

Student Poster Sessions 2017

Core Programming Area at the 2017 AIChE Annual Meeting

Minneapolis, Minnesota, USA
29 October – 3 November 2017

ISBN: 978-1-5108-5813-8

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

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
Web: www.proceedings.com

TABLE OF CONTENTS

Infrared Spectra and the Coverage of Molecules on Surfaces of Solid Catalysts	1
<i>Trang Ngo, Prashant Deshlahra</i>	
Catalytic Activity, Stability, and Selectivity of Single Atom Pt on Nanoporous CuOx in the CO Oxidation and PROX Reactions	2
<i>Ahmad Sukkar, Jilei Liu, Maria Flytzani-Stephanopoulos</i>	
Zeolites Based Catalytic Processes for Furfuryl Alcohol Dehydration: Activity Test, Characterization and Deactivation of Catalysts	3
<i>Tzu-Chi Kao, Xiaojun Chan, Taejin Kim</i>	
Tuning High-Performance YSZ-Based Intermediate Temperature Solid Oxide Fuel Cells: Engineering SOFC Cathode Structures	4
<i>Zachary Kuczera, Juliana S. A. Carneiro, Eranda Nikolla</i>	
Operando Raman Spectroscopic Analysis of Silica Supported V-Nb Catalysts for Tuning Redox Properties	5
<i>William R. Adams</i>	
Synthesis and Characterization of Ordered Mesoporous Resin (OMR) for Pharmaceutical Synthesis	6
<i>Alexander Hesketh, Elizabeth Kuhlman, Philip Wall, Justin Ryan, Sabrina Rittweger, Amanda Christon, Alexis Lawless-Gattone, Bridget Black, Meagan Schweiger, Mahboobeh Nabavinia, Iman Noshadi</i>	
A Kinetic Investigation of Solvent Effects on Fischer Esterification for Biobased Chemical Production	7
<i>Griffin S. Drake, Thomas J. Schwartz</i>	
Catalytic Hydrodeoxygenation of Renewable Oils to Diesel-Range Hydrocarbons Using Ir-ReOx/SiO2 Catalyst	8
<i>Trent Simonetti, Sibao Liu</i>	
Effects of Interzeolite Transformation on the Aluminum Distribution in Zeolite Frameworks	9
<i>Rebecca Reitzel, Claire T. Nimlos, John R. Di Iorio, Rajamani Gounder</i>	
Continuous Flow Microreactor	10
<i>Philip Wall, Harrison Hawkins, Mahboubeh Nabavinia, Justin Ryan, Amanda Christon, Meagan Schweiger, Bridget Black, Iman Noshadi</i>	
Investigating the Kinetics of Polymerization Required for Bulk-Mediated Alignment of Liquid Crystal Elastomers	11
<i>Brian Simonich, Alyssa VanZanten, Matthew L. Smith</i>	
Effect of Particle Size on Activity of Nickel Based Tri-Reforming Catalysts	12
<i>Bradie S Crandall, Sunkyu Kim, Jochen Lauterbach, Erdem Sasmaz</i>	
Perovskites for Photocatalysis: Determination of Band Structure	13
<i>Matthew Kastelic, Huong T. Ngo, Venkat R. Bhethanabotla, John N. Kuhn, Babu Joseph</i>	
Valorization of Bioelectrochemically Derived Hydrogen Peroxide through Catalytic Sulfoxidation	14
<i>Eric Taw, James Griffin, Abha Gosavi, Nicholas E. Thornburg, Ihsan Pramanda, Hyung-Sool Lee, Kimberly Gray, Justin M. Notestein, George Wells</i>	
Investigation of Platinum Alloys for Light Alkane Dehydrogenation	15
<i>Rachel A. Yang, Robert B. Barat, Fuat E. Celik</i>	
Optimization of Spikey Gold Nanoparticles and 2D Gold Nanosheets Syntheses	16
<i>Semira Kehnemouyi, Adam Biacchi, Angela R. Hight Walker</i>	
Enhanced Photocatalysis of TiO2 with a Pt Co-Catalyst	17
<i>Trevor Fisher, Rajesh Shende</i>	
Electroless Plating of Copper on Silicon Wafer Via a Seedless, Environmentally Friendly Process	18
<i>Christian Nevo, Zhongwei Gao, Chih-hung Chang</i>	
The Effect of Mordant on Carmine Adsorption Thermodynamics and Kinetics	19
<i>Aleeza Ajmal</i>	
Understanding Intramolecular Cooperativity in Acid-Base Silica-Supported Organocatalysts	20
<i>Jingwei Xie, Nathan Ellebracht, Christopher W. Jones</i>	
Electrocatalytic Oxygen Reduction Reaction on Oxide and Nitride Systems	21
<i>Bradley Miller, Swetha Ramani, John Kuhn</i>	
Synthesis and Optimization of Oil Soluble FKM Seal Compatible Copper Passivators	22
<i>Kelsey FitzGerald, Jason Bell</i>	
Electrochemical Reduction of CO2 in a Biphasic Continuous-Flow Electrolysis Reactor	23
<i>Yung Wei Hsiao, Steven M Brown, Fikile Brushett</i>	

Mechanistic Studies of Thermal Decomposition of Nickel-Gallium Layered Double Hydroxides (Ni-Ga LDHs)	24
<i>Lorenzo Milani</i>	
Electrocatalytic Generation of Ozone on Nickel- and Antimony- Doped Tin Oxide Electrodes for Water Purification	25
<i>Cassandra Lees</i>	
Imogolite Nanotubes As a Catalyst for Biomass Conversion	26
<i>Nathaniel Olson, Nicholas Brunelli, Nitish Deshpande</i>	
Reductive Amination of Furfural and Hydrogenation of Furonitrile	27
<i>Harrison Landfield, Nicholas Gould, Brian Dinkelacker, Bingjun Xu</i>	
Modification of Metal Oxides with Extreme Points of Zero Charge By Non-Thermal RF Plasma	28
<i>Vincent Herrera, Raymond Sandoval, Corey A. Leclerc</i>	
Longer Wavelength Azo Dyes for Incorporation in Photomechanical Polymer Networks	29
<i>Sean R. Gitter, Connor H. Kuhlmann, Emily K. Hoffmeyer, Brandon C. Derstine, Matthew L. Smith, Jason G. Gillmore</i>	
Hydrothermal Liquefaction of Algae Grown on Dairy Wastewaters	30
<i>Cesar A. Martinez Bejarano, Meshack A Audu, Maung Thein Myint, Catherine E. Brewer, Umakanta Jena, Juchao Yan, David Allerano</i>	
Synthesis of Copper Oxide-Based Nanofibers Via Electrospinning and Their Utilization in the Removal of Sulfur Compounds from Gaseous Streams	31
<i>Richa Ghosh, Faisal H. Alshafei, Sara Azzam, Dante Simonetti</i>	
Ru-Pt/C Catalysts Prepared By Sea and ED Methods for Direct Methanol Fuel Cells	32
<i>Rember White, Bahareh Alsadat Tavakoli Mehrabadi, John R. Monnier, John R. Regalbutto, John Weidner</i>	
Replicating the Origin of Life on Earth: The Importance of Hydrothermal Microenvironments	33
<i>Yuncheng Yu</i>	
Energy Requirements of Thermolytic Solutes in Osmotically Driven Membrane Processes	34
<i>Julie A. Nguyen, Christopher J. Orme, Birendra Adhikari, Aaron D. Wilson</i>	
Taylor Series for Peng-Robinson Equilibrium Properties Using Similarity Variables	35
<i>Justin Richardson, Michael Misovich</i>	
Modeling and Control of Renewable Energy Sources with Energy Storage System for Smart Grid Application	36
<i>San Dinh</i>	
Use of Type I DES for Deep Desulfurization of Diesel: Insights from Molecular Dynamics Simulations	37
<i>Artur Urakpayev, Dhawal Shah, Dinara Gapeyenko</i>	
The Lifetime of Shell Anions: How Long Do Ionic Liquid Anions Remain in a Li+ Shell?	38
<i>Kyle Terracciano, Daniel J. Lacks</i>	
An Unbiased Classification Algorithm for Transverse Tubule Remodeling within Murine Heart Failure Models	39
<i>Dylan Colli, Bradley Stewart, Peter Kekenes-Huskey</i>	
Advanced Model Predictive Feedforward/Feedback Control of a Tablet Press	40
<i>Nicholas Townsend Haas</i>	
Modeling and Optimization of Ion Transport Membranes for Oxygen Separation from Air	41
<i>Allyson Brezler, Gaurav V. Mirlekar, Fernando V. Lima</i>	
Discrete Element Modeling of the Impact Breakage of a Wet Flexible Fiber Agglomerate	42
<i>Liliana Bello, Yu Guo, Kevin E. Buettner, Jennifer Sinclair Curtis</i>	
Design and Simulation of Pollution Control Units for Improving Sustainability	43
<i>Yacine Feliachi, Shuyun Li, Gerardo J. Ruiz-Mercado, Fernando V. Lima</i>	
High-Throughput Molecular Simulations into the Morphology of P3HT:PCBM Blends	44
<i>Paul Chery, Kyle Miller, Evan Miller, Eric Jankowski</i>	
Paneled and Painless: Improving Student Interest, Confidence, and Understanding through Comics	45
<i>Monica T. Keszler, Lucas J. Landherr</i>	
Design, Fabrication, and Testing of a 3D Printed Centrifugal Pump	46
<i>Paul Helgemo, Justin Greenly</i>	
Empirical Vapor Pressure Prediction from Cubic Equations of State Using Similarity Variables	47
<i>Ryan Holman, Michael Misovich</i>	
Raman Spectroscopy for Undergraduate Laboratories	48
<i>Alexander Osterbaan, Justin Shorb</i>	
Chemical Engineering Outreach Program with Food Applications and Avoiding Allergies	49
<i>Mackenzie Todd, Margot Vigeant</i>	
Student Athletes' Sleep, Trimp, and Drop Jump Patterns throughout an Athletic Season	50
<i>Emma Harris, Ryan C. Snyder, Jeremy A. Cook</i>	

