

Engineering for Inclusion

Held at the 2023 AIChE Annual Meeting

Orlando, Florida, USA
5-10 November 2023

ISBN: 978-1-7138-9318-9

Printed from e-media with permission by:

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



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

Copyright© (2023) by AIChE
All rights reserved.

Printed with permission by Curran Associates, Inc. (2024)

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

MAC EMINENT ENGINEERS AWARDS POSTER SESSION

Assessing the Production and Cytocompatibility of <i>Plodia Interpunctella</i> silks as Polymeric Biomaterials.....	1
<i>Jasmine McTyer, Bryce Shirk, Lauren Eccles, Isabella Torres-Duarte, Andrea Orozco, Paul Shirk, Whitney Stoppel</i>	
Assessing the Feasibility of Coal as an Eco-Friendly Filler in Phenolic Resin Composites: a Study of Thermal and Structural Properties.....	3
<i>Chiderah Chukwuka, Damilola Daramola, Sophia Almanza</i>	
Exploring the Economic and Environmental Benefits of Solvent-Based Recycling Processes of Multi-Layer Plastic Films.....	5
<i>Aurora Del Carmen Munguia Lopez, Dilara Goreke, Kevin Sanchez-Rivera, Horacio Aguirre-Villegas, Styliani Avraamidou, George Huber, Victor Zavala</i>	
Confirming the Extent and Mechanisms of the Immunosuppressive Enhancement of hMSCs Initiated by Col/Hep Layer by Layer Polyelectrolyte Coatings.....	6
<i>Justin Putman, Roaa Hadi, Jorge Almodovar</i>	
Unraveling the Enhancing Effect in Proliferation of Human Mesenchymal Stem Cells Cultured on Biopolymeric Coatings.....	8
<i>Roaa Hadi, Jorge Almodovar, Justin Putman, Luis Carlos Pinzon-Herrera, Shilpi Agrawal</i>	
Enhancing Magnetic Particle Imaging (MPI) Performance: Probing Post-Synthesis Oxidation and Correlations to Nanoparticle Properties.....	9
<i>Ambar Velazquez Albino, Aniela Nozka, Andrii Melnyk, Hayden Good, Carlos Rinaldi-Ramos</i>	
Electrified Lixiviation of Rare Earth Elements from Coal Mining Waste - MAC.....	10
<i>Lawrence Ajayi, Damilola Daramola</i>	
Extraction and Characterization of Cellulose Nanocrystals from Corn Husk Waste and Its Application in Bioplastic Preparation.....	12
<i>Sergio Mayta Paucara, Maria Quintana Caceda, Ronny G. Huamani Palomino, Bryan M. Córdova</i>	
Demonstration of a Batch Electrochemical System for Phosphorus Recovery from a Real Municipal Wastewater Recycle Stream - MAC Session.....	14
<i>Sana Heydarian, Syed Asad Abbas, Lawrence Ajayi, Jason Tremby, Damilola Daramola</i>	
Hydrophobic Collapse of Long Alkane Chains in Water and Water/Ethanol Mixtures.....	15
<i>Rahul Kumar, David Abadie, Nicole Korinetz, Henry Ashbaugh</i>	
MAC Poster: Mathematical Modeling of Drug Release from Bi-Layered Drug Delivery Systems in the Eye.....	16
<i>Eduardo A. Chacin Ruiz, Jibia M. Chowdhury, Katelyn E. Swindle-Reilly, Ashlee N. Ford Versypt</i>	
Biorefineries for a Sustainable Plastic Value Chain	18
<i>Efrain Rodriguez-Ocasio, Mark Blenner, Laura R. Jarboe</i>	

Tri-Component Microneedle Patch for Enhanced Veterinary Meloxicam Delivery: PVA, Collagen,
and Chitosan Synergies 19
Jorge Almodovar

Dielectrophoresis-Based Breast Cancer Study: Characterization and Separation of Peripheral Blood
Mononuclear Cells from PyMT and WT Mouse Model..... 21
Raphael Oladokun, Christopher Smith, Timothy Eubank, Soumya Srivastava

**MINORITY AFFAIRS COMMUNITY (MAC) AND YOUNG PROFESSIONALS (YP) PANEL
DISCUSSION: REBRANDING YOURSELF FOR A NEW CAREER PATH**

106a Panel Discussion: Rebranding Yourself for a New Career Path 23
MaryKathryn Lee

Author Index