

# CONFERENCE PROGRAM

## Membrane In Focus: Workshop & Symposium

### 3<sup>rd</sup> Pakistan Congress on Membrane & Membrane Processes (PCOM2024)

Theme: Exploring Cutting Edge Innovations & Applications in Membrane Technology for Sustainable Solutions

4<sup>th</sup> – 5<sup>th</sup> December 2024

School of Chemical & Material Engineering (SCME) NUST Islamabad

Venue: SCME Seminar Hall

Time	1 <sup>st</sup> Day, Wednesday, 4 <sup>th</sup> December 2024 Seminar Hall		
08:30-09:30	Registration		
<b>Technical Session 1</b>			
Tilawat/National Anthem			
<b>Opening:</b> Dr. Zaib Jahan, SCME NUST Islamabad			
<b>Welcome:</b> Dr. Aftikhar Ahmad Salarzai, HoD SCME NUST Islamabad			
Session Chair: Prof. Dr. Saeed Gul, UET Peshawar			
Session Co-Chair: Prof. Dr. Bilal Khan Niazi, NUST Islamabad			
9:30-10:05	Keynote-01	Prof. Dr. M. Younas (UET Peshawar)	Membrane Technology Insight: Application & Significance
10:05-10:40	Keynote-02	Dr. Zaib Jahan (NUST Islamabad)	Synthesis, Characterization & Testing of Membranes
10:40-11:00	Tea Break		
11:00-11:35	Keynote-03	Dr. Amir Muhammad (PAF IAST Haripur)	Process Modeling, CFD and Simulation Tools
11:35-12:10	Keynote-04	Dr. M. Ahsan (NUST Islamabad)	Membrane Module Design & Simulation
12:10-12:45	Lab visit	Dr. Ayesha Raza (NUST Islamabad)	Lab visits
12:45-1:30	Group Photo/Lunch/Prayer Break		
<b>Hands on Experience Session 2</b>			
1:30 – 3:00	<b>Group1 (Membrane Synthesis &amp; Characterization)</b>		<b>GroupII (Membrane/Module Modeling &amp; Simulation Tools)</b>
	<b>Resource Persons:</b> Dr. Zaib Jahan, Dr. Tayyaba Noor, Dr. Saeed Gul (Lab 116, Lab 117)		<b>Resource Persons:</b> Dr. Amir Muhammad, Dr. M. Ahsan, Dr. M. Younas (Computer Lab)
3:00 – 3:15	Tea Break		
3:15 – 4:45	Continued		
4:45 – 5:00	Closing Remarks by Principal and Group Photo		
<b>19.00-22.00 Networking Dinner</b>			

2 <sup>nd</sup> Day, Thursday, 5 <sup>th</sup> December 2024			
08:30-09:30	<b>Registration</b>		
<b>Inauguration Ceremony</b>			
<b>Seminar Hall SCME NUST Islamabad</b>			
09:30-09:35	Recitation from the Holy Quran & National Anthem		
09:35-09:40	Opening Remarks by Dr. Zaib Jahan, Conference Chair		
09:40-09:45	Welcome Address by Prof. Dr. Iftikhar Ahmad SalarZai, HoD SCME NUST Islamabad		
09:45-09:50	Introductory Remarks by Prof. Dr. M. Younas, President PMS		
09:50-09:55	Address by Dr. Umari Manzoor, Principal SCME NUST Islamabad		
09:55-10:00	Address by Chief Guest		
<b>Technical Session 3</b>			
Session Chairs: <b>Prof. Dr. Asad U Khan, SCME NUST Islamabad</b> <b>Prof. Dr Saeed Gul, UET Peshawar</b>			
10.00-10.20	Plenary-1	Dr. M. Usman <i>(Sr. Scientist-II KFUPM KSA)</i>	Recent Trends in Membrane Technology and Sustainable Solutions for Safe Environment Through Interdisciplinary Research
10.20-10.40	Plenary-2	Engr. Rahil Pitafi <i>(OGRA Islamabad)</i>	Industrial Membrane Processes: Challenges & Opportunities
<b>Session 4</b>			
<b>Poster Display</b>			
<b>Group Photo / Refreshment</b>			
<b>Session 5A, 5B</b>			
<b>Technical Presentation (2 Parallel Sessions)</b>			
Session Chairs: <b>Dr. M. Yasin, CUI Lahore, Dr. Tayyaba Noor, NUST Islamabad</b> <b>5A, Seminar Hall</b>			
11.30-11.45	Keynote-05	Dr. Mazhar Gilani <i>(CUI Lahore)</i>	Advancing Membrane Technologies Through Computational Insights
11.45-11.55	MT-01	Ms. Palwasha Khan <i>(CUI Lahore)</i>	Simulation-Driven Design and Synthesis of DES-PDMS Membranes for Enhanced Ethanol Pervaporation
11.55-12.10	Keynote-06	Dr. M. Sarfraz <i>(UET Lahore.)</i>	Pilot-scale manufacturing of polymer membranes and modules – bridging industry-academia gap
12.10-12.20	MT-02	Ghulam Rasool <i>(UET Lahore)</i>	Zn, Fe, and Cu metal-organic frameworks and composite membranes for carbon capture applications
12.20-12.45	Keynote-07	Dr. Rizwan Ahmad <i>(PAF IAST Haripur)</i>	Hybrid Membrane Systems with Improved Antifouling Propensity for Advanced Wastewater Treatment
12.45-12.55	MT-03	Hasnain A Siddiqui <i>(UET Peshawar)</i>	Optimization and predictive modeling of transmembrane pressure and total resistance in membrane-based produced water treatment using ANN and XGBoost
Session Chairs: <b>Dr. M. Yasin, CUI Lahore, Dr. Usman Liaqat, NUST Islamabad</b> <b>5A, Seminar Hall</b>			
11.30-11.45	Keynote-08	Industrial Speaker by Schlumberger	Discussion on membrane applications on industrial scale

