

# **Materials Engineering and Sciences Division 2017**

Core Programming Area at the 2017 AIChE Annual Meeting

Minneapolis, Minnesota, USA  
29 October – 3 November 2017

Volume 2 of 2

ISBN: 978-1-5108-5797-1

**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© (2017) by AIChE  
All rights reserved.

Printed by Curran Associates, Inc. (2018)

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](http://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: 845-758-2633  
Email: [curran@proceedings.com](mailto:curran@proceedings.com)  
Web: [www.proceedings.com](http://www.proceedings.com)

# TABLE OF CONTENTS

## VOLUME 1

<b>(9a) New Milestones and Challenges in High-Throughput Computation of Elastic Properties on the Materials Project</b> .....	1
<i>Joseph H. Montoya, Kristin Persson</i>	
<b>(9b) Breaking Badly: A Comprehensive Assessment of Computational Methods for Predicting Tensile Strengths in Bulk Solids</b> .....	2
<i>Bryan M. Wong</i>	
<b>(9c) Machine Learning the Thermochemistry of All Inorganic Crystalline Solids</b> .....	3
<i>Christopher J. Bartel, Ann M. Deml, Samantha L. Millican, John R. Rumpitz, William Tumas, Alan W. Weimer, Stephan Lany, Vladan Stevanovic, Charles B. Musgrave, Aaron M. Holder</i>	
<b>(9d) Designing Dopant Patterns in Indium-Doped Perovskite Oxygen Carriers</b> .....	4
<i>Christopher L. Hanselman, Dominic Alfonso, Jonathan W. Lekse, De Nyago Tafen, Christopher Matranga, David C. Miller, Chrysanthos E. Gounaris</i>	
<b>(9f) In silico Structural Analyses of Borosilicate, Aluminosilicate, and Gallosilicate Zeolites Using Effective Tetrahedral Descriptors</b> .....	5
<i>Koki Muraoka, Tatsuya Okubo, Watcharop Chaikittisilp</i>	
<b>(9g) Computational Identification of Hetero-Interpenetrated Porous Materials</b> .....	6
<i>Jihan Kim, Ohmin Kwon, Sanghoon Park</i>	
<b>(16a) Lipid-like Materials for RNA Delivery: A How-to Guide for Hacking Gene Expression</b> .....	7
<i>Kathryn A. Whitehead</i>	
<b>(16b) Triple Delivery Nanoscale Device for siRNA, Vismodegib and Gemcitabine Co-Delivery to Treat Pancreatic Cancer</b> .....	8
<i>Metin Uz, Satyanarayana Rachagani, Surinder Batra, Surya K. Mallapragada</i>	
<b>(16c) Influence of Dextran and Surface Charge on Nanoparticle-Mediated siRNA Delivery</b> .....	9
<i>Daniel Vocelle, Olivia Chesniak, Mitch Smith, Christina Chan, S. Patrick Walton</i>	
<b>(16d) Peg-Poly(beta-amino ester) Delivery Systems for Periodic shRNA</b> .....	10
<i>Connie Wu, Jiahe Li, Wade Wang, Paula T. Hammond</i>	
<b>(16e) Structurally Programmed Assembly of Ribonucleoproteins for Superior mRNA Delivery</b> .....	11
<i>Jiahe Li, Wade Wang, Yanpu He, Yingzhong Li, Darrell J. Irvine, Paula T. Hammond</i>	
<b>(16f) Cationic Peptide Amphiphile Micelles(PAMs) As Nucleic Acid Based Adjuvants Carriers for the Improvement of Subunit Vaccine Efficiency</b> .....	12
<i>Rui Zhang, Josiah Smith, Jake Kramer, Logan Morton, Brittany Allen, Caitlin Leeper, Xiaolei Li, Fabio Gallazzi, Tommi White, Bret Ulery</i>	
<b>(31a) Understanding Peptide Assembly with Coarse-Grained Models Designed By Information Theory (Invited Talk)</b> .....	13
<i>M. Scott Shell</i>	
<b>(31b) Modeling the Oxidative Consumption of Curcumin from Controlled Release Poly(beta amino ester) Microparticles in the Presence of a Free Radical Generating System</b> .....	14
<i>Carolyn T. Jordan, J. Zach Hilt, Thomas D. Dziubla</i>	
<b>(31c) The Fusion and Spreading of Liposome with Different Sizes: Molecular Dynamics Simulation with Dry-Martini Force Field</b> .....	15
<i>Yanfei Lu, Lu Diannan</i>	
<b>(31d) Design of Membrane-Embedded Amphiphilic Nanoparticles from Multiscale Simulations</b> .....	16
<i>Reid Van Lehn</i>	
<b>(31e) Improvement on Self-Assembly of Virus-like Particles By the Introduction of Electrostatic Attraction</b> .....	17
<i>Lin Zhang, Xiaocui Guo, Yan Sun</i>	
<b>(31f) Contemporary Modeling and Analysis of Human Blood Rheology</b> .....	18
<i>Matthew Armstrong, Tyler Helton, Evan Ousley, Michael Deegan</i>	
<b>(31g) How Confinement and Hydrophobicity Affect CO2 Diffusion from the Bulk Phase to the Active Site of Human Carbonic Anhydrase II: A Study Based on Coarse-Grained Molecular Dynamics Simulation and the Markov-State Model</b> .....	38
<i>Gong Chen, Diannan Lu, Jianzhong Wu, Zheng Liu</i>	
<b>(34a) Printing Fully Stretchable Thin-Film-Transistor Array</b> .....	39
<i>Jia Liu, Francisco M. Lopez, Jiechen Wang, Nathan G.-J. Wang, Jinyoung Oh, Sihong Wang, Zhenan Bao</i>	
<b>(34b) Conjugated Macrocycles for Ultra-Sensitive Organic Photodetectors</b> .....	40
<i>Yu Zhong, Boyuan Zhang, Xiaoyang Zhu, Colin Nuckolls</i>	

<b>(34c) Connecting Crystalline Domains: Blending Conjugated Polymers of Differing Molecular Weights for Enhanced Charge Transport</b> .....	41
<i>Michael McBride, Nils Persson, Danny Keane, Martha A. Grover, Elsa Reichmanis</i>	
<b>(34d) Ultrafast Carrier Dynamics in Bimetallic Nanostructures-Enhanced Methylammonium Lead Bromide Perovskites</b> .....	42
<i>Rizia Bardhan</i>	
<b>(34e) Aggregation Structure and Solvation of Solution-Phase PTB7</b> .....	43
<i>Daniel Reid, Nicholas Jackson, Juan J. De Pablo</i>	
<b>(34f) Self-Aligned Strategy for Printed Electronics</b> .....	44
<i>Woo Jin Hyun, Lorraine F. Francis, C. Daniel Frisbie</i>	
<b>(34g) Helical Perylene Diimide Ribbons for Molecular Electronics</b> .....	45
<i>Yu Zhong, Michael Steigerwald, Xiaoyang Zhu, Fay Ng, Colin Nuckolls</i>	
<b>(36a) Engineering Pathways to New Functional Polyether Materials</b> .....	46
<i>Nathaniel A. Lynd</i>	
<b>(36b) Topology Control of Bottlebrush Polymers</b> .....	47
<i>Damien Guironnet, Dylan Walsh</i>	
<b>(36c) A New, Facile Approach to Epoxide Polymerization</b> .....	48
<i>Robert C. Ferrier Jr., Jennifer Imbrogno, Christina G. Rodriguez, Malgorzata Chwatko, Nathaniel A. Lynd</i>	
<b>(36d) Dynamic Chemistry Leading to Full Property Recovery Associated with Crosslink Density in Reprocessed Polymer Networks and Network Composites: Network Synthesis By Step-Growth Reactions and By Nitroxide-Mediated Polymerization</b> .....	49
<i>John M. Torkelson, Xi Chen, Kailong Jin, Lingqiao Li</i>	
<b>(36e) Hybrid Chain-Growth/Step-Growth Mechanism Observed in Heterofunctional Thiol-Ene Polymerizations</b> .....	50
<i>Dillon Love, Benjamin D. Fairbanks, Kang-Min Kim, Brady Worrell, Weixian Xi, J. Taylor Goodrich, Charles B. Musgrave, Mark Stoykovich, Christopher N. Bowman</i>	
<b>(36f) High Pressure Ethylene Polymerization with a Post-Metallocene Bis-Phenyl Phenoxy Catalyst</b> .....	51
<i>Sean Ewart, Karjala Tom</i>	
<b>(36g) A Simulation-Based Derivative-Free Optimization Framework Using the Kinetic Monte Carlo Method for Controlling Polymer Molecular Weight and Sequence Distribution Synthesized Via Free Radical Polymerization</b> .....	52
<i>Hanyu Gao, Andreas Waechter, Ivan Konstantinov, Steven G. Arturo, Linda J. Broadbelt</i>	
<b>(36h) Experimental and Macroscopic Mechanistic Modeling Studies of the Methyl Acrylate Self-Initiation Reaction</b> .....	53
<i>Hossein Riaz, Ahmad Arabi Shamsabadi, Michael Grady, Andrew M. Rappe, Masoud Soroush</i>	
<b>(36i) A Mathematical Model Based on Artificial Neural Network for Ethylene/Norbornene Copolymerization Catalyzed By 2-(tetramethylcyclopentadienyl)-4,6-Di-Tert-Butylphenoxytitanium Dichloride</b> .....	54
<i>Nikhil Prakash</i>	
<b>(167a) Revealing Governing Mechanism in Directed Self-Assembly of sub 10 nm Particles with Single Particle Resolution</b> .....	55
<i>Zhen Luo, Shafiqh Mehraeen</i>	
<b>(167b) Uniform Thinning of Cu-Fe-Ni-Co Nanowires and Kinetic Monte Carlo Simulation</b> .....	56
<i>Xiaohua Geng, Elizabeth Podlaha</i>	
<b>(167c) Experimental Assessment of Nucleation Theory at the Molecular Level</b> .....	57
<i>Matthew A. Gebbie, Nicholas A. Melosh</i>	
<b>(167d) Low-Voltage Electrophoretic Deposition of All-Inorganic CZTS Nanocrystals for Fabrication of Thin Films</b> .....	58
<i>Andrew D. Dillon, Mohammad Mehdi Taheri, Shawn Mengel, Subham Dastidar, Jason B. Baxter, Aaron T. Fafarman</i>	
<b>(167e) Preferential Binding of Polyvinylpyrrolidone (PVP) Is Not Responsible for Shape Control in Ag Nanoparticle Synthesis</b> .....	59
<i>Zhifeng Chen, Ji Woong Chang, Choumini Balasanthiran, Robert M. Rioux</i>	
<b>(167f) Scalable Synthesis of Epitaxial, Oxidation-Proof Au@Ag Core-Shell Nanowires for Electronic and Photonic Applications</b> .....	60
<i>Ruoxue Yan, Yangzhi Zhu, Sanggon Kim, Peter Byrley</i>	
<b>(167g) Synthesis of Bimetallic Alloy Nanoparticles through the Visible-Light Mediated Reduction of a Bimetallic Oxide Precursor: Case Study of Ag-Pt Nanoparticle Synthesis</b> .....	61
<i>Umar Aslam, Suljo Linic</i>	
<b>(167h) Dynamic Control of Gold Nanoparticle-Conjugated DNA Origami Templates</b> .....	62
<i>Abhilasha Dehankar, Joshua Johnson, Carlos E. Castro, Jessica O. Winter</i>	

<b>(167i) 'One-Pot' Multi-Scale Templating of Interdigitated Bi-Modal Porous Carbon Supercapacitors</b> .....	63
<i>Zheng Tian, Megha Sharma, Mark A. Snyder</i>	
<b>(167j) Combined Experimental and Theoretical Study of Hexagonal Boron Nitride Crystal Growth</b> .....	64
<i>Song Liu, Bin Liu, James H. Edgar</i>	
<b>(30a) Design of Aminopolymer Structure to Enhance Performance and Stability of CO<sub>2</sub> Sorbents: Poly(propylenimine) Vs. Poly(ethylenimine)</b> .....	65
<i>Simon H. Pang, Ryan P. Lively, Christopher W. Jones</i>	
<b>(30b) Development of 3D-Printed Aminosilica Monoliths for CO<sub>2</sub> capture</b> .....	66
<i>Harshul Thakkar, Stephen Eastman, Fateme Rezaei</i>	
<b>(30c) Engineering Supported Amine Adsorbents for CO<sub>2</sub> Capture Applications</b> .....	67
<i>Zelong Xie, Christopher Cogswell, Sunho Choi</i>	
<b>(30d) Impacts of Aminopolymer-Support Interaction on CO<sub>2</sub> Sorption Performance Probed By Neutron Scattering Techniques</b> .....	68
<i>Adam Holewinski, Miles Sakwa-Novak, Matthew Potter, Nathan Ellebracht, Gernot Rother, Christopher W. Jones</i>	
<b>(30e) Hierarchically-Structured Porous Materials for Enhanced Greenhouse Gas Capture</b> .....	69
<i>Tae-Hyun Bae</i>	
<b>(30f) Natural Gas Adsorption in SSZ-13: Equilibrium and Dynamic Properties</b> .....	70
<i>Joshua A. Thompson</i>	
<b>(30g) Zeolite on Demand: Design and Synthesis of Zeolites with Controlled Crystal Morphology and Location of Substituting Tetrahedral Atoms with the Aid of Theoretical Calculations</b> .....	71
<i>Watcharop Chaikittisitp, Koki Muraoka, Sye Hoe Keoh, Tatsuya Okubo</i>	
<b>(30h) Tuning Solid Acids for the Target Catalytic Reactions</b> .....	72
<i>Jun Huang</i>	
<b>(51a) Mechanical Properties of Organic Semiconductors for Mechanically Stable and Intrinsically Stretchable Solar Cells</b> .....	73
<i>Darren Lipomi</i>	
<b>(51b) Digital Light Synthesis to Drive Additive Manufacturing</b> .....	74
<i>Joseph M Desimone</i>	
<b>(51c) Symbiotic Pairing of Near-UV Solar Cells with Electrochromic Windows for Visible Light and Heat Management in Architectural Applications</b> .....	75
<i>Y. L. Lynn Loo</i>	
<b>(51d) Taking Measure of Modern Polymer Synthesis</b> .....	76
<i>Kathryn L. Beers</i>	
<b>(55a) Rational Design of Polyelectrolyte Complexes for Nucleic Acid Delivery</b> .....	77
<i>Jeffrey Vieregg, Matthew V. Tirrell</i>	
<b>(55b) Microfabricated Immune-Isolating Devices for Long Term Cell Based Therapies</b> .....	78
<i>Suman Bose, Robert Langer, Daniel G. Anderson</i>	
<b>(55c) Globular Protein Vesicles: Engineering Vesicle Size and Membrane Structure through a Tunable Molecular Packing Parameter</b> .....	79
<i>Yeongseon Jang, Julie A. Champion</i>	
<b>(55d) Biomaterial Scaffolds for Scalable Differentiation and Transplantation of Hpsc-Derived Cells for Cell Replacement Therapy in the Central Nervous System</b> .....	80
<i>Maroof M. Adil, David V. Schaffer</i>	
<b>(55f) Electrochemical Activation for DNA Attachment to Surfaces</b> .....	81
<i>Ariel Furst, Matthew Francis</i>	
<b>(55g) Organizing Biochemical Reactions with Protein Droplets</b> .....	82
<i>Huaiying Zhang</i>	
<b>(59a) Electron Energy Loss Spectroscopy for Optoelectronics and Thermal Dynamics at Nanocomposite Interfaces</b> .....	83
<i>D. Keith Roper, Jeremy Dunklin, Gregory T. Forcherio, Keith Berry, Carter Bodinger, Tyler Howard</i>	
<b>(59b) On the Rice Husk Ash Admixing with Cement: Preparation, Characterization and Analysis</b> .....	84
<i>Nikhil Prakash</i>	
<b>(59c) Tunable Magnetoresistance of Conductive Polymer Nanocomposites</b> .....	85
<i>Jiang Guo, Alexandra Galaska, Suying Wei, Brian J. Edwards, Bamin Khomami, Zhanhu Guo</i>	
<b>(59d) Polydopamine Stabilized Fluorescent Nanozinc Oxide Reinforced Epoxy Nanocomposites Towards UV Shielding</b> .....	86
<i>Chaobo Liang, Ping Song, Hongbo Gu, Junwei Gu</i>	
<b>(59e) Comparing the Toughening Effects of Modified Graphene Oxide and Core-Shell Rubber on Polyester Resins and Glass Fiber-Reinforced Polyester Composites</b> .....	87
<i>Kunwei Liu, Siyao He, Yuqiang Qian, Qi An, Andreas Stein, Christopher W. Macosko</i>	
<b>(59f) Preparation and Characterizations of Barium Ferrite/Epoxy Nanocomposites</b> .....	88
<i>Hongyuan Zhang, Hongbo Gu</i>	