Inquiry-Based Activities to Correct Common Misconceptions in Heat Transfer and Thermodynamics	51
<i>Daniel Vasquez, Brooke Bullek, Margot Vigeant</i>	
Effect of Solids Concentration on Cloud Height in a Stirred Tank	52
<i>Gregory VanOmmeren, Christopher O'Connell</i>	
Analyzing the Effects of Desktop Learning Modules (DLMs) on Student Understanding of the Bernoulli Equation and Mass and Energy Balances	53
<i>Kitana Kaiphanliam, Negar Beheshti Pour, Bernard J. Van Wie, David B. Thiessen</i>	
A 'cards Against Humanity'-Style Card Game for Increasing Engineering Students' Awareness of Ethical Issues in the Profession	54
<i>Landon Bassett, Daniel D. Burkey</i>	
Testing and Data Analysis of Meta-Material Rectifying Antennas	55
<i>Seth Boeke, Patrick J. Pinhero, Zachary Thacker</i>	
The James Webb Space Telescope: Contamination Control and Materials	56
<i>Elaine Stewart, Eve Wooldridge</i>	
A Pilot Study for Investigating Human Health Impacts of Biomass-Fired Domestic Cookstoves	57
<i>Sayaka Kochiyama, Zachary Saleeba, Robert H. Hurt</i>	
Sustainable Approach for Green Pesticide Production in Kenya from the Croton Megalocarpus Trees	58
<i>Shelby Browning, Jeffrey Seay</i>	
Technological and Productive Architecture for the Cocoa Sector- Tumaco Case	59
<i>Nadira Aziz</i>	
Polymorphism of Glutaric Acid Aerosols	62
<i>Hemanta Timsina, Phoebe Belser, Dr. Tim Raymond, Dabrina Dutcher</i>	
Sustainability Assessment and Optimization of a Pollution Reduction Process for Acetic Acid Manufacturing	63
<i>Selorme Agbleze, Shuyun Li, Gerardo J. Ruiz-Mercado, Fernando V. Lima</i>	
Concentration-Dependent Kinetics of Cvoc-Ammonium Sulfate Brown Carbon Chromophores	64
<i>Nahin Ferdousi</i>	
The Evaporation or Growth Rates of Dicarboxylic Acid Solution Droplets As a Function of Relative Humidity	65
<i>Jackson Kaspari</i>	
The Concept of Evaporation Ponds Fitted with Fresnel Lenses for Brine Disposal	66
<i>Rohit Baviskar</i>	
Henry's Constants of Persistent Organic Pollutants By a Group-Contribution Method Based on Scaled-Particle Theory	67
<i>Neil Razdan, David M. Koshy, John Prausnitz</i>	
Effects of Phenol and Chlorophenols on the Performance of a Continuous Flow Activated Sludge Bioreactor	68
<i>Azamat Rizuan, Aslan Tabyldiyev, Bexultan Abylkhani, Vassilis J. Inglezakis</i>	
Plasmonic Water Purification for Developing Countries	69
<i>Justin Hayes</i>	
Global Survey of Suspended Load Mineralogy and Heavy Metal Content in Rural Drinking Water Sources Using Point-of-Use Water Filter Kits	70
<i>Owen M. Donahoe, Jonas M. Peterson, Cleveland E. Tarp, Sarah A. Brokus, Randall D. Wade, Michael J. Pikaart, Aaron Best, Jonathan W. Peterson</i>	
Wastewater Contaminant Degradation By Persulfate Activation with Nzvi Composites	71
<i>Suzana Ivandic</i>	
Investigating Iodate Reduction By Microbial Communities from the Hanford Site	72
<i>Ayomikum Olarinoye, Patrick Ymele-leki, Tafadzwa Chigumira, Deondre Glover, Yaolin Fennell, Kimberly L. Jones</i>	
Adsorption Onto Pecan Shell Biochar for Removal of N-Nitrosodimethylamine from Water	73
<i>Sicilee Macklin</i>	
Nitrosodimethylamine Removal from Underground Water in NASA White Sands Testing Facility	74
<i>Gustavo Hernandez, Daniel Ellis, Paul K. Andersen, Catherine E. Brewer</i>	
Determination of a Surrogate for Contaminants in the in-Situ Degradation of 1,4-Dioxane in Groundwater By Rhodococcus Rhodochrous	75
<i>Gillian Williams</i>	
Development of Nutrient Rich Crystals from Wastewater for the Fortification of Compost	76
<i>Rachel Tenney</i>	
Effects of pH on Bentonite-Humic Acid Flocculation	77
<i>Patrick McCauley, Athena E. Metaxas, Nikolas A. Wilkinson, Cari S. Dutcher</i>	
Effect of Particle Diameter in the Adsorption Capacity of Banana Peel Activated Carbon	78
<i>Johan Sebastian Quintero Rueda</i>	

