

**# 371 - 10A: Poster Session: Interactive Session: Systems and Process Design***Tuesday, October 29, 2024 3:30 PM - 5:00 PM**Exhibit Hall GH, San Diego Convention Center*

BOARD NUMBER	Title	First Name	Last Name	Paper Number
1	Sustainable Management for a Salt Lake Basin with a Water-Food-Energy-Carbon Nexus Approach with Dynamic Optimization	Maria Soledad	Diaz	371h
3	Machine Learning on Prediction Hydrogen Production from Biomass and Plastic Waste Gasification	Collette	Riviere	371a
4	Forcing Signal Optimization and Simultaneous Simulation Approaches Applied to Dynamic/Programmable Catalysis	Carolina	Colombo Tedesco	371b
5	Modeling Air Separation Via Pressure-Swing Adsorption in Python for Use in Urea Production	Kaden	Hubler	371c
6	Multiscale Modeling of Atomic Layer Deposition Process for Optimal Operation : Integration of Kinetic Monte Carlo and Computational Fluid Dynamics	Chaeun	Lee	371d
7	Supply Chains Optimization through Hybrid Tools	Juan Gabriel	Segovia	371e
8	Model-Based Optimization of Titters and Infected Cells in the Two-Stage Continuous Production of a Viral Vaccine	Krystian	Ganko	371f
9	Identification of Hybrid Population Balance Models for Mechanochemical Depolymerization	Jacob	Sweet	371g
10	Module LEVEL LCA for Analysis of SCOPE 1,2 and 3 Emissions of Chemical Plants – Implementation in Python	Elias	Martinez-Hernandez	371i
11	Synthesis and Global Optimization of Heat-Integrated Thermally Coupled Distillation Systems	Anqing	Wang	371j
12	A Reinforcement Learning Approach with Masked Agents for Chemical Process Flowsheet Design	Simone	Reynoso-Donzelli	371k
13	Automatic Design and Optimization of Extractive Distillation Sequence for Multicomponent Azeotropic Systems	Yachao	Dong	371l
14	Analysis of Decision Support System for Control Room Operators Using Cognitive Measures.	Anurag	Pathak	371m
15	A Novel Methodology to Assess Safety of Process Streams at the Conceptual Design Stage	Silvia	Pelucchi	371n
16	Integrating Multiscale Modeling and Simulation (MMS) and Machine Learning (ML) for Chemical Engineering Applications	Seckin	Karagoz	371o
17	Computer-Aided Exploration of Cryoprotective Agents for Stem Cell Manufacturing	Yusuke	Hayashi	371p
18	From Flexibility Evaluation to Economic Optimization: An Iterative Multi-Objective Framework for Process Design Under Uncertainty	Sunwook	Kim	371q
19	Optimization and Uncertainty Management of Wind Power Generation Using Natural Gas Hydrogen Mixture	Saif R.	Kazi	371r
20	Design and Operation of Carbon Capture, Utilization, and Storage (CCUS) Supply Chain Networks Under Uncertainty	Chinmay	Aras	371s
21	Two-Stage Chance-Constrained Programming for Refinery Optimization Under Uncertainty	Yu	Yang	371t
22	AI-Based Decision Making of Steam Methane Reforming Operation Strategies from Fluctuated Biogas Production.	Janggeun	Lee	371u
23	Uncertainty-Conscious Model-Based Design of Human Mesenchymal Stem Cell Manufacturing Processes	Hirokazu	Sugiyama	371v
24	Towards Global Robust Optimisation of Non-Convex Continuous Problems: Application to Pooling Problems	Asimina	Marousi	371w
25	Meteorological Feasibility of a Moisture Capture System from Air Using Mixed-Integer Linear Fractional Programming	Jinsu	Kim	371x
26	Extrapolation Error Quantification for the Discovery of Optimal Experimental Conditions	Jonghwan	Oh	371z
27	A Systematic Approach for Characterizing Probabilistic Operating Space Under Hybrid Uncertainties	Yao	Tong	371y
29	Energy and Cost Analysis of Direct Air Capture Using Laminate Structured Gas-Solid Contactors	Youn Ji	Min	371ab
30	Optimal Scale Analysis of Rotating Packed Bed (RPB) for Modular CO <sub>2</sub> Capture	Howoun	Jung	371ac
31	Feasibility Study and Machine Learning-Based Optimization for Shipboard CO <sub>2</sub> Capture Leveraging Available Energy Sources	Dat-Nguyen	Vo	371aa

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BOARD NUMBER	Title	First Name	Last Name	Paper Number
32	Advanced Integration Strategies and Machine Learning-Based Superstructure Optimization for Power-to-Methanol	Dat-Nguyen	Vo	371ar
33	Multi-Scale Dynamic Techno-Economic Analysis of Pulsed Electrochemical CO <sub>2</sub> Reduction Process	Youlim	Chung	371ad
34	System Design and Optimization for Arundo Donax L.-Driven Bioenergy Towards Carbon Neutrality.	Yaling	Nie	371ae
34	System Design and Optimization for Arundo Donax L.-Driven Bioenergy Towards Carbon Neutrality.	Xin	Xiao	371ae
35	Low-Cost Resource Management Considering Life Cycle Impacts	Mohammad	Lameh	371af
36	Development of a Systematic TEA Framework to Assess Emerging Designs for Electrified Chemical Processes	Claudemi	Nascimento	371ag
37	Multi-Scale Engineering and Design of Drop-in Low Carbon Aviation Fuels.	Nadin	Moustafa	371ah
38	Mineralization Processes for Small Scale Carbon Dioxide Disposal	Connor	Grayson	371aj
39	Multistage Distributionally Robust Optimization for the Design of Hybrid Energy-Driven Multi-Network Processes Under Uncertainty	Yuxuan	Xu	371ak
41	Game Theory-Informed Blockchain Framework for Social Life Cycle Assessment: Enhancing Sustainability in Germanium Extraction from PV Scrap	Kazi	Khoda	371ap
41	Game Theory-Informed Blockchain Framework for Social Life Cycle Assessment: Enhancing Sustainability in Germanium Extraction from PV Scrap	Mehzabeen	Mannan	371ap
44	Synthesis and Comparison of Carbon Dioxide Emissions Free Hydrogen Production	Cornelius	Masuku	371an
45	Enhancing Circular Economy through Calcium Looping: Technoeconomic and Life Cycle Insights into Repurposed Steel Slag for CO <sub>2</sub> Capture	Ahmed	AlHajaj	371ao
46	Studies of sCO <sub>2</sub> Power Cycles for Sustainability	Warren	Seider	371aq
47	Modular Forms in Combinatorial Optimization	Varsha	Gupta	371as

**# 372 - 10B: Interactive Session: Systems and Process Control***Tuesday, October 29, 2024 3:30 PM - 5:00 PM**Exhibit Hall GH, San Diego Convention Center*

BOARD NUMBER	Title	First Name	Last Name	Paper Number
49	Adaptive Model Predictive Control for Optimal Irrigation Scheduling	Q. Peter	He	372c
49	Adaptive Model Predictive Control for Optimal Irrigation Scheduling	Jisung	Jang	372c
50	Automation and Control of Continuous Countercurrent Tangential Chromatography	Jie	Wang	372a
51	Battery Thermal Management of Electric Vehicles through Optimal Control of Battery Cooling and Refrigerant Circuits	Hyungjun	KIM	372b
52	Encrypted Distributed Control of Nonlinear Processes	Yash	Kadokia	372e
53	Explicit Machine Learning-Based Model Predictive Control of Nonlinear Processes	Wenlong	Wang	372d
55	Learning Based Real-Time Batch Tracking of Multi-Product Pipeline Systems	Lu	Zhang	372g
56	Understanding and Modeling Corrosion in CO <sub>2</sub> Transportation Pipelines: Findings from the Carbon Adapt Project	Tanmay	Chaturvedi	372h
57	Digital Integration of Fermentation and Centrifugation Processes: Optimizing Pilot-Plant Biomanufacturing for Enhanced Efficiency	Alina Anamaria	Malanca	372j
58	Development of a Black-Box Parameter Estimation Methodology of a Batch Anti-Solvent Protein Crystallisation Process with Sparse Measurements	Daniele	Pessina	372k
59	Accelerating Formulation Discovery Using First-Principles Hansen Solubility Parameter (HSP) and Optimization	Ashlesha	Tiple	372l
60	Development of a Curie Pendulum-Based, Non-Electrical Temperature Control for Thermal Cyclers	Anil Reddy	Soreddy	372n
61	Optimizing Affordable Electrified Multifamily Housing: A Novel Non-Cooperative Stackelberg Game Approach for Grid Profitability and Tenant Affordability	Matthew	Williams	372o