11.45-11.55	MT-04	Babar Saeed ( <i>CUI Lahore</i> )	Tuning the Waste derived PET Membranes with Thymol:2-Propanol based Deep Eutectic Solvent for Enhanced Bioethanol Pervaporation Performance
11.55-12.10	Keynote-09	Dr. Asif Mahmood ( <i>PIEAS Islamabad</i> )	Ceramic membranes for energy conversion and storage
12.10-12.20	MT-05	Ayesha Rehman ( <i>PHD Student</i> )	Bimetallic organic framework based mixed matrix membrane for carbon dioxide separation
12.20-12.45	Keynote-10	Dr. Bilal Khan Niazi ( <i>NUST Islamabad</i> )	A comprehensive study on the performance and antifouling enhancement of PSf Mixed Matrix Membranes by embedding different nanofillers: Zeolite 4A, UiO-66 and Zeolite 4A@UiO-66
12.45-12.55	MT-06	M. Umar Durrani ( <i>GIKI Topi</i> )	DFT-Leveraged Designing of Novel Sodium Alginate-Based Hydrogel for the Efficient Adsorption of Model Pollutant
<b>12:55 – 02:00</b> <b>Lunch / Prayer Break</b>			
<b>Session 6 A, B, C</b> <b>02:00 – 03:30</b> <b>Career Counseling/Job/Scholarship Hunting/Technology Innovation/Entrepreneurship</b>			
Hall-a	Dr. Asad U. Khan ( <i>NUST Islamabad</i> ) Dr. M. Zaman ( <i>PIEAS Islamabad</i> ) Dr. Adnan ( <i>USPCAS-E Islamabad</i> ) Dr. M. Usman Farooq ( <i>GIKI Topi</i> )	Entrepreneurship; Technology innovation in Membrane; Business Incubation / Opportunities in Membrane Modules	
Hall-2	Dr. Saeed Gul ( <i>UET Peshawar</i> ) Dr. Irfan ( <i>NUST Islamabad</i> ) Dr. Amir Shahzad ( <i>UET Lahore</i> ) Dr. Mazhar Gilani ( <i>CUI Lahore</i> ) Dr. Rizwan Ahmad ( <i>PAF IAST Haripure</i> )	Membrane Synthesis opportunity and hurdles in Pakistan; Overseas Job Market in Membrane; Skills Development; Membrane Market in Pakistan	
Hall-3	Dr. M. Younas ( <i>UET Peshawar</i> ) Dr. Bilal K. Niazi ( <i>NUST Islamabad</i> ) Dr. M. Yasin ( <i>CUI Lahore</i> )	Membrane Modules Design; Overseas research/Job Potential in Membrane;	

	Dr. A. Muhammad ( <i>PAF IAST Haripur</i> )	
<b>Closing Ceremony (Seminar Hall)</b>		
03:30-03:35	Recitation from Holy Quran	
03:35-03:40	Wrap-up by Dr. Zaib Jahan (Conference Chair)/ Dr. Younas (PMS President)	
03:40-03:50	Award distribution announcement by Prof. Dr. Saeed Gul / Prof. Dr. Bilal K. Niazi (Conference Advisors)	
03:50-03:55	Vote of thanks, Prof. Dr. Iftikhar A Salarzai (HoD Chemical, NUST Islamabad)	
03:55-04:00	Address by Chief Guest	