Engineering Struvite Precipitate Utilizing Ion Binding Peptides	79
<i>Caroline S. Gillette, Colin D. Sonnefeld, Lauren F. Greenlee, Julie N. Renner</i>	
Co-Occurring Nano-Particulate U(IV) and U(VI) Phases Reactivity in Abandoned Mine Wastes Under Oxidizing Conditions	80
<i>Chris Torres, Sumant Avasarala, Abdulmehdi Ali, Michael Spilde, Eric J. Peterson, Kateryna Artyushkova, Jose M. Cerrato</i>	
The Characterization of Particles in Makerspaces	81
<i>Anthony A Ramos, Dabrina Dutcher</i>	
Chemical Stability of High Aspect Ratio Nanoparticulate MoO₃ in Biological Contexts	82
<i>Eric Chao, Evan Gray, Robert Hurt</i>	
E-Waste to Z-Waste.....	83
<i>Yagya Gupta, Rahul Verma, Apoorv Garg, Aradhana Srivastava</i>	
Pathogen Removal in Moringa Oleifera Modified Sand Columns	84
<i>Ziyuhan (Ariel) Wang, Rose Marinaro</i>	
Coordinated Motility of Soil Protists in Micro-Structured Habitats: Evidence for Protist-Protist Communication and Implications for Sustainable Agriculture	85
<i>Paige Orlofsky, Grant M. Bouchillon, Leslie M. Shor</i>	
Assessing Herbicide and Fertilizer Drift between Conventional and Organic Farmland	86
<i>Colby Buehler, Kristina Wagstrom</i>	
Nanotoxicity Evaluation of Doped Silicon Nanocrystals	87
<i>Sam Merlus, Bo Zhi, Sadhana Mishra, Christy L. Haynes, Uwe R. Kortshagen</i>	
Synthesis and Physiochemical Characterization of Nanocomposites for Application in the Environmental Remediation of Polychlorinated Biphenyls	88
<i>Phillip I. Johnson, Angela M. Gutierrez, Thomas Dziubla, J. Zach Hilt</i>	
Imaging Breast Cancer Metastasis over Endothelium to Bone.....	89
<i>Lauren Paschall</i>	
Magnetic Nanoparticles for the Detection of Matrix Metalloproteinase-2 Activity in Tumor Models.....	90
<i>Kareem El-Kattan, Tareq Anani, Allan E. David</i>	
Optimization of ATAC-Seq Protocols for Adherent Cells	91
<i>Keshia Capers</i>	
The Viability of Lyophilized HeLa Cells.....	92
<i>Aubrey Hands, Thomas Boland</i>	
Fluorescent Biosensor Probes Derived from Operons for Visualizing Calcium Ion Neurotransmission	93
<i>Simol Shah, Adrienne Scheck</i>	
Targeting and Killing Melanoma Cancer Using Photoactivated Nanoparticles.....	94
<i>Olivia George, Andre Gesquiere</i>	
Impact of Superparamagnetic Iron-Oxide Nanoparticles and Magnetic Fields on Mixed-Species Oral Biofilm	95
<i>Jane Nguyen</i>	
Ammonium-Functionalized Carbon Nanotubes for Nucleic Acid Delivery in a Hypoxia-Induced Model of Acute Kidney Injury.....	96
<i>Michael Lange, Aleksandra M. Urbanska, Bryan Aristega Almeida, Sam Wong, David A. Scheinberg, Michael R. McDevitt</i>	
Effect of Curcumin on a-42 Interaction with and Disruption of Lipid Membrane	97
<i>Claire Nelmark</i>	
The Effects of Light Sources on Nutrient Production in the Growth Phase of Chlamydomonas Reinhardtii	98
<i>Austin Fehr, Tyler Johannes, Daniel W. Crunkleton</i>	
A Microfluidic Approach to Examine How the Hemodynamic Environment Alters Circulating Tumor Cell Phenotype	99
<i>Grant Landwehr, Andrew Kristof, Sharif M. Rahman, Jacob Pettigrew, Ursula L. Triantafillu, Yonghyun (John) Kim, Adam Melvin</i>	
Single Cell Analysis on the Effects of Fluid Shear Stress on Cancer Cell Deformability and Migration	100
<i>Andrew Kristof, Grant Landwehr, Joseph Balhoff, Jacob Pettigrew, Rachael Coates, Sharif Rahman, Ursula Triantafillu, Yonghyun (John) Kim, Adam Melvin</i>	
Using a Magnetic Field to Control Fiber Alignment in Electrospun Scaffolds for Tissue Engineering	101
<i>Alessandra Gualtieri, Julianne L. Holloway, Raymond Tindell</i>	
Microfluidics for Environmental Control and Quantitative Analysis of Mouse Stem Cell Aggregate Differentiation to Motor Neurons.....	102
<i>Amanda W. Schaefer, Emily L. Jackson-Holmes, Hang Lu</i>	
A Microfluidic Device to Characterize the Effect of Orthogonal Chemical Gradients on 3D Cancer Cell Migration.....	103
<i>Joshua M. Campbell, Sharif Rahman, Adam Melvin</i>	

Optimization of Sonication Conditions for Nanoparticle Samples	104
<i>Sachie Kakehi, Kathleen McEnnis, Joerg Lahann</i>	
Designing a Multipurpose Diagnostic Device Using Microbubbles and Microfluidics	105
<i>Daniela Salinas</i>	
Use of Time-Resolved Flow Cytometry to Detect Metabolic Shifts in Cancer Cells	106
<i>David Rodriguez, Sebastian Silva, Matthew Mena, Kevin Houston, Jessica P. Houston</i>	
Fabrication of Microfluidic Devices Utilizing Stereolithographic 3D Printing	107
<i>Harrison Ball, Paige LeValley, April M. Kloxin</i>	
The Application of Using 3-D Printed Colorimetric Paper Sensor for the Detection of Antioxidant Activity in Southern California Native Plants	108
<i>Viviane Niyomwungeri, Brian A. Silva, Samuel C. Barnett, Imagine I. Davis-Ward, Ying Hu, Mario Oyanader, Xueyan S. Zhao</i>	
A High Throughput Microfluidic Device to Screen Protein Binding Ligands	109
<i>Mohammad Omary</i>	
Lost in Translation: Mapping the Ribosomal Active Site	110
<i>Tasfia Azim, Anne d'Aquino, Michael C. Jewett</i>	
Mithramycin Revisited: Exploring the Mechanism of Toxicity in Failure of a Phase I Clinical Trial	111
<i>Jacob Lissoos, Emad Darvishi, Girma Woldemichael</i>	
Immunogenic Lipid Encapsulated Mesoporous Silica Nanoparticles for Ovarian Cancer Immunotherapy	112
<i>Karen Sanchez, C. Jeffrey Brinker, Rita E. Serda</i>	
Enhancing Ethanol Production with RNA-Engineering of <i>Zymomonas Mobilis</i>	113
<i>Bobi Simonsen, Katie Haning, Seung Hee Cho, Lydia M. Contreras</i>	
Biosynthesis of a Metallophore in Actinobacteria	114
<i>Brianna Lax, Nick Harris, Wenjun Zhang</i>	
Quantitative PCR Analysis of Antibiotic Resistance Mechanisms for Design Optimization of Bacteriocin Antibiotic Scaffolds	115
<i>Adam Carr, Francisco Fields, Shaun Lee</i>	
Assessment of Neonatal Platelet Dense Granule Trafficking Downstream of Protease-Activated Receptors and P2Y1/ P2Y12	116
<i>Kendra R. Jones, Anh T. P. Ngo, Annachiara Mitrugno, Anne D. Rocheleau, Sandra M. Baker-Groberg, Joseph E. Aslan, Stewart Worthington, Alysia Cox, Susan Lattimore, Michael Recht, Kristina M. Haley, Owen J.T. McCarty</i>	
WT1 Mutations Prevent Normal Hematopoiesis in Acute Myeloid Leukemia	117
<i>Anna Garcia, Cara Rabik, Patrick Brown</i>	
The Lipid Phase Preference of the Adenosine A2a Receptor Depends on Its Ligand Binding State	118
<i>Jacob Deyell</i>	
Validation of a Galectin-8 Reporter As a Measure of Nanocarrier Endosomal Escape and Biologic Drug Intracellular Bioavailability	119
<i>Somtchukwu Dimobi, Kameron Kilchrist, Thomas Werfel, Meredith Jackson, Eric Dailing, Craig L. Duwall</i>	
Expansion and Optimization of DIVA DNA Sequence Validation Services	120
<i>Annabel Large, Nurgul Kaplan, Jennifer Chiniqy, Garima Goyal, Nathan J Hillson</i>	
Engineered Biomaterials Enable Cell Replacement Therapy to Restore Motor Function in Parkinson's Disease Model Rats	121
<i>Gokul N. Ramadoss, Maroof M. Adil, Antara T. Rao, Nicole E. Chernavsky, David V. Schaffer</i>	
Protein Engineered Triblock Polymers Comprised of Two Sads for Hydrogel Fabrication	122
<i>Nicole Schnabel, Jin K. Montclare</i>	
Tuning Gel Stiffness with Surface Chemistry to Study Cancer Cell Behavior	123
<i>Shawn Van Bruggen, Shalini Unnikandam Veetil, Ian Schneider</i>	
Towards the Development of an in Vitro 3D Co-Culture Cancer Model for the Design of Dendrimer-Anti-Cancer Drug Conjugates Â	124
<i>Justin Moore</i>	
Femtosecond Laser Patterning of Cell Scaffold Materials for 3D Vascularization Modelling	125
<i>Sabrina McCarthy</i>	
Synthesis of Temperature Responsive Core-Shell Magnetic Nanoparticles Via Atom Transfer Radical Polymerization	126
<i>Rachel Boone, Shuo Tang, Thomas D. Dziubla, J. Zach Hilt</i>	
Exploration of a Modular Microcapsule Scaffold System for Cartilage Tissue Engineering	127
<i>Patrick Erickson, Kevin B. Miles, Howard W. T. Matthew</i>	
Functionalized Gold Nanoparticles As Novel Alzheimer's Therapeutics	128
<i>Jacob Baltzgar, Nicholas P. van der Munnik, Kathleen Mingle, Jochen Lauterbach, Mark J. Uline, Melissa A. Moss</i>	