<b>(59g) Effect of Compatibilizer on Strength and Toughness of Glass Fiber Mat Reinforced Polypropylene Composites</b> .....	89
<i>Chunyin Shen, Yadong Wu, Haiqing Wan, Junyan Wang, Gance Dai</i>	
<b>(59h) A Facile Approach to Fabrication and Characterization of an Eco-Friendly Zein-Laponite Nanocomposite with Improved Mechanical, Thermal, Barrier and Surface Property</b> .....	90
<i>Tahrima B. Rouf</i>	
<b>(78a) Solid Dispersions of Electroactive Materials for Energy Storage Applications</b> .....	91
<i>Gary M. Koenig Jr., Zhaoxiang Qi, Devanshi Gupta</i>	
<b>(78b) Rational Design of the Cathode Materials in the Lithium-Sulfur Batteries</b> .....	92
<i>Tong Mou, Bin Wang</i>	
<b>(78c) 3D Carbon Materials for Electric Double-Layer Capacitors with Ultrahigh Areal Capacitance</b> .....	93
<i>Liang Chang, Yun Hang Hu</i>	
<b>(78d) 3D High-Surface-Area and Mesoporous Graphene Sheet-like Carbon for Supercapacitors</b> .....	94
<i>Haiyang Shen, Min Wei, Gang Wu</i>	
<b>(78e) Stability Predictions for Dimethoxybenzene Based Catholyte Materials</b> .....	95
<i>Benjamin Silcox, Rajeev Assary, Jing Jing Zhang, Siu On Tung, Ilya Shkrob, Lu Zhang, Levi T. Thompson</i>	
<b>(78f) Solvate Ionic Liquid-Based Gel Electrolytes Containing Functionalized Polymer-Based Networks for Use in Lithium Metal Battery Applications</b> .....	96
<i>Anthony D'Angelo, Matthew J. Panzer</i>	
<b>(78g) Studies on Complex Electrolytes for Magnesium Batteries</b> .....	97
<i>Laura Merrill, Hunter Ford, Jennifer Schaefer</i>	
<b>(78h) First-Principles Study of Temperature Dependence of Energy Gaps in Gas Sensor Materials</b> .....	98
<i>Yuning Wu, Yuhua Duan, Paul R. Ohodnicki, Benjamin T. Chorpening</i>	
<b>(78i) Supercritical Fluid-Based Synthesis of Antimony Electrode Materials</b> .....	99
<i>Grant A. Williamson, Elena P. Pandres, Vincent C. Holmberg</i>	
<b>(96a) Solution Combustion Synthesis of Porous CeO<sub>2</sub> Nanopowders: Reaction Mechanism and Physical Properties</b> .....	100
<i>Wooram Kang, Derya Oncel Ozgur, Arvind Varma</i>	
<b>(96b) Combining Pre- and Post-Nucleation Trajectories for the Design of Hierarchical FAU/EMT Materials from Organic-Free Sols</b> .....	101
<i>Dina Gaber, Safa Gaber, Issam Ismail, Saeed Alhassan, Maryam Khaleel</i>	
<b>(96c) Synthesis of Sn-MFI Zeolite with Use of Mechanochemical Reaction</b> .....	102
<i>Kiyoshi Kanie, Moe Sakaguchi, Fumiya Muto, Masafumi Nakaya, Toshiyuki Yokoi, Atsushi Muramatsu</i>	
<b>(96d) Crystallization of One-Dimensional Zeolites By Nonclassical Pathways</b> .....	103
<i>Rui Li, James Sutjianto, Aseem Chawla, Jeffrey D. Rimer</i>	
<b>(96e) Expanding the Scope of Fluoride-Free Pure Silica Zeolite Syntheses</b> .....	104
<i>Vivek Vattipalli, Wei Fan</i>	
<b>(96f) Atomic Resolution Imaging of MEL Intergrowth in 2-Dimensional MFI Nanosheets</b> .....	105
<i>Prashant Kumar, Han Zhang, Neel Rangnekar, Michael Tsapatsis, K. Andre Mkhoyan</i>	
<b>(96g) Synthesis of Single-Unit-Cell Hierarchical Zeolites with Tunable Mesoporosity By Controlling Intergrowth Frequency</b> .....	106
<i>Dandan Xu, Anatoliy Kuznetsov, Prashant Kumar, Maryam Khaleel, Saeed Alhassan, Michael Tsapatsis</i>	
<b>(96h) A Full Understanding of Microporous Vanadosilicate AM-6: The Crystal Quality and Structure of AM-6</b> .....	107
<i>Rumeysa Tekin, Juliusz Warzywoda, Albert Sacco Jr.</i>	
<b>(98a) Rapid Wood Fractionation &lt; 80° C for Sustainable and Economic Biorefinery</b> .....	149
<i>J. Y. Zhu</i>	
<b>(98b) Insights into Biomass Recalcitrance</b> .....	150
<i>Arthur J. Ragauskas</i>	
<b>(98c) Low Temperature and High Efficiency Biomass Fuel Cell and Bio-Hydrogen Production</b> .....	151
<i>Yulin Deng</i>	
<b>(98d) Circular Economy: A Path Towards Innovation and Commercialization of Biocomposites for Sustainable Manufacturing</b> .....	152
<i>Amar K. Mohanty</i>	
<b>(79a) Tuning the Molecular Design of Catalytic Materials to Increase Activity and Selectivity for Fine Chemical Production</b> .....	153
<i>Nicholas Brunelli, Aamena Parulkar, Nitish Deshpande, Mariah Whitaker, Rutuja Joshi</i>	
<b>(79b) Deactivation of Zeolite Catalysts during Hydrodeoxygenation of Aromatic Oxygenates</b> .....	154
<i>Guo Shiou Foo, Mariana V. Rodrigues, Qandeel Almas, Chukwuemeka Okolie, Matthew M. Yung, Carsten Sievers</i>	
<b>(79c) Improving Methanol-to-Olefins Conversion Performance of CHA Materials By Seeding the Hydrocarbon Pool</b> .....	155
<i>Praveen Bollini, Aditya Bhan</i>	

<b>(79d) Tuning of Higher Alcohol Selectivity and Productivity in CO Hydrogenation Reactions over K/MoS<sub>2</sub> Catalysts Supported on Mesoporous Activated Carbon and Mixed MgAl Oxide.....</b>	156
<i>Micaela Taborga Claire, Song-Hai Chai, Sheng Dai, Faisal M. Alamgir, Pradeep K. Agrawal, Christopher W. Jones</i>	
<b>(79e) Kinetic and Spectroscopic Investigations of Alcohol Conversions over Metal Oxide Catalysts .....</b>	157
<i>Shuai Tan, Yongqiang Cheng, Luke L. Daemen, Ho Nyung Lee, Benjamin Doughty, Daniel Lutterman</i>	
<b>(79f) Catalytic Upgrading of Fast Pyrolysis Bio-Oil for Renewable Hydrocarbon Production .....</b>	158
<i>Mariefel V. Olarte, Huamin Wang, Daniel Santosa, John G. Frye, Suh-Jane Lee, Jae-Soon Choi, Pimphan Aye Meyer, Susanne Jones, Corinne Drennan, Alan H Zacher</i>	
<b>(79g) Chemical Reaction Engineering Principles of Continuous Flow Photoredox Catalysis .....</b>	159
<i>Eric G. Moschetta, Kaid Harper, Steve Richter, Steven J. Wittenberger</i>	
<b>(79h) Factors Affecting Catalytic Performance in the Presence of Non-Thermal Plasmas .....</b>	160
<i>Jongsik Kim, Prateek Mehta, Patrick Barboun, William F. Schneider, David Go, Jason C. Hicks</i>	
<b>(79i) Accelerating Innovation in Advanced Manufacturing .....</b>	161
<i>Michael McKittrick</i>	
<b>(123a) Active Polymer Materials for Flexible Electronics: Molecular Design and Processing for Efficient Macroscale Charge Transport Pathways .....</b>	162
<i>Nils Persson, Michael McBride, Ping-Hsun Chu, Martha A. Grover, Elsa Reichmanis</i>	
<b>(123b) Promoting Adhesion between Immiscible Polymers .....</b>	163
<i>Christopher W. Macosko</i>	
<b>(123c) High Resolution Lithography Via Block Copolymers and Self-Assembling Surface Neutral Layers .....</b>	164
<i>Peter Trefonas III, Jong Keun Park, Mingqi Li, Janet Wu, Emad Aqad, Dan Millward, Valeriy Ginzburg, Phil Hustad</i>	
<b>(123d) Field and Confinement-Directed Self-Assembly of Soft Mesophases to Create Useful Materials.....</b>	165
<i>Chinedum O. Osuji</i>	
<b>(126a) Nanostructured Interfaces for Enhanced Biologic Transport and Immunomodulation.....</b>	166
<i>Tejal Desai</i>	
<b>(126b) Nano- and Microfabricated Hydrogels for Regenerative Engineering.....</b>	167
<i>Ali Khademhosseini</i>	
<b>(126c) Overcoming Obstacles to Brain Repair Using Biomaterials.....</b>	168
<i>Tatiana Segura</i>	
<b>(152a) Digital Alchemy for Assembly Engineeringc .....</b>	169
<i>Sharon C. Glotzer</i>	
<b>(152b) Improved Algebraic, Numerical, and Graphical Representations in Fluid Mechanics .....</b>	170
<i>Stuart W. Churchill, James C. Hill</i>	
<b>(152c) The Scaling of Turbulence Near the Wall and the Churchill Turbulent Flux Correlation: Insights with Lagrangian Simulations .....</b>	171
<i>Dimitrios V. Papavassiliou, Quoc T. Nguyen, Chiranth Srinivasan</i>	
<b>(152d) Flow Boiling Using a Piranha Pin Fin Heat Sink .....</b>	172
<i>Cory Woodcock, Xiangfei Yu, Yoav Peles, Joel L. Plawsky</i>	
<b>(152e) Transport Problems in the Spirit of Stuart Churchill for Teaching and Research at the University of Michigan .....</b>	173
<i>Ronald G. Larson, Claudio Vilas Boas Favero</i>	
<b>(176a) Solve this! Fundamental Approach to Problem Solving in Industrial Processes I (Invited Talks) .....</b>	174
<i>Zdravko Stefanov, Paul Chauvel, Jr., Eldad Herceg, Dana A. Livingston</i>	
<b>(177a) Tuning External Surface and Textural Properties of Unit-Cell Thick Pillared MFI and Pillared MWW Zeolites By Atomic Layer Deposition and Its Consequence on Catalytic Reactions .....</b>	175
<i>Dongxia Liu, Junyan Zhang</i>	
<b>(177b) Mesoporous TiO<sub>2</sub> to TiO<sub>2</sub>-Cellulose Composite and its Derivatives for Environmental Remediation .....</b>	176
<i>Jinju Zhang, Lei Li, Yanxiang Li, Lixia Cao, Chuanfang Yang</i>	
<b>(177c) Reliable Fabrication and Surface Modification of Beta Zeolite Membrane for Pervaporation of n-Butanol/Water Mixtures.....</b>	177
<i>Yun Li, Honghong Xu, Tao Chen, Xiufeng Liu, Baoquan Zhang</i>	
<b>(177d) Investigation of Factors That Induce Cristobalite Formation during Titanosilicate Synthesis and Their Potential Impact on Heterogeneous Catalysis .....</b>	180
<i>Ayomi S. Perera, Haiyue Yu, Jeremy Cockcroft, Panagiotis Trogadas, Marc-Olivier Coppens</i>	
<b>(177e) Novel Methods to Synthesize ZSM-11 As an Efficient Catalyst for Methanol-to-Hydrocarbon Reactions .....</b>	181
<i>Yufeng Shen, Thuy T. Le, Jeffrey D. Rimer</i>	

<b>(177f) Preparation of Novel Al-MFI/Fe-MFI Core-Shell Catalysts and Their Catalytic Application for CH<sub>4</sub> Conversion.....</b>	182
<i>Toshiyuki Yokoi, Yoshihiko Kimura, Takaya Kimura, Yusuke Kunitake, Atsushi Muramatsu</i>	
<b>(177g) An Optimized Procedure for Selective Removal of Efal (Extra Framework Aluminum) in Y-Zeolites.....</b>	183
<i>Balasubramanian Vaithilingam, Gnana Pragasam Singaravel, Abdul Majed Al Katheeri, Stephane M., Mikael Berthod</i>	
<b>(774a) Multifunctional Polymer Nanocomposites .....</b>	184
<i>Zhanhu Guo, Jiang Guo, Alexandra Galaska, Huige Wei, Suying Wei, Bin Qiu, Dawei Jiang, Hongbo Gu, Jiahua Zhu</i>	
<b>(774b) Transparent Copper-Silica Nanoparticle-Chitosan Nanocomposite Coatings with Long-Term Antibacterial Efficacy.....</b>	185
<i>Debirupa Mitra, Min Li, En-Tang Kang, Koon Gee Neoh</i>	
<b>(774c) Bio-Inspired Design of Stimuli Responsive Materials Based on a Bilayer Structure.....</b>	186
<i>Songshan Zeng, Rui Li, Dianyuan Zhang, Wenhan Huang, Zhaofeng Wang, Stephan Freire, Andrew Smith, Emily Huang, Helen Nguon, Xiaoyuan Yu, Luyi Sun</i>	
<b>(774d) Biomimetic Nanocoatings with Exceptional Mechanical, Barrier, and Flame Retardant Properties from Large Scale One-Step Co-Assembly .....</b>	187
<i>Fuchuan Ding, Jingjing Liu, Songshan Zeng, Yan Xia, Kacie M. Wells, Mu-Ping Nieh, Luyi Sun</i>	
<b>(774e) Bioinspired Composite Materials with Stimuli-Responsive Color Changing Ability .....</b>	188
<i>Golnaz Isapour, Marco Lattuada</i>	
<b>(774f) Investigation of Carbon Nanotubes &amp; Cellulose Nanocrystals Composite for Potential Use in Microelectromechanical Systems .....</b>	189
<i>Mingzhe Jiang, Christopher L. Kitchens, Robert Seney, Bayliss Charles</i>	
<b>(774g) Few Layers MoSe<sub>2</sub> Incorporated with Nitrogen Doped Graphene Sheet for High Performance Lithium Sulfur Batteries.....</b>	190
<i>Hoi Lun Wong, Zhengtang Luo</i>	
<b>(774h) Dual-Responsive Plasmonic Behavior of Gold Nanorods@PANI Core/Shell Nanostructures for Real-Time Control.....</b>	191
<i>Ju-Won Jeon, Jing Zhou, Jeffrey Geldmeier, James Ponder, Mahmoud A. Mahmoud, Mostafa El-Sayed, John Reynolds, Vladimir V. Tsukruk</i>	
<b>(118b) Microwave Induced Heating of Carbon Nanotubes Localized at 3D-Printed Thermoplastic Interfaces .....</b>	192
<i>Charles Sweeney, Mohammad Saed, Micah Green</i>	
<b>(196a) Theoretical Study of the Reaction Kinetics of Organosiloxane Polycondensation.....</b>	193
<i>Mona Bavarian, Siamak Nejati</i>	
<b>(196aa) High-<math>\Gamma</math> Block Copolymers with High Etch Selectivity for Sub-10 Nm Patterning .....</b>	194
<i>Sung-Soo Kim, Walter W. Young, Luis E. Oquendo, Michael Maher, Sunshine X. Zhou, Yusuke Asano, Marc A. Hillmyer, C. Grant Willson, Christopher J. Ellison</i>	
<b>(196ab) Fabrication and Structural Analysis of Nanofibers Made By Syndiotactic Polypropylene with Ethylene-Comonomer Units.....</b>	195
<i>Fuyuaki Endo, Claudio De Rosa, Atsushi Hotta</i>	
<b>(196ad) Interaction Between Supercritical CO<sub>2</sub>+Cosolvent and Poly(vinyl acetate).....</b>	196
<i>Dong-Dong Hu, Lei Bao, Ling Zhao, Tao Liu</i>	
<b>(196ae) Modeling of Distributions of Polymer Properties Using Parallel Computing in Julia.....</b>	198
<i>Esteban Pintos, Mariano Asteasuain</i>	
<b>(196af) Transition Metal-Based Nanocrystals Confined-Growth on Heteroatom-Doped Graphene Toward Hydrogen Catalysis .....</b>	199
<i>Minghao Zhuang, Zhengtang Luo</i>	
<b>(196d) From Process to Product - Enhancing the Understanding of <math>\hat{I}</math>-Olefin-Polymerizations.....</b>	200
<i>Kristina M. Pflug, Jonas Nowotny, Markus Busch</i>	
<b>(196e) Amine Effects on Radial-Mediated Thiol-Ene Reactions.....</b>	201
<i>Dillon Love, Kang-Min Kim, Johnathan Goodrich, Benjamin D. Fairbanks, Mark Stoykovich, Charles B. Musgrave, Christopher N. Bowman</i>	
<b>(196f) Influence of Phosphate Salts and Solution pH on Aqueous-Phase NVP Free-Radical Polymerization .....</b>	202
<i>Fernando T P Borges, Fouad Teymour</i>	
<b>(196h) Synthesis and Characterization of Crosslinked Polymers from Cottonseed Oil.....</b>	204
<i>Rangana Wijayapala, Deonante Frazier, Bill B. Elmore, Charles Freeman, Santanu Kundu</i>	
<b>(196i) Date Pits as Cost-Effective, Renewable, and Efficient Fillers for Polymers.....</b>	205
<i>Fares Alsewailem, Yazeed Binkhodor</i>	



<b>(196j) Biaxial and Shear Deformation of Simulated Amorphous Cis-, Trans-1, 4-Polybutadiene Chains</b> .....	206
<i>Suvrajyoti Kar, Michael L. Greenfield</i>	
<b>(196k) Decomposition Behavior of Laponite/PLGA-PI•G-PLGA Nanocomposite Hydrogels at Body Temperature</b> .....	207
<i>Midori Kitagawa, Tomoki Maeda, Atsushi Hotta</i>	
<b>(196l) Synthesis of Thermoplastic Polydimethylsiloxane with L-Phenylalanine-Based Hydrogen-Bond Network and its Self-Healing Property</b> .....	208
<i>Shunsuke Tazawa, Atsushi Shimojima, Tomoki Maeda, Atsushi Hotta</i>	
<b>(196n) Controlled Swelling Rate Elastomer for Packers</b> .....	209
<i>Rostyslav Dolog, Darryl Ventura, Valery N. Khabashesku, Qusai Darugar</i>	
<b>(196o) Effect of the Cross-Linking Agent (sodium polyphosphate) on Performances of Nacs-Wsc Microcapsules</b> .....	215
<i>Qing-Xi Wu, Yi-Xin Guan, Jun-Jie Yuan, Shan-Jing Yao</i>	
<b>(196p) Swelling Behaviors of Cr(III)-Modified Acrylamide-Based Superabsorbent Polymer Microsphere in Brines</b> .....	216
<i>Jingyang Pu, Jiaming Geng, Na Zhang, Baojun Bai</i>	
<b>(196q) Synthesis of Chemical Protective Elastomeric Barrier Materials</b> .....	225
<i>James Ogilvie-Battersby, Alessandra Molinaro, Christopher Zoto, Quoc Truong, Nese Orbey</i>	
<b>(196r) Polysulfide-Based Nanofiber Prepared Via Inverse Vulcanization and Electrospinning for Effective Mercury (II) Sequestration</b> .....	226
<i>Lawrence A. Limjuco, Grace M. Nisola, Khino J. Parohinog, Kris Nino G. Valdehuesa, Wook-Jin Chung</i>	
<b>(196s) Mechanical Properties of Maleated Polymer/Graphene Oxide Composites using Graphene Oxide as a Multi-Functional Crosslinker</b> .....	227
<i>Szu-Ming Yang, Heonjoo Ha, Christopher J. Ellison</i>	
<b>(196t) Development and Analysis of a Thin Film Nanocomposite Membrane: Resistance to Chlorine</b> .....	228
<i>Abdulmajeed Altalhi, Holly A. Stretz</i>	
<b>(196u) Improving Gas Transport Properties of Mixed Matrix Membranes Via Interfacial Improvement</b> .....	229
<i>Ahmad Arabi Shamsabadi, Morteza Sadeghi, Mohammad Dinari, Mahsa Salehi, Masoud Soroush</i>	
<b>(196v) Antimicrobial Polymers: Present State of the Art</b> .....	230
<i>Nikhil Prakash</i>	
<b>(196w) Layer-By-Layer Coated Microneedle Arrays for Staged Multi-Agent Immune Attack on Melanoma</b> .....	231
<i>Yanpu He, Jiahe Li, Hongkun He, Celestine Hong, Maylin Funkenbusch, Sheryl Wang, Maya Berlinger, Darrell J. Irvine, Paula T. Hammond</i>	
<b>(196x) Direct Observation of Remarkable Nanoparticle Evolution during Aqueous Dissolution of Polymer/Drug Particles</b> .....	232
<i>Ralm Ricarte, Marc A. Hillmyer, Timothy P. Lodge</i>	
<b>(196y) Polymerized Ionic Liquid Pentablock Terpolymer for Lithium-Metal Batteries</b> .....	233
<i>Tzu-Ling Chen, Yossef A. Elabd</i>	
<b>(196z) Effect of Electric Field on the Structure and Dynamics of Model Ionomer Melts</b> .....	234
<i>Janani Sampath, Lisa M. Hall</i>	
<b>(197a) Influence of Molecular Design on the Self-Assembly of Single-Stranded DNA Amphiphiles</b> .....	235
<i>Thomas Gartner III, Huihui Kuang, Efrosini Kokkoli, Arthi Jayaraman</i>	
<b>(197b) Intracellular Trafficking of Enzyme-Cleavable Peptide Amphiphiles</b> .....	236
<i>Handan Acar, James L. Labelle, Matthew V. Tirrell</i>	
<b>(197c) Polylactide-Based Biodegradable Zwitterionic Polymers and Their Conjugates with Drugs for Biomedical Applications</b> .....	237
<i>Haotian Sun, Michael Yu Zarnig Chang, Wei-I Cheng, Qing Wang, Alex Commisso, Meghan Capeling, Yun Wu, Chong Cheng</i>	
<b>(197d) Overcoming Obstacles to Brain Repair Using Biomaterials</b> .....	238
<i>Tatiana Segura</i>	
<b>(197e) Aggregation Kinetics in Biological Environments as a Determinant of Nanoparticle Behavior in the Brain</b> .....	239
<i>Chad D. Curtis, Mike McKenna, Elizabeth Nance</i>	
<b>(197f) Layer-By-Layer Nanoparticles for Interleukin-12 Delivery</b> .....	240
<i>Antonio E. Barberio, Santiago Correa, Erik Dreaden, Talar Tokatlian, Mariane B. Melo, Darrell J. Irvine, Paula T. Hammond</i>	
<b>(197g) Implantable Biomaterials Produced By Complexing Chitosan to Alginate or Pectin: Surface Properties, Hemocompatibility and Cytotoxicity</b> .....	241
<i>Fernanda C. Bombaldi De Souza, Renata F. Bombaldi De Souza, Angela Maria Moraes, Diego Mantovani</i>	

