Dun-Yen Kang (康敦彥)

Academic Appointments & Education

Distinguished Professor	National Taiwan University	2024–present
Professor	Department of Chemical Engineering National Taiwan University	2021–present
Professor (Joint Appointment)	International Graduate Program of Molecular Science and Technology National Taiwan University	2022–present
Associate Professor	Department of Chemical Engineering National Taiwan University	2017–2021
Assistant Professor	Department of Chemical Engineering National Taiwan University	2013–2017
Postdoc	School of Chemistry & Biochemistry Georgia Institute of Technology *Advisor: Prof. Seth Marder*	2012–2013
PhD	School of Chemical & Biomolecular Engineering Georgia Institute of Technology *Advisors: Profs. Sankar Nair and Christopher Jones*	2008–2012
MS	Institute of Applied Mechanics National Taiwan University	2004–2006
BS	Department of Chemical Engineering National Taiwan University	2000–2004

Research Interests

- Metal-organic framework (MOF) membranes
- Membrane gas separations
- CO_2 capture
- Pervaporation

Honors

- Ching Long-Chanda Chemical Corp. Distinguished Lectureship, *National Taiwan University* 2024
- Professor Wei-Ming Lu Innovation Teaching Award, *Taiwan Institute of Chemical Engineers* 2024
- Fan-Tsan Chen Lectureship, *National Taiwan University* 2024
- Professor Tsai-Teh Lai Award, *Taiwan Institute of Chemical Engineers* 2023
- Outstanding Research Award, *National Science and Technology Council* 2023
- Aspiration Award (SAA Fellow) in Excellent Academic Performance, *College of Engineering at National Taiwan University* 2022
- Award for Exceptional Performance (2 times), *National Taiwan* 2022, 2021

University

- Excellent Teaching Award (8 times), *National Taiwan University* — 2025, 2024, 2022, 2021, 2020, 2019, 2018, 2016
- LCY Young Faculty Award for Outstanding Academic Performance, *Taiwan Institute of Chemical Engineers* — 2021
- Excellent Paper Award, *Taiwan Institute of Chemical Engineers* — 2021
- Young Scholars' Creativity Award, *Foundation for Advancement of Outstanding Scholarship* — 2021
- SCEJ Award for Outstanding Asian Researcher and Engineer, *The Society of Chemical Engineers, Japan* — 2020
- Ta-You Wu Memorial Award, *Ministry of Science and Technology of Taiwan* — 2020
- MOST Young Scholar Fellowship - The Columbus Program, *Ministry of Science and Technology of Taiwan* — 2019–2023

- Excellent Mentor Award, *National Taiwan University* — 2019
- Outstanding Mentor Award, *ChE at National Taiwan University* — 2018
- Young Faculty Award, *Taiwan Institute of Chemical Engineers* — 2016
- Outstanding Young Faculty Grants, *Ministry of Science and Technology of Taiwan* — 2015–2018
- Young Scientist Award – Gold Award, *IUMRS-ICA* — 2014
- Merit Pay Award for Distinguished Scholars, *Ministry of Science and Technology of Taiwan* — 2013–2016

Editors & Professional Services

- Chairperson of International Affairs Committee at TwIChE — 2025-present
- Chairperson of User Executive Committee at National Synchrotron Radiation Research Center — 2025-present
- Vice Chair of User Executive Committee at National Synchrotron Radiation Research Center — 2024–2025
- Member of Council at Taiwan Membrane Society — 2023-present
- Direct of NTU-MST Program, National Taiwan University — 2023–present
- Member of Council at Taiwan Filtration and Separations Society — 2023-present
- Editorial Board Member, *Journal of Membrane Science* — 2023-present
- Vice Chair of Department of Chemical Engineering, National Taiwan University — 2022–2023
- Guest Editor for *Separation and Purification Technology (16th ICIM Special Issue)* — 2022
- Co-chair of 1st Taipei International Conference on Catalysis — 2022
- Organizing committee of 16th International Conference of Inorganic Membranes (ICIM) — 2022
- Co-organizer of 1st ChemE Workshop between KAIST and NTU — 2022