New Amphiphilic Polyanhydride Copolymers for Vaccine Delivery	129
<i>Akash Mitra, Logan Morton, Sean Kelly, Balaji Narasimhan</i>	
Gel Encapsulation of Mel28 Cells Using DEX/E3 Water-Water System	130
<i>Mariah Gallegos</i>	
Formulation of Novel Dry Powder Antibacterial Aerosols Using Central Composite Design of Experiments	131
<i>Ojas Pradhan, Benjamin King, Sachin Gharse, Jennifer Fiegel</i>	
Rational Design of Genetically Engineered, Gold and Cell-Binding Polypeptides for Fabricating Thermoresponsive Cell Culture Substrates	132
<i>Michael Stager</i>	
Analyzing Chemical Compound Modulators of the Vibrio Cholerae PTS and Biofilm Formation	133
<i>Mahtab Waseem, Patrick Ymele-leki</i>	
Designing Size-Controllable Bicelles through Addition of Polyethylene Glycol Conjugated Lipid and Cholesterol	134
<i>Carmi Mandelkern, Yuting Liu, Mu-Ping Nieh</i>	
Designing Next Generation Polyanhydride Copolymers for Nanoparticle-Based Vaccines	135
<i>Logan Morton, Sean Kelly, Balaji Narasimhan</i>	
Chitosan Hydrogels As an Alternative Injectable Treatment for Degenerative Bone Disorders	136
<i>Trent Faulkner</i>	
A Stimulus-Responsive, in Situ Forming, Nanoparticle-Laden Hydrogel for Ocular Drug Delivery	137
<i>Syed Haider Kamal, Maryam Kabiri, Sazzad Hossain, Vikramaditya Yadav</i>	
Dynamic Ex Vivo Model of Lung Micromechanics	138
<i>Jessica Anderson, Alexis Rockward, David Heidery, Chris Richards, Christine Trinkle</i>	
Assessing Cytocompatibility of Novel High Ductility Magnesium Alloys	139
<i>Fathima Shabnam, Jingyao Wu, Abhijit Roy, Prashant Kumta</i>	
Molecular Dynamics Simulations of a Laminin and Elastin-Based Triblock Fusion Polypeptide	140
<i>Maryam Ansari, James Tang, Charles McAnany, Cameron Mura, Kyle Lampe</i>	
Bissap in Cosmetics	141
<i>April Howard</i>	
Elucidating the Metabolism of Sulfolobus Solfataricus Using 13C Metabolic Flux Analysis	142
<i>Robert Cipolla, Maciek Antoniewicz</i>	
Metabolic Engineering of S. Cerevisiae for the Production of Propane	143
<i>Celeste Marsan</i>	
Modulating the Heat Shock Response in E. coli to Regulate Membrane Protein Expression	144
<i>Julia N. Boese, Sue Han, Brent L. Nannenga</i>	
Heterologous Reconstitution of the Quorum Sensing System of Clostridium Difficile in Non-Pathogenic Hosts	145
<i>James Lichty, Ashley Iannuzzelli, Thomas J. Mansell</i>	
Understanding Preferential Consumption of Aromatic Compounds in Acinetobacter Baylyi ADP1	146
<i>Stephen Lillington, William Bothfeld, Keith E.J. Tyo</i>	
Essential Oils and the Ability to Inhibit Biofilm Formation of Pseudomonas Aeruginosa	147
<i>Thu Kim</i>	
Quantification of Antibody Specificity Using Yeast Surface Display	148
<i>Daniel J. Wackelin, Shiyao Wang, Jacob Chicano, Tori J. Danis, Kayla Sagan, Yongku Cho</i>	
The Involvement of CaBP1 in Hippocampus-Dependent Spatial Learning and Memory	149
<i>Kevin Tobin, Tian Yang, Jordan Breffle, Jason Hardie, Amy Lee</i>	
Investigation of Novel Cellulose-Binding Pirin Proteins in Caldicellulosiruptor Species	150
<i>William S. Hart, Laura L. Lee, Robert M. Kelly</i>	
Quantification of Phospholipid Vesicle Degradation Kinetics Catalyzed By a Model Phospholipase	151
<i>Veronica Villanueva, Pin Zhang, Ying Liu</i>	
Thiol Modified Fe@SiO₂ As an Effective Recycling Magnetic Platform for Mesp	152
<i>Zakary Ford, Tun Yun Hsueh, Ruben M. Ceballos, Lauren F. Greenlee</i>	
Uncovering the Effects of Oxidative RNA Modifications on the Formation of Protein-RNA Complexes	153
<i>Poonam Reena Bhikha, Juan Camilo Gonzalez, Lydia M. Contreras</i>	
Light-Driven Nitrogen Fixation Via a Mediated CdS Nitrogenase System	154
<i>Sean Engels, Alexander Harris, Jennifer Cha</i>	
Probing H3K9me3 Using Engineered Recombinant Protein Probes	155
<i>Ana Carneiro, Oscar F. Sanchez, Chongli Yuan</i>	
Development of a Peptide Mass Fingerprinting Method for Green Fluorescent Protein	156
<i>Elizabeth Weaver</i>	