<b>(197h) Development of Sustainable Therapeutic Dressings Consisting of Chitosan-Alginate Films Incorporating Arrabidaea Chica Verlot Extract .....</b>	<b>242</b>
<i>Ana Luiza Resende Pires, Cecilia Buzatto Westin, Ilza Maria De Oliveira Sousa, Mary Ann Foglio, Angela Maria Moraes</i>	
<b>(197i) Comparison of Chitosan Particles Produced By Ionic Gelation and By Supercritical Assisted Atomization .....</b>	<b>250</b>
<i>Julia Natalia Oliveira Mazoni, Paulo De Tarso Vieira E Rosa</i>	
<b>(197j) Exploiting a Novel Aqueous-Two Phase Microfluidic System for Cell Encapsulation in GAG+Chitosan Microcapsules .....</b>	<b>251</b>
<i>Amin Vossoughi Shahvari, Howard W. T. Matthew</i>	
<b>(197k) Laser-Activated Nanocomposites for Tissue Repair .....</b>	<b>252</b>
<i>Russell Urie, Deepanjan Ghosh, Mitzi Thelakkaden, Tanner Flake, Jerry Crum, Chengchen Guo, Jeff Yarger, Kaushal Rege</i>	
<b>(197l) New Strategy for the Fabrication of Annular Cylindrical Polysaccharide-Based Scaffolds .....</b>	<b>253</b>
<i>Angela Maria Moraes, Renata F. Bombaldi De Souza, Fernanda C. Bombaldi De Souza</i>	
<b>(197m) Formulation of Peptide Antimicrobials for Treatment of Wound Infections .....</b>	<b>254</b>
<i>Ritu Goyal, Michael Holloway, Pooja Patel, David Devore, Charles Roth</i>	
<b>(197o) Synthesis and Degradation of Biodegradable Copolymers .....</b>	<b>255</b>
<i>Eswar Arunkumar Kalaga, Timothy Brenza</i>	
<b>(197r) Ultra-High Surface Area Activated Carbon from a Renewable Resource .....</b>	<b>256</b>
<i>Ashli Polanco, Dmytro Volkov, Quoc Truong, Carl Lawton, Nese Orbey</i>	
<b>(197t) A Facile Novel Fluorocarbon Copolymer Solution Coating Process for Improving Platelet Compatibility of Titanium .....</b>	<b>257</b>
<i>Sophia Chao-Wei Huang, Chi-Hui Cheng, Yun Chiu, Yi-Ching Lin, Jui-Che Lin</i>	
<b>(198a) Alignment of Quantum Dot Nanorod/Silica Hybrid Particles on Glass Substrate for Luminescent Solar Concentrator .....</b>	<b>258</b>
<i>Kiju Um, Young-Geon Song, Kangtaek Lee</i>	
<b>(198b) Effect of Graphene Oxide on Formation of Zirconium Tungstate Nanoparticles .....</b>	<b>259</b>
<i>Young-Geon Song, Kiju Um, Kangtaek Lee</i>	
<b>(198d) Rapid Microwave-Assisted Synthesis of Hybrid Zeolitic-Imidazolate Frameworks .....</b>	<b>260</b>
<i>Febrian Hillman, John Zimmerman, Seung-Min Paek, Mohamad Hamid, Woo Taik Lim, Hae-Kwon Jeong</i>	
<b>(198e) Facile Synthesis of Cd-Substituted Zeolitic-Imidazolate Framework Cd-ZIF-8 and Mixed-Metal Cdzn-ZIF-8 .....</b>	<b>261</b>
<i>Jingze Sun, Hae-Kwon Jeong, Woo Taik Lim, Liya Semenchenko</i>	
<b>(198f) A Study of Asymmetry Cu-MOFs Electrode Prepared in situ and Its Biomimetic Catalysis .....</b>	<b>263</b>
<i>Zhipeng Li, Liwei Ren, Diannan Lu</i>	
<b>(198g) Protected SiC Catalyst Support for Steam Methane Reforming Reaction .....</b>	<b>264</b>
<i>Naftali Opembe, Seungdoo Park, Sergio Ibanez, Doug Mitchell, Matthew Seabaugh, Scott Swartz</i>	
<b>(198h) Computational Screening of High Temperature Materials for Environmental Barrier Thin Films .....</b>	<b>265</b>
<i>Amanda Hoskins, Aidan Coffey, Charles B. Musgrave, Alan W. Weimer</i>	
<b>(198i) Phase Transformation Induced By Tertragnility Variation of Metal-Redox Synthesised NiMn Nanoalloys .....</b>	<b>266</b>
<i>Jian Shen, Xin Jin</i>	
<b>(198j) Fabrication of Electrospun Mesoporous Silica Nanomaterials for Water Vapor Adsorption .....</b>	<b>268</b>
<i>Soyoung Kim, Heechul Choi</i>	
<b>(198k) Applications of Mesoporous RuCo2O4 Thin Film for High Performance Supercapacitor .....</b>	<b>269</b>
<i>Do-Heyoung Kim, Nilesh R. Chodankar</i>	
<b>(198l) TiO2 Thin Film Deposition By Electrospray .....</b>	<b>270</b>
<i>Yaqun Zhu, Jong Hyun Shim, Junghyun Cho, Paul R. Chiarot</i>	
<b>(198m) Green Synthesis of Copper Oxide Nanoparticles Using a Simple Microwave-Assisted Method .....</b>	<b>271</b>
<i>Prasad P Pawar, Shishir V Kumar, Adarsh Bafana, Ashiqur Rahman, Si A. Dahoumane, Clayton S Jeffryes</i>	
<b>(198n) Comprehensive Thermodynamic Modeling of Mixed-Solvent Electrolyte Systems: An Investigation on the Quaternary System of FeCl2-FeCl3-HCl-H2O .....</b>	<b>272</b>
<i>Sina Hassanjani Saravi, Chau-Chyun Chen</i>	
<b>(198o) Controllable Manipulation of Continuous AFI Membranes with Distinctive Microstructures on Macroporous Alpha-Alumina Substrates .....</b>	<b>273</b>
<i>Hongfeng Dong, Xiufeng Liu, Huiming Zhu, Baoquan Zhang, Jian Li</i>	
<b>(198p) Magnetic Core Shell Microspheres for Extraction of Rare Earth Elements from Geothermal Brine Solution .....</b>	<b>274</b>
<i>B. Peter McGrail, Jian Liu</i>	

<b>(198r) Encapsulation of Dye in NH<sub>2</sub>-Uio-66 Metal-Organic Framework for Photosensitized Oxidation of Benzyl Alcohol</b> .....	275
<i>Xiyi Li, Qingqing Hou, Neng Liao, Jing Xiao</i>	
<b>(199a) The Fabrication of Graphene/Polyaniline Blended Fiber for Conducting and Flexible Energy Storage Devices</b> .....	276
<i>Yafei Feng, Jiaxin Shen, Cunliang Ma, Yidong Liu, Yong Min</i>	
<b>(199b) Semiconducting Heterostructures for Photocatalytic Reduction of Carbon Dioxide</b> .....	277
<i>Debtanu Maiti, Johnnie Cairns, J. N. Kuhn, Venkat R. Bhethanabotla</i>	
<b>(199c) Photoswitchable Quantum Dots Probes for Superresolution Microscopy</b> .....	278
<i>Abhilasha Dehankar, Kil Ho Lee, Abhijeet Marar, Karine Thate, Carol Lynn Alpert, Peter Kner, Jessica O. Winter</i>	
<b>(199d) Bottom-up Synthesis of Nanoelectronic Titania Composites</b> .....	279
<i>Yang Lu, Evan K. Wujcik, Arijit Bose</i>	
<b>(199h) Phase Diagrams, Defect Models and Thermoelectric Properties: <math>\tilde{A}\tilde{Y}</math>-Ag<sub>2</sub>Se and CoSb<sub>3</sub></b> .....	280
<i>Sinn-Wen Chen, Zi-Yang Huang, Yang-Yuan Chen</i>	
<b>(199i) Theoretical Study of a High Performance Thermoelectric Material: Stanene</b> .....	281
<i>Pabitra Choudhury, Charles Griego</i>	
<b>(199j) Revealing the Enigmatic Interfacial Layer of Core/Shell Quantum Dots</b> .....	282
<i>Ajay Singh, Jennifer Hollingsworth</i>	
<b>(199k) Spatial Manipulation of Thermal Flux Profiles Using Nanostructure Boundaries</b> .....	283
<i>Abhinav Malhotra, Martin Maldovan</i>	
<b>(200a) Magnetic Polymer Nano-composites for Giant Magnetoresistance and Electromagnetic Shielding</b> .....	284
<i>Jiang Guo, Alexandra Galaska, Brian J. Edwards, Bamin Khomami, Zhanhu Guo</i>	
<b>(200b) Constructing Ternary Conductive Polymer Composites with Cocontinuous Polymer Blends and Interfacial Graphene Nanoplatelets</b> .....	285
<i>Yangming Kou, Lian Bai, Xiang Cheng, Christopher W. Macosko</i>	
<b>(200c) The Influence of Interfacial Graphene on the Morphological, Electrical and Mechanical Properties of Co-Continuous Polymer Blends</b> .....	286
<i>Catherine Esnaashari, Lian Bai, Christopher W. Macosko, Xiang Cheng</i>	
<b>(200d) The Fabrication and Application of Composite Graphene Oxide Films</b> .....	287
<i>Jiaxin Shen, Yafei Feng, Cunliang Ma, Yidong Liu, Yong Min</i>	
<b>(200e) Mechanically Stable Thermally Crosslinked Poly(acrylic acid)/ Reduced Graphene Oxide Aerogels</b> .....	288
<i>Heonjoo Ha, Han Xiao, Kadiravan Shanmuganathan, Christopher J. Ellison</i>	
<b>(200f) Ionophore-Decorated Magnetic Graphene Oxide As a Composite Adsorbent Material for Heavy Metal Ion Sequestration</b> .....	289
<i>Khino J. Parohinog, Grace M. Nisola, Wook-Jin Chung</i>	
<b>(200g) Synthesis of Thermoresponsive Polymer/Fe<sub>3</sub>O<sub>4</sub> Nanoparticle Composite and Its Application</b> .....	290
<i>Risako Sakai, Junichi Ida, Tatsushi Matsuyama</i>	
<b>(200h) High-Performance, Ambient Phase Change Thermal Diodes for Energy Applications</b> .....	291
<i>Anton Cottrill, Song Wang, Albert Tianxiang Liu, Yuichiro Kunai, Michael Strano</i>	
<b>(200i) A Study on the Preparation and Properties of Polymer Composites Using Amino Functionalized Microcrystalline Cellulose (MCC) As a Filler Material</b> .....	292
<i>Kiryong Ha, Hanna Kim, Yeokyung Yang, Kiseob Hwang, Kwang-Hee Lim</i>	
<b>(200j) Electrically Conductive Films Made of Polythiophene and Fibrillated Wood Particles</b> .....	293
<i>Islam Hafez, Han-Seung Yang, Mehdi Tajvidi, Nicholas Seaton, William T. Y. Tze</i>	
<b>(200l) Effect of Different Carbon Additives on Structure of Magnesium Composites for Hydrogen Storage</b> .....	294
<i>Yeboah Martin Luther</i>	
<b>(200n) Low Loading of Grafted Thermoplastic Polystyrene Strengthened and Toughened Transparent Epoxy Composites</b> .....	295
<i>Chao Ma, Hongbo Gu</i>	
<b>(200o) Preparation of Modified Graphene Oxide-Containing Styrene Masterbatches for Thermosetting Resin Composite</b> .....	296
<i>Siyao He, Yuqiang Qian, Kunwei Liu, Chris Macosko, Andreas Stein</i>	
<b>(200p) Smart Windows Enabled By Buckling Instabilities in Periodic Composite Films</b> .....	297
<i>Peng Jiang, Zhuxiao Gu</i>	
<b>(200q) Magnetic Polymer Nanocomposites for Electromagnetic Interference Shielding</b> .....	298
<i>Jiang Guo, Alexandra Galaska, Suying Wei, Brian J. Edwards, Bamin Khomami, Zhanhu Guo</i>	
<b>(262a) Autoperforation of 2D Materials for Generating Two Terminal Memresistive Janus Particles</b> .....	299
<i>Albert Tianxiang Liu, Pengwei Liu, Michael Strano</i>	

<b>(262b) Driven Morphological Evolution of Strained Thin Film Surfaces and Two-Dimensional Materials: Morphological Stability and Pattern Formation .....</b>	<b>300</b>
<i>Lin Du, Dimitrios Maroudas</i>	
<b>(262c) Optimization of THz-Time Domain Spectroscopy Reflectivity for a 1THz Energy-Harvesting Metamaterial.....</b>	<b>301</b>
<i>Shendu Yang, Zachary Thacker, Evan Allison, Patrick J. Pinhero</i>	
<b>(262d) Modeling Exciton Dynamics and Low-Frequency Vibrations in Quantum Dot Assemblies .....</b>	<b>302</b>
<i>Elizabeth M. Y. Lee, Adam P. Willard, William A. Tisdale</i>	
<b>(262e) Extraordinarily Slow Electron-Hole Recombination in Perovskite Phase Cesium Lead Iodide.....</b>	<b>303</b>
<i>Subham Dastidar, Siming Li, Jason B. Baxter, Aaron T. Fafarman</i>	
<b>(262f) Elucidating the Impact of Alcohol Post-Processing in High Performance Roll-to-Roll Printed Organic Photovoltaics .....</b>	<b>304</b>
<i>Kevin L. Gu, Xiaodan Gu, Hongping Yan, Zhenan Bao</i>	
<b>(262g) Metamaterial and Rectenna Design and Testing for the Conversion of Blackbody Radiation to Electricity Using 5 THz Devices.....</b>	<b>305</b>
<i>Evan Allison, Zachary Thacker, Shendu Yang, Patrick J. Pinhero</i>	
<b>(262h) Reusable Chromogenic Sensors Enabled By Novel Multi-Stimuli-Responsive Shape Memory Polymers.....</b>	<b>306</b>
<i>Sin-Yen Leo, Peng Jiang</i>	
<b>(265a) Alkyl-Sulfide Modified Hydrogels with Switchable Properties As Dynamic Cellular Niches.....</b>	<b>307</b>
<i>Kristi S. Anseth, Tobin E. Brown, Joseph Grim, Ian Marozas</i>	
<b>(265b) Non-Linear Rheology and Fracture in Alginate Hydrogels .....</b>	<b>308</b>
<i>Seyed Meysam Hashemnejad, Rangana Wijayapala, Santanu Kundu</i>	
<b>(265c) Analyzing the Effects of Time and Crosslinker Ratio on the Mechanical Properties of Biodegradable Zein Super Gels .....</b>	<b>309</b>
<i>Hazal Turasan, Jozef Kokini</i>	
<b>(265d) Self-Assembly, Structure and Rheology of Polyelectrolyte Complex Hydrogels .....</b>	<b>310</b>
<i>Samanvaya Srivastava, Adam Levi, Matthew V. Tirrell</i>	
<b>(265e) Evolution of Mechanics in <math>\alpha</math>-Helix Peptide Bioconjugated Linear- and Star-Block Peg .....</b>	<b>311</b>
<i>Sean C. O'Neill, Raymond Tu</i>	
<b>(265f) Modelling of the Degradation of Poly(ethylene glycol)-Co-(lactic acid)-Dimethacrylate Hydrogels.....</b>	<b>312</b>
<i>Marco Lattuada, Giuseppe Storti, Vincent Diederich</i>	
<b>(265g) Tough, Rapidly Swelling Thermoplastic Elastomer Hydrogels for Hemorrhage Control.....</b>	<b>313</b>
<i>Erich Bain, Tyler R. Long, Frederick L. Beyer, Randy A. Mrozek, Joseph L. Lenhart</i>	
<b>(265h) Synthesis and Characterization of Thermally Responsive N-Isopropylacrylamide Hydrogels Copolymerized with Novel Hydrophobic Polyphenolic Crosslinkers.....</b>	<b>314</b>
<i>Shuo Tang, Thomas Dziubla, J. Zach Hilt</i>	
<b>(265i) Novel Biocompatible Thermo-Responsive Poly(N-vinyl Caprolactam)/Clay Nanocomposite Hydrogels with Macro-Porous Structure and High Mechanical Property .....</b>	<b>315</b>
<i>Zhuang Liu, Kun Shi, Xiao-Jie Ju, Wei Wang, Rui Xie, Liang-Yin Chu</i>	
<b>(267a) Multiplicity of Morphologies in Poly (L-lactide) Bioresorbable Vascular Scaffolds .....</b>	<b>316</b>
<i>Artemis Ailianou, Karthik Ramachandran, Mary Beth Kossuth, James Paul Oberhauser, Julia A. Kornfield</i>	
<b>(267b) Tissue Response and Integration in Biomaterial Implants Derived from Morphologically Unique Emulsion Gels .....</b>	<b>317</b>
<i>Todd Thorson, Ali Mohraz, Elliot Botvinick</i>	
<b>(426h) The Unique Mechanism of Covalently Adaptable Hydrogel Degradation Characterized with Passive Microrheology.....</b>	<b>318</b>
<i>Francisco Escobar, Kristi S. Anseth, Kelly M. Schultz</i>	
<b>(267d) Development of Gelatin and Graphene Based Conduits Using 3D Printing Strategies for the Transdifferentiation of Mesenchymal Stem Cells into Schwann Cell-like Phenotypes through Electrical Stimuli .....</b>	<b>319</b>
<i>Metin Uz, Maxsam Donta, Donald S. Sakaguchi, Surya K. Mallapragada</i>	
<b>(267e) Effect of Molecular Weight and Degree of Functionality on Degradation, Biocompatibility and Two-Photon Polymerization of Acrylated Poly(caprolactone).....</b>	<b>320</b>
<i>Brian J. Green, Jessica Thompson, Kristan S. Worthington, Budd A. Tucker, C. Allan Guymon</i>	
<b>(267f) An Injectable and Anisotropic Hydrogel with Biomimetic Structures for Directed Cell and Nerve Growth.....</b>	<b>321</b>
<i>Jonas C. Rose, David B. Gehlen, Esther Jaekel, Jens Kohler, Khosrow Rahimi, Martin Moller, Laura De Laporte</i>	
<b>(267g) Engineering Extracellular Matrix Mimetic Materials By Green Electrospinning of Collagen .....</b>	<b>322</b>
<i>Jorge Almodovar, David Castilla</i>	

