

# 6<sup>th</sup> APELSO 2023 &


## The 55<sup>th</sup> Annual Scientific Meeting of the Korean Society for Thoracic & Cardiovascular Surgery

*"Post Pandemic, New Standards"*

November 2(Thu) ~ 4(Sat), 2023 | Grand Intercontinental Seoul Parnas, Seoul, Korea



### Curriculum Vitae

<b>Name</b>	<b>First Name</b>	Jeong	<b>Last Name</b>	Kim
<b>Country</b>	Republic of Korea			
<b>Affiliation</b>	Incheon National University			
<b>E-mail</b>	<a href="mailto:JeongKim@inu.ac.kr">JeongKim@inu.ac.kr</a>			

#### Educational Background

2010 – BSc in Chemical Engineering, Georgia Tech

2014 – Ph.D in Chemical Engineering, Imperial College London

#### Professional Career

2014 ~ 2016 : Postdoc, Hanyang University

2016 ~ 2019 : Senior Researcher, Korea Research Institute of Chemical Technology(KRICT)

2019 ~ Present : Associate Professor, Incheon National University

#### Research Field

Membrane Technology

Artificial Organs and Hemocompatible Biomaterials

#### Papers, Books, etc. presented or published by your name

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1. Hemocompatibility challenge of membrane oxygenator for artificial lung technology, *Acta Biomaterialia*, 152, PP.19~46, 2022.10.15
2. Effect of Nonwoven Support During Fabrication of Flat Sheet Membranes via Phase Inversion Method, *Membrane Journal*, 32, 2, PP.109~115, 2022.04.30
3. Superamphiphobic blood-repellent surface modification of porous fluoropolymer membranes for blood oxygenation applications, *JOURNAL OF MEMBRANE SCIENCE*, 618, 2022.04.15
4. Poly(dopamine) surface-modified polyethylene separator with electrolyte-philic characteristics for enhancing the performance of sodium-ion batteries, *INTERNATIONAL JOURNAL OF ENERGY RESEARCH*, 46, 4, PP.5177~5188, 2022.03.25
5. Effects of Polymer Material and Solvent Properties on the Performance of Organic Solvent Nanofiltration Membranes, *Membrane Journal*, 32, 1, PP.50~56, 2022.02.28
6. Closing the Sustainable Life Cycle Loop of Membrane Technology via a Cellulose Biomass Platform, *ACS Sustainable Chemistry & Engineering*, 10, 7, PP.2532~2544, 2022.02.21
7. Aging-resistant carbon molecular sieve membrane derived from pre-crosslinked Matrimid® for propylene/propane separation, *JOURNAL OF MEMBRANE SCIENCE*, 636, PP.119555~, 2021.10.15
8. Comparison of Commercial Organic Solvent Nanofiltration (OSN) Membrane Performance, *Membrane Journal*, 31, 4, PP.282~292, 2021.08.30
9. The Roles of Membrane Technology in Artificial Organs: Current Challenges and Perspectives, *Membranes*, 11, 4, 2021.06.01
10. Effect of Additives during Interfacial Polymerization Reaction for Fabrication of Organic Solvent Nanofiltration (OSN) Membranes, *Polymers*, 제 13, 11, PP.1716~, 2021.06.01
11. Cascade conversion of glucose to 5-hydroxymethylfurfural over Brønsted-Lewis bi-acidic SnAl-beta zeolites, *KOREAN JOURNAL OF CHEMICAL ENGINEERING*, 38, 6, PP.1161~1169, 2021.06.01
12. Accurate evaluation of hydrogen crossover in water electrolysis systems for wetted membranes, *INTERNATIONAL JOURNAL OF HYDROGEN ENERGY*, 46, 29, PP.15135~15144, 2021.04.26
13. Comparison of liquid-phase and methanol-swelling crosslinking processes of polyimide dense membrane for CO<sub>2</sub>/CH<sub>4</sub> separation, *JOURNAL OF APPLIED POLYMER SCIENCE*, 138, 7, 2021.02.15
14. Artificial intelligence for performance prediction of organic solvent nanofiltration membranes, *JOURNAL OF MEMBRANE SCIENCE*, 619, PP.118513~, 2021.02.01
15. Transport Membrane Condenser Heat Exchangers to Break the Water-Energy Nexus—A Critical Review, *Membranes*, 11, 1, 2021.01.01
16. Microfiber aligned hollow fiber membranes from immiscible polymer solutions by phase inversion, *JOURNAL OF MEMBRANE SCIENCE*, 617, PP.118654~, 2021.01.01
17. Sustainable Fabrication of Organic Solvent Nanofiltration Membranes, *Membranes*, 11, 1, 2021.01.01