Antibody Purification Via Affinity Membrane Chromatography Utilizing Nucleotide Binding Site Targeting	157
<i>Michael Canonico, Nur Mustafaoglu, Franklin Mejia, Basar Bilgicer</i>	
Steps Toward Heterologous Biosynthesis of Coenzyme M	158
<i>Marjorie Buss, Jason King, Gregory Stephanopoulos</i>	
TIM Protein Binding Enhancement with Increased Fluidity of Membranes	159
<i>Renee Scarpaci, Daniel Kerr, Zhiliang Gong, Ka Yee Lee</i>	
Structural and Energetic Analysis of Disulfide Bonds in the Protein Data Bank	160
<i>Theodore Fobe, Demian Riccardi</i>	
Efficient CHO Platform Development for Anti-HER2 Monoclonal Antibody Production	161
<i>Brody DeSilva, Ningning Xu, Jianfa Ou, X. Margaret Liu</i>	
Mass Transfer Effects of Particle Size on Brewing Espresso	162
<i>Lauren Stork, Sichen Zhong, David Henthorn</i>	
Chameleon Molecules: Imidazole Functionalized Poly(3-hexylthiophene) (P3HT) Properties and Integration in Alginate Hydrogels	163
<i>Dylan Brown, Jianzhong Yang, Andrea Sheberl, Peter Van Oostrom, Erik Reimhult, David G. Whitten</i>	
Heat and Mass Trends in Rebuildable Drip Atomizer Electronic Cigarettes	164
<i>Phoebe Belser</i>	
Characterizing a Peptide Therapeutic Derived from the Cholesterol Recognition Amino Acid Consensus (CRAC) Motif of a Bacterial Toxin	165
<i>Michael DiMartino, Evan Koufos, Angela C. Brown</i>	
Drug Release of paclitaxel from Ace-DEX Particles: An Experimental and Mathematical Model	166
<i>Rebeca Thweatt, Matthew Gallovic, John Diep, Gauri Rao, Kristy M. Ainslie</i>	
Sorbitol: An Additive with Different Applications	167
<i>German Gonzalez</i>	
Synthesis and Combustion Analysis of Biofuels from Waste Dates	168
<i>Mostafa Elabyouki</i>	
Surfactant Interaction with Ulcerative Colitis	169
<i>Martin Asama, Alex Hall, Yijun Qi, Branden Moreau, Heidi Walthier, Qun Wang</i>	
Nanosuspensions and Solutions for Preparation of Nanocomposites and Amorphous Solid Dispersions: Comparative Assessment of Drug Release	170
<i>Aron Gyorgypal, Rahman Mahburur, Ecevit Bilgili</i>	
Assessment of Experimental Solubility Determination Methods for Cooling Crystallization Process Design of Carbamazepine in Ethanol	171
<i>Wei-Lee Wu</i>	
Characterization of Pilot Scale Single-Use Bioreactors	172
<i>Michael Doane, Amy Sevigny, Daniel Eckler, Michael O'Connor, Joseph McLaughlin, Larry Determan</i>	
Utilizing Michael Addition Chemistry for the Synthesis of Drug Eluting Gauzes for Oral Wound Applications	173
<i>Hannah Dvorak, Carolyn T. Jordan, James Z. Hilt, Thomas D. Dziubla</i>	
Single Use Bioreactor Equipment: Justification and Sustainability?	174
<i>Jordan Harrison</i>	
Application of Computational Fluid Dynamics (CFD) in Biotransportation of Complex Fluid in the Human System	175
<i>Liem Thai</i>	
Development of a Biological Seed Treatment for Bacterial Diseases	176
<i>Jamie Pryhuber, Chad Kimmelshue, Rebecca Cademartiri</i>	
Directing the Self-Assembly of Multiple DNA Origami Nanostructures in a Single Reaction	177
<i>Vasiliki Kolliopoulos, Carlos E. Castro, Joshua Johnson</i>	
Towards Modeling of Methane Recycling Lake Washington Microbial Community	178
<i>Shardhat Daggumati, Tony Le, Rajib Saha</i>	
Design and Characteristics of Biodegradable and Implantable Batteries	179
<i>Leah Filardi, Alexis Lawless-Gattone, Harrison Hawkins, Vaishali Krishnadoss, Ethan Ellis, Andy Kapetanakis, John Pletscher, Elizabeth Gutierrez, Connor Gavin, Iman Noshadi</i>	
Migration of DNA Due to a Combination of Parallel Pressure Gradient and External Electric Field	180
<i>Shujun He, Ryan J. Montes, Dmitry I. Kopelevich, Jason E. Butler</i>	
Atmospheric Pressure Raman Investigation of Binary Clathrate Hydrates in Their Role in New Energy Applications	181
<i>Rileigh Casebolt</i>	
The Effects of Mesitylene on the Cold Flow Properties of Model Crude Oils	182
<i>Ugochukwu Okeibunor, Michael Senra</i>	

Design of a Novel Electrochemical Membrane Reactor for Hydrogen Production Via the Sulfur-Ammonia Water-Splitting Cycle	185
<i>Eduardo Herrera-Peraza</i>	
Development of Nanofluids Based on Synergistic Effect of MgO Nanoparticles and a Quaternary Amine (CTAB) for the Inhibition of Formation Damage Caused By Fines Migration.....	186
<i>Camilo A. Franco, Farid B Cortes</i>	
Impact of Coal Quality on Global Pollution and Sustainable Technologies for Reducing Its Extent.....	187
<i>Sabrina Shawreen Alam, Md Golam Jakaria</i>	
Kinetic Modeling for Cellulosic Butanol Production Based on Multi-Omics Analysis.....	188
<i>Brody DeSilva, Jianfa Ou, Patrick Ernst, X. Margaret Liu</i>	
Co-Pyrolysis of Potato Peels and Polystyrene : A Novel Technique to Recover the Upgraded and Valuable Bio Oil.....	189
<i>Prakhar Doorwar, Hiralal Pramanik</i>	
Air Oxidation Kinetics of Commercial-Grade Iron Powder As an Oxygen Carrier for Chemical Looping Methane Reforming.....	190
<i>Zezhong Li, Jun Young Kim, Naoko Ellis, John R. Grace, Jim C. Lim</i>	
Novel Extraction of Microalgae for Biofuel and Valuable Chemical Production.....	191
<i>William Gray, Mahboobeh Nabavinia, Justin Widener, Alexandra Divito, Caleb Hill, Jodael Petit-Homme, Kauser Jahan, Mariano J. Savelski, Iman Noshadi</i>	
Thermal and Thermodynamic Properties of Ionic Liquids and Molten Salts with High Thermal Stability.....	192
<i>Benjamin Siu, Kevin N. West, James H. Davis Jr., Richard A. O'Brien, Cody G. Cassity, Alexander Badini</i>	
Plant Design and Production of Fuel from Plastic Waste.....	193
<i>Alexis A, Ebenezer Blay</i>	
Economics-Informed Discovery of Solar Energy Conversion Systems	194
<i>Adam Weis, Syed Mubeen, Alan Rassoolkhani, Wei Cheng</i>	
Selective Oligomerization of Ethylene By Nitrogen Bridged Diphosphine Nickel(II) Complexes	195
<i>Anubhav Mishra, Sivaramakrishna Akella, Lenin Kumar V, Varun Kaushal</i>	
The Possibility of Using Metal-Based Ionic Liquids for Desulfurization of Diesel Fuel	196
<i>Qistina Mohamed, Kiki Adi Kurnia</i>	
A New Process for Catalytic Fractionation of Organo-Solv Lignin to Biofuels.....	197
<i>Joseph A. Molle, Jonathon A. Waterman</i>	
The Production of Biodiesel in Carbon Dioxide.....	198
<i>Junwei Xiang, Lindsay Soh</i>	
Aqueous Phase of Biomass Pyrolysis Oil As a Raw Material for Polymer Synthesis.....	199
<i>Katrina Avery</i>	
Thin-Film Photo-Bioreactor: Construction and Characterization.....	200
<i>Madeleine Ogren</i>	
Electrospun Nanofiber Fuel Cell Cathodes	201
<i>Brian Doney, John Slack, Peter N. Pintauro</i>	
Incorporation of Plasmonic Silver Coated Gold Nanocubes into Photosystem I Films for Photocurrent Enhancement.....	202
<i>Marie Armbruster, Maxwell Robinson, David Cliffl, G. Kane Jennings</i>	
Modeling Hydrogen Storage System with Application in Public Transportation in Mobile, AL	203
<i>Phiwat Klomkaew, Sean Walker</i>	
Anion Conducting Ionomers for Electrochemical Devices.....	204
<i>Yunbum Kim, Garrett Huang, John Ahlfield, Lisha Liu, Paul Kohl</i>	
Increased Structural Integrity of Aqueous Processed Thick Electrodes for Lithium Ion Batteries	205
<i>Andrew Hunt, Kelsey Cavallaro, Zhijia Du</i>	
Hydrothermal Liquefaction of Chlorella Kessleri: Effects of Algal Growth Stage on Biocrude Production and Characterization.....	206
<i>Joseph Hadel, Mark LaFollette, Shawn Benson, Anthm Grey, Robert Hable, Sirwan Alimoradi, Susan Williams, Belinda S.M. Sturm</i>	
Using a Rotating Ring Disk Electrode to Explore the Effects of Manganese on Solid Electrolyte Interphase.....	207
<i>Ibrahim Al-Musawi, Oliver Harris, Maureen H. Tang</i>	
An Investigation of a Mass Flow Rate Method for Evaluating the Filterability of Hydraulic Fluids.....	208
<i>Tahseen Tabassum</i>	
Cost-Effective Polysulfide and Polyiodide Redox Flow Battery for Large-Scale Energy Storage.....	209
<i>Jesse Hinricher, Liang Su, Andres F. Badel, Changsu Cao, Fikile Brushett</i>	
High Performance Nanofiber Electrodes for Li-Ion Batteries Using Particle Polymer Electrospinning	210
<i>Emily C. McRen, Ethan C. Self, R. Wycisk, Peter N. Pintauro</i>	