<b>(267h) Biomimetic Scaffolds for in vitro Bone Marrow Tissue Engineering</b> .....	323
<i>Yongkuk Park, Ryan Carpenter, Jungwoo Lee</i>	
<b>(303a) Tapered Block Copolymers: Tuning Self-Assembly and Properties By Manipulating Monomer Segment Distributions</b> .....	324
<i>Thomas H. Epps</i>	
<b>(303b) Photoplasticity in Crosslinked Liquid Crystalline Networks: A Route to Reconfigurable Shape-Changing Materials</b> .....	325
<i>Matthew K. McBride, Matthew Hendriks, Danqing Liu, Brady Worrell, Dick J. Broer, Christopher N. Bowman</i>	
<b>(303c) Synthesis of Novel Nanostructured Copolymers with Alternating Linear Polymer and Dendrimer Blocks</b> .....	326
<i>Haotian Sun, Alex Commisso, Chong Cheng</i>	
<b>(303d) Hierarchical Structures of PDMS-PU Copolymer and Particles for Hydrophobic Coatings</b> .....	327
<i>Marius Rutkevicius, Mackenzie Geiger, Tahira Pirzada, Saad A. Khan</i>	
<b>(303e) Charged Polymer Conformations in Polyelectrolyte Complexes</b> .....	328
<i>Amanda B. Marciel, Samanvaya Srivastava, Matthew V. Tirrell</i>	
<b>(303f) Solubility Parameters, Water Activity Coefficients and Proton Mobility of Sulfonated Poly (styrene-isobutylene-styrene), Sulfonated Poly (ether ether ketone), and Sulfonated Poly (2-ethoxyethyl methacrylate) Membranes</b> .....	329
<i>Maritza Perez Perez, David Suleiman</i>	
<b>(303g) Single-Molecule Super-Resolution Microscopy in Nanostructured Polymer Thin Films</b> .....	330
<i>Muzhou Wang, James M. Marr, Jeffrey W. Gilman, J. Alexander Liddle</i>	
<b>(303h) A Non-Equilibrium Molecular Dynamics (NEMD) Simulation of the Crosslinked Polyamide Membranein Water Desalination</b> .....	331
<i>Md Symon Jahan Sajib, Tao Wei</i>	
<b>(306a) Linear and Nonlinear Rheology Predictions of Entangled Polymers in Complex Flows from First Principles</b> .....	338
<i>Jay D. Schieber</i>	
<b>(306b) Melt Behavior-Chain Architecture-Polymer Composition Correlations in High Density Polyethylene</b> .....	339
<i>Rohan Hule, Derek W. Thurman, Antonios Doufas</i>	
<b>(306c) Shear-Induced Conformational Changes of Flexible and Semi-Rigid Engineering Thermoplastics and Their Influence on Crystallization</b> .....	340
<i>Behzad Nazari, Jiho Seo, Ralph H. Colby, Alicyn M. Rhoades, Richard P. Schaake</i>	
<b>(306d) Island-in-the-Sea Meltblown Nanofiber Nonwovens with Diverse Surface Properties for Filtration Applications</b> .....	341
<i>Iman Soltani, Satish Kumar, Frank S. Bates, Christopher W. Macosko</i>	
<b>(306e) Enthalpic and Entropic Competitions in Solvent-Free Polymer-Grafted Nanoparticles</b> .....	342
<i>Snehashis Choudhury, Lynden A. Archer</i>	
<b>(306f) Designing Material Dynamics in Polyelectrolyte Complexes</b> .....	343
<i>Yalin Liu, Brian Momani, Matthew Labbe, H. Henning Winter, Sarah L. Perry</i>	
<b>(306g) Extensional Relaxation Times of Dilute and Semi-Dilute Polymer Solutions</b> .....	344
<i>Jelena Dinic, Leidy N. Jimenez, Madeleine Biagioli, Vivek Sharma</i>	
<b>(306h) Nonequilibrium Molecular Dynamics Simulations of Entangled Polymer Solutions Undergoing Planar Elongational Flows</b> .....	345
<i>Mohammad Hadi Nafar Sefiddashti, Brian J. Edwards, Bamin Khomami</i>	
<b>(306i) Ultra-High Performance Polymers Meet Ionic Liquids</b> .....	346
<i>Jason E. Bara, Kathryn O'Harra, Grayson P. Dennis, Marlow M. Durbin, Max Mittenthal, Enrique M. Jackson</i>	
<b>(334a) Paper-Based Cell Culture Platforms for Personalized Medicine</b> .....	347
<i>Gulden Camci-Unal</i>	
<b>(334b) Growth Factor Delivery from Silk-Extracellular Matrix Composite Sponges for Modulating Congenital Heart Defect Repair</b> .....	348
<i>Whitney L. Stoppel, Elizabeth C. Bender, Luke R. Perreault, Jonathan M. Grasman, Andrea Papait, David L. Kaplan, Lauren D. Black III</i>	
<b>(334c) Oligodendrocyte Precursor Cell Maturation in a 3D Hydrogel System through the Incorporation of Drug Delivery Nanoparticles or Topographical Cues</b> .....	349
<i>Lauren Russell, Meghan Pinezich, Kyle Lampe</i>	
<b>(334d) Resveratrol Releasing Scaffolds Protect Mice Against Diet Induced Obesity and Glucose Intolerance</b> .....	350
<i>Michael Hendley, Prakasam Annamalai, Michael Gower</i>	
<b>(334f) Effects of Short-Term Magnetic Stimulation on MSCs Encapsulated in an Injectable, Magneto-Responsive Hydrogel</b> .....	351
<i>Adedokun Adedoyin, Adam Ekenseair</i>	

<b>(334g) The Incorporation of Retinoic Acid-like Peptoids Onto an Artificial Extracellular Matrix for Increased Differentiation of Human Embryonic Stem Cells into Neural Cells</b> .....	352
<i>Jesse Roberts, German Perez, Shannon L. Servoss</i>	
<b>(334h) 3D Culture of Trabecular Meshwork Cells</b> .....	353
<i>Matthew Osmond</i>	
<b>(354b) Steps Toward Bio-Sourced Packaging: Effect of Composition and Processing on Properties of Co-Polyesters of Polyethylene Terephthalate (PET) with 2,5-Furan Dicarboxylic Acid</b> .....	354
<i>Anup Joshi, Maria Coleman</i>	
<b>(354c) Synthesis and Solutionphasecharacterization of Hydroxylated Sulfonated Oligothioetheramides</b> .....	355
<i>Joseph Brown, Christopher A. Alabi</i>	
<b>(354d) Predicting Stable and Metastable Frank-Kasper Phases in Block Polymers Using Self-Consistent Field Theory</b> .....	356
<i>Akash Arora, Kyungtae Kim, Morgan W. Schulze, Ronald M. Lewis III, Frank S. Bates, Kevin D. Dorfman</i>	
<b>(354e) Spatiotemporal Evolution of Structure in Layer-By-Layer Assembled Thin Films Composed of Oppositely Charged Polyelectrolytes</b> .....	357
<i>Ali Salehi, Ronald G. Larson</i>	
<b>(354f) High Performance Roll-to-Roll Printed PTB7-Th/PCBM Organic Solar Cells</b> .....	358
<i>Kevin L. Gu, Xiaodan Gu, Hongping Yan, Zhenan Bao</i>	
<b>(354g) Pinch-Off Dynamics, Dripping-onto-Substrate (DoS) Rheometry and Printability of Polymeric Complex Fluids</b> .....	359
<i>Jelena Dinic, Leidy N. Jimenez, Madeleine Biagioli, Vivek Sharma</i>	
<b>(354h) Ultra-Fragile 'Granular Materials' Designed Via a Genetic Algorithm</b> .....	360
<i>Venkatesh Meenakshisundaram, Jui-Hsiang Hung, David S. Simmons</i>	
<b>(354i) Functionalizing Surfaces with Zwitterionic Polymers to Control Cell Adhesion and Direct Neurite Growth</b> .....	361
<i>Braden Leigh, Elise Cheng, Corinne Andresen, Marlan Hansen, C. Allan Guymon</i>	
<b>(354j) Understanding Facilitated Transport of Hydrogen in Polybenzimidazole Containing Palladium Nanoparticles Using an Integrated Experimental and Modeling Approach</b> .....	364
<i>Lingxiang Zhu, Deqiang Yin, Shailesh Konda, Mark T. Swihart, Haiqing Lin</i>	
<b>(364a) Engineering Surfaces and Interfaces in Polymer Films with Bottlebrush Polymer Additives</b> .....	365
<i>Gila Stein, Rafael Verduzco</i>	
<b>(364b) Effects of Extensional Flow and Nanoparticle Stabilization on Immiscible Polymer Blend Morphology</b> .....	366
<i>Matthew S. Thompson, Sushant Agarwal, Xueyan Song, Rakesh K. Gupta</i>	
<b>(364c) Non-Isocyanate Polyurethane Thermoplastic Elastomer: Amide-Based Chain Extender Yields Enhanced Nanophase Separation and Properties in Polyhydroxyurethane</b> .....	367
<i>Goliath Beniah, David Fortman, William Heath, William Dichtel, John M. Torkelson</i>	
<b>(364d) Molecular Simulations Study of Solvophobicity Effects on Assembled Structure in Solutions of Amphiphilic Block Copolymers and Nanoparticles</b> .....	368
<i>Daniel J. Beltran-Villegas, Arthi Jayaraman</i>	
<b>(364e) Control Nano/Microstructure Using Photopolymerization-Induced Phase Separation (PhIPS)</b> .....	369
<i>Erion Hasa, Julie L. P. Jessop, Jeffrey W. Stansbury, C. Allan Guymon</i>	
<b>(364f) Spontaneous Self-Assembly and Micellization of Random Copolymers in Organic Solvents</b> .....	370
<i>Ayse Asatekin</i>	
<b>(364g) Synthesis and Antibacterial Study of Star-Shaped Poly[2-(dimethylamino)Ethyl Methacrylate]-Based Copolymers with an Inorganic Core</b> .....	371
<i>Hou Zheng, Yuji Pu</i>	
<b>(364h) Understanding Molecular Exchange Kinetics in Polyelectrolyte Complex Micelles</b> .....	372
<i>Hao Wu, Jeffrey Ting, Samanvaya Srivastava, Matthew V. Tirrell</i>	
<b>(364i) Molecular Simulation for the Prediction of Plasticizer Efficiency and Stability in a Polymer Matrix</b> .....	373
<i>Dongyang Li, Kushal Panchal, Li Xi</i>	
<b>(375a) Copper-Silver Core-Shell Nanoparticles for Conductive Ink</b> .....	374
<i>Xiaofeng Dai</i>	
<b>(375b) Electric Current-Induced Nanoscale Surface Roughness Reduction in Conducting Thin Films</b> .....	375
<i>Lin Du, Dimitrios Maroudas</i>	
<b>(375c) Unusual Electronic Properties of Template-Directed <math>\pi</math>-Conjugated Porphyrin and Phosphorene Nanotubes</b> .....	376
<i>Bryan M. Wong</i>	

<b>(375d) Complex Pattern Formation from Current-Driven Dynamics of Single-Layer Epitaxial Islands on Crystalline Conducting Substrates.....</b>	377
<i>Ashish Kumar, Dwaipayan Dasgupta, Dimitrios Maroudas</i>	
<b>(375e) The Infrared and Raman Spectra of Pure-Silica and Aluminosilicate Sodalite.....</b>	378
<i>Caio Peixoto, Amir M. Mofrad, Jack Blumeyer, Liu Jinrui, Karl D. Hammond, Heather K. Hunt</i>	
<b>(375f) The Effect of Solvent Selection on the Optical Trapping, Manipulation, and Patterning of Nanomaterials.....</b>	379
<i>Matthew Crane, Elena P. Pandres, Patrick Whitham, E. James Davis, Daniel Gamelin, Vincent C. Holmberg, Peter Pauzauskie</i>	
<b>(375g) Synthesis and Characterization of Electrochemically-Grown Zinc Oxide Nanowires for Use in Rectenna-Based Heat Harvesters.....</b>	380
<i>Adrian Haley, Shendu Yang, Patrick J. Pinhero</i>	
<b>(381a) The Thiol-Thioester Exchange in Network and Linear Polymers.....</b>	381
<i>Christopher N. Bowman, Brady Worrell, Matthew K. McBride, Gayla Berg, Chen Wang</i>	
<b>(381b) Nacre-Inspired Composite Gels for Biomedical Applications.....</b>	382
<i>Ayomi S. Perera, Richard Jackson, Mark Miodownik, Marc-Olivier Coppens</i>	
<b>(381d) High Viscosity Polymer Gels Derived from Block Copolymer Nanocomposites.....</b>	383
<i>Sri Harsha Kalluru, Eric W. Cochran</i>	
<b>(381e) Quantifying Topology, Gelation and Elasticity of Polymer Networks.....</b>	384
<i>Rui Wang, Bradley D. Olsen</i>	
<b>(381f) Self-Assembly and Mechanical Properties of Di-Fmoc-L-Lysine Containing Molecular Gels.....</b>	385
<i>Seyed Meysam Hashemnejad, Md Masrul Huda, Neeraj Rai, Santanu Kundu</i>	
<b>(381g) Thermoresponsive Sol-Gel Transitions of P<math>\beta</math>-G-Based Nanocomposite Hydrogels Controlled By Molecular Weights of Block Copolymers and Solute Concentrations.....</b>	386
<i>Tomoki Maeda, Midori Kitagawa, Keishi Tanimoto, Makoto Miyazaki, Koji Nagahama, Atsushi Hotta</i>	
<b>(381h) Evaluating Reprocessability of Polymer Networks: Flory-Stockmayer Analysis.....</b>	387
<i>Lingqiao Li, Xi Chen, Kailong Jin, John M. Torkelson</i>	
<b>(381i) Molecularly-Templated Reaction for Forming Poly(dimethyl siloxane)/Graphene Oxide Composite Elastomers.....</b>	388
<i>Heonjoo Ha, Kiryong Ha, Christopher J. Ellison</i>	
<b>(411a) Graduate Student Award Session: A Two-Step Method for Transferring Single Wall Carbon Nanotubes Onto a Hydrogel Substrate.....</b>	389
<i>Mozhdeh Imaninezhad, Irma Kuljanishvili, Silviya Petrova Zustiak</i>	
<b>(411b) Graduate Student Award Session: Understanding How Lipid Nanoparticle Structure Affects Immune Response.....</b>	390
<i>Lisa Kasiewicz, Sushant Kumar, Rahul Purwar, Kathryn A. Whitehead</i>	
<b>(411c) Graduate Student Award Session: Photo- Induced Pinocytosis in Synthetic Liposomes.....</b>	391
<i>Danielle Konetski, Dawei Zhang, Christopher N. Bowman</i>	
<b>(411d) Graduate Student Award Session: Sugar-Coating the Answers to Virus Binding: Glycocalyx-Mimetic Interfaces.....</b>	392
<i>Ramya Kumar, Domenic Kratzer, Kenneth Cheng, Irina Kopyeva, Joerg Lahann</i>	
<b>(411e) Graduate Student Award Session: The Combined Effect of Matrix Microenvironment and Hypoxia on the Activity of Glioblastoma Stem Cells.....</b>	393
<i>Jee-Wei Emily Chen, Jann N. Sarkaria, Brendan A. Harley</i>	
<b>(411f) Graduate Student Award Session: Pegylated Poly(beta-amino ester) Delivery Systems for Periodic shRNA.....</b>	394
<i>Connie Wu, Wade Wang, Paula T. Hammond, Jiahe Li</i>	
<b>(411g) Graduate Student Award Session: Biodegradable Nano-Film Coated Self-Floating Hollow Glass Microspheres for Rapid Cell Isolation and Recovery.....</b>	395
<i>Ziye Dong, Caroline Ahrens, Dan Yu, Zhenya Ding, Hyuntaek Lim, Wei Li</i>	
<b>(411h) Graduate Student Award Session: Enhancing Therapeutic Efficacy of Self-Assembling Prodrugs with Supramolecular Chemistry.....</b>	396
<i>Hao Su, Yuzhu Wang, Feihu Wang, Honggang Cui</i>	
<b>(413a) Size-Selective Ionically Crosslinked Polymer Multilayer Films for Light Gas Separation.....</b>	397
<i>Jaime C. Grunlan, Benjamin Wilhite</i>	
<b>(413b) Length Effects on Polyelectrolyte Complexation: How 'Poly' Must a Polyelectrolyte be?.....</b>	398
<i>Jeffrey Vieregg, Michael Lueckheide, Matthew V. Tirrell</i>	
<b>(413c) Interaction and Dynamics of Polyelectrolytes in Polyzwitterionic Complexes.....</b>	399
<i>Y. Elaine Zhu, Benxin Jing, Kehua Lin</i>	
<b>(413d) Tuning Complex Coacervation Using Sequence-Defined Polyelectrolytes: A Molecular Understanding.....</b>	400
<i>Tyler Lytle, Li-Wei Chang, Jason Madinya, Sarah L. Perry, Charles E. Sing</i>	