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18. Origin of Fluoropolymer Affinity toward Water and Its Impact on Membrane Performance, *ACS Applied Polymer Materials* , 2, 11, PP.5249~5258 , 2020.11.13
19. Blood Oxygenation Using Fluoropolymer-Based Artificial Lung Membranes, *ACS Biomaterials Science & Engineering* , 6, 11, PP.6424~6434 , 2020.11.01
20. Preparation method of standard molecules for the precise estimation of molecular weight cut-off of membranes by gel permeation chromatography, *Desalination and Water Treatment* , 180, PP.74~79 , 2020.03.01
21. Dimensionally-controlled densification in crosslinked thermally rearranged (XTR) hollow fiber membranes for CO<sub>2</sub> capture, *JOURNAL OF MEMBRANE SCIENCE*, 595, PP.117535~ , 2020.02.01
22. A novel green solvent alternative for polymeric membrane preparation via nonsolvent-induced phase separation (NIPS), *JOURNAL OF MEMBRANE SCIENCE*, 574, PP.44~54 , 2019.03.15
23. Densification-induced hollow fiber membranes using crosslinked thermally rearranged (XTR) polymer for CO<sub>2</sub> capture, *JOURNAL OF MEMBRANE SCIENCE* , 573 , PP.393~402 , 2019.03.01
24. Bio-Inspired Robust Membranes Nanoengineered from Interpenetrating Polymer Networks of Polybenzimidazole/Polydopamine, *ACS Nano* , 13, 1, PP.125~133 , 2019.01.01
25. Polyethylene Battery Separator as a Porous Support for Thin Film Composite Organic Solvent Nanofiltration Membranes, *ACS Applied Materials & Interfaces* , 10, 50, PP.44050~44058 , 2018.12.19
26. Tailoring nonsolvent-thermally induced phase separation (N-TIPS) effect using triple spinneret to fabricate high performance PVDF hollow fiber membranes, *JOURNAL OF MEMBRANE SCIENCE* , 559 , PP.117~126 , 2018.08.01
27. Harnessing Clean Water from Power Plant Emissions Using Membrane Condenser Technology, *ACS Sustainable Chemistry & Engineering* , 6, 5, PP.6425~6433 , 2018.05.01
28. A compact and scalable fabrication method for robust thin film composite membranes, *GREEN CHEMISTRY* , 20, 8, PP.1887~1898 , 2018.04.01
29. Biogas upgrading using membrane contactor process: Pressure-cascaded stripping configuration, *SEPARATION AND PURIFICATION TECHNOLOGY* , 183 , PP.358~365 , 2017.08.01
30. Isomeric influences of naphthalene based sulfonated poly(arylene ether sulfone) membranes for energy generation using reverse electrodialysis and polymer electrolyte membrane fuel cell, *JOURNAL OF MEMBRANE SCIENCE* , 535, PP.35~44 , 2017.08.01
31. Exploring and Exploiting the Effect of Solvent Treatment in Membrane Separations, *ACS Applied Materials & Interfaces*, 9, 12, PP.11279~11289 , 2017.03.29
32. Open-source predictive simulators for scale-up of direct contact membrane distillation modules for seawater desalination, *DESALINATION* , 402, PP.72~87 , 2017.01.16
33. Side-chain engineering of ladder-structured polysilsesquioxane membranes for gas separations, *JOURNAL OF MEMBRANE SCIENCE*, 516, PP.202~214 , 2016.10.15
34. Solvent recycle with imperfect membranes: A semi-continuous workaround for diafiltration, *JOURNAL OF MEMBRANE SCIENCE* , 514, PP.646~658 , 2016.09.15

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35. Understanding the non-solvent induced phase separation (NIPS) effect during the fabrication of microporous PVDF membranes via thermally induced phase separation (TIPS), *JOURNAL OF MEMBRANE SCIENCE* , 514, PP.250~263 , 2016.09.15
36. Organic Solvent Nanofiltration (OSN): A New Technology Platform for Liquid-Phase Oligonucleotide Synthesis (LPOS), *ORGANIC PROCESS RESEARCH & DEVELOPMENT*, 20, PP.1439~1452 , 2016.08.01
37. Microporous PVDF membranes via thermally induced phase separation (TIPS) and stretching methods, *JOURNAL OF MEMBRANE SCIENCE* , 509, PP.94~104 , 2016.07.01
38. Thermally rearranged polymer membranes for desalination, *Energy & Environmental Science*, 9, 3, PP.878~884 , 2016.03.01
39. Thermally induced phase separation and electrospinning methods for emerging membrane applications: A review, *AICHE JOURNAL* , 62, 2, PP.461~490 , 2016.02.01
40. Simulation and feasibility study of using thermally rearranged polymeric hollow fiber membranes for various industrial gas separation applications, *JOURNAL OF MEMBRANE SCIENCE*, 496, PP.229~241 , 2015.12.15
41. Sustainable wastewater treatment and recycling in membrane manufacturing, *GREEN CHEMISTRY* , 17, 12, PP.5196~5205 , 2015.12.01
42. Liquid-Phase Synthesis of 2-Methyl-RNA on a Homostar Support through Organic-Solvent Nanofiltration, *CHEMISTRY-A EUROPEAN JOURNAL* , 21, 26, PP.9535~9543 , 2015.06.22
43. Molecularly imprinted organic solvent nanofiltration membranes - Revealing molecular recognition and solute rejection behaviour, *REACTIVE & FUNCTIONAL POLYMERS* , 86, PP.215~224 , 2015.01.01
44. In Situ Solvent Recovery by Organic Solvent Nanofiltration, *ACS Sustainable Chemistry & Engineering*, 2, 10, PP.2371~2379 , 2014.10.01
45. Sustainability assessment of organic solvent nanofiltration: from fabrication to application, *GREEN CHEMISTRY* , 16, 10, PP.4440~4473 , 2014.10.01
46. Beyond polyimide: Crosslinked polybenzimidazole membranes for organic solvent nanofiltration (OSN) in harsh environments, *JOURNAL OF MEMBRANE SCIENCE* , 457, PP.62~72 , 2014.05.01
47. Increasing the sustainability of membrane processes through cascade approach and solvent recovery-pharmaceutical purification case study, *GREEN CHEMISTRY* , 16, 1, PP.133~145 , 2014.01.01
48. When the membrane is not enough: A simplified membrane cascade using Organic Solvent Nanofiltration (OSN), *SEPARATION AND PURIFICATION TECHNOLOGY* , 116, PP.277~286 , 2013.09.15
49. Pore-flow calculations based on pore size distributions in polyimide membranes determined by a nanoprobe imaging technique, *CHEMICAL ENGINEERING SCIENCE* , 97, PP.81~95 , 2013.06.28