## **POSTER PRESENTATIONS (27<sup>th</sup> November, 2024)**

S.No	Author Names	Affiliation	Abstract Title
1.	Muhammad Zia Ul Haq	Department of Chemical Polymer and Materials Engineering, University of Engineering and Technology (New Campus) Lahore, Pakistan	Enhanced wastewater treatment Using functionalized g-C <sub>3</sub> N <sub>4</sub> based composite polymeric membranes
2.	Muhammad Wasif	University of Engineering and Technology, Lahore Pakistan	Industrial scale flat sheet membrane for CO <sub>2</sub> capture setup design, development, fabrication and testing analysis
3.	Hamza Ali	Membrane Research Lab, Department of Polymer and Process Engineering, University of Engineering and Technology, Lahore 54890, Pakistan	Effects of fabrication conditions on permeation performance of mixed matrix membranes for air and water purification
4.	Sidra Nawaz	Membrane Research Lab, Department of Polymer and Process Engineering, University of Engineering and Technology, Lahore 54890, Pakistan	Carbon capture via thin-film composite membranes comprising polysulfone-coated vertically aligned ZIF-302 nanoarrays
5.	Wahab Noor	Department of Chemical Engineering, Faculty of Chemical Engineering, University of Engineering and Technology, Peshawar Pakistan	Recovery of lithium carbonate from oil and gas produced water by membrane separation
6.	Kiran Shahzadi	Department of Polymer and Process Engineering, University of Engineering and Technology, Lahore-Pakistan	Zn-Co NanoFerrites incorporated polysulfone nanofiltration membranes for wastewater treatment and gas permeation
7.	Muhammad Akmal Rana	Membrane Systems Research Group, Department of Chemical Engineering, COMSATS University Islamabad, Lahore Campus, Pakistan	Sustainable and high efficiency thin film composite membranes using green deep eutectic solvent as organic reagent
8.	Amna Sabir	Membrane Research Lab, Department of Polymer and Process Engineering, University of Engineering and Technology, Lahore 54890, Pakistan	Modulating membrane performance by optimizing coagulation temperature and dipping time
9.	Ayman Asghar	Dept., Chemical and Energy Engg, Pak Austria Institute of Applied Sciences and Technology Mang, Haripur	Graphene Modified Cellulose Nano-fibrous PCM microcapsules For Thermal Energy Storage

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10.	Iqra Shahzad	Department of Chemical and Energy Engineering, Pak Austria Fachhochschule: Institute of Applied Sciences and Technology, Haripur, Main Campus, Pakistan	Production of bioethanol from waste biomass
11.	Muhammad Usama	Department of Chemical and Energy Engineering, Pak-Austria Fachhochschule: Institute of Applied Sciences and Technology, Mang, Haripur, KPK, Pakistan	Green hydrogen production using solar energy
12.	Mohamed Kawzer Mohamed Shamikh Zia Ul Haq	Pak-Austria Fachhochschule: Institute of Applied Sciences and Technology, Haripur	Production of microcrystalline cellulose using sugarcane bagasse/corn cob via enzymatic hydrolysis method
13.	Muhammad Maaz	Membrane Systems Research Group, Department of Chemical Engineering, COMSATS University Islamabad, Lahore Campus, Pakistan	Green and naturally extracted lignin from sugar cane bagasse and lignin enhanced mixed matrix membranes for wastewater treatment
14.	Sajjad Ahmad	University of Engineering & Technology Peshawar	Design of a self-contained imprinted polypyrrole biosensor for specific electrochemical sensing of Escherichia coli
15.	Zafar Shakoor	Membrane Systems Research Group, Department of Chemical Engineering, COMSATS University Islamabad, Lahore Campus, Pakistan	Performance evaluation of biowaste-derived biochar composite beads in fluidized bed hybrid membrane system for wastewater treatment
16.	Zeeshan Rashid	Membrane Systems Research Group, Department of Chemical Engineering, COMSATS University Islamabad, Lahore Campus, Pakistan	Emerging pollutants removal from wastewater using hybrid membrane systems
17.	Aiman Waheed	Membrane Research Lab, Department of Polymer and Process Engineering, University of Engineering and Technology, Lahore 54890, Pakistan	Carbon capturing composite membranes comprising Cu- MOF and PIM-1
18.	Aiman Noor Afzal	Membrane Research Lab, Department of Polymer and Process Engineering, University of Engineering and Technology, Lahore 54890, Pakistan	Pilot scale trialling of multi-leaf spiral-wound polymer membrane modules for efficient carbon capture
19.	Maryam Khalid	Pak-Austria Fachhochschule: Institute of Applied Sciences and Technology, Haripur	Purification of 1000 L brackish water using efficient membrane technology
20.	M Zeeshan Akram	University of Engineering and Technology, Lahore 54890, Pakistan	Electro-ionically conductive functional separators for fast ion transport in aqueous zinc ion batteries: Preparation and characterization
21.	Shanza Anzar	Membrane Systems Research Group, Department of Chemical Engineering, COMSATS University Islamabad, Lahore Campus, Pakistan	Thymol-Based Deep Eutectic Solvents: A Synergy of Experimental and Computational Insights for Ethanol-Water Separation in Green Chemistry
22.	Beenish Shazadi	Membrane Systems Research Group, Department of Chemical Engineering, COMSATS University Islamabad, Lahore Campus, Pakistan	Transforming waste PET bottles into high-value MOF adsorbents for the removal of emerging pollutants from wastewater
23.	Ali Hassan	Membrane Systems Research Group, Department of Chemical Engineering, COMSATS University Islamabad, Lahore Campus, Pakistan	Fouling, heat, and pH resistant novel high performance nanofiltration membranes for desalination and wastewater treatment
24.	Muhammad Umar	Department of Chemical Engineering, Ghulam Ishaq Khan Institute of Engineering Sciences and Technology, Topi, Khyber Pakhtunkhwa	DFT-leveraged designing of novel sodium alginate-based hydrogel for the efficient adsorption of model pollutant
25.	Arslan Maqbool	Department of Chemical Engineering, School of Chemical and Materials	Fabrication of Polysulfone-based ZnO-GO-NiO Mixed Matrix Membrane for the Adsorptive

