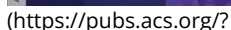


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Data Analytics & AI for Manufacturing & Healthcare: (.sessionCollapse528857)

10:00am - 01:56pm EDT - August 21, 2024 | Location: Mile High Ballroom 1B (Colorado Convention Center)

Rigoberto Advincula, Organizer; Jihua Chen, Organizer; Richard Mayes, Organizer; Yumeng Li, Presider; Christopher Sutton, Presider; Konstantinos Vogiatzis, Presider

Division: [I&EC] Division of Industrial and Engineering Chemistry

Session Type: Oral - Hybrid

Co-Sponsor/Theme: Co-sponsor - Nominal POLY: Division of Polymer Chemistry (/live/32/page/1051/1?eventSearchTag[]=171)

Co-sponsor - Nominal PMSE: Division of Polymeric Materials Science and Engineering (/live/32/page/1051/1?eventSearchTag[]=236)

Division/Committee: [I&EC] Division of Industrial and Engineering Chemistry

Artificial intelligence (AI) is revolutionizing numerous fields, including Chemistry, Engineering, and Industries. This symposium delves into the exciting advancements of AI in these domains, highlighting its potential to not only optimize efficiency and productivity, but also unlock new possibilities in manufacturing and healthcare. The objective of the symposium is to (1) Showcase the latest breakthroughs and trends in AI applications for Chemistry, Engineering, and Industries. (2) Foster collaboration and knowledge exchange among researchers, engineers, and industry professionals. (3) Identify future challenges and opportunities for AI-powered advancements in these fields. This symposium aims to collect the most recent updates on data analytics and AI for healthcare and manufacturing processes. These updates can be divided into four Sessions: 1) Manufacturing, 2) Healthcare, 3) Fundamental Understanding, and 4) Other related topics. The specific areas of research can include but not limited to: AI-driven battery development and optimization Flow chemistry synthesis and reactor control AI-powered additive manufacturing (3D printing) Intelligent sensor networks and data analysis Machine vision for quality control and process automation AI-aided medical image analysis and diagnosis Personalized medicine and disease prediction Protein structure design and engineering Accelerating the discovery of small molecule drugs Physics-integrated machine learning for enhanced accuracy Model explainability and interpretability Security and governance considerations in AI deployment Theory and modeling of healthcare and manufacturing processes Fundamental understanding of driving forces and mechanism for manufacturing and healthcare Data analytics and AI in

synthesis of novel materials for self-assembly, crystallization, patterning Time series analysis of sensors, energy storage and energy harvest devices Process optimization for electronics Anomaly detection, casual inference, uncertainty quantification, risk assessment for manufacturing and healthcare Data analytics and AI for new characterization, monitoring, process control, in-situ or in-operando techniques including deep learning of medical imaging Data analytics and AI for structure–property correlations in healthcare and manufacturing. Supervised and Unsupervised Machine learning and AI for healthcare and manufacturing processes Potential applications of data analytics and AI in manufacturing and healthcare

Wednesday

4100408 - Persistent homology as a tool for chemical machine learning: A story of birth and death (.sessionCollapse528862) ^
11:44am - 12:06pm EDT - August 21, 2024 | Location: Mile High Ballroom 1B (Colorado Convention Center)
Konstantinos Vogiatzis, Presenter
Division: [I&EC] Division of Industrial and Engineering Chemistry
Session Type: Oral - Hybrid

Wednesday

4099822 - Templating effect of mose2 on crystallization of polyethylene: A molecular dynamics simulation study (.sessionCollapse528863) ^
12:06pm - 12:28pm EDT - August 21, 2024 | Location: Mile High Ballroom 1B (Colorado Convention Center)
Akash Singh; Mingyuan Sun; jihua chen ; Bo Li; Yumeng Li, Presenter
Division: [I&EC] Division of Industrial and Engineering Chemistry
Session Type: Oral - Hybrid

Wednesday

4103237 - Data analytics and high-throughput experiments in organic electronic polymer development and manufacturing (.sessionCollapse528864) ^
12:28pm - 12:50pm EDT - August 21, 2024 | Location: Mile High Ballroom 1B (Colorado Convention Center)
James Meredith, Presenter; Rahul Venkatesh; Aaron Liu; Elsa Reichmanis; Martha Grover
Division: [I&EC] Division of Industrial and Engineering Chemistry
Session Type: Oral - Hybrid