<b>(413e) Photodirected Assembly and Self-Rupture of Polyelectrolyte-Based Soft Materials</b> .....	401
<i>Udaka K. De Silva, Amanda C. Bryant-Friedrich, Yakov Lapitsky</i>	
<b>(413f) Coarse-Grained Model for Polyelectrolyte Complexation</b> .....	402
<i>Marat Andreev, Samanvaya Srivastava, Lu Li, Matthew V. Tirrell, Jack F. Douglas, Juan J. De Pablo</i>	
<b>(413g) Synthesis and Solution-Phase Characterization of Hydroxylated Sulfonated Oligothioetheramides</b> .....	403
<i>Joseph Brown, Christopher A. Alabi</i>	
<b>(413h) Effect of Nanoparticle on the Structure and Dynamics of Model Peaa Ionomers from Molecular Dynamics Simulations</b> .....	404
<i>Janani Sampath, Lisa M. Hall</i>	
<b>(413i) Zwitterionic Copolymers As Novel Supporting Scaffolds for Ionic Liquid-Based Gel Electrolytes</b> .....	405
<i>Luis Rebollar, Fatin Lind, Matthew J. Panzer</i>	
<b>(426a) Photoreversible Stiffness Modulation of Protein-Polymer Hydrogels</b> .....	406
<i>Luman Liu, Jared A. Shadish, Cole A. Deforest</i>	
<b>(426b) Preparation and Characterization of Polypeptide Hydrogels as Synthetic Extracellular Matrices for Cellular Scaffolds</b> .....	407
<i>Hongkun He, Alex Wang, Marianna Sofman, Linda Griffith, Paula Hammond</i>	
<b>(426c) Reinforced Hydrogel Fibers for Cell Encapsulation and Organ Printing</b> .....	408
<i>Suman Bose, Daniel G. Anderson, Robert Langer</i>	
<b>(426f) Magnetically Templated Hydrogels for Peripheral Nerve Injury Repair</b> .....	409
<i>Ishita Singh, Christopher Lacko, Christine Schmidt, Carlos Rinaldi</i>	
<b>(426g) A Two-Step Method for Transferring Single Wall Carbon Nanotubes Onto a Hydrogel Substrate</b> .....	410
<i>Mozhdeh Imaninezhad, Irma Kuljanishvili, Silviya Petrova Zustiak</i>	
<b>(267c) Surface Tension-Assisted Additive Manufacturing of Multicomponent Biomaterials</b> .....	411
<i>Mark W. Tibbitt, Heloise Ragelle, Michael Cima, Robert Langer</i>	
<b>(439a) Chiral Metamaterial Platform with Tunable Near and Far Field Chiroptical Response</b> .....	412
<i>Pavlos Pachidis, Vivian E. Ferry</i>	
<b>(439b) Lateral Growth of Two-Dimensional 1H-WSe<sub>2</sub>/1T'-WTe<sub>2</sub> Heterostructures</b> .....	413
<i>Mengqiang Zhao, Carl H. Naylor, Zhaoli Gao, William M. Parkin, A. T. Charlie Johnson</i>	
<b>(439c) Nanostructured Optoelectronics Using Interfacially-Driven Assembly</b> .....	414
<i>Matthew G. Panthani</i>	
<b>(439d) Tuning the Bandgap of Graphene Nanoribbons through Defect-Interaction-Driven Edge Patterning</b> .....	415
<i>Dimitrios Maroudas, Lin Du, Andre R. Muniz</i>	
<b>(439e) Wrinkled MoS<sub>2</sub> Field-Effect Transistors</b> .....	416
<i>Shikai Deng, Vikas Berry</i>	
<b>(439f) Nanoantenna Enhanced Wavelength Mixing in Monolayer Transition Metal Dichalcogenide</b> .....	417
<i>D. Keith Roper, Gregory T. Forcherio, Mourad Benamara, Luigi Bonacina</i>	
<b>(439g) Kinetics of Nanoring Formation from Quantum Dots in Epitaxial Thin Films</b> .....	418
<i>Lin Du, Dimitrios Maroudas</i>	
<b>(441a) Design, Synthesis, and Characterization of Elastomeric and Mechanoresponsive Polymer Matrix Composites</b> .....	419
<i>Matthew D. Green</i>	
<b>(441b) Molecular Simulation of Macromolecular Transport through Nanoporous Membranes</b> .....	420
<i>Noelia Almodovar Arbelo, Bryan W. Boudouris, David S. Corti</i>	
<b>(441c) Unconventional Nanoscopic Shape Memory Effects Exhibited By Novel Multi-Stimuli-Responsive Shape Memory Polymers</b> .....	421
<i>Sin-Yen Leo, Peng Jiang</i>	
<b>(441d) Direct Observation of Remarkable Nanostructure Evolution during Aqueous Dissolution of Polymer/Drug Blends</b> .....	422
<i>Ralm Ricarte, Marc A. Hillmyer, Timothy P. Lodge</i>	
<b>(441e) Effect of Graphene and Graphene Oxide on the LCST of PNIPAM</b> .....	423
<i>Carter Berry, Sanket A. Deshmukh</i>	
<b>(441f) Solvent Effects on the Structure and Thermodynamics of Polymer Blends with Varying Architectures</b> .....	424
<i>Thomas Gartner III, Arthi Jayaraman</i>	
<b>(441g) Molecular Weight Dependence of the Intrinsic Size Effect on T<sub>g</sub> in AAO Template-Supported Polymer Nanorods: A DSC Study</b> .....	425
<i>Tong Wei, Shadid Askar, Anthony Tan, John M. Torkelson</i>	



<b>(441h) Versatile Cholesterol-Functionalized Block Copolymers in Aqueous Dispersions</b> .....	426
<i>Kenneth Mineart, Shrinivas Venkataraman, Yi Yan Yang, James L. Hedrick, Vivek M. Prabhu</i>	
<b>(441i) Polymerization Thermodynamics Under Nanoconfinement</b> .....	427
<i>Haoyu Zhao, Qian Tian, Sindee L. Simon</i>	
<b>(475a) Molecular Understanding, Design and Development of Ultra Low Fouling Zwitterionic Materials</b> .....	428
<i>Shaoyi Jiang</i>	
<b>(475b) A Scalable Approach to Produce a Diversity of Structured Polymer Colloids</b> .....	429
<i>Rodney D. Priestley</i>	
<b>(475c) Layered Morphologies in Precise Acid-Containing Polyethylenes: Hierarchical Structures and the Implications on Properties</b> .....	430
<i>Karen I. Winey</i>	
<b>(475d) Examination of Thin Film Growth Using Supersonic Molecular Beams and in situ Real Time X-Ray Synchrotron Radiation: From Organic Small Molecule Semiconductors to Transition Metal Dichalcogenides</b> .....	431
<i>James R. Engstrom</i>	
<b>(475e) Polymer Electrolytes for Electrochemical Energy Devices</b> .....	432
<i>Yushan Yan</i>	
<b>(525c) TAT-Functionalized Liposomes for the Treatment of Meningitis</b> .....	433
<i>Caterina Bartomeu Garcia, Di Shi, Thomas J. Webster</i>	
<b>(525d) Cartilage Penetrating Nanoparticles to Provide Sustained Delivery of Disease Modifying Drugs in Post-Traumatic Osteoarthritis</b> .....	434
<i>Brett C Geiger, Sheryl Wang, Alan Grodzinsky, Paula T. Hammond</i>	
<b>(525e) Nanoparticle Tracking Analysis of Polymer Particle Aggregation in Blood Plasma</b> .....	435
<i>Kathleen McEnnis, Stephanie Christau, Sean McLoughlin, Joerg Lahann</i>	
<b>(525f) High Throughput Screening of Biodegradable Nanogels with Tunable Size and Swelling for Intracellular Drug Delivery</b> .....	436
<i>David S. Spencer, Bryan C. Luu, David W. Beckman, Nicholas A. Peppas</i>	
<b>(525g) Polyanhydride Nanoparticles Encapsulating Rifampicin Suppress Growth of Pathogenic Acanthamoeba in vitro</b> .....	437
<i>Nathan Peroutka-Bigus, Adam Mullis, Balaji Narasimhan, Bryan H. Bellaire</i>	
<b>(525h) Design of Dual Encapsulated Biodegradable Nanoparticles for Cancer Treatment</b> .....	438
<i>Amber C. Jerke, Timothy Brenza</i>	
<b>(526a) Understanding How Lipid Nanoparticle Structure Affects Immune Response</b> .....	457
<i>Lisa Kasiewicz, Sushant Kumar, Rahul Purwar, Kathryn A. Whitehead</i>	

## VOLUME 2

<b>(526b) Multi-Stage Drug Delivery System for Enhanced Payload Delivery to Lymph Node Cells</b> .....	458
<i>Alex Schudel, Cody Higginson, Mai Kwan Yau, M. G. Finn, Susan N. Thomas</i>	
<b>(526c) Encapsulation and Thermal Stability of Immunological Biologics Using Complex Coacervation</b> .....	459
<i>Whitney C. Blocher, Rebecca Hershman, Sarah L. Perry</i>	
<b>(526d) Evaluation of Biocompatibility of Novel Block Copolymer Gels/Micelles As Potential Vaccine Adjuvants</b> .....	460
<i>Justin Adams, Sujata Senapati, Michael J. Wannemuehler, Balaji Narasimhan, Surya Mallapragada</i>	
<b>(526e) Intranasal Nanovaccine Provides Protection Against Homologous and Heterologous Influenza Virus</b> .....	461
<i>Zeb Zacharias, Kathleen Ross, Balaji Narasimhan, Thomas Waldschmidt, Kevin Legge</i>	
<b>(526f) Design of a Combination Nanovaccine to Induce Rapid and Long Term Protective Immunity Against Bacillus Anthracis</b> .....	462
<i>Sean Kelly, Ross Darling, Nathan Peroutka-Bigus, Thomas Dubensky, Bryan H. Bellaire, Michael J. Wannemuehler, Balaji Narasimhan</i>	
<b>(526g) Comprehensive Vaccine Design for Commensal Disease Progression</b> .....	463
<i>Charles H. Jones, Guojian Zhang, Roozbeh Nayerhoda, Marie Beitelshees, Andrew Hill, Yi Li, Bruce A. Davidson, Paul Knight III, Blaine Pfeifer</i>	
<b>(526h) Oncofetal Antigen Peptide Nanoclusters for Cancer Vaccines</b> .....	464
<i>Alexandra Tsoras, Julie A. Champion</i>	
<b>(536a) S Doped TiO2 for Photocatalytic Oxidation of CO in Visible Region Synthesized By Novel One Step Liquid Flame Spray Pyrolysis (LFSP): Kinetics and Mechanism</b> .....	473
<i>Siva Nagi Reddy Inturi, Panagiotis Smirniotis</i>	

<b>(536b) Copper Hexacyanoferrate Hydrogel Electrodes for Electrochemically-Mediated Cation Separations</b> .....	474
<i>Kai-Jher Tan, Xiao Su, Johannes Elbert, T. Alan Hatton</i>	
<b>(536c) Emulsion Templated Polymers As Structured Supports for MOF Adsorbents</b> .....	475
<i>Jacob I. Deneff, Krista S. Walton</i>	
<b>(536d) Development of Novel Crosslinked Polymers for the Capture of Environmental Pollutants</b> .....	476
<i>Rishabh Shah, Thomas Dziubla, J. Zach Hilt</i>	
<b>(536e) Grafted Polystyrene Controlled Formation of Magnetic Carbon Nanocomposites for Environmental Remediation</b> .....	477
<i>Hongbo Gu</i>	
<b>(536f) Constructing Fenton-like Reaction over g-C<sub>3</sub>N<sub>4</sub>/NH<sub>2</sub>-MIL-88B(Fe) Photocatalyst to Degrade Organic Contamination in Aqueous Solution</b> .....	478
<i>Xiyi Li, Yunhong Pi, Zhong Li, Jing Xiao</i>	
<b>(536g) Synthesis of Thermoresponsive Composite and Application for Water Treatment</b> .....	488
<i>Junichi Ida, Masanori Ochi, Ai Ishikawa, Atsushi Matsumoto, Tatsushi Matsuyama, Hideo Yamamoto</i>	
<b>(536h) Integrated Adsorption and Visible-Light-Driven Photocatalytic Degradation of MB over Oxidized C<sub>60</sub>/NH<sub>2</sub>-MIL68(In)</b> .....	489
<i>Yunhong Pi, Xiyi Li, Zhong Li, Jing Xiao</i>	
<b>(536i) In-Situ Studies on Anion Electroadsorption Mechanisms</b> .....	504
<i>Kelsey Hatzell, Marta Hatzell, Marm Dixit</i>	
<b>(538a) Engineering Materials and Processes for Flexible Electronics</b> .....	505
<i>Antonio Facchetti</i>	
<b>(538b) Spectroelectrochemistry of Conjugated Radical Polymers</b> .....	506
<i>Jodie L. Lutkenhaus</i>	
<b>(538c) Conjugated Copolymers Based on Purines: Linking Monomer Design and Macromolecular Properties</b> .....	507
<i>Michael Kilbey, Graham Collier, Lauren Brown, Evan Boone, Brian Long</i>	
<b>(538e) Pinch-Off Dynamics and Printability of Semi-Flexible and Rigid Rod Polymer Solutions</b> .....	508
<i>Leidy N. Jimenez, Jelena Dinic, Vivek Sharma</i>	
<b>(538f) Surface-Directed Multi-Scale Assembly of Conjugated Polymers</b> .....	509
<i>Ying Diao, Erfan Mohammadi, Ge Qu</i>	
<b>(538g) Interpenetrating Networks for Flexible Bulk Heterojunction Opvs</b> .....	510
<i>Jorge Mok, Zhiqi Hu, Rafael Verduzco</i>	
<b>(538h) Development of an Anisotropic Coarse-Grained Conjugated Polymer Model for Optoelectronic Applications</b> .....	511
<i>Alec S. Bowen, Nicholas Jackson, Daniel Reid, Yamil J. Colon, Juan J. De Pablo</i>	
<b>(538i) Automated Quantitative Analysis of Oriented Morphologies and Inter-Grain Connectivity in Conjugated Polymers</b> .....	512
<i>Nils Persson, Michael McBride, Martha A. Grover, Elsa Reichmanis</i>	
<b>(545a) Spray Coating Chitin &amp; Cellulose Nanomaterials for Enhancement of Barrier Properties</b> .....	513
<i>Chinmay C. Satam, Jerel Jallorina, J. Carson Meredith</i>	
<b>(545b) Development of Low-Concentration Alkaline Treatment Method to Produce Thermally Stable Cellulose Nanofibrils (CNFs)</b> .....	514
<i>Hansol Lee</i>	
<b>(545c) Tailored and Integrated Production of Carboxylated and Lignin Containing Cellulose Nanocrystals and Nanofibrils for Composite Applications</b> .....	515
<i>J. Y. Zhu</i>	
<b>(545d) Nano Carbon Structures from Cellulosic Biomass for Use As Functional Materials</b> .....	516
<i>Ping Wang</i>	
<b>(576a) Quantitative Three-Dimensional Morphological Characterization of Block Copolymer Films Enabled By Directed Self-Assembly</b> .....	517
<i>Paul F. Nealey</i>	
<b>(576b) Examination of Line Edge Roughness of Directed Self-Assembled Block Copolymers: A Coarse-Grained Molecular Dynamics Study</b> .....	518
<i>Shubham Pinge, Durairaj Baskaran, Munirathna Padmanaban, Yong Lak Joo</i>	
<b>(576c) Atomistic Simulations of Ion Transport in PsbP2VP Functionalized Lamellae</b> .....	519
<i>Weiwei Chu, Yamil J. Colon, Juan J. De Pablo</i>	
<b>(576d) Performance of the Novel Ultra-Thin Proton Exchange Membrane Based on Poly(arylene ether sulfone)s for Pemfcs</b> .....	520
<i>Yang Zhao, Xue Li, Xiaofeng Xie</i>	
<b>(576e) The Consequence of Morphology on Conductivity for Bolaamphiphiles</b> .....	521
<i>Mayank Misra, Christian Nowak, Yangyang Sun, Fernando Escobedo</i>	

<b>(576f) Mechanical and Structural Analyses of Toughened Syndiotactic Polypropylene Gels: Effects of Gel-Preparation Temperature</b> .....	522
<i>Fuyuaki Endo, Ryusuke Okoshi, Naruki Kurokawa, Tomoki Maeda, Atsushi Hotta</i>	
<b>(576g) Chemically Cross-Linked Poly(2-Hydroxyethyl Methacrylate)-Supported Deep Eutectic Solvent Gel Electrolytes</b> .....	523
<i>Huan Qin, Matthew J. Panzer</i>	
<b>(576h) Ultrasonic Synthesis of Temperature Responsive Copolymer and Its Characterization</b> .....	524
<i>Masaki Kubo, Tomoyuki Koshimura, Takao Tsukada</i>	
<b>(576i) Atomic-Level Comparisons of LCST Transition in Thermo-Sensitive Polymers</b> .....	525
<i>Yaxin An, Karteek K. Bejagam, Samrendra Singh, Sanket A. Deshmukh</i>	
<b>(591a) ATRP-Grown Protein-Polymer Conjugates Selectively Enhance Transepithelial Protein Transport</b> .....	526
<i>Chad Cummings, Katherine Fein, Hironobu Murata, Rebecca Ball, Alan Russell, Kathryn A. Whitehead</i>	
<b>(591b) Aptamer Micelles Targeting Cancer Cells Expressing the Chemokine Fractalkine</b> .....	527
<i>Michael A. Harris, Timothy R. Pearce, Thomas Pengo, Huihui Kuang, Colleen L. Forster, Efrosini Kokkoli</i>	
<b>(591c) Non-Charged Cell-Penetrating Oligothioetheramides</b> .....	528
<i>Ngoc Phan, Christopher A. Alabi</i>	
<b>(591d) Targeting, Delivery, and Immobilization of Therapeutic Factors with Native Free Radicals</b> .....	529
<i>Christopher J. Lowe, Keana Mirmajlesi, David I. Shreiber</i>	
<b>(591e) Antimicrobial Peptide Amphiphile (AMPA) Medical Product Coatings for the Prevention of Nosocomial Infections</b> .....	530
<i>Josiah Smith, Alexis Dadelahi, Julie Nguyen, Fabio Gallazzi, John Dodam, Jeffrey Adamovicz, Roger De La Torre, Bret Ulery</i>	
<b>(591f) Mitigating the Bioactivity Loss of Polymer- Insulin Conjugate</b> .....	531
<i>Zhiqiang Cao, Yang Lu</i>	
<b>(591g) Enhancing Therapeutic Efficacy of Self-Assembling Prodrugs with Supramolecular Chemistry</b> .....	532
<i>Hao Su, Yuzhu Wang, Feihu Wang, Honggang Cui</i>	
<b>(591h) Hydrogen Sulfide Donor Micelles: Synthesis, Characterization and Therapeutic Potential</b> .....	533
<i>Urara Hasegawa, Andre Van Der Vlies, Jerry J. Y. Chen, Tomoka Takatani-Nakase, Ikuhiko Nakase</i>	
<b>(592a) Pegylation of Model Drug Carriers Enhances Uptake By Primary Human Neutrophils</b> .....	534
<i>William Kelley, Catherine A Fromen, Omolola Eniola-Adefeso</i>	
<b>(592b) 'Smart' Nanoparticles for Immunotherapeutic Targeting of the Sting Pathway</b> .....	535
<i>Daniel Shae, Denise Buenrostro, Alyssa Merkel, Sema Sevimli, Julie A. Sterling, John Wilson</i>	
<b>(592c) Biomaterial Nanoparticles Redistribute Therapeutic Antibodies to Lymph Node-Resident Cells to Enhance Cancer Immunotherapy Via Checkpoint Inhibition</b> .....	536
<i>David Francis, Alex Schudel, Nathan A. Rohner, Susan N. Thomas</i>	
<b>(592d) Engineering Nanoparticle Artificial Antigen Presenting Cells Based on T Cell Biology Improves T Cell Enrichment and Activation for Cancer Immunotherapy</b> .....	537
<i>John Hickey, Fernando Vicente, Hai-Quan Mao, Jonathan Schneck</i>	
<b>(592e) Biomaterial Scaffolds for Combined Focal Ablation and Immunotherapy to Target Disseminated Cancer</b> .....	538
<i>Francisco Pelaez, Stephen O'Flanagan, Qi Shao, Brandon Burbach, Tiffany Lam, John C. Bischof, Yoji Shimizu, Samira M. Azarin</i>	
<b>(592f) Modulating the Immune Environment within Adipose Tissue with Polymer Scaffolds</b> .....	539
<i>Kendall Murphy, Michael Gower</i>	
<b>(592g) Multi-Factor Microparticle Formulation for Local Induction of Regulatory Lymphocytes and Treatment of Periodontal Disease</b> .....	540
<i>Ashlee Greene, Sayuri Yoshizawa, Michelle Ratay, Charles Sfeir, Steven R. Little</i>	
<b>(592h) Multivalent Soluble Antigen Arrays Target Antigen Presenting B Cells and Dampen Antigen-Specific Signaling to Promote Therapeutic Efficacy in Multiple Sclerosis</b> .....	541
<i>Brittany Hartwell</i>	
<b>(593a) Novel Bio-Based Polyesters and Polycarbonates Derived from Xylochemicals</b> .....	542
<i>Joseph F. Stanzione III, Silvio Curia, Joseph Mauck, Alexander W. Bassett, John J. La Scala</i>	
<b>(593b) Light Weight Biocomposite from Toughened Polyolefin and Biocarbon</b> .....	555
<i>Ehsan Behazin, Manju Misra, Amar K. Mohanty</i>	
<b>(593c) Secondary Fermentation of Corn Ethanol Co-Products for Improved Amino Acid Qualities</b> .....	556
<i>Tanner Barnharst, Yanmei Zhang, Jingyu Wang, Bo Hu</i>	
<b>(593d) Extraction High-Value Chemicals from Ethanol Co-Products: A Feasibility Assay on Phytate Extraction with Life Cycle and Techno Economic Assessment</b> .....	557
<i>Cristiano Reis, Aravindan Rajendran, Douglas Tiffany, Bo Hu</i>	
<b>(604a) Highly Stable Perovskite Solar Cells Fabricated Using Aerosol-Based Technique</b> .....	560
<i>Shalinee Kavadiya, Pratim Biswas</i>	