Ion Exchange Membranes for Vanadium Redox Flow Batteries	211
<i>Catherine Weiss, Gabriel A. Goenaga, Christopher A. Neal, Samantha Medina, Nelly Cantillo, Thomas Zawodzinski Jr.</i>	
Non-Uniform Aging of Commercial NMC/Graphite Lithium-Ion Batteries	212
<i>Abdulrahim Ayoub</i>	
Autogenic Synthesis of High Rate, High Energy Carbon-Sulfur Cathodes for Rechargeable Lithium Sulfur Batteries	213
<i>Neal A. Cardoza, Arthur D. Dysart, Vilas G. Pol</i>	
Towards Advanced Porous Carbon Electrodes for Redox Flow Batteries	214
<i>Alexandra Oliveira, Antoni Forner-Cuenca, Fikile Brushett</i>	
Organic Phase Change Cooled Photovoltaic Panels	215
<i>Jordan Weaver</i>	
Improving Protein-Polymer Block Copolymer Self-Assembly By Optimizing Depletion Force Interactions	216
<i>Amy Wang, Aaron Huang, Bradley D. Olsen</i>	
Reinforcement of Magnesium Oxychloride Cement Composites Using Short Carbon and Aramid Fibers	217
<i>Hansen Mou, Roque Gochez, David Nasol, Grant Macpherson, Jim Wambaugh, Christopher L. Kitchens</i>	
Preparation and Characterization of Bio-Based Polyesters Derived from Xylochemicals	218
<i>Ian Dunn, Kevin Hagan, Jord Yniguez, Silvio Curia, Joseph F. Stanzione III</i>	
Adhesive-Free, Bonded Assembly of Epoxy Composite Structures Using Stoichiometric Offset Resins	219
<i>Dean Rufeisen, Frank Palmieri, Scott Lopez, Brendan Ehrenstrom</i>	
Using Monomer Chemistry to Predict If Dose Rate Effects Will Occur during EB-Polymerization	220
<i>Kyle McCarthy</i>	
Surface Control: High-x Block Copolymers for Microelectronics	221
<i>Erin Maines, Natsuko Ito, C. Grant Willson</i>	
Recycling of Benzoxazine-Based Carbon Fiber Reinforced Polymers Via Catalytic Oxidation	222
<i>Erynn Naccarelli, Jonathan Lo, Travis Williams, Steven Nutt</i>	
Use of Bioadvantaged Materials As Replacements of Petroleum Based Materials	223
<i>Joshua Potvin, Eric W. Cochran, Nacu Hernandez</i>	
Synthesis of Fe/C Composite Materials from Spent Coffee Grinds and Ferric Ammonium Citrate	224
<i>Rosanna Granata, Yanbin Cui, John D. Atkinson</i>	
Novel Solid-State Processing of Polymer/Carbon Nanotube Composites for Effective Removal of Contaminants from Water	225
<i>Sarah Stroup, Katsuyuki Wakabayashi</i>	
Mechanical Properties of Dual-Electrospun Polymeric Composites	226
<i>Kaitlyn Whipple, Matthew Ali, Patrick Mather</i>	
Challenging the Autoinjector: Investigating Mechanical Degradation of High-Molecular-Weight Polymers in a Contraction Flow	227
<i>Benjamin Appleby, Zachary Wallace, Travis W. Walker</i>	
Development of Model Elastomeric Photomechanical Systems and Their Characterization	228
<i>Marcus Brinks, Britta Johnson, Matthew L. Smith</i>	
Characterization of UV-Cured Polymers Containing Modified Soybean Oil for Adhesion Applications	229
<i>Anna Gould</i>	
Curing Epoxy with a Variety of Hardeners: Reaction Kinetics and Mechanical Characteristics	230
<i>Margaret House, John McCoy, Eleanor House, Stephan Comeau, Catherine House, Jamie Kropka</i>	
Characteristics of Adhesion in 3D Printed Composites	231
<i>Conor G. Harris, Travis W. Walker, Wille E. "Skip" Rochefort</i>	
Impact of Concentration and Temperature on the Crosslinking of Butyl Rubber Using Triethylenediamine	232
<i>Mara Kuenen, Yu Sun, Li Jia</i>	
Glass Transition Temperature Broadening of Styrene/n-Butyl Acrylate Gradient Copolymer and Polyphenylene Oxide Blends	233
<i>Lucia Brunel</i>	
Chemically Recyclable Polyurethane Foams from Sustainable Polymer	234
<i>Emily Abdo, Annabelle Watts, Derek Batiste, Marc A. Hillmyer</i>	
Synthesis & Characterization of Molecularly Hybrid Bisphenols Derived from Lignin & Cashew Nutshell Liquid: Application in Thermosetting Resins	235
<i>Amy E. Honnig, Kayla R. Sweet, Claire M. Breyta, Julia H. Reilly, Alexander W. Bassett, John J. La Scala, Joseph F. Stanzione III</i>	
Modeling the Effect of Core-Shell Structure on Upconverting Nanoparticle Emission Intensity	236
<i>Deepak Subramanian, Emory Chan</i>	