**# 372 - 10B: Interactive Session: Systems and Process Control**

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BOARD NUMBER	Title	First Name	Last Name	Paper Number
62	A Novel Bidding Methodology for Power Trading in a Local Energy Market	Ioanna	Kalospyrou	372p
63	Multiscale Modelling of Trickle Bed Reactors for Biological Methanation	Sandro	Malusà	372q
64	Numerical Investigation into the Gasification of Industrial Organic Waste in Entrained-Bed Reactors Utilizing Detailed Chemical Kinetic Mechanisms	Shuyi	Shen	372r
64	Numerical Investigation into the Gasification of Industrial Organic Waste in Entrained-Bed Reactors Utilizing Detailed Chemical Kinetic Mechanisms	Huiyang	Bi	372r
65	Data-Driven Model for Boil-Off Gas Estimation in a Liquefied Natural Gas Regasification Terminal	Shweta	Nagrале	372s
66	Data-Driven Approach to Automated Reaction Process Analysis	Junu	Kim	372t
67	Learning a Data-Driven Reactor Model from Experimental Data of a Continuously Operated Fixed-Bed CO <sub>2</sub> methanation Reactor on Pilot-Scale	Alexander	Geschke	372u
68	Causality-Guided Observer Model Minimization of an Acetaminophen Chemical Production Process	William	Farlessyost	372v
69	Design of Experiments Based on Precise Data-Quality Assessment Using Finite-Sample Data	Masanori	Oshima	372w
70	Physics-Constrained Dynamic Mode Decomposition for Computational Fluid Dynamics in Chemical Engineering	Jia	Shengkun	372x
70	Physics-Constrained Dynamic Mode Decomposition for Computational Fluid Dynamics in Chemical Engineering	Zhijie	Zhao	372x
71	Invertible Neural Networks As Discrete Time Process Models for Correlated Non-Gaussian Noise	Eike	Cramer	372y
72	Time Series Modelling of an Industrial Desiccant Dryer	Ece Serenat	Köksal	372z
72	Time Series Modelling of an Industrial Desiccant Dryer	Sida	Chai	372z
73	Fixed/Mobile Detector Placement Optimization and Validation System Using Differentiable Physics-Based Surrogate Models for Chemical Leak Dispersions	Kangseop	Kim	372aa
74	Development of a Model Based on Deep Reinforcement Learning, Lstm Network, and TD3 Algorithm for Optimization and Control of MAb Production in Mammalian Cell Cultures	Satish	Parulekar	372ab
75	Using Artificial Neural Networks to Predict Chemical System Stability for Design	Tate	Bestwick	372ac
76	Leveraging Large Language Models for the Identification, Annotation, and Substrate Prediction of Transporter Proteins	Saman	Shafaei	372ad
77	Multi-Objective Optimization of Hydrogen Production Based on Integration of Process-Based Modeling and Machine Learning	Jong Ah	Moon	372ae
78	Multi-Objective Optimization of Hydrogen Production Based on Integration of Process-Based Modeling and Machine Learning	Ahmad	Syauqi	372ae
79	Scheduling of State Task Network Under Uncertainty Via a Hybrid Reinforcement Learning Agent with Partial Observability	Luis	Ricardez-Sandoval	372af
80	Variable Extraction and Equivalence Judgment with BERT Model Pre-Trained on Chemical Engineering-Related Papers	Shota	Kato	372ag
81	Similarity-Based Machine Learning for Small Datasets; Application in Predicting Bio-Lubricant Properties	Jae Young	Kim	372ah
82	Powering the Circular Economy with Maximum Metal Recovery from Printed Circuit Boards By Machine Learning and Robust Optimisation	Waqar Muhammad	Ashraf	372aj
83	Pinn-Based Modular Digital Twin Development for Sustainable Electroplating Manufacturing	Mahboubeh	Moghadasi	372al
84	Learning Production Planners' Unknown Objectives Via Inverse Optimization	Shivi	Dixit	372am
85	Process Modeling and Optimal Operational Strategies for Integrated Chemical Looping Hydrogen Production and Biomass Gasification Under Feedstock Uncertainty	Byoungyoun	Lee	631b

**# 373 - 10C: Interactive Session: Systems and Process Operations**

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BOARD NUMBER	Title	First Name	Last Name	Paper Number
2	A Nonconvex Miqucp Model for Optimal Scheduling of Furnaces Shutdown in a Steam-Cracking Ethylene Plant Under Demand Uncertainty	Maria Soledad	Diaz	373aa
42	Predictive Resilience and Equitable Risk Assessment in Supply Chains Via Consensus-Driven Inverse Neural Network on Interoperable Blockchains	Kazi	Khoda	373ag
54	Input Convex Lstm for Fast Machine Learning-Based Optimization	Wenlong	Wang	373v
86	A Parametric Column-and-Constraint Generation Algorithm for Robust Optimization Under Endogenous Uncertainty	Jnana Sai	Jagana	735bk
88	Development of Open-Source Software Tools for Data-Driven Canister Sampling Site Selection	S M	Farhad	373b
89	Simulating Relief Scenarios in a Column Using Aspen Hsys	Avinashkumar	Karre	373a
90	GDPLib: An Open Library of Generalized Disjunctive Programming Problems and Solution Method Benchmarking	Carolina	Tristán	373c
91	Development of Model-Based Fault Detection Algorithm for Liquid Hydrogen Refueling System	Gyeongwan	Jeon	373d
92	Optimal Production of Solar Photovoltaic Panels in Mexico through a Hybrid Machine Learning and Mathematical Programming Approach	Luis Fernando	Lira-Barragán	373e
92	Optimal Production of Solar Photovoltaic Panels in Mexico through a Hybrid Machine Learning and Mathematical Programming Approach	Francisco Javier	López Flores	373e
93	Demand Response Strategies for Management of Residential Natural Gas Consumption	Nael	El-Farra	373f
94	Improvements to GPU-Enhanced Deterministic Global Optimization	Matthew	Stuber	373g
95	An Objective Reduction Algorithm for Nonlinear Many-Objective Optimization Problems	Hongxuan	Wang	373i
96	Learning Predictive Classifier Models of the Correlating Nature of Cost and Emissions Objectives in Moving-Horizon Demand Response	Hongxuan	Wang	373ak
97	A Global Optimization Approach for the Symbolic Design of Iterative Algorithms	Ilias	Mitrai	373h
98	An Estimation-Assisted Real-Time AC Optimal Power Flow	Can	Li	373j
99	Direct Quantum Optimization of a Class of MINLP Involving Quadratic and Signomial Terms	Ashfaq	Iftakher	373k
100	Enhancing Stochastic Optimization through Topology Data Analysis: A Novel Approach for Improved Efficiency and Robustness	Ching-Mei	Wen	373l
101	Open-Loop Simulation Surrogates for Closed-Loop Global Optimization of Sustainable Processes	Lucas	Francisco dos Santos	373n
102	Multi-Fidelity Reinforcement Learning for Dynamic Optimisation of Laminar Mixing System	Nausheen	Basha	373o
102	Multi-Fidelity Reinforcement Learning for Dynamic Optimisation of Laminar Mixing System	Mosayeb	Shams	373o
103	Data-Driven Bi-Level Optimization of Hyperparameters for Machine Learning Models	Amir	Shahbazi	373r
105	Towards an Integrated Wide Approach for Sustainable Field Recovery	Shakeel	Ramjaneer	373s
107	Partial Optimal Transport for Data-Driven Distributionally Robust Optimization with Consideration of Outliers	Shu-Bo	Yang	373p
108	Surrogate-Based Optimization for the Recovery of Critical Minerals and Rare Earth Elements	Dimitrios	Fardis	373t
109	Multiscale Optimization Via Linear Model Decision Tree Surrogates	Ethan	Sunshine	373u
110	Circular Economy Approach to Monetize Palm Oil Agricultural Residues	Ariel	Uribe-Rodriguez	373x
111	A Model for the Autoclave Low-Density Polyethylene (LDPE) Industrial Process	Pedro	Castro	373ac
112	A Predictive-Reactive Framework for Large-Scale Dynamic Crude Oil Scheduling	Pedro	Castro	373am
113	A New Miqucp Continuous-Time Formulation for a Class of Maritime Inventory Routing Problems	Pedro	Castro	373ap