- Board of Supervisor in Taiwan Membrane Society 2021-2023
- Early Career Editorial Board Member for *Journal of Membrane Science* 2021-2023
- Organizer of 3rd ChemE Symposium between Sogang University and NTU 2021
- Co-organizer of 1st ChemE Workshop between KAIST and NTU 2021
- Co-organizer of 3rd International Symposium on Porous Materials 2021
- Associate Editor for *Journal of the Taiwan Institute of Chemical Engineers* 2020–present
- Co-organizer of 2nd International Symposium on Porous Materials 2020 2020
- Co-organizer of Taiwan-Korea Symposium at Annual Meeting of KIChE 2019
- Co-organizer of 2nd ChemE Symposium between Sogang University and NTU 2019
- Co-organizer of 1st ChemE Symposium between Sogang University and NTU 2018
- Organizer of Taiwan-Korea Symposium at Annual Meeting of TwIChE 2018
- Secretary of International Workshop of Process Intensification (IWPI) 2018 2018
- Preparatory committee of International Symposium on Transport Phenomena and Applications (STPA) 2018
- Technical committee of International Conference of Advanced Materials Research 2018
- Co-PI of MOST project management: development of high-value added materials and technologies from waste and renewable resources in circular economy 2017-2021
- Session chair of the 12th World Filtration Congress 2016
- Session chair of the 9th Conference of Asian Membrane Society 2015
- Organizing committee member of International Conference on Nanospace Materials 2015
- Organizing committee member of Taiwan Symposium on Catalysis and Reaction Engineering 2015

Peer Reviewed Journal Articles

104. Thomas, J.; Chang, C.-T.; **Kang, D.-Y.***; Tung, K.-L.*; Liu, C.-L.*, Microengineered Polyketone-Nylon Membrane with Thermal Calendaring for Nanomaterial Rejection, *J. Taiwan Inst. Chem. Eng.*, **2025**, accepted.

103. Chuang, C.-H.; Seong, J.; Hsiao, L.-W.; Lin C.-Y.; Lee, J.S.*; **Kang, D.-Y.***, Critical role in structural optimization and activation of CAU-23 membranes for CO_2 separation, *Small*, **2025**, accepted.

102. Ju, Y.-H.; Hsieh, T.-Y.; Lin, Y.-H.; Liu, C.-L.; **Kang, D.-Y.***; Luo, S.-C.*, Hybrid MOF-Zwitterionic Polymer Membranes for Efficient and Antifouling Solar Seawater Desalination, *ACS Appl. Polym. Mater.*, **2025**, 7(18), 12211–12219.

101. Wu, P.-C.; Lee, H.J.; Lin, Y.-F.; Tung, K.-L.; Lee, J.S.*; **Kang, D.-Y.***, Tailoring linker defects in MOF-808 to improve CO_2 separation in mixed matrix membranes, *J. Membr. Sci.*, **2025**, 736, 124688.

100. Lin, Y.-H.; Chou, Y.-C.; Chen, J.-J.; Liu, C.-L.; Luo, S.-C.*; **Kang, D.-Y.***, High-performance interfacial solar steam generation enabled by synergistic integration of MXene, bentonite, and MOF-303, *Sep. Purif. Technol.*, **2025**, 378, 134490.

99. Loh, J.C.; Lock, S.S.M.*; Lee, B.K.Y.; Darban, M.A.; **Kang, D.-Y.;** Othman, M.H.D.; Ban, Z.H., An

atomistical elucidation of the 6FDA-durene-based mixed matrix membrane and ionic liquid mixed matrix membrane for CO2/CH4 separation, *Results Eng.*, **2025**, 27, 105939.

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97. Hung, L.-I; Pal, S.; Hsu, T.-T.; Tseng, S.-T.; Wu, T.-L.; So, P.B.*; Chang, Y.-T.; Wang, S.-L.; Wang, Y.-T.; Chen, T.-H.*; Chan, C.-W.; Chen, H.-T.*; **Kang, D.-Y**.*; Lin, C.-H.*, Facile Synthesis of Ultramicroporous Organic-Linked Zincophosphate with High Thermal, Chemical and Water Stabilities, *Chem. Eur. J.*, **2025**, e202500136.