Detection of Lead Contamination in Water Using Fluorescence of Functionalized Gold Nanoparticles	237
<i>Parker Lusk, Holly A. Stretz, Martha J. M. Wells</i>	
Colloidal Crystal Growth on Chirped Grating Surfaces	238
<i>Andrew Mettry, Russell Mahmood, Andrew C. Hillier</i>	
Battering Bacteria Against a Barrier	239
<i>Chad Province, Scott Lindauer, Karen Daniels, Robert Reihn</i>	
Thermodynamic Analysis of Hexagonal Boron Nitride Crystal Growth from Metal Solutions	240
<i>Eli Janzen, James H. Edgar</i>	
Fabrication of Gold-Loaded Nanoreactors By Polymer Directed Self Assembly	241
<i>Tien Vuong</i>	
Ligand-Mediated TiO₂ Functionalization of Silica Nanoparticles for Efficient and Selective Natural Product Separation	242
<i>Justin X. Zhong, M. Arif Khan, Barbara L. Knutson, Stephen E. Rankin</i>	
Characterization of Molecularly Imprinted Particles Modified with Various Hydrophobic Monomers	243
<i>Joann Gu, John R. Clegg, Nicholas A. Peppas</i>	
Effect of Polymer Excipient on Metastable Succinic Acid Particle Formation Via Monodisperse Droplet Evaporation	244
<i>Thaddeus Egnaczyk</i>	
Efficient Tuning of siRNA Dose Response By Combining Mixed Polymer Nanocarriers with Simple Kinetic Modeling	245
<i>Victoria Muir, Chad T. Greco, Thomas H. Epps III, Millicent Sullivan</i>	
Potential of Mesoporous Silica Nanoparticles As Small Molecule Delivery Platform Against Pathogenic Bacteria	246
<i>Jacob Agola, Achraf Nouredine, Jeffrey Brinker</i>	
Fabricating Non-Close Packed Colloidal Monolayers for Ion Irradiation Templates	247
<i>Nandini Padaraju, Christopher L. Wirth, Jessica Bickel</i>	
Localized Surface Plasmon Spectroscopy on Individual Self-Assembled Pd-Au@Silica Heterodimers	248
<i>Sihoon Moon, John Caputo, Vivian E. Ferry</i>	
Nitrogen Doped Graphenated Carbon Nanotubes for Electrochemical Reduction of Carbon Dioxide	249
<i>Madison Wood</i>	
Various Effects on the Growth of Tetrathiafulvene Salt Nanowires	250
<i>Alex Wielbinski</i>	
Fabrication of Janus Particles	251
<i>Baseemah Rucker</i>	
BSA-Protected Gold Nanoclusters for Detection of Pb(II) in Water	254
<i>Fernando Lejarza, Christian L. Coonrod, Yiyuan Yin, Michael S. Wong</i>	
Sol-Gel Synthesis of TiO₂ Nanosheets	255
<i>Philip Whong</i>	
Insertion of Ionic Liquid into Silica Nanopores for Increased Catalytic Performance	256
<i>Rebecca Palmer, Yuxin He, Stephen E. Rankin, Barbara L. Knutson</i>	
Observations of Three Ringed Networks of BZ Droplets	257
<i>Susan Okrah, Jesse Held, Nathan Tompkins, Seth Franden</i>	
A Metal-Organic Framework from Adenine	258
<i>Aaron Gehrke, Jason Perman, Shengqian Ma</i>	
Structural Effects of Proton Conducting Ionomers on Water Uptake	259
<i>Nina Zeng, Shudipto Konika Dishari</i>	
Flex to Stretch Electronics	260
<i>Steven Erlenbach, Kunal Mondal, Michael D. Dickey</i>	
Iron Oxide Impregnated Membrane for Sulfate Radical-Based Oxidation of Trichloroethene	261
<i>Sam Thompson, Ashish Aher, Dibakar Bhattacharyya</i>	
Effect of Processing on Electrochemistry and Surface Chemistry of PGM-Free Catalyst for Oxygen Reduction Reaction	262
<i>Roxanne Awais</i>	
Building an Electrical/Thermal Actuation Device Using Homogenously Dispersed Multi-Walled Carbon Nanotubes	263
<i>Suhaib Abu Radwan</i>	
3D-Printing a Transparent Part for Use with Nanoparticle Sensors	264
<i>Hiroshi Yanagida, Samantha Lang, Erik Skottegard</i>	
Investigation of Fractal Formation Phenomena in TIPS/Pentacene System Solution-Sheared on Kapton Substrate	265
<i>Lauren Hornsby</i>	

The Effect of Fluorination on the Interfacial Properties of Alcohols and Carboxylic Acids	266
<i>Chloe Luyet, Umit Ozer, Jeffrey J. Potoff</i>	
Bone (collagen/hydroxyapatite) Tissue Engineering Optimization: By "Green" Electrospinning	267
<i>Victor G Rivera Llabres, David Castilla, Jorge Almodovar</i>	
Preparation and Characterization of Shape Memory Assisted Self Healing Coatings	268
<i>Evelyn Korbich, Patrick T. Mather</i>	
Development of a Coarse-Grained Model to Study DNA Interactions with Nanomaterials	269
<i>Huilai Gu, Gul H. Zerze, Jeetain Mittal</i>	
Electrospinning and Degradation of Poly(lactic-co-glycolic acid) (PLGA) As a Potential Wound Healing Dressings	270
<i>Ermias Dehressa</i>	
Development of a Low Cost, Low-Force Mechanical Testing Device and Its Application in Measuring Mechanical Properties of Polyelectrolyte Capsules for Engineered Tissue Assembly	271
<i>Greta Mulbauer, Howard W. T. Matthew</i>	
Transdifferentiation of Mesenchymal Stem Cells into Schwann Cell-like Phenotypes Using Electrical Stimulation	272
<i>Maxsam Donta, Merjem Mededovic, Emily Kozik, Metin Uz, Donald S. Sakaguchi, Johnathan Claussen, Surya K. Mallapragada</i>	
Optimization of Therapeutic Lipid-Coated Mesoporous Silica Nanoparticle Vaccines	273
<i>Keoni Baty, Achraf Noureddine, C. Jeffrey Brinker, Rita E. Serda</i>	
Assessment of Drug Diffusion of Sulfathiazole and Metronidazole from Polyurethane Films	274
<i>Montoia Davis, Mehul Barde, Maria Auad</i>	
Determining How the Molecular Structure and Coassembly Interactions of Peptide Amphiphiles Influence the Energy Landscapes of Their Supramolecular Assembly	275
<i>Samuel Lobo</i>	
PEGDA Hydrogel Network Model Evaluation: Correlating Mechanical Properties to Molecular Structure	276
<i>Colton Lagerman, Stevin H. Gehrke</i>	
Controlled Hydrogen Peroxide Release Induces Angiogenesis	277
<i>Brittany Allen, Soheila Aliakbarighavimi, Bret Ulery, Rui Zhang</i>	
Effect of Silk-Based Hydrogel Topography on Intestinal Epithelial Cell Morphology and Wound Healing In Vitro	278
<i>Marisa E. Boch, Julia A. Tumbic, Danielle L. Heichel, Kelly A. Burke</i>	
3D Printing of Biodegradable Elastomers for Osteoarthritis Repair	279
<i>Claude King III, Jason Galarraga, Yi-Cheun Yeh, Chris Highley, Jason A. Burdick</i>	
Tissue Simulant Materials for Studying Blast-Induced Traumatic Brain Injury Mechanisms	280
<i>Anna Wermer</i>	
The Effect of Cell Geometry on the Phenotypic Behavior of Valvular Interstitial Cells	281
<i>Derek Montoya, Olivia Bell, Matthew N. Rush, Elizabeth L. Hedberg-Dirk</i>	
Exploring the Phase Behavior of Peg-Grafted Polyelectrolytes for Intracellular Drug Delivery	282
<i>Chuong D. Nguyen, Daniel Shae, John Wilson</i>	
Femtosecond Direct Writing of PDMS Channels and Its Application in Tissue Engineering	283
<i>Nannette Hernandez</i>	
Surface Engineering of Nanostructured Electrodes and Electrolytes for Solid-State Battery Applications	284
<i>Alexander C. Mesnier, Dale Teeters</i>	
Correlating Structural Changes with Electrochemical Activity in the Defect Perovskite Type ReO₃	285
<i>Joseph Stiles, Shiliang Zhou, Nicholas Bashian, Allyson Ee</i>	
Crystalline Transition Metal Cathode Materials for Rechargeable Aluminum Batteries	286
<i>Brian Chen, Ankur Jadhav, Robert J. Messinger</i>	
Rational Synthesis of Lead Bromide Perovskites with Various Crystallite Sizes	287
<i>Grace Noel, Nabeel Dahod, William A. Tisdale</i>	
Characterizing Upconversion Efficiency and Photophysics in CdSe(Te)/CdS/CdSe Nanostructures for High-Efficiency Photovoltaics	288
<i>Kyle Lennon, Eric Chen, Christopher Milleville, Zhuohui Li, Matthew Doty</i>	
(Plasma-Enhanced) Atomic Layer Deposition Infilling of Nanocrystal Networks	289
<i>Phong Nguyen</i>	
High Throughput Screening Platform for Cesium-Lead Perovskite Nanocrystal Synthesis	290
<i>Kobi Felton, Robert Epps, Connor W. Coley, Milad Abolhasani</i>	
Optimization of Performance of Fe-N-C Catalysts on Tantalum-Doped Titanium Dioxide Supports for ORR	291
<i>James Burrow Jr., Rohan Gokhale, Aaron Roy, Plamen Atanassov</i>	