**# 373 - 10C: Interactive Session: Systems and Process Operations***Tuesday, October 29, 2024 3:30 PM - 5:00 PM**Exhibit Hall GH, San Diego Convention Center*

BOARD NUMBER	Title	First Name	Last Name	Paper Number
114	Industrial Volatile Organic Compound (VOC) Capture Performance Evaluation Via Dynamic Simulation, MILP Scheduling and Economic Analysis	Dimitrios	Gerogiorgis	373ab
115	Panoramic and Cyclical Operational Stability Indicators for New KPIs Contributing to the Sdgs	Tetsuya	Wada	373ad
116	Data-Driven Approaches for the Optimization of Complex Planning and Scheduling Problems in Multi-Product Industries	Hasan	Nikkhah	373ae
117	Navigating the Energy Transition Towards Hydrogen As an Energy Carrier: A Mathematical Programming Approach for Scheduling Hydrogen Supply Chain Operations	Dnyanesh	Deshpande	373af
118	Using LP Relaxation to Speed up Solution of Large-Scale Scheduling Problems	Iiro	Harjunoski	373ah
119	Multi Agent Reinforcement Learning and Graph Neural Networks for Inventory Management	Niki	Kotecha	373ai
120	Learning to Reduce Dimensionality in Mixed Integer Optimization	Maria M	Papathanasiou	373aj
121	A Two-Stage Robust Optimization Framework for the Design of Flexible Supply Chains with Mobile Production Modules	Qi	Zhang	373al
121	A Two-Stage Robust Optimization Framework for the Design of Flexible Supply Chains with Mobile Production Modules	Congqin	Ge	373al
122	Scheduling Under Uncertainty for Controlled Environment Agriculture Systems	Dimitri	Alston	373an
123	A Two-Layer Integrated Scheduling and Economic Control Scheme for Demand Side Management of Chemical Process	Chrysanthi	Papadimitriou	373ao
124	Optimal Design and Operation of Solid-Oxide Cell Systems Considering Chemical and Physical Degradation Under Seasonal Variation	Nishant Vinayak	Giridhar	373as
125	Electrolyzer Plant Scheduling for Hydrogen Production and Power Market Participation in Frequency Containment Reserves	Salvador	Perez-Uresti	373at
126	On Including Weather Extremes in the Design and Operation of Renewable Power Systems	Ricardo	Pinto de Lima	373y
172	Smart Control to Improve the Economic Benefits of the Battery Energy Storage System at the Industrial Facility	Jiwei	Yao	373aq
275	A Multi-Scale Optimization Framework for a Sustainable Energy Transition in Urban Areas	Javiera	Vergara Zambrano	373z

**# 374 - 10D: Interactive Session: Applied Mathematics and Numerical Analysis**

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BOARD NUMBER	Title	First Name	Last Name	Paper Number
43	Quantum-Enhanced Next-Generation Blockchain Consensus Protocol for Energy Efficiency and Climate Sustainability	Kazi	Khoda	374r
106	Towards an Integrated Asset Wide Approach for Sustainable Upstream Field Recovery	Shakeel	Ramjaneer	374k
127	Innovating Soft Matter Manipulation with Fibrous Nonwovens: Integrating Computational Design and Experimental Insights for Pore-Scale Electrokinetic Applications	Satchit	Nagpal	374e
128	From Theoretical Models to Practical Solutions in Crystal Growth Inhibition: Role of Adaptive Kinetic Monte Carlo Simulations in Understanding Modifier Binding and Etch Pits	Satchit	Nagpal	374u
129	Novel Plant Modelling Paradigm Eliminates Plant Level Nonlinearities, Incorporates Naturally Hybrid Models, and Corresponding Software Architecture	Vladimir	Mahalec	374a
130	Optimizing Personalized Treatment Policy for Cancer Chemotherapy	Trung V.	Phan	374d
131	Transcriptomics Data Integrated Rice Kernel Metabolic Model Identified Histidine As a Marker of Chalkiness	Niaz	Chowdhury	374f
132	Integrated Digital Design of Efficacy and Optimal Treatment of Oral Drugs	Meng-Hua	Yang	374g
133	Constructing 3D Voronoi Structures: A Toolkit with Biomedical Case Studies	Lucy	Todd	374h
134	Lion Software: A Roaring Transformation in Data Visualization	Lucy	Todd	374l
135	Mathematical Analysis of Percolation Processes with Application to Epidemics and Filtration	Robert	Ziff	374j
136	A Fast Spectral Method for Field-Induced Behavior of Dense Electrolytes in Confined Geometries	Aref	Hashemi	374m
137	Novel Parametric Gradient Calculation Method for Multistage Systems with Generalized Constraints	Bogdan	Dorneanu	374n
138	On a Least-Squares Finite Element Method for Multicomponent Diffusion and Reaction Processes	Tate	Tsang	374o
139	Enhancing Quantum Algorithms through Integration with Model Predictive Control Concepts	Dominic	Messina	374p
140	Surrogate Modeling Based on Nonconventional Adaptive Sampling on Smolyak Sparse Grids	Michaela	Bush	374q
141	Multiple Particle Tracking Data Analyzed with Machine Learning to Predict Complex Biological Variables	Nels	Schimek	374s
142	Literature-Based Discovery of Biological Concepts Associated with Diabetic Kidney Disease Using Semnet 2.0	Krutika	Patidar	374t
143	Towards Personalized Health: A Data-Driven Approach to Menstrual Cycle Analysis	Anastasia	Georgiou	252g