<b>(604b) Engineering Perovskite Solar Cell Interfaces to Realize &gt; 1000 Hr, Unencapsulated Ambient Stability</b> .....	561
<i>Jeffrey A. Christians, Philip Schulz, Jonathan Tinkham, Tracy H. Schloemer, Bertrand Tremolet De Villers, Steve Harvey, Alan Sellinger, Joseph J. Berry, Joseph M. Luther</i>	
<b>(604c) A Thermodynamic Basis for Engineering Enhanced Stability of the Perovskite Phase of Cesium Lead Iodide</b> .....	562
<i>Subham Dastidar, Aaron T. Fafarman</i>	
<b>(604d) Synthesis of Nanostructured Inorganic Perovskites for Solar Cell Applications</b> .....	563
<i>Atefe Hadi, Rainie D. Nelson, Iver J. Cleveland, Jeremy M. Jacoby, Matthew G. Panthani</i>	
<b>(604e) Discovery of Near-Infrared-Active Colloidal Multinary Lead Halide Perovskite Nanocrystals Using a Microfluidic Platform</b> .....	564
<i>Ioannis Lignos, Viktoriia Morad, Richard Maceiczky, Loredana Protesescu, Maksym V. Kovalenko, Andrew J. Demello</i>	
<b>(604f) Improved Charge Collection in Highly Efficient CsPbBr<sub>2</sub> Solar Cells with Light-Induced Dealloying</b> .....	565
<i>Joshua Choi</i>	
<b>(604g) Synthesis and Characterization of Bi-Based Perovskite Semiconductors for Photovoltaic Application</b> .....	566
<i>Umar H. Hamdeh, Rainie D. Nelson, Bradley J Ryan, Ujjal Bhattacharjee, Jacob W. Petrich, Matthew G. Panthani</i>	
<b>(617a) In-Situ Synthesis of Intergrown UiO-66 Membranes with Controlled Orientation</b> .....	567
<i>Bohan Shan, Bin Mu</i>	
<b>(617b) Closed Packed, Oriented MOF Thin Films through Solution Shearing</b> .....	568
<i>Arian Ghorbanpour, Luke Huelsenbeck, Gaurav Giri</i>	
<b>(617c) Mechanistic Insights into Low Temperature Ceramic Thin Film Growth and Crystallization Using Microwave Radiation</b> .....	569
<i>B. Reeya Jayan, Nathan Nakamura</i>	
<b>(617d) Gold Nanoparticle Monolayers for Surface-Enhanced Raman Spectroscopy of Lithium Batteries</b> .....	570
<i>Daniel T. Hallinan Jr., Guang Yang, Jagjit Nanda, Boya Wang, Gang Chen</i>	
<b>(617e) Understanding the Chemistry of Thiol-Amine Solutions: Versatile Solvents for Solution-Processed Thin Film Photovoltaics</b> .....	571
<i>Caleb Miskin, Priya Murria, Laurance Cain, Robert W. Boyne, Evan C. Wegener, Jeffrey T. Miller, Hilka Kenttamaa, Rakesh Agrawal</i>	
<b>(617f) In situ Grazing Incidence Small Angle X-Ray Scattering (GISAXS) Study of the Formation of Multilayered Ordered Mesoporous Titania Films</b> .....	572
<i>M. Arif Khan, Syed Z. Islam, Suraj Nagpure, Barbara L. Knutson, Stephen E. Rankin</i>	
<b>(617g) 2-D Wulff Construction of FeOx Islands Grown on Pt(111) for Use in Catalysis</b> .....	573
<i>Joseph Kubal, Jeffrey Greeley</i>	
<b>(621a) Molecular Simulation of Crystallization of Chain Molecules from the Melt</b> .....	574
<i>Gregory C. Rutledge</i>	
<b>(621b) Anomalous Crystallization Behavior of Ring Polymers</b> .....	575
<i>Kiran S. Iyer, Murugappan Muthukumar</i>	
<b>(621c) Thin Film Crystallization of Cyclic Polymers and Their Linear Analogues</b> .....	576
<i>Julie Albert, Giovanni Kelly, Scott Grayson, Fariyah Haque</i>	
<b>(621d) Synthesis, Characterization, and Structural Evolution of Designer Block Polyelectrolyte Complexes</b> .....	577
<i>Jeffrey Ting, Hao Wu, Abraham Herzog-Arbeitman, Samanvaya Srivastava, Matthew V. Tirrell</i>	
<b>(621f) Solid and Liquid Core Polyelectrolyte Complex Micelles</b> .....	578
<i>Lorraine Leon</i>	
<b>(621i) Unique Crystallization Behavior of Isotactic Polypropylene in the Presence of L-Isoleucine and Its Inhibition and Promotion Mechanism of Nucleation</b> .....	579
<i>Shicheng Zhao, Xiaoshan Peng</i>	
<b>(621h) Scalable Nanocomposites Synthesis Via Electrospray-Mediated Electroemulsification and Flash Nanoprecipitation</b> .....	580
<i>Kil Ho Lee, Barbara E. Wyslouzil, Jessica O. Winter</i>	
<b>(622a) Engineering Vapor-Deposited Polymers for Energy Conversion and Storage</b> .....	581
<i>Kenneth Lau</i>	
<b>(622b) Charge Transfer Mechanisms in Organic Radical Polymer Batteries</b> .....	582
<i>Shaoyang Wang, Fei Li, Jodie L. Lutkenhaus</i>	
<b>(622c) Free Volume Enhanced Anion Exchange Membranes from Triptycene Poly(Arylene Ether Sulfone) Copolymers</b> .....	583
<i>Yoonseob Kim, Timothy Swager</i>	

<b>(622d) Surfactant-Polymer System Optimization in Heterogeneous Model with Mobility Control</b> .....	584
<i>Nai Cao, Pingchuan Dong, Brian McPherson, Xiaoxiao Liu</i>	
<b>(622e) Breaking the Compensation Effect within the Vogel-Tammann-Fulcher Equation for Polymer-Based Electrolytes</b> .....	590
<i>Kyle M. Diederichsen, Hilda G. Buss, Bryan D. McCloskey</i>	
<b>(622f) Carbon Derived from Polymerized Ionic Liquids</b> .....	591
<i>Rui Sun, Kelly M. Meek, Yossef A. Elabd</i>	
<b>(622g) Tailoring Surface Functionalization of Silica Nanoparticles in Nafion Nanocomposites for Improved Ion Selectivity in Vanadium Redox Flow Batteries</b> .....	592
<i>Allison Jansto, Eric M. Davis</i>	
<b>(622h) Thermally Cross-Linked Poly(acrylic acid) / Reduced-Graphene Oxide Aerogels As a Replacement for Metal-Foil Current Collectors in Lithium Ion Batteries</b> .....	593
<i>Han Xiao, Joshua Pender, Mackenzie Meece-Rayle, Pedro De Souza, Kyle Klavetter, Heonjoo Ha, Jie Lin, Adam Heller, Christopher J. Ellison, C. Buddie Mullins</i>	
<b>(622i) Graphene-Oxide/Polybenzimidazole Nanocomposite Membrane for High Temperature Fuel Cell Application</b> .....	605
<i>Shobha Mantripragada, Md. Tashfin Zayed Hossain, Khondker Sultana, Shamsuddin Ilias, Jianzhong Lou</i>	
<b>(640a) Autoperforation of 2D Materials for Generating Two Terminal Memresistor Janus Particles with Nonvolatile Memory</b> .....	606
<i>Pingwei Liu, Albert Tianxiang Liu, Daichi Kozawa, Juyao Dong, Max Saccone, Volodymyr Koman, Song Wang, Minhao Wong, Michael Strano</i>	
<b>(640b) Synthesis and Properties of Polymer/Graphene Oxide (GO) Thermosets with Multifunctional GO As a Crosslinker</b> .....	607
<i>Heonjoo Ha, Jaesung Park, Kiryong Ha, Benny D. Freeman, Christopher J. Ellison</i>	
<b>(640c) Polymer Silica Composite Nanofibers Via Sol Gel Electrospinning</b> .....	608
<i>Tahira Pirzada, Sara A. Arvidson, Carl D. Saquing, S. Sakhawat Shah, Saad A. Khan</i>	
<b>(640d) Graphene Oxide/Lipid Composite Material Towards a Multifunctional Drug Delivery Vehicle</b> .....	609
<i>Mohammad Shahadat Hussain Sarkar, Md. Alamin Miraz, Ashiqur Rahman, Yang Lu, Vu Phan, Clayton S Jeffryes, Evan K. Wujcik</i>	
<b>(640e) Localizing Graphene at the Interface of HDPE/PLA Polymer Blends</b> .....	610
<i>Sung Cik Mun, Min Jae Kim, Liangliang Gu, Monica Cobos, Christopher W. Macosko</i>	
<b>(640f) Cocontinuous Ternary Polymer Nanocomposites with Interfacial Graphene Nanoplatelets</b> .....	618
<i>Lian Bai, Radhika Sharma, Catherine Esnaashari, Christopher W. Macosko, Xiang Cheng</i>	
<b>(640g) Investigating Catalytic Properties of ReSe<sub>2</sub> Edge and Basal Plane for Hydrogen Evolution Reaction</b> .....	619
<i>Zhenjing Liu, Zhengtang Luo</i>	
<b>(647a) Peg Hydrogels with Tunable Biodegradation Rate for Sustained Delivery of Platelet-Rich Plasma for Treatment of Osteoarthritis</b> .....	626
<i>Era Jain, Saahil Sheth, Nobuaki Chinzei, Natasha Case, Linda Sandell, Scott A. Sell, Muhammad Rai, Silviya Petrova Zustiak</i>	
<b>(647b) Control over the Temporal Profile and Sequence of Anticancer Therapeutics from Magnetically Responsive Hydrogels</b> .....	627
<i>Tania Emi, Tanner Barnes, Emma Orton, Anne Reisch, Zachary Silveira, Miranda Mitchell, Celia Dunn, Anita E. Tolouei, Stephen Kennedy</i>	
<b>(647c) Electrospun Gelatin Nanofibers As Carrier for Controlled and Sustained Release of a Hydrophobic Drug</b> .....	628
<i>Anindita Laha, Chandra Sharma, Saptarshi Majumdar</i>	
<b>(647d) Engineering of Degradable Biopolymer Films Loaded with Imiquimod for Controlled Released in a Mucosal Environment</b> .....	629
<i>Lucas Garcia Camargo, Gabriela Souza Rezende, Stephany Di Carla Santos, Michelle Franz Montan Braga Leite, Renata Nishida Goto, Andreia Machado Leopoldino, Angela Maria Moraes</i>	
<b>(647e) Microparticles for the Delivery of Anti-Diabetic Drugs to the Adipose Tissue</b> .....	630
<i>Christopher Isely, Michael Hendley, Kendall Murphy, Prakasam Annamalai, Michael Gower</i>	
<b>(647f) Template Assisted Micro-Patterned Electrospun Nanofibrous Mat As a Potential Carrier for Controlled Drug Release</b> .....	631
<i>Manohar Kakunuri, Mudrika Khandelwal, Chandra S. Sharma, Stephen Eichhorn</i>	
<b>(647g) PÎ•G-Based Nanocomposite Hydrogels: Thermo-responsive Sol-Gel Transitions and Decomposition Rates Regulated By the LÎ•/GA Ratio of PLGA-PÎ•G-PLGA</b> .....	632
<i>Midori Kitagawa, Tomoki Maeda, Atsushi Hotta</i>	
<b>(648b) Electrospun Collagen Scaffold for Peripheral Nerve Regeneration</b> .....	633
<i>Carol Rivera Martinez, Janet Mendez, Jorge Almodovar</i>	
<b>(648c) 3D Printing of Nerve Guidance Channels for Peripheral Nerve Repair</b> .....	634
<i>Wei Wu</i>	

<b>(648d) Combined Physical and Biochemical Cues Direct the Growth of Inner Ear Neurites .....</b>	<b>635</b>
<i>Braden Leigh, Kristy Troung, Reid Bartholomew, Marlan Hansen, C. Allan Guymon</i>	
<b>(648e) Harnessing Multi-Functional Microbial Cells for Designing Sweat-Responsive Bio-Hybrid Wearables.....</b>	<b>636</b>
<i>Wen Wang, Lining Yao, Chin-Yi Cheng, Teng Zhang, Hiroshi Atsumi, Luda Wang, Guanyun Wang, Oksana Anilionyte, Helene Steiner, Jifei Ou, Kang Zhou, Chris Wawrousek, Katherine Petrecca, Angela M. Belcher, Rohit Karnik, Daniel I. C. Wang, Xuanhe Zhao, Hiroshi Ishii</i>	
<b>(648f) Development of Silk Protein Conjugates for Mucoadhesive Applications .....</b>	<b>637</b>
<i>Danielle L. Heichel, Kelly A. Burke</i>	
<b>(648g) Laser-Activated Sealants for Skin Tissue Repair .....</b>	<b>638</b>
<i>Russell Urie, Deepanjan Ghosh, Mitzi Thelakkaden, Chengchen Guo, Jeff Yarger, Jacquelyn Kilbourne, Kaushal Rege</i>	
<b>(648h) Layer-By-Layer Assembled Thin Film Biomaterials As Porous Biomolecular Delivery Systems .....</b>	<b>639</b>
<i>Adeline Gand, Mathilde Hindie, Michel Boissiere, Emmanuel Pauthe, Paul R. Van Tassel</i>	
<b>(680a) Molecular Simulations of the Influence of Interfaces on the Dynamics of Polymers .....</b>	<b>640</b>
<i>Robert A Riggelman</i>	
<b>(680b) Princess and the Pea Behavior in Polyelectrolyte Multilayers: Influence of the First Layer on Polyelectrolyte Multilayer Assembly and Properties.....</b>	<b>641</b>
<i>Xuejian Lyu, Amy M. Peterson</i>	
<b>(680c) Instability of Liquid Crystal Thin Film on Topographically Patterned Substrates.....</b>	<b>642</b>
<i>Palash Dhara, Rabibrata Mukherjee</i>	
<b>(680d) Electroless Deposition of Copper on Quaternized Chitosan Coatings for Antibacterial Application .....</b>	<b>643</b>
<i>Debirupa Mitra, En-Tang Kang, Ramanathan Kollengode, Matthew Cove, Koon Gee Neoh</i>	
<b>(680e) Patterning Buckles in Polymer/Metal Thin Films By Laser Irradiation .....</b>	<b>644</b>
<i>Kunal Mondal, Ying Liu, Michael D. Dickey, Jan Genzer</i>	
<b>(680f) High Performance Conducting Polymer Coatings for Corrosion Protection .....</b>	<b>645</b>
<i>Xinyu Zhang, Amit Nautiyal, Jonathan Cook</i>	
<b>(680g) Enhanced Wetting Stability of Initiated Chemical Vapor Deposited (iCVD) Polydivinylbenzene Thin Films By Thermal Annealing.....</b>	<b>646</b>
<i>Junjie Zhao, Minghui Wang, Karen K. Gleason</i>	
<b>(680h) Nanoscale Characterization of Water Penetration through Plasma Polymerized Coatings and Water at the Coating/Substrate Interface.....</b>	<b>647</b>
<i>Yang Zhou, Ali Dhinojwala, Mark Foster</i>	
<b>(680i) Surface Topology and Modulus Effects on Adhesion in Novel Polyorganosiloxane-Based Coatings .....</b>	<b>648</b>
<i>Ethan D. Smith, Stephen M. Martin, Vince Baranauskas</i>	
<b>(687a) Templated Synthesis of Polymer - Gold Nanocomposites with Pluronic Gels .....</b>	<b>649</b>
<i>Srikanth Nayak, Surya Mallapragada, Wenjie Wang, David Vaknin</i>	
<b>(687c) Predicting Surface Area in Green Synthesis of Sol-Gel Materials .....</b>	<b>650</b>
<i>Brian K. Peterson, Mobae Afeworki, David C. Calabro, Quanchang Li, Simon C. Weston</i>	
<b>(687d) Leveraging Nanoparticle Template Assembly and Interfacial Phenomenon for Multi-Scale Control over Polyimide-Derived Carbon Molecular Sieve Films .....</b>	<b>651</b>
<i>Megha Sharma, Mark A. Snyder</i>	
<b>(687f) Toward Rational Design of Hierarchical Beta Zeolites Via Cost-Effective Approaches .....</b>	<b>652</b>
<i>Ke Zhang, Sergio Fernandez, Michele L. Ostraat</i>	
<b>(687g) Nanoscale Control of Homoepitaxial Growth on a Two-Dimensional Zeolite .....</b>	<b>653</b>
<i>Meera Shete, Manjesh Kumar, Donghun Kim, Neel Rangnekar, Dandan Xu, Berna Topuz, Kumar Varoon Agrawal, Evguenia Karapetrova, Benjamin Stottrup, Shael Al-Thabaiti, Sulaiman N. Basahel, Narasimharao Katabathini, Jeffrey Rimer, Michael Tsapatsis</i>	
<b>(689a) Thermodynamics of Charging in Weak Polyelectrolytes.....</b>	<b>654</b>
<i>Jonathan K. Whitmer</i>	
<b>(689b) Thermodynamics and Kinetics of Ordered, Strongly Segregated Diblock Copolymers .....</b>	<b>655</b>
<i>Ronald M. Lewis III</i>	
<b>(689c) Effect of pH on the Interaction between Poly(vinyl alcohol) and Ice .....</b>	<b>656</b>
<i>Aaron A. Burke, Nathaniel A. Lynd</i>	
<b>(689d) Self Consistent Field Theory Study of Multivalent Cation Effect on Semiflexible End-Grafted Random Polyelectrolytes.....</b>	<b>657</b>
<i>Merina Jahan, Mark J. Uline</i>	
<b>(689e) The Sequence-Dependence of the Persistence Length of DNA .....</b>	<b>658</b>
<i>Hui-Min Chuang, Jeffrey G. Reifengerger, Han Cao, Kevin D. Dorfman</i>	