96. Wang, Y.-H.; Hsu, C.-C.; Hong, H.-S.; Ding, J.-F.; Jeng, U-S.; **Kang, D.-Y.**; Luo, S.-C.; Tung, S.-H.; Liu C.-L.*, A Dual-Function Poly(vinyl alcohol) Hydrogel for Solar Water Production and Thermoelectric Energy Generation, *ACS Sustain. Chem. Eng.*, **2025**, 13(10), 4231–4241.

95. Wang, H.-Y.; Chi, L.-T.; K.; Nam, K.J.; Chuang, C.-H.; Hsiao, L.-W.; Lee, J.S.; **Kang, D.-Y.***, In Situ Synthesis of MIL-160 Tubular Membrane with High Selectivity for Gas Separation, *Ind. Eng. Chem. Res.*, **2025**, 64(2), 1265–1273.

94. Pal, A.; Suresh, S.; Khan, A.; Kuo, L.-W.; Chi, L.-T.; Ganguly, A.; Kao, C.-Y.; Sharma, M.K.; Wang, T.-S.A.; **Kang, D.-Y.***; Lin, Z.-H.*, Metal-organic frameworks as thermocatalysts for hydrogen peroxide generation and environmental antibacterial applications, *Sci. Adv.*, **2025**, 11, eads4711.

93. Nam, K.J.; Mohamed, A.M.O.; Seong, J.; An, H.; **Kang, D.-Y.***; Economou, I.G.*; Lee, J.S.*, Cobalt-Based ZIF Composite Membranes: In Situ Defect Engineering for Enhanced Water Stability and Gas Separation, *Small*, **2025**, 21(19), 2409515.

92. Han, P-.C.; Chuang, C.-H.; Lin, S.-W.; Xiang, X.; Wang, Z.*; Kuzumoto, M.; Tokuda, S.; Tateishi, T; Legrand, A.; Tsang, M.Y.; Yang, H.-C.; Wu, C.-W.*; Urayama, K.; **Kang, D.-Y.***; Furukawa, S.*, Phase-transformable metal-organic polyhedra for membrane processing and switchable gas separation, *Nat. Commun.*, **2024**, 15(1), 9523.

91. Chuang, C-.H.; Peng, Y.-H.; Chang, C.-K.; Chang, P.-Y.; **Kang, D.-Y.***; Yeh, L.-H.*, MOF-303 with Crystal orientation control in angstrom-scale channel membranes for significantly enhanced blue energy harvesting, *Chem. Eng. J.*, **2024**, 499, 155934.

90. Lin, Y-.H.; Lin, H.-H.; Lee, Y.-S.; Yu, W.-Y.; Luo, S.-C.*; **Kang, D.-Y.***, MOF-303 with Lowered Water Evaporation Enthalpy for Solar Steam Generation, *ACS Appl. Mater. Interfaces*, **2024**, 16(37), 49640–49650.

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87. Hsu, C.-H.; Lin, C.-Y.; Wang, H.-Y.; Lin, P.-Y.; Chuang, C.-H.; Hsiao, L.-W.; Chiu, C.-c.*; **Kang, D.-**

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84. Hsu, C.-H.; Yu, H.-Y.; Lee, H.J.; Wu, P.-H.; Huang, S.-J.; Lee, J.S.*; Yu, T.-Y.*; Li, Y.-P.*; **Kang, D.-Y.***, Fast Water Transport in UTSA-280 via a Knock-off Mechanism, *Angew. Chem. Int. ed.*, **2023**, 62(39), e202309874.

83. Hu, F.-H.; Chi, L.-T; Syu, G.-B.; Yu, T.-Y; Lin, M.-P.; Chen, J.-J.*; Yu, W.-Y*; **Kang, D.-Y.***, Mixed-linker MOF-303 membranes for pervaporation, *J. Membr. Sci. Lett.*, **2023**, 3(2), 100053.

82. Hong, Y.-W.; Laysandra, L.; Chiu, Y.-C.*; **Kang, D.-Y.***, Vacuum-Assisted Self-Healing Amphiphilic Copolymer Membranes for Gas Separation, *ACS Appl. Mater. Interfaces*, **2023**, 15, 28, 34075–34086.