**# 375 - Interactive Session: Data and Information Systems**

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BOARD NUMBER	Title	First Name	Last Name	Paper Number
87	Data-Driven Multi-Objective Optimization for Canister Sampling Site Selection	S M	Farhad	375ai
104	Physics-Informed Estimation of Thermodynamic Parameters of Biodiesel Production from <i>Enteromorpha Compressa</i> Microalgae	Amir	Shahbazi	375a
144	Can Transfer Learning Assist in Resolving Missing Data for Enhanced Data-Driven Optimization ?	Teslim	Olayiwola	375c
145	Enhancing Electrochemical Deionization Optimization through Integrated Physics and Machine Learning Models	Teslim	Olayiwola	375y
146	Artificial Intelligence-Based Bacteria Species Distinction Based on Raman Microscopy.	Sidharth	Laxminarayan	375b
147	A Distributed Data-Driven Predictive Modeling Approach for Cyber-Process Incident Identification Using Spectral Community Detection	Amirmohammad	Ebrahimi	375d
148	Cyber-Attack Detection and Resilient Control Using Physics-Informed Machine Learning	Guoquan	Wu	375e
149	Time Delayed Cointegration Analysis for Non-Stationary Process Monitoring	Jingzhi	Rao	375f
150	Fast, Accurate Process Monitoring Based on Multi-Block Mutual Information and Nonparametric Statistical Process Control	Fangyuan	Ma	375g
151	Online Fault Detection and Diagnosis of Industrial Processes Via Data Augmentation and Integrative Learning of Process Knowledge and Fault Propagation Map	Alireza	Miraliakbar	375h
152	Detection of Faults in Multi-Modal Plant Operation Via Latent Space Models Based on First-Principles Plant Models	Enrique	Luna	375i
153	Probabilistic Distribution Reconstruction Model for Few-Shot Fault Monitoring in Chemical Processes	Borui	Yang	375j
154	Towards a Thrombosis Detection System Based on High-Frequency Central Venous Pressure Data	Zahra	Vaez	375k
155	Harnessing the Power of Lims to Disentangle Complex Metabolic Models and Regulatory Networks	Konstantinos	Mexis	375l
156	Leveraging Knowledge Synthesis and Transfer Learning in Photo-Bioproduction for Enhanced CO <sub>2</sub> Capture and Upcycling	Runyu	Zhao	375m
157	Large Language Models for Discovering Equations	Samiha	Sharlin	375n
158	Modelling Local Steady-State and Time-Dependent Reactive Dynamics in Porous Media By Multiscale Neural Networks	Agnese	Marcato	375o
159	Quantitative Evaluation of Catalyst Shape in SEM Images Using Gan and Semi-Supervised Semantic Segmentation	Yong Sang	Lee	375p
160	Contrastive Learning to Improve Pharmaceutical Knowledge Graph Quality in Machine Learning	Adheesh	Kadiresan	375q
161	Offline RL for Optimal Bioprocess Production Scheduling	Haiting	Wang	375r
162	Artificial Intelligence (AI) for Oil & Gas Upstream Processes, KPIs and Potential Savings	Amr	Abdelghany	375s
163	Neural Network Analysis of NMR and IR Spectra	James	Sturgill	375t
164	Time-Series Multiscale Computational Fluid Dynamics Data Modeling with Transformers for Atomic Layer Processing	Henrik	Wang	375u
165	Machine Learning, Modelling, and Simulation for Problem-Solving in the Hydrogen Production Process	Giovanni	Morales Medina	375v
166	Symbolic Regression-Based Recursive Surrogate Model for a Manufacturing Process	Seulki	Han	375w
167	Prediction of Mineral Scale Formation in Bakken-Using Machine Learning	Arash	Tayyebi	375x
169	Optimizing CO <sub>2</sub> Utilization Efficiency through Physics-Informed Modeling of Membrane Reactors	Zahir	Aghayev	375z
170	Simultaneous Optimization Via Physics-Informed Neural Network Solvers with Compartment Models for Reactor Design	Yubin	Ryu	375aa
171	Enhancing Li-Ion Battery Remaining Useful Life Prediction with a Physics-Constrained Bayesian Recurrent Neural Network	Jiwei	Yao	375ab

**# 375 - Interactive Session: Data and Information Systems**

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BOARD NUMBER	Title	First Name	Last Name	Paper Number
173	Policy Development for a Mobile Robot to Search for the Source of a Chemical Plume in an Urban Environment	Paul	Morris	375ae
174	A Pre-Train and Fine-Tune Paradigm of Fault Prognosis for Chemical Process	Yiming	Bai	375ag

**# 376 - Poster Session: Chemical Engineering Education**

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BOARD NUMBER	Title	First Name	Last Name	Paper Number
175	Combining Ontologies and Lims to Evaluate and Improve Engineering Curricula	Nikos	Trokanas	376a
176	Radical Redesign of an Introductory Chemical and Biomolecular Engineering Course for Student Motivation	Jostin	Armada	376b
177	Student Involvement in Generating Material for a Hands-on Brew Lab: Reflections on Self-Efficacy and Engagement	Joshua	Abraham	376c
178	Modeling Drug Delivery Using Sodium Alginate Beads and Food Coloring As an Intro to Chemical Engineering Experiment for First-Year Students	Alex	Bertuccio	376d
179	Enhancing Engineering Education: Low-Cost Hands-on Fluidized Bed Heterogeneous Reactor with Color Change	Faraz	Rahimi	376e
180	A New Way of Teaching Gas Liquid Reaction Kinetics and Gas-Liquid Reactor Design	Damaraju	Phaneswararao	376f
181	Development of a Visual Library for Chemical Process Safety Education: Introduction to Sketchnoting	Monica	Lamm	376g
182	Artificial Intelligence (AI) Assisted Thermodynamics Learning	Karen	Agro	376h
183	Investigating Students' Experience with Generative Chatbots in Chemical Engineering Education	Fiammetta	Caccavale	376i
184	Assessing Team Performance in Control Rooms: Integrating Eye Tracking with Multimodal Data Analysis for Insights	Babji	Srinivasan	376j
184	Assessing Team Performance in Control Rooms: Integrating Eye Tracking with Multimodal Data Analysis for Insights	Rajagopalan	Srinivasan	376j
184	Assessing Team Performance in Control Rooms: Integrating Eye Tracking with Multimodal Data Analysis for Insights	Haider	Altaf	376j
185	Using an Industrial Example to Teach Pollution Prevention and Residence Time Distributions	Robert	Hesketh	376k
186	Social Justice and Societal Impact of Developing a Green Methanol Process in West Virginia	Srinivas	Palanki	376l
187	Fostering Holistic Understanding of Sustainability through a Mixed-Methods Study in Foundry Guided Courses	Shafieh	Karami	376m



**# 378 - Poster Session: Thermodynamics and Transport Properties (Area 1A)**

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BOARD NUMBER	Title	First Name	Last Name	Paper Number
28	Dynamic Modeling and Simultaneous Simulation of Helical-Coiled Supercritical Steam Generator of Mhtgr	Yao	Tong	378a
188	A Proposal on Thermodynamic Consistency Test of Vapor-Liquid Equilibria Data at High Pressure	Katsumi	Tochigi	378b
189	Investigating the Impact of Water Activity on the Hydration Dynamics and Thermodynamics of Ye'Elimite-Calcium Sulfate Hydrate Systems	Godwin	Ogbuehi	378c
190	Utilizing Phase Equilibrium Conditions for Separating Hydrogen from Hydrogen-Compressed Natural Gas Blends	Jun Hyoung	Lee	378d
191	Improving Hydrogen Storage Performance of Clathrate Hydrates Formed within Superabsorbent Polymers	Jae-Cheol	Lee	378e
192	Vapor-Liquid Equilibria for Selected Binary Systems 2-Methyltetrahydrofuran + Alkane	Hiroyuki	Matsuda	378f
193	New Initialization Procedures from Stability Testing in Multiphase Flash Calculations for Water/Hydrocarbon/CO <sub>2</sub> Mixtures	Juan	Heringer	378h
194	Modeling Vapor Liquid Equilibrium Using Machine Learning	Mohammad	Alam	378i
195	Engineering Ionic Liquid Specificity for Efficient Lanthanide Extraction: A Computational Study	Balantrapu	Harshit	378j
196	Compressed Liquid Densities of Octane + Decane and Thiophene + Octane + Decane Mixtures at Temperatures up to 363.15 K and Pressures from 1 to 25 Mpa	Diana L.	Salas-Gallegos	378l
197	Volumetric and Acoustic Properties of Metamizole and Polyethylene Glycol (PEG 200) in Water at Different Temperatures	Ricardo	Torres	378k