Wednesday

4101376 - Spatial and time-resolved mapping in optoelectronic devices: A multimodal technique to visualize the nanoscale photoinduced charge dynamics (.sessionCollapse528865) ^
12:50pm - 01:12pm EDT - August 21, 2024 | Location: Mile High Ballroom 1B (Colorado Convention Center)
Quinn Qiao, Presenter
Division: [I&EC] Division of Industrial and Engineering Chemistry
Session Type: Oral - Hybrid

Wednesday

4102902 - Laying the framework for automation in the production of radioisotopes (.sessionCollapse528866) ^
01:12pm - 01:34pm EDT - August 21, 2024 | Location: Mile High Ballroom 1B (Colorado Convention Center)
Christopher Greulich, Presenter; Punam Thakur; Anees Al Najjar; Nageswara Rao; Dr. Luke Sadergaski; Miting Du
Division: [I&EC] Division of Industrial and Engineering Chemistry
Session Type: Oral - Hybrid

Wednesday

4081779 - Atomnet: Quantifying atomically dispersed catalysts using deep learning assisted microscopy (.sessionCollapse528867) ^
01:34pm - 01:56pm EDT - August 21, 2024 | Location: Mile High Ballroom 1B (Colorado Convention Center)
Haoyang Ni; Zhenyao Wu; Xinyi Wu; Jacob Smith; Michael Zachman; Jian-Min Zuo; Lili Ju; Guannan Zhang, Presenter; Miaofang Chi
Division: [I&EC] Division of Industrial and Engineering Chemistry
Session Type: Oral - Hybrid

Data Analytics & AI for Manufacturing & Healthcare: (.sessionCollapse528879) v

04:00pm - 07:58pm EDT - August 21, 2024 | Location: Mile High Ballroom 1B (Colorado Convention Center)
Rigoberto Advincula, Organizer; jihua chen , Organizer; Richard Mayes, Organizer; Suk-Kyun Ahn, Presider; Yifei Jin, Presider
Division: [I&EC] Division of Industrial and Engineering Chemistry
Session Type: Oral - Hybrid
Co-Sponsor/Theme: Co-sponsor - Nominal POLY: Division of Polymer Chemistry (/live/32/page/1051/1?eventSearchTag[]=171)
Co-sponsor - Nominal PMSE: Division of Polymeric Materials Science and Engineering (/live/32/page/1051/1?eventSearchTag[]=236)
Theme: Elevating Chemistry (/live/32/page/1051/1?eventSearchTag[]=1000)

Division/Committee: [I&EC] Division of Industrial and Engineering Chemistry

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Wednesday 4082153 - Steering actuation direction in liquid crystalline elastomer fibers: From contraction to elongation (.sessionCollapse528880) ^
04:00pm - 04:22pm EDT - August 21, 2024 | Location: Mile High Ballroom 1B (Colorado Convention Center)
Suk-Kyun Ahn, Presenter
Division: [I&EC] Division of Industrial and Engineering Chemistry
Session Type: Oral - Hybrid

Wednesday 4111549 - Intelligent metamaterials: Assembling topologies, materials and functionalities (.sessionCollapse528881) ^
04:22pm - 04:44pm EDT - August 21, 2024 | Location: Mile High Ballroom 1B (Colorado Convention Center)
Xiaoyu (Rayne) Zheng, Presenter
Division: [I&EC] Division of Industrial and Engineering Chemistry
Session Type: Oral - Hybrid

Wednesday 4108793 - Heterogeneity in solid-state electrolytes through advanced spectral analysis techniques (.sessionCollapse528882) ^
04:44pm - 05:06pm EDT - August 21, 2024 | Location: Mile High Ballroom 1B (Colorado Convention Center)
Guang Yang, Presenter
Division: [I&EC] Division of Industrial and Engineering Chemistry
Session Type: Oral - Hybrid

Wednesday 4091390 - Voxelated opto-physically unclonable functions using irreplicable micro-wrinkles (.sessionCollapse528883) ^
05:06pm - 05:28pm EDT - August 21, 2024 | Location: Mile High Ballroom 1B (Colorado Convention Center)
Jun-Hee Na, Presenter; Kitae Kim
Division: [I&EC] Division of Industrial and Engineering Chemistry
Session Type: Oral - Hybrid

