Modelling of Functionalized Nanoparticles Interacting with Bio-Inspired Membranes and Vesicles	365
<i>Fikret Aydin, Michael Sebastiano, Xiaolei Chu, Meenakshi Dutt</i>	

(646g) Morphological Characterization of Detergent-Mediated Photosystem I (PS I)-Proteoliposome Formation	366
<i>Hanieh Niroomand, Bamin Khomami, Dibyendu Mukherjee</i>	
(646h) Multi-Site Functionalization of Protein Scaffolds for Bimetallic Nanoparticle Templating	367
<i>Kelly Huggins, Sarah C. Heilshorn</i>	
(646i) Nature-Inspired Microfluidic Template As a Substrate for Plasmonic Nanoparticles	368
<i>Karthik Pushpavanam, Sanjitarani Santra, Kaushal Rege</i>	
(674a) Diffusing Colloidal Probes of Cancer Cells	369
<i>Gregg Duncan, Michael A. Bevan</i>	
(674b) Enhancement of Cancer Cellular Uptake By the Morphology of Lipid-Based Nanodiscs	370
<i>Wafa Aresh, Ying Liu, Jessica Sine, Derek Thayer, Anu Puri, Yike Huang, Yong Wang, Mu-Ping Nieh</i>	
(674c) Mitochondrial Targeting with Triphenylphosphonium (TPP)-Conjugated and TPP-Peg-Conjugated PAMAM Dendrimer Nanocarriers	371
<i>Elizabeth Bielski, Qian Zhong, Lin Yang, Matthew Brown, Vladimir Cabral, Sandro R.P. da Rocha</i>	
(674d) Effect of Incorporation of Lysolipid on Dipalmitoylphosphatidylcholine Bilayer Membrane: Study on the Permeability Enhancement of Liposomes at the Phase Transition Using Molecular Dynamics Simulations	372
<i>Hyea Hennim Hwang, Jae Hyung Choi, Keewon Lee, Young Kyoung Kim, Seung Soon Jang</i>	
(674e) Self-Assembled Polymer Nanomedicines for Synergistic and Synthetic Lethal Drugging of Breast and Ovarian Tumors	373
<i>Erik Dreaden, Yi Wen Kong, Stephen Morton, Michael Yaffe, Paula T. Hammond</i>	
(674f) Dendrimer Nanodevices for Pediatric Brain Injury	374
<i>Elizabeth Nance, Michael Porambo, Fan Zhang, Manoj Mishra, Zhi Zhang, Michael Johnston, Ali Fatemi, Rangaramanujam Kannan, Sujatha Kannan</i>	
(674g) Dry Powder Aerosols Based on Mucus-Penetrating Nanocomposite Microparticles for Pulmonary Antibiotics Delivery	375
<i>Zimeng Wang</i>	
(674h) Multi-Modal Gold Nanoparticles for Simultaneous Lineage-Specific Targeted Delivery and Tracking of Chemotherapeutics	376
<i>Shunji Egusa, Yogen Saunthararajah</i>	
(674i) Controlled Uptake of Therapeutic Protein Nanoparticles	377
<i>Kevin Ling, Julie A. Champion</i>	
(674j) Improved Entrapment of N-Acetyl Cysteine (NAC) in Nanoparticles of Poly[Lactic-Co-Glycolic Acid] (PLGA) Prepared By Double Emulsion Method By Using Bovine Serum Albumin (BSA)	378
<i>Ruth J. Lancheros Salas, José A. Beleño, Carlos Arturo Guerrero, Rubén D. Godoy</i>	
(703a) DNA Nanotubes and Nanotapes Formed Via Self-Assembly of ssDNA-Amphiphiles	379
<i>Timothy R. Pearce, Efrosini Kokkoli</i>	
(703b) Targeted Binding of Nanolipoprotein Particles to Phase Separated Lipid Domains	380
<i>Wade F. Zeno, Marjorie L. Longo</i>	
(703c) Self-Assembly of Functionalized Virus Capsids	381
<i>Leebyn Chong, Vyshnavi Karra, Meenakshi Dutt</i>	
(703d) Design of Sterically Stable Bio-Inspired Hybrid Soft Biomaterials Via Computational Modelling	382
<i>Fikret Aydin, Geetartha Uppaladadiam, Meenakshi Dutt</i>	
Programming Colloidal Phase Transitions with DNA Strand Displacement	383
<i>William Benjamin Rogers, Vinothan Monaghan</i>	
(703f) Ibuprofen Loading and Release in Micelles Formed By Amphiphilic Peptide (AF)6H5K15: A Coarse-Grained Molecular Dynamics Simulation	384
<i>Naresh Thota, Zhongqiao Hu, Jianwen Jiang</i>	
(732a) Measuring How the Local Glass Transition Temperature Shifts Across a Glassy-Rubbery Polymer-Polymer Interface	385
<i>Roman R. Baglay, Connie B. Roth</i>	
(732b) Tuning the Wall Thickness of Templated Polystyrene Nanotubes Produced from Melt Infiltration	387
<i>Anthony Tan, John M. Torkelson</i>	
(732c) Depletion, Bridging, and Ordering in Bare and Grafted Nanorod-Polymer Mixtures	389
<i>Uma K. Shankar, Anirudh Mantri, Mukta Tripathy</i>	
(732d) Ordered Polymer-Grafted Nanoparticle Networks for Ionic Conductivity	390
<i>Pinar Akcora</i>	
(732e) Preparation of Conductive Polymer Nanofibers with a Coaxial Nozzle Electrospinning Method	391