**# 379 - Poster Session: Fuels and Petrochemicals Division**

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BOARD NUMBER	Title	First Name	Last Name	Paper Number
198	Application of Ethanol Reforming in Internal Combustion Engines: Evaluation of Efficiency	Ricardo	Torres	379c
199	Modular Processing of Flare Gas for Hydrogen & Carbon Nanofibers	Jessica	Hauck	379a
200	Optimization of Process Parameters in Resin-Wafer Electrodeionization for Enhanced Gluconic Acid Recovery from Hemicellulose Hydrolysate	Olabode	Akindolani	379b
201	An Updated Chemical Kinetic Model of NH <sub>3</sub> and NH <sub>3</sub> /H <sub>2</sub> Oxidation Using Reaction Mechanism Generator (RMG)	Chuangchuang	Cao	379d
202	Process Design of Oxy-Fuel Combustion Combined Cycles for Carbon Capture Using LNG Regasification	Wei	Wu	379e
203	Fast Pyrolysis of Raw and Acid-Washed Cattle Manure in a Fluidized Bed Reactor for the Production of Bio-Oil	Seung-Soo	Kim	379f
204	Integrated Production of Methanol and Hydrogen: A Decarbonization Framework for Petrochemical Industry	Usama	Ahmed	379g
205	Synthesis of Surfactants and Evaluation of Their Potential for Enhanced Oil Recovery Applications	Syed Muhammad Shakil	Hussain	379h
206	Reaction Behaviors during Induction Period of Crox for Fluidized-Bed Propane Dehydrogenation	Dae Sung	Park	379i
207	Hydrogenation of Pyrolysis Fuel Oil over Pt/MCM-41 Catalysts	Jong-Ki	Jeon	379j
208	Catalytic Oxidation Desulfurization of Dibenzothiophene By Bronsted-Lewis Acid Ionic Liquids	Ran	Liu	379k
209	Novel Technological Roadmap from Fossils to Clean and Cheap Fuels Manufactured Domestically and Distribute	David	Judbarovski	379l
210	Development of a Calculator for Gibbs Energy of Formation	Isaac	Gamwo	379m
211	Sustainable Solution for the Effective Removal of Poly Aromatic Hydrocarbons from Petroleum Fractions.	Zainab	Alaithan	379n
212	Electrohydrodynamic Processing in Biosolvents Production from Waste Polylactide	Sabina	Wilkanowicz	379p

**# 380 - Area 2D: Membrane-Based Separations Poster Session**

Tuesday, October 29, 2024 3:30 PM - 5:00 PM

Exhibit Hall GH, San Diego Convention Center

BOARD NUMBER	Title	First Name	Last Name	Paper Number
168	Machine Learning – Driven Surface Grafting of Thin-Film Composite Reverse Osmosis (TFC-RO) Membrane	Arash	Tayyebi	380y
213	Zwitterionic Nanofiltration Membranes for the Removal of Harmful Algal Toxins from Lake Water	Chidambaram	Thamaraiselvan	380a
214	Pilot Study of Flow Reversal RO for Ultra-High Recovery in Brackish Water Desalination	Mingheng	Li	380b
215	Ceramic Bowl-Supported Nanofibrous Membrane with Fluorinated Silsesquioxane-Inspired Switchable Surfaces for Successive Crude Oil/ Water Separation	Enock	Dare	380c
216	Criteria and Strategy for Judging Membrane Fouling Performance without Bias	Zerui	Hao	380d
217	Mechanism and Applications of Separation Membranes with Special Wettability	Yihan	Song	380e
219	Experimental Investigation of Nanofiltration Separation Performance for Aqueous Organic Acid Solutions	Nooram	Anjum	380f
220	Next Generation Macroporous Polymer Membrane with Low Channeling for Improved Selectivity	Surya	Karla	380g
221	Separation of Siloxane from Silicone Fluid Mixture Using Polymeric Membrane	Hammed	Balogun	380i
222	Gas Separation Characteristics between Freestanding Film and Thin Film Composite Membrane Using Fluorinated Polyimide	Nam Gyu	Lim	380j
223	Understanding of Sorption Kinetics of Bio-Inspired Polysaccharides Depending on the Substituted Functional Groups	Hyeok Jin	Kwon	380k
224	Tailoring Interlayer Spacing in Mxene/GO Composite Membranes for Enhanced Gas Separation Efficiency	Mohammad	Mozafari	380l
225	Modified Ultrathin Membranes Composed of Graphene Oxide for Gas Separation	Saman	Emami Gerami	380m
226	Cellulose Nanocrystal (CNC) Nanocomposite Membranes for Gas Separations	Connor	Farrell	380n
227	Advancing Membrane Technology for CO <sub>2</sub> Capture and Acid Gas Enrichment	John	Yang	380o
228	MOF and Zeolite Based Membranes for Carbon Dioxide and Nitrogen Separation	Suboohi	Shervani	380p
229	Advancing CO <sub>2</sub> Separation in Humid Condition: Harnessing Encapsulated Ionic Liquid in Polymeric Membranes	Lakshmeesha	Upadhyaya	380q
230	A Systematic-Design on a Mechanically-Stable Polymeric Molecular Sieve Membrane for Gas Separation Applications.	Hongju	Lee	380r
231	Metal-Embedded Carbon Molecular Sieve (CMS) Membranes for Sustainable Ammonia Production	Nhan	Khuu	380s
232	Development of a Flow Loop System for Simulating Scale Formation and Evaluating Scale Kinetics in Oil and Gas Industry	Hesham	Abdelaziz	380u
233	Low-Temperature Ozone Calcination for Improving P-/O-Xylene Separation in MFI Zeolite Membranes: Suppression of Defect Formation and Dominance of Wider Cracks	Sanha	Park	380v
235	Hot Melt Extrusion of Enzyme-Loaded Hydrogel Membranes for CO <sub>2</sub> Capture	Samuel	Hays	380x
236	Filler Surface Effects on Mixed Matrix Pervaporation Membrane Performance: Ethanol Dehydration Study and Permeation Modeling	Musabbir Jahan	Talukder	380z
237	Quantifying Support Resistance for Composite Palladium Membranes for Hydrogen Purification	Nolan	Kelley	380ab
238	Production of Hydrogen and H <sub>2</sub> /NH <sub>3</sub> Mixtures from Ammonia at Elevated Pressure in a Catalytic Membrane Reactor	Nolan	Kelley	380am
239	Fabrication and Evaluation of Polyetherimide Membranes Containing Pluronic P-123 and Graphene Using Vapor-Induced Phase Separation	Mohammad Hosein	Moghadasin	380aa
240	Crosslinkable Poly(arylene ether sulphone) Polymers for Nitrate Remediation	Simeon	Newman	380ac
241	Phthalate Degradation Using a PVDF Biocatalytic Membrane	Hadi	Rouhimaleh	380ad

**# 380 - Area 2D: Membrane-Based Separations Poster Session***Tuesday, October 29, 2024 3:30 PM - 5:00 PM**Exhibit Hall GH, San Diego Convention Center*

BOARD NUMBER	Title	First Name	Last Name	Paper Number
242	Modeling Pressure-Induced Diffusion of Water in Dense Polymer Membranes	Kevin	Reimund	380ae
243	Manipulating Surface Charges of NF270 Membrane to Enhance Li <sup>+</sup> /Mg <sup>2+</sup> Separation Properties	Sagnik	Das	380ag
245	Selective Extraction of Lithium from Brines Via Chemical Reduction of Intercalation Materials	Gary	Koenig	380af
246	Elevating Gas Separation Performance of Pebax-Based Membranes By Blending with a PDMS-PEO Block Copolymer for CO <sub>2</sub> Capture and Separation	Ji	Wu	380ah
246	Elevating Gas Separation Performance of Pebax-Based Membranes By Blending with a PDMS-PEO Block Copolymer for CO <sub>2</sub> Capture and Separation	Can-Zeng	Liang	380ah
247	Machine Learning Enabled Discovery of Novel Polymer Structures with Experimental Validation for Gas Separation Applications	Benjamin	Pedretti	380ai
248	Facilitated Transport Membranes for Highly Selective and Stable Olefin/Paraffin Separation.	Jinxuan	Zhang	380aj
249	Modeling and Scaling-up of Membrane Modules Leveraging Dimensional Analysis.	Grigorios	Panagakos	380ak
249	Modeling and Scaling-up of Membrane Modules Leveraging Dimensional Analysis.	Hector	Pedrozo	380ak
250	Local Hydrophilicity Enables Macroscale and Molecular Structure Control of 2D MXene Membrane	Yaguang	Zhu	380an
251	A Multifunctional Desalination-Osmotic Energy Storage (DOES) System for Managing Energy and Water Supply	Qianhong	She	380ao

