

# **FOCAPO/CPC 2023**

## **CONTRIBUTED POSTER SESSION B**

### **Energy & Sustainability**

**Wednesday, January 11, 2023**  
**8:00 p.m. to 10:00 p.m.**

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**THE FUTURE OF THE CHEMICAL INDUSTRY SHAPED BY GLOBAL CONFLICTS:  
IMPACT OF MAJOR LNG EXPORTS ON THE U.S. CHEMICAL INDUSTRY**  
Alkiviadis Skouteris, Ioannis Giannikopoulos, David T. Allen, Michael Baldea and Mark A. Stadtherr  
(Paper ID #4)

**OPTIMAL DESIGN OF SUPPLY CHAIN FOR PLASTIC UPCYCLING CONSIDERING  
ECONOMIC AND ENVIRONMENTAL INDICATORS**  
Oluwadare Badejo, Borja Hernandez and Marianthi Ierapetritou  
(Paper ID #19)

**ENVIRONMENTAL AND ECONOMIC ANALYSIS OF THE POLYETHYLENE  
TEREPHTHALATE PRODUCTION FROM BIOMASS-BASED P-XYLENE**  
Yuan Liu, Yuqing Luo, Aikaterini Anastasopoulou and Marianthi Ierapetritou  
(Paper ID #21)

**HEURISTIC DYNAMIC RAMPING CONSTRAINTS FOR DEMAND RESPONSE OF  
PROCESSES WITH INTERNAL DYNAMICS**  
Florian Joseph Baader, André Bardow and Manuel Dahmen  
(Paper ID #23)

**PRICING AND REMUNERATING LOAD SHIFTING FLEXIBILITY IN ELECTRICITY  
MARKETS**  
Weiqi Zhang and Victor Zavala  
(Paper ID #26)

**MUNICIPAL SOLID WASTE MANAGEMENT USING A COORDINATED MARKET  
FRAMEWORK**  
Aurora Munguia-Lopez, Victor Zavala and Jose Maria Ponce-Ortega  
(Paper ID #32)

**TECHNO-ECONOMIC EVALUATION OF INFRASTRUCTURES FOR  
THERMOCHEMICAL UPCYCLING OF PLASTIC WASTE**  
Jiaze Ma, Philip Tominac and Victor Zavala  
(Paper ID #33)

LIFE CYCLE OPTIMIZATION OF POWER GENERATION AND TRANSMISSION EXPANSION PLANNING

Iasonas Ioannou, Ignacio Grossmann and Gonzalo Guillén-Gosálbez

(Paper ID #48)

DISTRIBUTED MANUFACTURING FOR ELECTRIFIED CHEMICAL PROCESSES IN A MICROGRID

Asha Ramanujam and Can Li

(Paper ID #50)

INTEGRATING CO<sub>2</sub> MINERALIZATION IN INDUSTRIAL CLUSTERS: THE BENEFITS OF MATERIAL AND HEAT INTEGRATION

Rafael Castro-Amoedo, Mouhannad Abou Daher, Julia Granacher and Francois Marechal

(Paper ID #54)

A SHORTCUT MODEL FOR MULTICOMPONENT HOMOGENEOUS AZEOTROPIC DISTILLATION

Zheyu Jiang

(Paper ID #55)

APPLICATION OF DISCRETIZED NON-LINEAR PROGRAMMING TO MINIMIZE MIXED OIL FORMATION IN FLUSHING OPERATIONS OF LUBRICANT PIPELINES

Swapana Jerpeth, Robert Hesketh, Stewart Slater, Robert McClernan, Mariano Savelski and Kirti Yenkie

(Paper ID #57)

ARTIFICIAL INTELLIGENCE FOR IMPROVING PROCESS CONTROL IN ENERGY EFFICIENCY PERSPECTIVE: A REVIEW

Mohamed El Koujok and Mouloud Amazouz

(Paper ID #65)

SYSTEMATIC DESIGN AND ANALYSIS OF SOLVENT ASSISTED PLASTIC RECYCLING PROCESSES

Austin L. Lehr, Matthew Conway, Kayla L. Heider, Emmanuel A. Aboagye, John D. Chea, Jake P. Stengel, Pahola Thatiana Benavides and Kirti M. Yenkie

(Paper ID #66)

PROCESS ALTERNATIVES TO STABILIZE SMALL-SCALE AMMONIA PRODUCTION

George Bollas and Laron Burrows

(Paper ID #67)

XAI-ASSISTED MULTI-AGENT DEEP REINFORCEMENT LEARNING FOR A GUARANTEED AUTONOMOUS CONTROL SYSTEM OF SEQUENCING BATCH REACTOR FOR SUSTAINABLE WASTEWATER MANAGEMENT

SungKu Heo, TaeYong Woo, SangYoun Kim and ChangKyoo Yoo

(Paper ID #77)

A FRAMEWORK FOR THE EVALUATION OF THE CIRCULARITY OF PLASTIC WASTE MANAGEMENT SYSTEMS: A CASE STUDY ON MECHANICAL RECYCLING OF HDPE

Elizabeth Chialdikas, Aurora del C. Munguia-Lopez, Horacio Aguirre-Villegas and Stylianis

Avraamidou

(Paper ID #81)

DEMAND BIDDING MODELS FOR CHEMICAL PROCESSES: CONCEPTUAL FRAMEWORK AND A CHLOR-ALKALI OPTIMAL POWER FLOW EXAMPLE

Xin Tang, Elaine Hale, Richard O'Neill, Ross Baldick and Michael Baldea

(Paper ID #86)

EMBEDDING ADVANCED WASTEWATER TREATMENT TECHNOLOGY MODELS INTO P-GRAFH FRAMEWORK

Emmanuel Aboagye, Jean Pimentel, Akos Orosz, Mihaly Markot, Heriberto Cabezas, Ferenc Friedler and Kirti Yenkie

(Paper ID #103)

ADVANCED OPTIMIZATION OF MULTI-SINK CO<sub>2</sub>-EOR OPERATIONS IN THE CONTEXT OF LONG-TERM CCUS SUPPLY CHAIN DESIGN

Agustin Francisco Montagna, Javier D. Angarita, Alexa E. Duarte, Ariel Uribe, Juan Pablo Osorio, C. Gounaris and Ignacio Grossmann

(Paper ID #111)

A FRAMEWORK FOR RELIABILITY-EMBEDDED DESIGN OF MULTI-SCALE ENERGY SYSTEMS

Rahul Kakodkar, Natasha J. Chrisandina, Mahmoud M. El-Halwagi and Efstratios N.

Pistikopoulos

(Paper ID #112)