Wednesday 4093569 - Understanding alginate-nanoclay interactions for rational design of 3D bioprinting strategies (.sessionCollapse528884) ^
05:28pm - 05:50pm EDT - August 21, 2024 | Location: Mile High Ballroom 1B (Colorado Convention Center)
Yifei Jin, Presenter
Division: [I&EC] Division of Industrial and Engineering Chemistry
Session Type: Oral - Hybrid

Wednesday 4106929 - Functional flexible materials for bioinspired miniature soft robotics (.sessionCollapse528885) ^
05:50pm - 06:12pm EDT - August 21, 2024 | Location: Mile High Ballroom 1B (Colorado Convention Center)
Tianlu Wang, Presenter
Division: [I&EC] Division of Industrial and Engineering Chemistry
Session Type: Oral - Hybrid

Wednesday 4091218 - Advancing machine learning approaches for the discovery of organic semiconductors (.sessionCollapse528886) ^
06:12pm - 06:34pm EDT - August 21, 2024 | Location: Mile High Ballroom 1B (Colorado Convention Center)
Chad Risko, Presenter
Division: [I&EC] Division of Industrial and Engineering Chemistry
Session Type: Oral - Hybrid

Wednesday

4083838 - Color changing polymer stabilized liquid crystal gels in response to electric fields (.sessionCollapse528887)

06:34pm - 06:56pm EDT - August 21, 2024 | Location: Mile High Ballroom 1B (Colorado Convention Center)

Kyungmin Lee, Presenter; Timothy Bunning; Nicholas Godman; Michael McConney

Division: [I&EC] Division of Industrial and Engineering Chemistry

Session Type: Oral - Hybrid



Wednesday

4107794 - Autonomous chemistry laboratory: Building an integrated laboratory for liquid and solid state synthesis (.sessionCollapse528888)

06:56pm - 07:18pm EDT - August 21, 2024 | Location: Mile High Ballroom 1B (Colorado Convention Center)

Craig Bridges, Presenter; Anees Al Najjar; Nageswara Rao; Dr. Bishnu Prasad Thapaliya; Andrzej Nycz; Alex Walters; Luke Meyer; Ben Mintz; Robert Moore; Sheng Dai

Division: [I&EC] Division of Industrial and Engineering Chemistry

Session Type: Oral - Hybrid



Wednesday

4107718 - Magnetic actuation and assembly of microarchitected polymer composites (.sessionCollapse528889)

07:18pm - 07:40pm EDT - August 21, 2024 | Location: Mile High Ballroom 1B (Colorado Convention Center)

Jeongjae Wie, Presenter

Division: [I&EC] Division of Industrial and Engineering Chemistry

Session Type: Oral - Hybrid



Wednesday

4101564 - Withdrawn (.sessionCollapse528890)

07:40pm - 07:58pm EDT - August 21, 2024 | Location: Mile High Ballroom 1B (Colorado Convention Center)

Division: [I&EC] Division of Industrial and Engineering Chemistry

Session Type: Oral - Hybrid

**Data Analytics & AI for Manufacturing & Healthcare: (.sessionCollapse528891)**

10:00am - 02:00pm EDT - August 22, 2024 | Location: Room 504 (Colorado Convention Center)

Rigoberto Advincula, Organizer; jihua chen, Organizer; Richard Mayes, Organizer; Jie Xu, Presider; Miguel Fuentes-Cabrera, Presider

Division: [I&EC] Division of Industrial and Engineering Chemistry

Session Type: Oral - Hybrid

Co-Sponsor/Theme: Co-sponsor - Nominal POLY: Division of Polymer Chemistry (/live/32/page/1051/1?eventSearchTag[]=171)

Co-sponsor - Nominal PMSE: Division of Polymeric Materials Science and Engineering (/live/32/page/1051/1?eventSearchTag[]=236)

Theme: Elevating Chemistry (/live/32/page/1051/1?eventSearchTag[]=1000)

**Division/Committee: [I&EC] Division of Industrial and Engineering Chemistry**

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Thursday

4102721 - High throughput screening of supramolecular copolymer phase diagram through modular synthesis of end-functional polymers (.sessionCollapse528892)