<i>Takashi Uruma, Yuichiro Shimada, Daisuke Kobayashi, Atsushi Shono, Katsuto Otake</i>	

(732f) Novel Pressure-Responsive Shape Memory Polymers	392
<i>Yin Fang, Peng Jiang</i>	
(732g) Synthesis of Polymer Brush in Oil-Phase through Photo-Emulsion Polymerization	393
<i>Xiaochi Liu, Xiaohan Wang, Yisheng Xu, Li Li, Rui Zhang, Jun Xu, Xuhong Guo</i>	
(732h) Thermodynamic Interactions and Tunable Properties of Thermoplastic Elastomers Derived from Vegetable Oils	394
<i>Megan L. Robertson, Shu Wang, Sameer Vajjala Kesava, Enrique D. Gomez</i>	
(732i) Invited Talk: Using Light to Locally Tune the Properties of Polymers	395
<i>Jan Genzer, Ying Liu, Robin Mays, Michael D. Dickey</i>	
(733a) Neurotransmitter Detection Using Corona Phase Molecular Recognition on Fluorescent Single-Walled Carbon Nanotube Sensors	396
<i>Markita Landry, Sebastian Kruss, Emma Vander Ende, Barbara Lima, Nigel F. Reuel, Jingqing Zhang, Justin Nelson, Bin Mu, Andrew J. Hilmer, Michael S. Strano</i>	
(733b) Photo-Switchable Quantum Dots Based on Reversible FRET and Azobenzene DNA	397
<i>Qirui Fan, Jessica O. Winter</i>	
(733c) Selective Intracellular Labeling Using Microfluidic Electroporation-Delivered Quantum Dots	398
<i>Chen Sun, Zhenning Cao, Tao Geng, Chang Lu</i>	
(733d) Biochemical Ratiometric Sensing By Single Chirality Carbon Nanotubes in Living Tissues	399
<i>Juan Pablo Giraldo, Markita Landry, Seonyeong Kwak, Rishabh Jain, Nicole Iverson, Min Hao Wong, Michael S. Strano</i>	
(733e) Si Nanocrystal Surface Chemistry: Room Temperature Hydrosilylation and Thermally-Induced Thiolation	400
<i>Yixuan Yu, Colin Hessel, Timothy Bogart, Matthew Panthani, Michael Rasch, Brian A. Korgel</i>	
(733f) Detection of a Peanut Allergen, Ara h1, on a Novel, Biodegradable Biosensor Platform Using Surface Enhanced Raman Spectroscopy	401
<i>Pervin Gizem Gezer, G Logan Liu, Jozef Kokini</i>	
(733g) Spatiotemporal Intracellular Nitric Oxide Signaling Captured Using Internalized, Near Infrared Fluorescent Carbon Nanotube Nanosensors	402
<i>Zachary Ulissi, Xun Gong, Michael S. Strano, Debabrata Mukhopadhyay, Fatih Sen, Nicole Iverson, Gerald Wogan, Luiz Godoy, Ardemis A. Boghossian, Selda Sen</i>	
(733h) A Facile Colorimetric Sensor of Ionizing Radiation Using Polypeptide Mediated Nanoparticle Formation	403
<i>Karthik Pushpavanam, Kaushal Rege, Stephen Sapareto, John Chang</i>	
(734a) Self-Assembled Polymeric Nanoparticles Encapsulating Hydrophobic Curcumin to Attenuate Morphine Tolerance	404
<i>Magdalena Szymusiak, Hao Shen, Xiaoyu Hu, Zaijie Jim Wang, Ying Liu</i>	
(734b) Silver Nanoparticle-Embedded Polymersome Nanocarriers for the Treatment of Antibiotic-Resistant Infections	405
<i>Benjamin M Geilich, Anne L. van de Ven, Thomas J. Webster</i>	
(734c) Tumor-Penetrating Nanoparticles Capable of Tandem Delivery of Agents for the Treatment of Lung Cancer	408
<i>Qihua Sun, Samantha A. Meenach</i>	
(734d) Design and Synthesis of Aminoglycoside Antibiotic-Derived Polymeric Micelles for Drug Delivery to Cancer Cells	416
<i>Bhavani Miryala, Taraka Sai Pavan Grandhi, Matthew Christensen, Yanqing Tian, Kaushal Rege</i>	
(734e) Size Effect of Hollow Gold Nanoparticles on Photo-Activated Drug Release of a Liposomal Carrier	418
<i>Maria O. Ogunyankin, Joseph A. Zasadzinski, Dmitri Lapotko</i>	
(734f) Single Lipoplex Fluorescent Nanoparticle Tracking Analysis and Applications for the Study of Exosomes	419
<i>Clayton Deighan, Scott Baldwin, Michael Paulaitis, Jeffrey J. Chalmers</i>	
(734g) Electronic Platform to Quantify Cellular Mechanisms Associated with Carbon Nanotubes Exposure in Real-Time	420
<i>Reem Eldawud, Chenbo Dong, Yon Rojanasakul, Cerasela Zoica Dinu</i>	
(734h) Viscosity Increase in Concentrated Mab Solutions Due to Large Transient Clusters	421
<i>P. Douglas Godfrin, Peter Falus, Lionel Porcar, Jonathan Zarzar, Isidro (Dan) Zarraga, Norman J. Wagner, Yun Liu</i>	
(734i) Protein Confinement in Mesoporous Materials	422
<i>Justin Siefker, Marc-Olivier Coppens</i>	
Author Index	