**# 381 - Poster Session: Fundamentals and Applications of Adsorption and Ion Exchange**

Tuesday, October 29, 2024 3:30 PM - 5:00 PM

Exhibit Hall GH, San Diego Convention Center

BOARD NUMBER	Title	First Name	Last Name	Paper Number
253	Vinyl Pyridine As a Precursor for Nitrogen-Doped Zeolite-Templated Carbon	Emmanuel U.	Osuagwu	381a
254	Optimization of Fe <sub>3</sub> O <sub>4</sub> Nanoparticles Loading on Reduced Graphene Oxide Nanosheets for the Efficient Removal of Aqueous <i>P</i> -Nitroaniline and Cr(VI)	Sourav	Halder	381b
255	Iron-Doped Porous Carbon Beads for the Removal of Methylene Blue Dye Molecules and Lead (II) Ions from Water	Anmol	Pandey	381c
256	Phosphate Removal and Recovery from Aqueous Solution Using Polyelectrolyte Modified Lignin-Magnetic Nanoparticles	Olufemi	Ogunjimi	381d
257	Methods for Characterizing Sorbents for Direct Air Capture and Post-Combustion Carbon Capture	Darren	Broom	381e
258	Comparing the Adsorptive CO <sub>2</sub> Capture Performance of Zeolite 13X and CalF-20 Under Humid Conditions	Sunny	Pawar	381f
259	Generalized Langmuir (gL) Isotherm for Mixed-Gas Adsorption Equilibria on MFI and LTA Adsorbents	Forough	Moghaddamali	381g
260	Detailed Model Validation of a Simplified Model for Adsorption Processes for Flue Gas CO <sub>2</sub> Capture	Gwyneth	Liske	381h
261	Engineering Microstructure of Ultra Porous Carbon Aerogels As Advanced H <sub>2</sub> Sorbent Carriers	Ruthradharshini	Murugavel	381i
262	Microwave-Assisted Conversion of Scrap Tire to Activated Carbon Adsorbent Materials for Landfill Gas Upgrading	Brandyn	Nutter	381j
263	Investigating Adsorbent-Based Separation of Refrigerant R-410A through Dynamic Breakthrough Experiments and Thermodynamic and Dynamic Breakthrough	Andrew	Yancey-Jardon	381l
264	Measurements of Pentafluoroethane (HFC-125) and Difluoromethane (HFC-32) for R-410A Separation	Andrew	Yancey-Jardon	381y
265	A Comprehensive Evaluation of the Performance and Stability of Triamine-Grafted Mesoporous Silica Materials for Direct Air Capture Applications	Laura	Rojas	381k
266	Performance Evaluation of Pentaethylenehexamine Adsorbent with Epoxide Functionalization on Macroporous Silica for CO <sub>2</sub> Capture	Dongho	Lee	381m
267	Electrochemical Separation of Carboxylates with Capacitive Deionization	Sadia	Saberin	381n
268	Design of Titanium-Based Ion-Sieves Structure and Regulation of pH Value for Lithium Recovery from Brines	Mengxiang	Lu	381o
269	Alkene/Alkane Electro-separations: Toward a Universal Tight Binding Model for Discovering Optimal Transition Metal Complexes	Banhee Shikha	Roy Brishti	381p
270	Modeling Assisted Estimation of Adsorption Kinetics Using Gravimetric Method	Neeraj	Borker	381r
271	An Experimental Investigation: Continuous Fixed Bed Adsorption of CO <sub>2</sub> over Carbon Based Adsorbent	Mohammed	Almesfer	381s
272	Separation of CH <sub>4</sub> /CO <sub>2</sub> from Biogas By Pressure-Gradient Simulated Moving Bed Process with ZSM-5 Zeolite Packed Columns	Yao	Miao	381t
273	Development of Chitosan-Based Ionic Imprinted Polymer Via Alkaline/Urea Dissolution for Nd <sup>3+</sup> Recovery from Mining Wastes	Baolin	Deng	381u
274	Asparagine Anchored on Mesoporous Silica for Au (III) Capture: Elucidation of Adsorption-Reduction Mechanisms and Their Implications Towards Selective Au (III) Recovery	Gebremedhn	Gebremichael	381v
276	Self-Diffusion of Volatile Organic Compounds in Zr-MOFs: A Joint Computational and Experimental Study	Nickolas	Gantzler	381x
277	An Efficient and Reliable Pre-Screening Method for Rapid Testing of Sorbents Under Steam Desorption Conditions for DAC Applications	Ali A.	Alnajjar	381z
278	Determination of Binary CO <sub>2</sub> /H <sub>2</sub> Adsorption Isotherms and Kinetics over Porous Organic Cage CC3 Via Zero Length-Column Technique	Jimmy	Moreno	381aa

**# 381 - Poster Session: Fundamentals and Applications of Adsorption and Ion Exchange**

Tuesday, October 29, 2024 3:30 PM - 5:00 PM

Exhibit Hall GH, San Diego Convention Center

BOARD NUMBER	Title	First Name	Last Name	Paper Number
279	Techno-Economic Optimization of CO <sub>2</sub> Capture By Vacuum/Pressure Swing Adsorption Using Hierarchically Porous Structured Composites with Ultrahigh MOF Loading	Solomon Kahsay	Gebremariam	381ab
280	Separation of Branched Alkane Feeds with Metal-Organic Frameworks	Adriano	Henrique	381ac
281	Extraction and Separation of Er(III), Nd(III), Sm(III), and Pr(III) from Water Samples Using Hydrophobic Deep Eutectic Solvents As an Extracting Agent	Laura	Fronchetti Guidugli	381ad
282	Fitting Adsorption Isotherms with Symbolic Regression	Reza	Haghpanah	381ae
283	Enhancing Oxidation Stability of Amine-containing CO <sub>2</sub> Adsorbents using Hydroxyethyl Starch	Chanjot Kaur	.	381af

**# 382 - Poster Session: General Topics on Separations**

Tuesday, October 29, 2024 3:30 PM - 5:00 PM

Exhibit Hall GH, San Diego Convention Center

BOARD NUMBER	Title	First Name	Last Name	Paper Number
218	Mechanism and Applications of Membranes with Special Wettability	Yihan	Song	382c
285	Design and Utilization of a High Relative Humidity Flow Bed Enabling Rapid Screening of Sorbents for Atmospheric Water Harvesting	Emily	Gonzales	382a
286	Developing Technologies to Degrade and Separate Perfluorooctanoic Acid (PFOA) from Drinking Water Sources	Paola	Perez-Vega	382d
287	.Fwsvfdsf	Jung Moo	Lee	382e
288	High-Throughput Experiments Elucidate the Effect of Multicomponent Feed Streams on Solute Transport	Laurianne	Lair	382f
289	Understanding CO <sub>2</sub> Capture and Release Behaviors of Nanoscale Hybrid Materials Under Different Energy Transfer Mechanisms	Julianne	Oshiro	382h
290	Understanding the Electronic Structure of Nb and Ta to Design Sustainable Separation of the Chemical Twins	Subhajyoti	Chaudhuri	382i
291	Engineered, Low-Cost Membranes for Municipal Wastewater Treatment	Mahesh	Manikantan Sandhya	382j