<b>(689f) Anomalous Hydrodynamic Radius of Polyethylene Glycol Molecules in Mixed Solvents Containing a Hydrotope</b> .....	659
<i>Xiong Zheng, Mikhail A. Anisimov, Jan V. Sengers, Mao-Gang He</i>	
<b>(689g) Energy Saturation: An Alternative Mechanism for the Glass Transition</b> .....	669
<i>Isaac C. Sanchez, Sean O'Keefe</i>	
<b>(689h) Molecular Dynamics Simulation of Polymerized Stockmayer Fluids: Effects of Chain Length and Connectivity on Saturated Dipoles Near Ions</b> .....	670
<i>Issei Nakamura, Lijun Liu</i>	
<b>(689i) Probing Polymer Blend Phase Diagrams Via Oligomer Molecular Simulations</b> .....	675
<i>Qile Chen, Shuyi Xie, Timothy P. Lodge, J. Ilja Siepmann</i>	
<b>(696a) Silica-Peg Gel Encapsulation Platform for Isolation of Dormant Cancer Cells</b> .....	676
<i>Julian Preciado, Hak Rae Lee, Emil Lou, Alptekin Aksan, Samira M. Azarin</i>	
<b>(696b) Biodegradable Nano-Film Coated Self-Floating Hollow Glass Microspheres for Rapid Cell Isolation and Recovery</b> .....	677
<i>Ziye Dong, Caroline Ahrens, Dan Yu, Zhenya Ding, Hyuntaek Lim, Wei Li</i>	
<b>(696c) Design of Electrohydrodynamic Sprayed Polyethylene Glycol Hydrogel Microspheres for Cell Encapsulation</b> .....	678
<i>Anisa Qayyum, Era Jain, Grant Kolar, Scott A. Sell, Silviya Petrova Zustiak</i>	
<b>(696d) Quantum Dot-Based Biomarkers of Neuroinflammation in the Developing Brain</b> .....	679
<i>Mengying Zhang, Binh Dang, Kate Hildahl, Brittany Bishop, Reyn Aoki, Nicole Thompson, Vincent C. Holmberg, Elizabeth Nance</i>	
<b>(696e) The Culprit of Gout: Triggering Factors and Formation of Monosodium Urate Monohydrate</b> .....	680
<i>Tzu-Hsuan Chen, Meng-Hsiu Chih, Hung-Lin Lee, Tu Lee</i>	
<b>(696g) Fabrication of Polyethylene Glycol-Based Templated Macroporous Hydrogels for Cell Encapsulation</b> .....	688
<i>Mozhdeh Imaninezhad, Grant Kolar, Silviya Petrova Zustiak</i>	
<b>(709a) Multicomponent Transport Models for Non-Electroneutral Solid Electrolytes</b> .....	689
<i>Charles W. Monroe</i>	
<b>(709b) Diffusion and Sorption Phenomena of Organic Vapor Penetrants in Unmodified and Ethylenediamine Vapor Phase Cross-Linked Matrimid Thin Films</b> .....	690
<i>John P. Stanford, Peter Pfromm, Mary Rezac</i>	
<b>(709c) Segmental Dynamics and Water Transport in Nafion-SiO<sub>2</sub> Hybrid Membranes</b> .....	691
<i>Apoorv Balwani, Antonio Faraone, Eric M. Davis</i>	
<b>(709d) Designing Core/Shell Metal Organic Framework/Polymer Films As Scalable Barrier Layers for Enhanced Protection on Photovoltaics</b> .....	692
<i>Fen Qiu, Zhuonan Song, Jeffrey Urban</i>	
<b>(709e) PEO-Based Semi-Interpenetrating Polymer Networks (S-IPNs) for CO<sub>2</sub>-Selective Membranes</b> .....	693
<i>Gregory Kline, Qinnan Zhang, Jennifer Weidman, Ruilan Guo</i>	
<b>(709f) An Experimental and Triple-Mode Sorption Modeling of Sorption and Diffusion in Polymers</b> .....	694
<i>Hom Sharma, Stephen Harley, Yunwei Sun, Elizabeth Glascoe</i>	
<b>(709g) In situ Monitoring of Emergent Transport in Polymer Membranes</b> .....	695
<i>Daniel J. Miller, Breanna Dobyms, Bryan S. Beckingham</i>	
<b>(709h) The Role of Chlorine Substituent in Gas Transport Properties of Polychlorotrifluoroethene (PCTFE)</b> .....	696
<i>Milad Yavari, Yoshi Okamoto, Haiqing Lin</i>	
<b>(709i) Thermodynamic Model for Predicting Swelling of Poly(N-isopropyl acrylamide) Hydrogels in Solvent Mixtures</b> .....	697
<i>Sheik Tanveer, Fazle Hussain, Chau-Chyun Chen</i>	
<b>(721a) Nanostructure-Driven Fatigue Resistance and Dynamic Recovery in Thermoplastic Elastomer Hydrogel Networks</b> .....	708
<i>Travis S. Bailey</i>	
<b>(721b) Interfacial Crystallization of Polyolefins: An Improved Outlook for Polymer Blends</b> .....	711
<i>Alex M. Jordan, Kyungtae Kim, Frank S. Bates, Shaffiq Jaffer, Olivier Lhost, Christopher W. Macosko</i>	
<b>(721c) Ultra-Stable Amorphous Teflon: Extreme Fictive Temperature Reduction As a Means to Probe Sub-Tg Dynamics</b> .....	712
<i>Gregory B. McKenna, Heedong Yoon, Yung P. Koh, Sindee L. Simon</i>	
<b>(721d) Influence of Structure and Dynamics in Matrix-Free Polymer-Grafted Nanocomposite Membranes</b> .....	713
<i>Eileen Buehning, Sanat K. Kumar, Christopher J. Durning, Connor Bilchak, Brian C. Benicewicz, Dimitris Vlassopoulos</i>	

<b>(721e) Role of Interfacial Adhesion in Rate-Dependent Deformation and Failure of Model Ring Opening Metathesis Polymer (ROMP) Filled Composites .....</b>	<b>714</b>
<i>Erich Bain, Daniel B. Knorr Jr., Joseph L. Lenhart</i>	
<b>(721f) Mechanically Ductile and Stiff, Triazole-Based Glassy Photopolymer Network.....</b>	<b>715</b>
<i>Han Byul Song, Austin Baranek, Christopher N. Bowman</i>	
<b>(721g) Controlled Topology Toughening Epoxy Via Incorporation of Partially Reacted Substructures .....</b>	<b>716</b>
<i>Jian Gao</i>	
<b>(721h) Thermoplastic Polydimethylsiloxane Realized By Hydrogen-Bond Networks through L-Phenylalanine Terminals.....</b>	<b>717</b>
<i>Shunsuke Tazawa, Atsushi Shimojima, Tomoki Maeda, Atsushi Hotta</i>	
<b>(721i) In vitro and silico Characterization of Grafted Hydrophobic Brush Membranes .....</b>	<b>718</b>
<i>John J. Keating, Mirco Sorci, Angelo Setaro, Patrick T. Underhill, Georges Belfort</i>	
<b>(725a) Direct Synthesis and Morphology Control of Metal Organic Framework Nanosheets.....</b>	<b>719</b>
<i>Feng Xue, Prashant Kumar, Wenqian Xu, Michael Tsapatsis</i>	
<b>(725b) Mixed-Linker MOF Synthesis and Remediation of Acid-Gas Degradation Using Linker-Exchange Techniques .....</b>	<b>720</b>
<i>Krishna Chandran Jayachandrababu, Souryadeep Bhattacharyya, David Sholl, Sankar Nair</i>	
<b>(725c) Rapid Microwave-Assisted Synthesis of Hybrid Zeolitic-Imidazolate Frameworks with Mixed Metals and Mixed Linkers .....</b>	<b>721</b>
<i>Febrian Hillman, John Zimmerman, Seung-Min Paek, Mohamad Hamid, Woo Taik Lim, Hae-Kwon Jeong</i>	
<b>(725d) Micro-, Meso-, and Macro-Scale Defects in Porous Organic Cages .....</b>	<b>722</b>
<i>Guanghui Zhu, Christopher W. Jones, Ryan P. Lively</i>	
<b>(725e) Computational Studies of the Enhanced Acidity of Defect MOF 808: The Effect of Activation Process .....</b>	<b>723</b>
<i>Carolina Ardila-Suarez, Saul Perez Beltran, Gustavo Ramirez-Caballero, Perla B. Balbuena</i>	
<b>(725f) Crystallization Process Development of Metal-Organic Frameworks By Linking Secondary Building Units, Lattice Nucleation and Luminescence: The Insight into Reproducibility .....</b>	<b>724</b>
<i>Tu Lee, Yun Hsuan Chang, Hung-Lin Lee</i>	
<b>(725g) Fast Mechano-Chemical Synthesis N-Doped UiO-66 with Dopamine to Enhance Chlorobenzene Competitive Adsorption Under Humid Air.....</b>	<b>725</b>
<i>Zhenxia Zhao, Peng Hu, Zhongxing Zhao</i>	
<b>(725h) High Yield Synthesis of ZIF-8 Nanoparticles Using Stoichiometric Reactants in a Jet-Mixing Reactor .....</b>	<b>726</b>
<i>Aamena Parulkar, Pinaki Ranadive, Nicholas Brunelli</i>	
<b>(726a) Polymer Semiflexibility Induces Non-Universal Phase Transitions in Block Copolymers.....</b>	<b>727</b>
<i>Shifan Mao, Quinn Macpherson, Andrew J Spakowitz</i>	
<b>(726b) A Strongly Coarse-Grained, Charge-Fluctuating Model for Polyelectrolytes .....</b>	<b>728</b>
<i>Nicholas Jackson, Marcel Langenberg, Marcus Muller, Juan J. De Pablo</i>	
<b>(726c) Development of New Coarse-Grained Water Models Using Particle Swarm Optimization .....</b>	<b>729</b>
<i>Karteek K. Bejagam, Samrendra Singh, Yaxin An, Carter Berry, Sanket A. Deshmukh</i>	
<b>(726e) Unified Polymer Erosion Model .....</b>	<b>730</b>
<i>Joel Coffel, Eric Nuxoll</i>	
<b>(726f) Development of a Fused-Sphere SAFT-y Mie Force Field for Polymers and Application to Poly(vinyl butyral) Adsorption to Silica .....</b>	<b>731</b>
<i>Christopher Walker, Erik E. Santiso, Jan Genzer</i>	
<b>(726g) Effects of Coarse-Graining on Simulations of Mechanical Properties of Polymers .....</b>	<b>732</b>
<i>Ting Ge, Mark Robbins</i>	
<b>(726h) New Computational Methods for Rapid Simulation of Hydrodynamic Interactions in Polymer Solutions .....</b>	<b>739</b>
<i>James Swan, Andrew Fiore</i>	
<b>(726i) Coarse-Grained Molecular Dynamics Simulations of PNIPAM Grafted Graphene Systems in an Aqueous Environment.....</b>	<b>740</b>
<i>Carter Berry, Karteek K. Bejagam, Sanket A. Deshmukh</i>	
<b>(735a) Gel Assemblies of Colloidal Nanocrystals .....</b>	<b>741</b>
<i>Camila Saez Cabezas, Beth A. Lindquist, Ryan B. Jadrich, Thomas M. Truskett, Delia J. Milliron</i>	
<b>(735b) Examining the Optical Effects of Chiral Carboxylic Acids Bound to the Surface of CdSe Nanoparticles .....</b>	<b>742</b>
<i>Mayank Puri, Vivian E. Ferry</i>	
<b>(735c) Radial Elemental Distribution Analysis of Spherical Core/Shell Nanocrystals with STEM/EDX .....</b>	<b>743</b>
<i>Jacob Held, Katharine I. Hunter, Uwe R. Kortshagen, K. Andre Mkhoyan</i>	



<b>(735d) Directional Carrier Transfer in Strongly Coupled Binary Nanocrystal Superlattice Films Formed By Assembly and in situ Ligand Exchange at a Liquid-Air Interface .....</b>	<b>744</b>
<i>Yaoting Wu, Siming Li, Natalie Gogotsi, Tianshuo Zhao, Blaise Fleury, Cherie R. Kagan, Christopher B. Murray, Jason B. Baxter</i>	
<b>(735e) The Effect of CdS Shell Thickness on the Complex Index of Refraction of CdSe/CdS Core/Shell Nanocrystal Films .....</b>	<b>745</b>
<i>Dana Dement, Mayank Puri, Vivian E. Ferry</i>	
<b>(735f) Engineering the Light-Matter Interactions of Ultrasmall CdSe Quantum Dots Via Modification of Surface Species for Light Harvesting Applications .....</b>	<b>746</b>
<i>Megan Webster, Kristi Pepa, Kevin Dominguez, Vinod Menon, Gustavo Lopez, Marco J. Castaldi, Ilona Kretzschmar</i>	
<b>(740a) Computational Prediction and Evolutionary Design of Polymer Glass-Formation Behavior .....</b>	<b>747</b>
<i>David S. Simmons, Jui-Hsiang Hung, Venkatesh Meenakshisundaram, Tarak Kumar Patra</i>	
<b>(740b) Domain Spacing and Phase Behavior of Salt-Doped Block Copolymers from Fluids Density Functional Theory .....</b>	<b>748</b>
<i>Jonathan R. Brown, Lisa M. Hall</i>	
<b>(740c) Atomistic Simulations of Lamellae-Forming PS-b-P2VP .....</b>	<b>749</b>
<i>Yamil J. Colon, Weiwei Chu, Juan J. De Pablo</i>	
<b>(740d) Rapid Conformational Fluctuations in a Model of Methylcellulose .....</b>	<b>750</b>
<i>Xiaolan Li, Frank S. Bates, Kevin D. Dorfman</i>	
<b>(740e) Multi-Phase Coarse-Grained Models of Rod-like Polymers from Iterative Boltzmann Inversion .....</b>	<b>751</b>
<i>Christian Nowak, Fernando Escobedo</i>	
<b>(740f) Coarse-Grained Model of Exciton Dynamics on Long-Chain Conjugated Polymer System .....</b>	<b>752</b>
<i>Elizabeth M. Y. Lee, William A. Tisdale, Adam P. Willard</i>	
<b>(740g) Molecular Simulation of Thermoplastic Polyurethanes Under Large Mechanical Deformation .....</b>	<b>753</b>
<i>Shuze Zhu, Gregory C. Rutledge</i>	
<b>(740h) Harnessing Virtual High-Throughput Screening and Machine Learning for the Discovery of Novel High Refractive Index Polymers .....</b>	<b>754</b>
<i>Johannes Hachmann</i>	
<b>(740i) Development of Reaction Ensemble Monte Carlo (REMC) Algorithms to Study the Kinetics of Polymerization .....</b>	<b>755</b>
<i>Inderdip Shere, Ateeque Malani</i>	
<b>(741a) Controlled Liquid-Liquid Phase Separation of Recombinant Oleosin .....</b>	<b>756</b>
<i>Ellen H. Reed, Daniel A. Hammer</i>	
<b>(741c) Evaluation of the Procedure to Obtain Chitosan Based Gels with Potential Use As Bone Adhesive on Clinical Settings .....</b>	<b>757</b>
<i>Jairo A Jimenez, Juanita Echeverri, Paula A Sarmiento, J. German Vargas, Juan Carlos Briceno Triana, Camila Castro, Juan Pablo Casas, Felipe Salcedo</i>	
<b>(741d) Deep Space Drug Shielding .....</b>	<b>760</b>
<i>Hannah Kim, Manosi Roy, Sutapa Barua</i>	
<b>(741e) Synthesis of Designer Lipids Using "Click" Chemistries .....</b>	<b>761</b>
<i>Danielle Konetski, Dawei Zhang, Austin Baranek, Tao Gong, Brady Worrell, Christopher N. Bowman</i>	
<b>(741f) Loading and Mobility of RNA in Porous Silica Nanoparticles for Delivery to Insects .....</b>	<b>762</b>
<i>Shanshan Zhou, Emily Nadeau, M. Arif Khan, Bruce Webb, Stephen E. Rankin, Barbara L. Knutson</i>	
<b>(741g) Engineering and Functionalizing Protein-Based Materials .....</b>	<b>763</b>
<i>Sarah Bondos</i>	
<b>(742a) Synthesis and Applications of Bio-Inspired Oligotea Peptidomimetics .....</b>	<b>764</b>
<i>Christopher A. Alabi</i>	
<b>(742b) A Polyester Based Photoluminescent Hydrogel As Extracellular Matrix Mimics .....</b>	<b>765</b>
<i>Xiaoyang Xu</i>	
<b>(742c) Alginate Nanoparticle Platform for Controlled Release of Biotherapeutics .....</b>	<b>766</b>
<i>Julia Vela Ramirez, Daniela Barrios Santos, Nicholas A. Peppas</i>	
<b>(742f) Complex Bone Regeneration Via Controlled Release of Simple Signaling Molecules .....</b>	<b>767</b>
<i>Soheila Aliakbariaghavimi, Brittany Allen, Jessica Stromsdorfer, Jake Kramer, Ram Rao Tata, Andrew Greenwald, Bret Ulery</i>	
<b>(742g) Biomimetic Growth of a Pathologic Biomineral in Hydrogels .....</b>	<b>768</b>
<i>Gopichand Mallam, Marina Tsianou</i>	
<b>(757a) The Influence of Intrinsic Framework Flexibility on Adsorption in Nanoporous Materials .....</b>	<b>769</b>
<i>Matthew Witman, Sanliang Ling, Sudi Jawahery, Peter Boyd, Maciej Haranczyk, Ben Slater, Berend Smit</i>	
<b>(757b) Towards a Generalized Understanding of Acid Gas Interactions with ZIF Materials .....</b>	<b>770</b>
<i>Souryadeep Bhattacharyya, Rebecca Han, David S. Sholl, Sankar Nair</i>	