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79. Hung, H.-L.; Iizuka, T.; Deng, S.; Lyu, Q.; Hsu, C.-H.; Oe, N.; Lin, L.-C.*; Hosono, N.*; **Kang, D.-Y.***, Engineering gas separation property of metal–organic framework membranes via polymer insertion, *Sep. Purif. Technol.*, **2023**, 310, 123115.

78. Hu, T.-N.; Hsu, C.-H.; Chiou, D.-S.; **Kang, D.-Y.***; Luo, S.-C.*, CAU-10-H as Efficient Water Sorbent for Solar Steam Generation, *J. Taiwan Inst. Chem. Eng.*, **2022**, 141, 104593.

77. Yu, H.J.; Chiou, D.-S.; Hsu, C.-H.; Tsai, H.-Y.; Kan, M.-Y.; Lee, J.S.*; **Kang, D.-Y.***, Engineering CAU-10-H for preparation of mixed matrix membrane for gas separations, *J. Membr. Sci.*, **2022**, 663, 121024.

76. Chiou, D.-S; Chuang, Y.-C.; Chang, C.-K.; Hsu, C.-H.; Lin, L.-C.; **Kang, D.-Y.***, X-ray diffraction for probing free energy profiles and self-diffusivity of gases in metal-organic frameworks, *CrystEngComm*, **2022**, 24, 6302–6308. [selected as HOT article]

75. Lai, J.-Y.; Wang, T.-Y.; Zou, C.; Chen, J.-J.*; Lin, L.-C.*; **Kang, D.-Y.***, Highly-selective MOF-303 membrane for alcohol dehydration, *J. Membr. Sci.*, **2022**, 661, 120879.

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73. Usman, M.; Yang, A.-C.; Inamdar, A.I.; Kamal, S; Hsu, J.-C.; **Kang, D.-Y.**; Tseng, T.-W.; Hung, C.-H.*; Lu, K.-L.*, Thin Film Growth of 3D Sr-based Metal-Organic Framework on Conductive Glass via Electrochemical Deposition, *ChemistryOpen*, **2022**, 11, e202100295.

72. Hung, T.-H.; Xu, Z.-X.; **Kang, D.-Y.**; Lin, L.-C.*, Chemistry-encoded Convolutional Neural Networks for Predicting Gaseous Adsorption in Porous Materials, *J. Phys. Chem. C*, **2022**, 126, 2813–2822.

71. Eguchi, M.*; Konarova, M.; Torad, N. L.; Chang, T.-A.; **Kang, D.-Y.**; Shapter, J. G.; Yamauchi, Y., Highly Adhesive and Disposable Inorganic Barrier Films: Made from 2D Silicate Nanosheets and Water, *J. Mater. Chem. A*, **2022**, 10, 1956–1964.

70. Chang, C.-K.; Yu, H.J.; Jang, H.; Hung, T.-H.; Chang, C.-K.; Kim*, J.; Lee, J.S.*; **Kang, D.-Y.***, Conformational-change-induced selectivity enhancement of CAU-10-PDC membrane for H_2/CH_4 and CO_2/CH_4 separation, *J. Membr. Sci. Lett.*, 2021, 1, 100005.

69. Hung, T.-H.; Lyu, Q.; Lin, L.-C.*; **Kang, D.-Y.***, Transport-Relevant Pore Limiting Diameter for Molecular Separations in Metal-Organic Framework Membranes, *J. Phys. Chem. C.*, **2021**, 125, 20416–20425.

68. Kan, M.-Y.; Lyu, Q.; Chu, Y.-H.; Hsu, C.-C.; Lu, K.-L.; Lin, L.-C.*; **Kang, D.-Y.***, Suppressing Defect Formation in Metal-organic Framework Membranes via Plasma-assisted Synthesis for Gas Separations, *ACS Appl. Mater. Interfaces*, **2021**, 13, 41904–41915.

67. Guo, J.-C.; Zou, C.; Chiang, C.-Y.; Chang, T.-A.; Chen, J.-J.*; L.-C. Lin*; **Kang, D.-Y.***, NaP1 zeolite membranes with high selectivity for water-alcohol pervaporation, *J. Membr. Sci.*, **2021**, 639, 119762.