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		Engineering, National University of Sciences and Technology, Islamabad, Pakistan	Removal of Lead (Pb <sup>+2</sup> ) and Cadmium (Cd <sup>+2</sup> ) Heavy Metal Ions from wastewater
26.	Tuba Safdar	Pak-Austria Fachhochschule Institute of Applied Sciences and Technology, Haripur, KPK, Pakistan	Effect of adsorbent sources on antifouling potential and treatment of real food industry wastewater in submerged fluidized ceramic membrane reactors
27.	Abdullah Khan	Department of Chemical and Energy Engineering, Pak Austria Fachhochschule: Institute of Applied Sciences and Technology, Haripur, Main Campus, Pakistan	Production of bio fertilizer from Sesbania bispinosa (Jantar)
28.	Aisha Syed	Pak Austria Fachhochschule Institute of Applied Sciences and Technology Mang, Haripur KPK, Pakistan	Cost effective photocatalytic ceramic membranes for efficient contaminant removal and fouling mitigation
29.	Iqra Shahzad	Department of Chemical and Energy Engineering, Pak Austria Fachhochschule: Institute of Applied Sciences and Technology, Haripur, Pakistan	Water desalination using graphene-based membranes: A step towards commercialization
30.	Malik M. Umer Jan	Department of Chemical and Energy Engineering, Pak Austria Fachhochschule: Institute of Applied Sciences and Technology, Haripur, Pakistan	Sustainable treatment of kitchen greywater for efficient irrigation and water reuse
31.	Mahaz Naseeb	Pak Austria Fachhochschule: Institute of Applied Sciences and Technology, Haripur, Main Campus, Pakistan	Phytoremediation: Constructed wetlands for emissions control wastewater treatment
32.	Mohamed Kawzer Mohamed Shamikh Zia Ul Haq	Pak-Austria Fachhochschule: Institute of Applied Sciences and Technology, Haripur	Indigenously prepared water treatment systems for multipurpose needs of a community
33.	Mahaz Naseeb Shah	Department of Chemical and Energy Engineering, Pak Austria Fachhochschule: Institute of Applied Sciences and Technology, Haripur, Main Campus, Pakistan	Formulation and manufacturing of eco-friendly bio-pesticide using custard apple seeds and garlic extract
34.	Abdul Wahab	Department of Chemical and Energy Engineering, Pak Austria Fachhochschule: Institute of Applied Sciences and Technology, Haripur, Main Campus, Pakistan	Hydroponic system
35.	Hajira Bibi	Pak-Austria Fachhochschule: Institute of Applied Sciences and Technology, Haripur	Optimization of silica coated PTFE membrane for improved CO <sub>2</sub> permeation
36.	Areej Kha	Pak-Austria Fachhochschule: Institute of Applied Sciences and Technology, Haripur	Optimization of (PEG)coated PTFE membrane for improved CO <sub>2</sub> permeation
37.	Maham Iqra	School of Chemical and Materials Engineering, National University of Sciences and Technology, Islamabad, Pakistan	A flexible piezoresistive strain sensor based on laser scribed graphene oxide on polydimethylsiloxane
38.	Tayyib Murtaza	Department of chemical Engineering, University of Engineering and Technology, Lahore, Pakistan	Polyether sulfone and titania mixed matrix membrane for gas separation