<b>(757c) Heat-Treatment of Defective Uio-66 from Modulated Synthesis: Adsorption and Stability Studies.....</b>	771
<i>Yang Jiao, Yang Liu, Krista S. Walton, David S. Sholl</i>	
<b>(757d) Design of Stratified Hybrid Metal Organic Frameworks for Chemical Detection and Destruction.....</b>	772
<i>Jonathan Ruffley, Tianyi Luo, Isabella Goodenough, Melissandre Richard, Eric Borguet, Nathaniel L. Rosi, J. Karl Johnson</i>	
<b>(757e) Understanding Structure, Metal Distribution, and Water Adsorption in Mixed-Metal MOF-74.....</b>	773
<i>Joshua D. Howe, Cody R. Morelock, Yang Jiao, Karena W. Chapman, Krista S. Walton, David S. Sholl</i>	
<b>(757f) Extraction of Rare Earth Elements from Geothermal Brine Solution Using Magnetic Core Shell Microspheres.....</b>	774
<i>Praveen K. Thallapally, Nune Satish, Jian Liu, B. Peter McGrail</i>	
<b>(757g) Cycloaddition Reaction of Epoxides with CO<sub>2</sub> in a Copper Metal-Organic Framework: A Density-Functional Theory Study.....</b>	775
<i>Xu Li, Jianwen Jiang</i>	
<b>(758a) Nanostructured Materials for Separations Based on Reactive Block Polymers.....</b>	776
<i>Marc A. Hillmyer</i>	
<b>(758b) Block Copolymer Derived Nanostructured Surfaces: Templating Confined Surface Reactions.....</b>	777
<i>Katherine P. Barteau, Katharine W. Oleske, Ulrich Wiesner, Lara A. Estroff</i>	
<b>(758c) Nanostructure Formation on Collapse of Polyelectrolyte Brushes.....</b>	778
<i>Blair Kathryn Brettmann</i>	
<b>(758d) iCVD Deposition and Integration of Poly-(1H,1H,2H,2H-Perfluorodecylacrylate) (PPFDA) Under High Loading of TiO<sub>2</sub> Nanoparticles.....</b>	779
<i>Zhengtao Chen, Kenneth Lau</i>	
<b>(758e) Development of Resin-Containing Polymer Particles for Thermoset Powder Coatings.....</b>	780
<i>Guozhen Yang, Mengfei Huang, John Klier, Jessica D. Schiffman</i>	
<b>(758f) Roll-to-Roll Micromolding of UV Curable Thiol-Ene Based Coatings.....</b>	781
<i>Yuyang Du, Alon McCormick, Lorraine F. Francis</i>	
<b>(758g) Elastic Networks for Shape-Memory Contact Printing.....</b>	782
<i>Mitchell Anthamatten</i>	
<b>(758h) Dynamics of Electric Double Layer Formation and Dissipation in Polyethylene Oxide:LiClO<sub>4</sub> on Graphene Transistors.....</b>	783
<i>Susan Fullerton, Hua-Min Li, Ke Xu, Buchanan Bourdon, Hao Lu, Yu-Chuan Lin, Joshua Robinson, Alan Seabaugh</i>	
<b>(758i) Redox-Active Organometallic Polymers for Small Molecule Separations.....</b>	784
<i>Xiao Su, Timothy Jamison, T. Alan Hatton</i>	
<b>(765a) Disorder, Nonequilibrium Transport, and the Origin of Deep Traps in Quantum Dot Solids.....</b>	785
<i>William A. Tisdale</i>	
<b>(765b) On the Molecular Origin of Intra-Gap Emission from CuInSe<sub>2</sub>-XS<sub>x</sub> Quantum Dots.....</b>	786
<i>Addis Fuhr, Nikolay Makarov, Hunter McDaniel, Hyeong Jin Yun, Hongbo Li, Anastassia Alexandrova, Phillippe Sautet, Victor I. Klimov</i>	
<b>(765c) Accelerating Emission Dynamics in Perovskites Plasmonic Nanolasers.....</b>	787
<i>Sui Yang, Wei Bao, Xiaozhe Liu, Xiang Zhang</i>	
<b>(765d) Synthesis and Characterization of Plasmon-Resonant Hollow Gold Nanoshells.....</b>	788
<i>Joesph A. Zasadzinski, Jeongeun Shin</i>	
<b>(765e) Solution-Based Synthesis of Cesium Bismuth Halide Perovskite Nanocrystals for Optoelectronic Applications.....</b>	789
<i>Rainie D. Nelson, Atefe Hadi, Alex Verburg, Matthew G. Panthani</i>	
<b>(765f) Integrated Logic Gate Devices Fabricated Using Non-Toxic CuInSe<sub>2</sub> Quantum Dots.....</b>	790
<i>Hyeong Jin Yun, Jaehoon Lim, Jeongkyun Roh, Darren Chi Jin Neo, Matt Law, Jeffrey M. Pietryga, Victor I. Klimov</i>	
<b>(765g) Synthesis and Surface Functionalization of Group IV Quantum Dots.....</b>	791
<i>Yujie Wang, Michael Zembrzanski, Matthew G. Panthani</i>	
<b>(766a) Understanding Rate Dependent Mechanical Properties of Supramolecular Hydrogels through Real Time SAXS Measurements during Stretching.....</b>	792
<i>Bryan D. Vogt</i>	
<b>(766b) Microstructure and Mechano-Electrical Property of Ultra-Stretchable Iono-Elastomer Via Small Angle Scattering and Rheology.....</b>	793
<i>Ru Chen, Carlos R. Lopez-Barron, Norman J. Wagner</i>	
<b>(766c) Toughening Isotactic Polypropylene with Block Copolymer Micelles.....</b>	796
<i>Jun Xu, Micah J. Howard, Frank S. Bates</i>	
<b>(766d) The Importance of Crystalline Structure on the Tensile Properties of Uhmwpe.....</b>	797
<i>Nicolas J. Alvarez, Christopher Henry, Giuseppe Palmese</i>	

<b>(766e) Controlling Polymerization Induced Phase Separation (PIPS) Using the Nonlinear Optical Properties of Light</b> .....	798
<i>Ian Hosein, Saeid Biria</i>	
<b>(766f) Engineering Polymer Structure and Dispersity to Access Designer Materials with Exquisite Properties</b> .....	799
<i>Jimmy Lawrence, Eisuke Goto, Bernd Oschmann, Dongsu Kim, Jing Ming Ren, Craig J. Hawker</i>	
<b>(766g) Thermal Bridges for Phonon Transport through Short Polymer Chains in a Hydrogen Bonded Polymer Composite</b> .....	800
<i>Nitin Mehra, Liwen Mu, Jiahua Zhu</i>	
<b>(766h) The Effect of Pendant Alkyl Chain Length in Epoxy/Amine Thermosets Materiel Properties and Water Barrier Properties</b> .....	801
<i>John Vergara, Joshua Sadler, John La Scala, Santosh Kumar Yadav, Giuseppe Palmese</i>	
<b>(766i) Novel Chemistries for the Replacement of Methylenedianiline in Composites</b> .....	802
<i>Joseph F. Stanzione III, Owen M. Stecca, Alexander W. Bassett, Jayson D. Cosgrove, Kevin M. Schmalbach, Joshua M. Sadler, John J. La Scala</i>	
<b>(118a) Improvement of Thermal Conductivity for POSS Functionalized BN Fillers/Polyphenylene Sulfide Composites</b> .....	810
<i>Xutong Yang, Lin Tang, Yongqiang Guo, Junwei Gu</i>	
<b>(118i) Structural Composites with Multiple Functionalities</b> .....	811
<i>Kenan Song</i>	
<b>(118c) Fabrication of High-Dispersed Strawberry-like P(St-co-MAA)/SiO<sub>2</sub> Composite Microspheres and Their Applications in Mortar</b> .....	812
<i>Guanzhi Cheng, Huajian Li, Xinguo Zheng, Yongjian Xie, Jing Liu</i>	
<b>(118d) Hydrogen Bonded Thermal Highways Driving Heat Conduction in Polymer and Polymer Blends Films</b> .....	813
<i>Nitin Mehra, Jiahua Zhu</i>	
<b>(118e) Low-Temperature Synthesis of Mn-Based Mixed Metal Oxides with Novel Fluffy Structures As Efficient Catalysts for Fto Reaction</b> .....	814
<i>Yi-Fan Han, Bo Meng</i>	
<b>(118f) Structural Control of Polybenzoxazine/Epoxy Composites with Dual Crosslinking Network for Corrosion Protection</b> .....	815
<i>Changlu Zhou, Zhong Xin</i>	
<b>(118g) Multifunctional Epoxy Conductive Nanocomposites</b> .....	816
<i>Xiaojiang Xu, Hongbo Gu</i>	
<b>(118h) Nano-Structured Ceramic ALD Coatings to Stabilize SiC Against Reaction in High Temperature Steam</b> .....	817
<i>Amanda Hoskins, Aidan Coffey, Charles B. Musgrave, Alan W. Weimer</i>	
<b>(118j) Multi-Scale Metrology for Visualization and Characterization of Interphase Failure</b> .....	818
<i>Richard Sheridan, Jeremiah Woodcock, Jeffrey W. Gilman, Gale Holmes, Catherine Brinson, Vamshi Gudapati, Dave Hartman, Amol Vaidya</i>	
<b>(769a) Strategic Assemblies of Wood-Derived Building Blocks for the Sustainable Redesign of BPA-Based Polymers</b> .....	819
<i>Joseph F. Stanzione III, John J. La Scala</i>	
<b>(769b) Preparation and Characterization of Cardanol Based Vinyl Ester Resins As Cross-Linker Units</b> .....	832
<i>Emre Kinaci</i>	
<b>(769c) Ionic Liquids: Green Solvents for Dry Native Cellulose and Chitosan</b> .....	833
<i>Behzad Nazari, Nyalaliska Utomo, Sujyot Mony, Hyeonji Oh, Indira Saifuddin, Ralph H. Colby</i>	
<b>(769d) Environmentally Friendly Flame Retardants Based on Adhesive Catecholamine</b> .....	834
<i>Hanim Kim, Joon Hee Cho, Kadiravan Shanmuganathan, Amanda Jones, Sergei Nazarenko, Christopher J. Ellison</i>	
<b>(769e) Soybean Oil Based Thermoset Materials with High Biorenewable Content</b> .....	835
<i>Sung-Soo Kim, Dustin Janes, Kadiravan Shanmuganathan, Daniel Y. Chou, Christopher J. Ellison</i>	
<b>(769g) Self Assembly of Coil-Hyperbranched Poly(styrene-block-acrylated epoxidized soybean oil) Block Copolymers</b> .....	836
<i>Fang-Yi Lin, Austin D. Hohmann, Nacu Hernandez, Eric W. Cochran</i>	
<b>(769h) Physicochemical Properties of Polylactide/Delta-Valerolactone/Organosolv Lignin Atactic Terpolymers</b> .....	837
<i>Stephanie Harris, Ulrike Tschirner, Adam Gillespie, Madeleine Seeger</i>	
<b>(769i) Oil Field Chemicals from Macromolecular Renewable Resources: Date Pit As a Case Study for Drilling Fluid Additive</b> .....	838
<i>Jimoh K. Adewole, Musa O. Najimu</i>	

<b>(770a) Designing Synthetic Extracellular Matrices for the Creation of Controlled Culture Systems in the Study of Disease</b> .....	859
<i>April M. Kloxin</i>	
<b>(770b) The Influence of Matrix Stiffness on the Behavior of Brain Metastatic Breast Cancer Cells</b> .....	860
<i>Akshay Narkhede, Shreyas Rao</i>	
<b>(770c) The Combined Effect of Matrix Microenvironment and Hypoxia on the Activity of Glioblastoma Stemcells</b> .....	861
<i>Jee-Wei Emily Chen, Jann N. Sarkaria, Brendan A. Harley</i>	
<b>(770d) Glioblastoma/Astrocyte Co-Culture on Polyelectrolyte Multilayer Films: A Template for Studying the Role of Astrocytes in Glioblastoma Progression</b> .....	862
<i>Kimberly M Stanke, Christina Wilson, Erin Eickman, Oleh Khalimonchuk, Srivatsan Kidambi</i>	
<b>(770e) Three-Dimensional Tissues Using Human Pluripotent Stem Cell Spheroids As Biofabrication Building Blocks</b> .....	863
<i>Qiang Li, Haishuang Lin, Yuguo Lei</i>	
<b>(770f) Dynamic Culture of Trabecular Meshwork Cells in 3D Biomimetic Scaffolds</b> .....	880
<i>Matthew Osmond, Mina Pantcheva, Melissa Krebs</i>	
<b>(770g) Cellular Hitchhiking on Microparticles to Alleviate Skin Injury</b> .....	891
<i>Daniel Smith, Chase Herman, Sutapa Barua</i>	
<b>(771a) Sugar-Coating the Answers to Virus Binding: Glycocalyx-Mimetic Interfaces</b> .....	892
<i>Ramya Kumar, Domenic Kratzer, Kenneth Cheng, Irina Kopyeva, Joerg Lahann</i>	
<b>(771b) Glucose-Derived Cationic Block Poly(beta-peptides) Reverse Intrinsic Antibiotic Resistance in Gram-Negative Pathogens</b> .....	893
<i>Zhangyong Si, Hui Wen Lim, Damien Keogh, Moon Tay Yue Feng, Jo Thy Lachumy Subramanion, Yahua Chen, Guillermo C. Bazan, Everett Peter Greenberg, Yunn-Hwen Gan, Kevin Pethe, Mary B. Chan-Park</i>	
<b>(771c) Mechanism Study of Selective Killing of Cationic Peptidopolysaccharide Nanoparticles with in vitro and in vivo Efficacy Against Multi-Drug Resistant Bacteria</b> .....	894
<i>Mary Chan, Hou Zheng, Yogesh Vikhe</i>	
<b>(771d) Tether Supported Biomembranes with Phase Composition and Orientation Control for Biomaterial Ligand Displays and Membrane Protein Assays</b> .....	895
<i>William Houlihan, Yueming Li, Lane Gilchrist</i>	
<b>(771e) Understanding the Interaction of the Polysaccharide, Chitosan, with a Novel Cuticular Protein, CPR 27, Using Quartz Crystal Microbalance with Dissipation</b> .....	896
<i>Aishik Chakraborty, Ellie K. Onstott, Neal T. Dittmer, Michael R. Kanost, Stevin H. Gehrke, Prajnaparamita Dhar</i>	
<b>(771f) Probing Phase Transitions in Dynamic Biopolymer Complexation</b> .....	897
<i>Amanda B. Marciel, Handan Acar, Matthew V. Tirrell</i>	
<b>(771g) Photo-Induced Pinocytosis in Synthetic Liposomes</b> .....	898
<i>Danielle Konetski, Dawei Zhang, Christopher N. Bowman</i>	
<b>(771h) Protein Protection and Purification through Virus-like Particle Encapsulation: A Rapid 2-Step Cell-Free Protein Synthesis Approach</b> .....	899
<i>Bradley C. Bundy, Seung Ook Yang</i>	
<b>(775a) Measurement and Modeling of Carrier Dynamics in Photovoltaic Cztse</b> .....	900
<i>Siming Li, Michael L. Lloyd, Brian E. McCandless, Jason B. Baxter</i>	
<b>(775b) Impact of the Active Layer Morphology on Bimolecular Recombination Dynamics in Organic Solar Cells</b> .....	901
<i>Veaceslav Coropceanu, Jean-Luc Bredas, Shafiq Mehraeen</i>	
<b>(775c) Atomistic Origin of the Concentration Dependence of Si Dopant Mobility in III-V Semiconductor Alloys</b> .....	902
<i>Mardochee Reveil, Paulette Clancy</i>	
<b>(775d) Characterizing Defects in Photovoltaic Semiconductors with Optical Spectroscopy</b> .....	903
<i>Charles J. Hages, Thomas Unold</i>	
<b>(775e) CIGS Nanocrystal Solar Cells on Plastics and Paper</b> .....	904
<i>Vikas Reddy Voggu, Sam Morehead, Brian A. Korgel, Taylor B. Harvey</i>	
<b>(775f) Solution Processed Thin Film Photovoltaics Using Amine-Thiol Chemistry</b> .....	905
<i>Swapnil Dattatray Deshmukh, Xin Zhao, Ruihong Zhang, Caleb Miskin, David Rokke, Carol Handwerker, Rakesh Agrawal</i>	
<b>(775g) Photonic Mirrors for Enhanced Optical Transport in Luminescent Solar Concentrators</b> .....	906
<i>Ryan Connell, Mayank Puri, Vivian E. Ferry</i>	
<b>(775h) Dopant Mediated Assembly of Nanorods into Atomically Coupled 2D Sheets in Solution</b> .....	907
<i>Ajay Singh, Delia J. Milliron</i>	
<b>(777a) Tailored Polymers for Structural Application in Large-Scale Extrusion Systems</b> .....	908
<i>Blake Marshall</i>	

<b>(777b) Modeling Flow Phenomena in Fused Filament Fabrication Geometry .....</b>	<b>909</b>
<i>Eric L. Gilmer, Darren Miller, Jacob Fallon, Camden Chatham, Callie Zawaski, Allison M. Pekkanen, Timothy E. Long, Christopher B. Williams, Michael J. Bortner</i>	
<b>(777c) Influence of Processing on Additively Manufactured Mechanically Adaptive Cellulose Nanocrystal Polymer Composites.....</b>	<b>910</b>
<i>Jacob Fallon, Michael J. Bortner, Earl J. Foster, Cara Herwig, Ben Kolb</i>	
<b>(777d) 3D Printed Shape Memory Objects Based on Olefin Ionomer of Zinc-Neutralized Poly(ethylene-co-methacrylic acid) .....</b>	<b>911</b>
<i>Bryan D. Vogt</i>	
<b>(777e) Three-Dimensional Printing By Multiphase Silicone/Water Capillary Inks .....</b>	<b>912</b>
<i>Sangchul Roh, Dishit Parekh, Bhuvnesh Bharti, Simeon Stoyanov, Orlin D. Velev</i>	
<b>(777f) 3D Printing of Polymer-Bonded Magnets Using a Combination of Extrusion Direct Write and Stereolithography Methods.....</b>	<b>913</b>
<i>Alan Shen, Anson Ma, Sameh Dardona</i>	
<b>(777g) PDMS-Based Ink Development for 3D Printing Applications.....</b>	<b>914</b>
<i>Kwan-Soo Lee, Joseph H. Dumont, Andrew M. Schmalzer, Chihoon Park, Andrea Labouriau</i>	
<b>(777h) 3D Printed Active Microfluidic Elements for Portable Bioanalysis Assays .....</b>	<b>915</b>
<i>Duanduan Han, Victor M. Ugaz</i>	
<b>(777i) 3D Printed Polymer-Based Bio-Inspired Neural Systems.....</b>	<b>916</b>
<i>Blake Johnson</i>	
<b>Author Index</b>	