66. Hung, T.-H.; Deng, X.; Lyu, Q.; Lin, L.-C.*; **Kang, D.-Y.***, Coulombic effect on permeation of CO_2 in metal-organic framework membranes, *J. Membr. Sci.*, **2021**, 639, 119742.

65. An, H.; Cho, K.Y.; Lyu, Q.; Chiou, D.-S.; Nam, K.J.; **Kang, D.-Y.***; Lin, L.-C.*; Lee, J.S.*, Facile Defect Engineering of Zeolitic Imidazolate Frameworks Towards Enhanced C_3H_6/C_3H_8 Separation Performance, *Adv. Funct. Mater.*, **2021**, 31, 2105577.

64. Hsieh, Y.-J.; Zou C; Chen, J.-J.*; Lin, L.-C.*; **Kang, D.-Y.***, Pillared-bilayer metal-organic framework membranes for dehydration of isopropanol, *Microporous Mesoporous Mater.*, **2021**, 326, 111344.

63. Shin, J.H.; Kan, M.-Y.; Oh, J.-W.; Yu, H.J.; Lin, L.-C.; **Kang, D.-Y.***; Lee, J.S.*, Solubility selectivity-enhanced SIFSIX-3-Ni-containing mixed matrix membranes for improved CO_2/CH_4 separation efficiency, *J. Membr. Sci.*, **2021**, 633, 119390.

62. Chiou, D.-S; Yu, H.J.; Hung, T.-H; Lyu, Q.; Chang C.-K.; Lee, J.S.*; Lin, L.-C.*; **Kang, D.-Y.***, Highly CO_2 Selective Metal-Organic Framework Membranes with Favorable Coulombic Effect, *Adv. Funct. Mater.*, **2021**, 31, 2006924.

61. Tao, T.-L.; Chang, C.-K.; Kang, Y.-H.; Chen, J.-J.; **Kang, D.-Y.***, Enhanced pervaporation performance of zeolite membranes treated by atmospheric-pressure plasma, *J. Taiwan Inst. Chem. Eng.*, **2020**, 116, 112—120.

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59. Lyu, Q.; **Kang, D.-Y.**; Hu, S.*; Lin, L.-C.*, Exploiting interior surface functionalization in reverse osmosis desalination membranes to mitigate permeability–selectivity trade-off: molecular simulations of nanotube-based membranes, *Desalination*, **2020**, 491, 114537.

58. Ren, L.-X.; Chang, F.-L.; **Kang, D.-Y.**; Chen, C.-L.*, Hybrid membrane process for post-combustion CO_2 capture from coal-fired power plant, *J. Membr. Sci*., **2020**, 603, 118001.

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54. Su, C.-Y.†; Lyu, Q.†; **Kang, D.-Y.†***; Yang, Z.-H.; Lam, C.H.; Chen, Y.-H.; Lo, S.-C.; Hua, C.-C.*; Lin, L.-C.*, Hexagonal superalignment of nano-objects with tunable separation in a dilute and spacer-free solution, *Phys. Rev. Lett.*, **2019**, 123, 238002.

53. Hsu, W.-J.; Ibrahim, I.; Lin, Y.-H.; Yang, Z.-H.; Yucelen, G.I.; Han, J.W.*; **Kang, D.-Y.***, Transparent Conductive Films Derived from Single-Walled Aluminosilicate Nanotubes, *ACS Appl. Nano Mater.*, **2019**, 2(10), 6677-6689.

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51. Huang, Y.-C.; Hsu, W.-J.; Wang, C.-Y.; Tsao, H.-K.; Kang, Y.-H. ; Chen, J.-J.*; **Kang, D.-Y.***, Wetting Properties and Thin Film Quality in the Wet Deposition of Zeolites, *ACS Omega*, **2019**, 4, 13488-13495.

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17. **Kang, D.-Y.***; Lydon, M.E.; Yucelen, G.I.; Jones, C.W.; Nair, S.*, Solution-Processed Ultrathin Aluminosilicate Nanotube-Poly(vinyl alcohol) Composite Membranes with Partial Alignment of Nanotubes, *ChemNanoMat*, **2015**, 1(2), 102-108 (Inside Front Cover).

16. Wang, T.-p.; **Kang, D.-Y.***, Predictions of Effective Diffusivity of Mixed Matrix Membranes with Tubular Fillers, *J. Membr. Sci.*, **2015**, 485, 123-131.