10:00am - 10:22am EDT - August 22, 2024 | Location: Room 504 (Colorado Convention Center)

Xiaodan Gu, Presenter; Yunfei Wang; Saroj Upreti

Division: [I&EC] Division of Industrial and Engineering Chemistry

Session Type: Oral - Hybrid



Thursday

4106194 - Autonomous platform for solution processing of electronic polymers (.sessionCollapse528893)

10:22am - 10:44am EDT - August 22, 2024 | Location: Room 504 (Colorado Convention Center)

Jie Xu, Presenter

Division: [I&EC] Division of Industrial and Engineering Chemistry

Session Type: Oral - Hybrid



Thursday

4110871 - Towards symbiotic AI driven electronic materials and sensor designs (.sessionCollapse528894)

10:44am - 11:06am EDT - August 22, 2024 | Location: Room 504 (Colorado Convention Center)

Benjamin Tee, Presenter

Division: [I&EC] Division of Industrial and Engineering Chemistry

Session Type: Oral - Hybrid



Thursday

4105875 - Machine learning centric system for advanced characterization of thin film response to environment (.sessionCollapse528895)

11:06am - 11:28am EDT - August 22, 2024 | Location: Room 504 (Colorado Convention Center)

Ilia Ivanov, Presenter; Dr Rigoberto Advincula; Bobby Sumpter; Rama Vasudevan

Division: [I&EC] Division of Industrial and Engineering Chemistry

Session Type: Oral - Hybrid



Thursday

4087391 - Accelerated materials and molecular discovery with autonomous fluidic Labs (.sessionCollapse528896)

11:28am - 11:50am EDT - August 22, 2024 | Location: Room 504 (Colorado Convention Center)

Milad Abolhasani, Presenter

Division: [I&EC] Division of Industrial and Engineering Chemistry

Session Type: Oral - Hybrid



Thursday

4108697 - Withdrawn (.sessionCollapse528897)

11:50am - 12:12pm EDT - August 22, 2024 | Location: Room 504 (Colorado Convention Center)

Division: [I&EC] Division of Industrial and Engineering Chemistry

Session Type: Oral - Hybrid



Thursday

4104994 - Developing a machine learning workflow to analyze and interpret neutron reflectivity data (.sessionCollapse528898)

12:12pm - 12:34pm EDT - August 22, 2024 | Location: Room 504 (Colorado Convention Center)

Miguel Fuentes-Cabrera, Presenter; Brian Qu; Yuting Shao; Jie Zhang; Daniel Ikechukwu; Rajeev Kumar

Division: [I&EC] Division of Industrial and Engineering Chemistry

Session Type: Oral - Hybrid



Thursday

4111558 - Withdrawn (.sessionCollapse528899)

12:34pm - 12:56pm EDT - August 22, 2024 | Location: Room 504 (Colorado Convention Center)

Division: [I&EC] Division of Industrial and Engineering Chemistry

Session Type: Oral - Hybrid



Thursday

4090818 - Synergizing language models, generative adversarial networks, and genetic algorithms for next-generation molecular design (.sessionCollapse528900)

12:56pm - 01:18pm EDT - August 22, 2024 | Location: Room 504 (Colorado Convention Center)

Debsindhu Bhowmik, Presenter

Division: [I&EC] Division of Industrial and Engineering Chemistry

Session Type: Oral - Hybrid



Thursday

4106511 - Size-transferable prediction of excited state properties for molecular assemblies with machine-learned exciton model (.sessionCollapse528901)

01:18pm - 01:40pm EDT - August 22, 2024 | Location: Room 504 (Colorado Convention Center)

Fangning Ren, Presenter; Fang Liu

Division: [I&EC] Division of Industrial and Engineering Chemistry



Session Type: Oral - Hybrid

Thursday

4107746 - Integration of flow reactors and instruments into a networked ecosystem with high-performance computing facilities for remote orchestration and automation (.sessionCollapse528902) ^

01:40pm - 02:00pm EDT - August 22, 2024 | Location: Room 504 (Colorado Convention Center)

Anees Al Najjar, Presenter; Rama Vasudevan; Panagiotis Christakopoulos; Nageswara Rao; Ilia Ivanov; Rigoberto Advincula

Division: [I&EC] Division of Industrial and Engineering Chemistry

Session Type: Oral - Hybrid

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