Enhanced Charge Transport through Secondary Nucleation of P3HT	292
<i>Guillermo Bacardi</i>	
Production and Utilization of Biochar from Slow Pyrolysis of UConn Dining Hall Food Waste	293
<i>Katherine M. Saltzgeber, David P. Gamliel, Julia A. Valla</i>	
Visible Spectrum Sensitization of Vaporizable Polyaldehydes for Transient Devices	294
<i>Cassidy Tobin, Anthony Engler, Oluwadamilola Phillips, Paul Kohl</i>	
Investigating Micellar Phases in Hydrated Nonionic Surfactants	295
<i>Diana Y. Zhang, Beth L. Dewing, Prof. Mahesh K. Mahanthappa</i>	
Mechanochromic Devices for Strain Sensor Applications	296
<i>William Tait, Songshan Zeng, Monica Zhang, Luyi Sun</i>	
Development of Alternative Applications for Artificial Turf through Novel Extrusion Methods	297
<i>Jamie Cavrak, Katsuyuki Wakabayashi</i>	
Solution Shearing As a Strategy to Control the Morphology of Organic Photovoltaic Active Layers	298
<i>Michael Delaney, Jing He, Xiaqing Kong, Dilhan M. Kalyon, Stephanie Lee</i>	
Manufacturing Methods for Photoresist Adhesion in Nano-Antenna Fabrication	299
<i>Jeffrey Cathey</i>	
Automated Non-Destructive Corrosion Detection for Savy Container Surveillance	300
<i>Matthew Davenport</i>	
Characterization of Melting Point Depression and Phase Change Behavior in [Tmsfn][Tf2N] + CO2 Biphasic Systems	301
<i>Brooks B. Danahy, David L. Minnick, Mark B. Shiflett</i>	
Effect of Structural Differences in the Hydrophobic Alkyl Backbone and Functional Groups on the Effectiveness of Solvents for Water Desalination	302
<i>William Penarozza Jr., Prashanth Chandran, Jindal K. Shah</i>	
Phase Transformation Kinetics of Suberic Acid Polymorphs and Amorphous Dispersions Formed from Monodisperse Droplet Evaporation	303
<i>Erin Ditmar</i>	
Manganese Oxide Blended Polyethersulfone Ultrafiltration Membrane for Enriched Dye Removal Applications	304
<i>Viraj Phatarphod, Rambabu K., Nandini Jain</i>	
Separation of Aqueous Solutions By Sustainable Hybrid Process Design	305
<i>Nooshin Shahlari</i>	
Dielectrophoretic Response of Condensed DNA Clusters in AC Fields	306
<i>Anikki Giessler, Gabe Salmon, Alexandra Ros</i>	
Study of Enantiomeric Separation of Propylene Oxide Using L- or D-Penicillamine Modified Au Nanoparticles	307
<i>Yue Han, Apurva Pradhan, Anantha Venkataraman, Nisha Shukla, Andrew Gellman</i>	
Predicting the Dynamic Binding Capacities for Adsorbents Using BSA As a Model Protein	308
<i>Gaoshan Li, Heather C. S. Chenette</i>	
Chemical-Free Electrostatic Separation As a Dry Approach for Enrichment of Plant Proteins	309
<i>Marlon Brutus, Solmaz Tabatabaei</i>	
Efficient Enrichment of 1,3-Propanediol from Fermentation Broths Using Imidazolium Dibutylphosphate Ionic Liquid Based Methacrylate Polymer Membranes	310
<i>Alexander Johnson, Amanda Christon, Harrison Hawkins</i>	
Ptfema-r-PMAA Functionalized Membranes for Metal and Dye Separations	311
<i>Jacob Kronenberg, Ilin Sadeghi, Ayse Asatekin</i>	
Efficient Coacervate Extraction of Cationic Industrial Dye from Wastewater	312
<i>Benjamin Valley, Benxin Jing, Yingxi Elaine Zhu</i>	
Floating Membraneless PV-Electrolyzer Based on Buoyancy-Driven Product Separation	313
<i>Justin Bui, Jonathan Davis, Daniel Esposito</i>	
The Development and Application of High Performance Liquid Chromatography Capabilities for Lanthanide Separations	314
<i>Elisabeth Thomas, Iain May, Nathan Smythe</i>	
CO2 Capture Characteristics of MgO Produced from Calcination of Metal Organic Frameworks	315
<i>Sunho Choi, Adrien Deberghes III, Zelong Xie</i>	
Modifying Adsorption Kinetics of Zeolites Using Self-Assembled Monolayers	316
<i>Jeremy Hu, Surya Parker, Lucas Ellis, Hans H. Funke, John Falconer, J. Will Medlin</i>	
Engineering of Physical Aging to Optimize Carbon Molecular Sieve (CMS) Hollow Fiber Membranes	317
<i>Samuel Hays, Nicholas Doss, Oishi Sanyal, William J. Koros</i>	
Simulation of Aromatic Extraction Feedstock Separation By Dividing-Wall Column (DWC)	318
<i>Xupeng Wang, Liyu Chen</i>	

Separation of CO₂ and N₂ By Rapid PSA Using 13X Zeolite and a Dual Reflux Cycle	319
<i>Michael Schmithorst, Armin D. Ebner, James A. Ritter</i>	
Nanostructured Faujasite Zeolites for Carbon Dioxide Adsorption	320
<i>Krysta Clark</i>	
Post-Combustion Carbon Capture through Biphasic Absorbent	321
<i>Siyang Li</i>	
Simulation and Optimization of Metal Organic Frameworks for CO₂ Adsorption	322
<i>Natalia Diaz</i>	
Utilization of Highly Reactive Calcium Oxide Nanofibers in the Sequestration of CO₂	323
<i>Zubin Mishra, Faisal H. Alshafei, Luke Minardi, Dante Simonetti</i>	
Author Index	