15. He, X.; Cai, D.; **Kang, D.-Y.**; Haske, W.; Zhang, Y; Zuniga, C.A.; Wunsch, B.H.; Barlow, S.; Leisen, J.; Bucknall, D.; Kippelen, B*; Marder, S.R.*, Phosphorescent Light-Emitting Diodes Using Triscarbazole/Bis(oxadiazole) Hosts: Comparison of Homopolymer Blends and Random and Block Copolymers, *J. Mater. Chem. C*, **2014**, 2, 6743.

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5. **Kang, D.-Y.**; Tong, H. M.; Zang, J.; Sholl. D.S.; Jones, C. W.*; Nair, S.*, Single-Walled Aluminosilicate Nanotube / Poly (vinyl alcohol) Nanocomposite Membranes, *ACS Appl. Mater. Interfaces*, **2012**, 4 (2), 965-972.
4. **Kang, D.-Y.**; Jones, C. W.*; Nair, S.*, Modeling Mass Transport in Composite Membranes with Tubular Fillers, *J. Membr. Sci.*, **2011**, 381 (1), 50-63.
3. **Kang, D.-Y.**; Zang, J.; Jones, C. W.*; Nair, S.*, Single-Walled Aluminosilicate Nanotubes with Organic-Modified Interiors. *J. Phys. Chem. C*, **2011**, 115 (15), 7676-7685.
2. **Kang, D.-Y.**; Zang, J.; Wright, E. R.; McCanna, A. L.; Jones, C. W.*; Nair, S.*, Dehydration, Dehydroxylation, and Rehydroxylation of Single-Walled Aluminosilicate Nanotubes. *ACS Nano*, **2010**, 4 (8), 4897-4907.
1. **Kang, D.-Y.***; Wu, E; Wang, D.-M., Modeling White Light-Emitting Diodes with Phosphor Layers. *Appl. Phys. Lett.*, **2006**, 89 (23), 231102.

Book Chapters

1. **Kang, D.-Y.***; Hung, H.-L.; Tsai, H.-Y.; Lai, J.-Y.; Hung, T.-H.; Metal-organic framework membranes for gas separation and pervaporation, *60 Years of the Loeb-Sourirajan Membrane*

(Editors: Hui-Hsin Tseng, Woei Lau, Mohammad Al-Ghouti, Liang An), Elsevier, 2022, ISBN: 978-0-323-89977-2

Patents

4. Nair, S; **Kang, D.-Y.**; Brunelli, B.A.; Jones, C.W., Functionalized Single-Walled Nanotubes and Methods Thereof, US Patent # 9290381 B2

3. Nair, S; **Kang, D.-Y.**; Jones, C.W., Single-Walled Metal Oxide and Metal Sulphide Nanotubes/Polymer Composites, US Patent #9174842 B2

2. **Kang, D.-Y.**; Nair, S; Jones, C.W., Single-Walled Metal Oxide Nanotubes, US Patent #8637693 B2

1. Wu, E., **Kang, D.-Y.**, Wang, D.-M. Light Emitting Diode Die with at Least One Phosphor Layer and Method for Forming the Same, US Patent #8242517