**# 383 - Poster Session: Separations Division**

Tuesday, October 29, 2024 3:30 PM - 5:00 PM

Exhibit Hall GH, San Diego Convention Center

BOARD NUMBER	Title	First Name	Last Name	Paper Number
234	Enhancing CO <sub>2</sub> Separation Efficiency Using Chabazite-Type Zeolite Membranes: Investigating the Impact of Hydrophobicity and Defect Structure.	Sanha	Park	383z
244	Effect of Surface Charges and Solution pH on Li <sup>+</sup> /Mg <sup>2+</sup> Separation Performance of Modified-NF270 Membrane	Sagnik	Das	383ae
292	Understanding and Comparing Energy-Intensification Strategies for Extractive Distillation Processes	Jeffrey	Ward	383a
293	Separation of R-410A Using 1-Ethyl-3-Methylimidazolium Bis(trifluoromethylsulfonyl)imide Based on Rate-Based Model Simulation with Measured Mixture Properties	Abdulrman	Arishi	383e
294	Study of the Effect of the Polyamine Absorbents for CO <sub>2</sub> Capture Using Rotating Packed Bed (RPB)	Gwanhong	Min	383f
295	Separation of 2,3-Butanediol from Fermentation Broth Via Cyclic and SMB Adsorption over Nano-MFI Zeolites	Jianpei	Lao	383g
296	ACP: Advanced Crystallization Platform	Hamza	Youssef Ismail	347c
296	ACP: Advanced Crystallization Platform	Nandini	Sarkar	347c
296	ACP: Advanced Crystallization Platform	Michaela	Murr	347c
297	Microscopic Gas Diffusion in Hybrid Membranes Composed of Ionenes and Ionic Liquids By NMR	Omar	Boloki	383b
297	Microscopic Gas Diffusion in Hybrid Membranes Composed of Ionenes and Ionic Liquids By NMR	Sree	Laxmi	383b
298	Microscopic Gas Diffusion in Mixed Matrix Membranes Containing Uio-66-NH <sub>2</sub> Crystals with Modified External Surface	Omar	Boloki	383c

**# 383 - Poster Session: Separations Division**

Tuesday, October 29, 2024 3:30 PM - 5:00 PM

Exhibit Hall GH, San Diego Convention Center

BOARD NUMBER	Title	First Name	Last Name	Paper Number
299	Multi-Scale Computational Modeling and Simulation of All-Silica Zeolites for Adsorptive Separation of Ternary (H <sub>2</sub> S/CO <sub>2</sub> /CH <sub>4</sub> ) Mixtures	Sunghyun	Yoon	383i
300	Impact of Functional Groups on Porous Carbon Adsorbents and Strategies for Controlling Their Adsorption Affinity Toward Methane, Carbon Monoxide, and Carbon Dioxide	Chan Hyun	Lee	383j
301	Fabrication of Pd/Ta Composite Metallic Membranes By Sputtering: The Impact of Pd Layer Thickness on Permeation Behavior	Hyeon Ook	Kim	383k
302	Development of an Adsorptive Separation Process of Turquoise Hydrogen Using Layered Adsorption Bed	Jae Hyeon	Park	383l
303	Using Molecular Modeling to Understand the Free Energy in Critical Material Separations	Xiaoyu	Wang	383m
304	Ambient Electrochemical Flow for Separating Critical Materials from Industrial Scrap and E-Waste	Casey	Mezerkor	383h
304	Ambient Electrochemical Flow for Separating Critical Materials from Industrial Scrap and E-Waste	Carinna	Lapson	383h
305	Discovery of Pervaporation Membranes for Ethanol Dehydration Using a Reactive Polymer Framework	Zane	Parkerson	383n
306	Application of Metal Organic Frameworks in the Fractionation and Isolation of Biomolecules	Mohammad	Mahmoudi	383o
307	Synthesis and Properties of Symmetric and Asymmetric Glycerol-Derived 1,3-Diether-2-Alkenes for CO <sub>2</sub> Absorption	Jun	Wang	383p
308	Exploring in-Situ Adsorption for Ammonia Separation: Insights from High-Pressure and High-Temperature Conditions	Cristian	Aristizabal-Gonzalez	383q
309	Extractive Distillation Process Design for Recovering and Recycling Components from High-GWP Refrigerant R-410A Using Ionic Liquids	Julia	Espinoza Mejia	383r
310	Unleashing the Hyperloop: Magnetic Alignment of Lanthanide-Based Metal-Organic Frameworks for Enhanced Gas Separation	Yeongseo	Bak	383s
311	Magnetophoresis and Field-Free Diffusion of Magnetic Nanoparticles in Liquid Media: Exploring the Effect of Nanoparticles Size and Concentration	Stefano	Ciannella	383t
312	Green Solvents for Upcycling Waste Polyvinyl Chloride (PVC) into Ultrafiltration Membranes for Water Treatment	Atta Ur	Razzaq	383u
313	Modeling Complex Gas Mixture Breakthrough Curves Using IAST and an Advanced Finite Volume Scheme Poster	Mengjiao	Wu	383v
314	Synthesis of CuCl-Impregnated Zeolite-Based Adsorbent and Its Application to CO Separation	Jiwon	Yim	383w
315	Preparation of Porous Carbon Adsorbents Derived from Cmc and Their Application for Greenhouse Gas Capture	DONG-Joon	Lee	383x
316	A Novel ZIF-8 Membrane for Enhanced Thermal Stability and H <sub>2</sub> /CO <sub>2</sub> Separation in Water Gas Shift Reactions	Sejin	Kim	383y
317	Distributing Localized Charge and Polarity in Hydrophobic Copolymer Membranes By Spin Coating Ring-Opening Metathesis Polymerization	Matthew	Vasuta	383aa
318	Fabrication and Scaleup of a Radial CO <sub>2</sub> initiated Diffusiophoretic Colloid Separation System	Esai	Lopez	383ab
319	Enhanced Removal of Heavy Metals from Contaminated Water Using Psf Hollow Fiber Membrane Blended with Fe <sub>3</sub> O <sub>4</sub> /Mwcnts-COOH Nanohybrid	Vikash	Kumar	383ad
320	Poster: Enhancement of Fouling Mitigation through Real-Time Induced Magnetic Vibrations in Spin-Coated Magnetized Membranes	Jasneet	Pala	383af
321	Poster: Ionic Liquid Membrane for Selective Removal of Nanoplastics from Water: Investigating the Interfacial Interactions between PS Nanoplastics and Dom	Ashish	Srivastava	383ag
322	Enhanced H <sub>2</sub> Transport in Polybenzimidazole By Blending with a Highly Permeable Polyimide	Narjes	Esmaili	383ah
323	In-Situ Growth of ZIF-L MOF on an Ultrafiltration Membrane: Understanding MOF Growth, Characterization, and Performance in Nano Plastics & Dyes Removal	Himangshu	Mondal	383ai

**# 383 - Poster Session: Separations Division***Tuesday, October 29, 2024 3:30 PM - 5:00 PM**Exhibit Hall GH, San Diego Convention Center*

BOARD NUMBER	Title	First Name	Last Name	Paper Number
324	In silico Synthesis of Carbon Molecular Sieves for High-Performance D <sub>2</sub> /H <sub>2</sub> Separation Using Quantum Sieve Effect	Yasuyuki	Yamane	383aj
325	Effect of Trace Levels of Manganese Ions during Solvothermal Synthesis of Muf-16 on CO <sub>2</sub> Uptake Capacity	Akriti	Sarswat	383ak
326	Polyorganosilica Membranes Structure Tightening and Hydrothermal Stabilization Via Few Cycle Atomic Layer Deposition for Hydrogen Purification Process	Vinh	Bui	383al
327	Fabricating a Nano-Filtration Membrane for Separating Multivalent Cations from a Mine Tailing Water	Omid	Jazani	383am
328	Cost-Efficient Direct Air Capture Via Thermal Coupling with LNG Regasification	Seo-Yul	Kim	383an
329	Poster: Utilizing MOF-808 Grafted NF-Membrane for Selective Removal of Selenium from Produced Water	Sweta	Modak	383ao
330	Autothermal Direct Air Capture (aDAC) of CO <sub>2</sub> at the Bench Scale.	Mitesh	Patil	383ap
331	Generalized Workflow for Model-Free Quality-By-Control: Recipe Development and Its Implementation in Pharmaceutical Crystallization	Yung-Shun	Kang	383aq
332	Hierarchically-Structured Sorbents with Improved Capacity and Mass Transfer Characteristic 3D-Printed from Reactive Polymers	Shukun	Zhong	383ar
333	Unusual Transport of Phenolic Compounds in Polymer Membranes	Woo Jin	Jang	383at
334	Solubility Investigation of Niobium Compounds in Alkaline Medium	Andressa	Mazur	383au
335	Innovative Desalination Technologies: A Dual Approach to Tackle Global Freshwater Scarcity and Enhance Lithium Recovery	Mohammad J	Seyed Sabour	383av
336	Sustainable and Cost-Effective Silica-Based Materials for Hydrogen Storage	Amanuel Gidey	Gebretatios	383aw
337	Unifac Dortmund Correlated Parameters for Liquid-Liquid Equilibrium Prediction Systems of Biodiesel-Related Production Process.	Carlos A.	Martinez Riascos	383ba
337	Unifac Dortmund Correlated Parameters for Liquid-Liquid Equilibrium Prediction Systems of Biodiesel-Related Production Process.	Mario Andrés	Noriega	383ba
337	Unifac Dortmund Correlated Parameters for Liquid-Liquid Equilibrium Prediction Systems of Biodiesel-Related Production Process.	Juan	Hoyos	383ba
338	Modeling Lanthanide-Ligand Complexes across Aqueous-Organic Interfaces	Sanele	Maziya	383ax
339	Modelling and Assessment of Deacidification of Used Cooking Oils Using Ethanol Extraction in a Liquid-Liquid Film Contactor	Sergio	Rojas Prieto	383ay
340	Enhanced Furfural Extraction from Aqueous Media Using Neoteric Hydrophobic Solvents for Sustainable Biomass Recovery	Ahmad	Darwish	383az

**# 384 - General Poster Session in Sensors***Tuesday, October 29, 2024 3:30 PM - 5:00 PM**Exhibit Hall GH, San Diego Convention Center*

BOARD NUMBER	Title	First Name	Last Name	Paper Number
341	Cu <sub>3</sub> n Sensors for Detecting the Air Pollutant NO <sub>2</sub> at Parts-per-Billion Levels	Adrien	Baut	384a
342	Aptamer-Enabled Solid-State Nanopore Sensors for Metal Ions Detection	Niloofer	Zolfigol	384b
343	Silver Nanoparticles Sensor Array for the Detection of Sars-Cov-2	Benjamin	Lam	384c
344	Real-Time Thickness Monitoring of Electropolymerized Molecularly Imprinted Polymers	Grace	Dykstra	384d

**# 385 - Poster Session: Waste Plastics**

Tuesday, October 29, 2024 3:30 PM - 5:00 PM

Exhibit Hall GH, San Diego Convention Center

BOARD NUMBER	Title	First Name	Last Name	Paper Number
345	Preliminary Techno-Economic Analysis of PET Electro-Reforming Process	Hyeonseoo	IM	385a
346	Characterizing Polyvinyl Chloride Interactions with Common Commercial Additives in Traditional and Bioderived Solvents	Feranmi	Olowookere	385b
347	Catalytic Pyrolysis of Disposable Masks: Adjusting Nickel Content Ratios in Metal Oxide Catalysts for Hydrogen-Rich Gas and Carbon Nanomaterial Quality	Do Hyun	Lee	385c
348	De-Plasticization of Expanded Polystyrene (EPS) Wastes into Value-Added Carbon Materials	Dipendu	Saha	385d
349	Techno-Economic Analysis and Life Cycle Assessment of Municipal Plastic Waste Incineration, Gasification, and Pyrolysis Oil Production By Chemical Process Simulation	Soyoung	Kang	385e
350	Techno-Economic Analysis of Inherently Recyclable All-Polyester Multilayer Plastics	Dilara	Goreke	385f
351	Sulfuric Acid for Chemical Recycling of Polycarbonate in Water	Hossein	Abedsoltan	385g
352	Molecular Weight Fractionation of Polyvinyl Chloride (PVC) in Green Solvent Systems	Jaewoo	Choi	385h
353	Synthesizing Highly Crystalline Graphite Powder for Lithium-Ion Battery Anodes from Bulk Polyethylene Waste	Yuan	Gao	385j
354	Upcycling Linear Low-Density Polyethylene Waste into Graphene for High Mass Loading Supercapacitors	Yuan	Gao	385aa
355	Converting Waste Plastics into Hydrocarbon Products: Exploring the Economic Potential of Hydrocracking Process	Elizabeth	Aigaje	385i
356	Upcycling Plastic Wastes to Fuels and Monomers Via Electrified Spatiotemporal Heating	Qi	Dong	385k
357	Population Balance Equations for Polymer Upcycling	Baron	Peters	385l
358	Optimal Strategies of Upcycling Plastic Waste through Superstructure-Based Framework	Woochang	Jeong	385m
359	Recyclable Non-Isocyanate Polyurethane Network Foams from Renewable Biobased Precursors	Nathan	Purwanto	385o
360	Fermentable Organic Acids Production from Mixed Plastic Waste in the Presence of Nitric Acid	Seong-Min	Cho	385p
361	Biocomposite Thermoplastic Polyurethanes Containing Evolved Bacterial Spores As Living Fillers to Facilitate Polymer Disintegration	Adam	Feist	385q
362	Post-Polymerization Functionalization of Waste Poly(styrene) Using Ionic Liquids Chemistries	Zahra	Sekhvat Pour	385s
363	Making Non-Recyclable Polymers Recyclable: Novel Advances in Obtaining Value, Circularity, and Sustainability from Spent Polymer Networks and Thermoplastics	John	Torkelson	385t
364	Nutrient Sourcing and Process Optimization in Microbial Plastic Waste Valorization and a Molecular Level Study of the Effects of Nutrients of Target By-Products	Kimia	Noroozi	385u
365	Reactive Molecular Dynamics-Guided Deconstruction of Single-Use Plastics for Value-Added Chemicals and Novel Materials	Tridip	Das	385v
366	Two-Stage Pyrolysis of Polyethylene to Light Olefins Assisted By CO <sub>2</sub>	Qidian	Sun	385w
367	Acid-Catalyzed Decomposition of Polypropylene into Naphtha in Hydrocarbon Solvent	Masahiko	Matsukata	385x
368	Understanding the Pyrolysis Process of Polyethylene By a Coupled Method of Machine Learning and Molecular-Level Kinetic Model	Maoxian	WANG	385y
370	Effects of Capping Agents on Deblocking Temperatures of MDI-Based Blocked Isocyanates: A Study of Nucleophilicity, Pka, and Chain Length Trends	Remsha	Rafiq	385ac
371	Electrochemically Enhanced Hydrolysis and Upcycling of Polyethylene Terephthalate (PET)	Zenifar	Haque	385ad
372	Hydrothermal Clothing Recycling	Aristidis	Mihalos	385ae
373	CO <sub>2</sub> Induced Separation of Terephthalic Acid for Polyester Upcycling	Diego	Trevisan Melfi	385ag



**# 385 - Poster Session: Waste Plastics***Tuesday, October 29, 2024 3:30 PM - 5:00 PM**Exhibit Hall GH, San Diego Convention Center*

BOARD NUMBER	Title	First Name	Last Name	Paper Number
374	Surface Modification of Polypropylene Using Dielectric Barrier Discharge (DBD) Plasma for Polymer Upcycling	Sujoy	Bepari	385ai
375	A Comprehensive Study of the Impact of Polyolefin Structure on Pyrolysis Plastic Oil Composition	Jiayang	Wu	385aj
376	Catalytic Dehydration of Polyvinyl Alcohol over Solid Acids in Both Molten and Solvent Systems	Mohammad Reza	Razzaghi	385ak
377	Continuous Catalytic Upcycling of Multilayered Plastic Packaging in a Biphasic System	Dai Phat	Bui	385am
378	Functional Upcycling of Polyurethane Thermosets into Value-Added Thermoplastics Via Small-Molecule Carbamate-Assisted Decrosslinking Extrusion	Jared	Nettles	385an
379	Recycling of Post-Consumer Polyethylene Terephthalate (PET) Waste Via Glycolysis Using Ionic Liquid Catalyst	Maria	Coleman	385ao
380	Carbon-Efficient Upcycling of Plastic Wastes to Biodegradable Polymers Enabled By CO <sub>2</sub> Plasma	Caixia	Wan	385ap