Invited Lectures

32.	Seminar (125th Anniversary), School of Chemical & Biomolecular Engineering at Georgia Institute of Technology, USA	Sep. 2025
31.	Seminar, Department of Chemical Engineering at National Taiwan University of Science and Technology, Taiwan	Nov. 2024
30.	Seminar, Department of Chemical and Biochemical Engineering at Sogang University, Taiwan	Jun. 2024
29.	Seminar, Department of Chemistry at National Central University, Taiwan	May 2024
28.	Seminar, Department of Environmental Engineering at National Chung Hsing University, Taiwan	May 2022
27.	Seminar, Department of Environmental Engineering at National Chung Hsing University, Taiwan	Sep. 2022
26.	Seminar, Department of Chemical and Materials Engineering at National Central University, Taiwan	Apr. 2020
25.	Seminar, Department of Materials Science and Engineering at National Taiwan University of Science and Technology, Taiwan	Dec. 2019
24.	Seminar, Department of Chemistry at National Tsing Hua University, Taiwan	Dec. 2019
23.	Seminar, Department of Chemical and Biomolecular Engineering at KAIST, Korea	Oct. 2019
22.	Seminar, Entirgis, Hsinchu, Taiwan	Jun. 2019
21.	Seminar, Department of Chemical Engineering at National Tsing Hua University, Taiwan	May 2019
20.	Seminar, Department of Chemical Engineering at National Cheng Kung University, Taiwan	Dec. 2018
19.	Seminar, Department of Chemical Engineering at Inha University, Korea	Aug. 2018
18.	Seminar, LCY Chemical Group, Taiwan	Jun. 2018
17.	Seminar, Department of Chemical Engineering at National Taiwan University of Science and Technology, Taiwan	May 2017
16.	Seminar, Department of Mechanical Engineering at National Taiwan University of Science and Technology, Taiwan	May 2017
15.	Seminar, The Department of Chemical Engineering at Hiroshima University,	Apr. 2017

Japan

14.	Seminar, The Affiliated Senior High School of National Taiwan Normal University, Taiwan	Dec. 2016
13.	Seminar, Taipei Municipal Song Shan Senior High School, Taiwan	Nov. 2016
12.	Seminar, Taipei Wego Private Bilingual High School, Taiwan	Oct. 2016
11.	Seminar, Department of Chemical Engineering at National Chung Cheng University, Taiwan	Jun. 2016
10.	Seminar, Department of Chemical Engineering at National Cheng Kung University, Taiwan	Dec. 2015
9.	Seminar, Institute of Polymer Science and Engineering at National Taiwan University, Taiwan	Jun. 2015
8.	Seminar, Department of Materials Science and Engineering at National Chiao Tung University, Taiwan	Jun. 2015
7.	Seminar, Department of Chemical Engineering at National Chung Hsing University, Taiwan	May 2015
6.	Seminar, Institute of Applied Mechanics at National Taiwan University, Taiwan	Mar. 2015
5.	Seminar, Department of Chemical and Materials Engineering at National Central University, Taiwan	Jun. 2014
4.	Seminar, Linkou Senior High School, Taiwan	Jun. 2014
3.	Seminar, Department of Chemical Engineering at National Chung Cheng University, Taiwan	Jan. 2014
2.	Seminar, R&D Center for Membrane Technology at Chung Yuan Christian University, Taiwan	Aug. 2013
1.	Nano@Tech Seminar, Institute for Electronics and Nanotechnology at Georgia Institute of Technology, USA	Apr. 2013

Conferences

53.	**Kang, D.-Y.* (Invited Speaker)**, Mass Transfer in MOF Membranes, *CSLT Annual Meeting*, Taichung, Taiwan	Mar. 2025
52.	**Kang, D.-Y.* (Keynote Speaker)**, Mass Transfer in the Ultramicropores within Metal-Organic Framework Membranes, *TwIChE Annual Meeting*, Taoyuan, Taiwan	Nov. 2024
51.	**Kang, D.-Y.* (Invited Speaker)**, Investigation of Molecular Transport in MOF Membranes, *MOF 2024*, Singapore	Jul. 2024
50.	**Kang, D.-Y.* (Keynote Speaker)**, Understanding molecular transport in MOF membranes, *ICOM 2023*, Chiba, Japan	Jul. 2023
49.	**Kang, D.-Y.* (Keynote Speaker)**, MOF membranes for gas separation and pervaporation, *AMS annual meeting*, Singapore	Jul. 2022
48.	**Kang, D.-Y.* (Keynote Speaker)**, Recent Advances in MOF Membranes for Gas Separation, *16th ICIM*, Taipei	Jun. 2022
47.	**Kang, D.-Y.* (Invited Speaker)**, MOF membranes for gas separations: recent advancement, *IChES*, online	Mar. 2022
46.	**Kang, D.-Y.* (Invited Speaker)**, MOF Membranes for Gas Separations, *TwIChE*	Jan. 2022

annual meeting, Kaohsiung

45. **Kang, D.-Y.* (Invited Speaker)**, Rational engineering of metal-organic framework membranes for gas separation - a combination of computational and experimental approach, *Pacifichem*, online — Dec. 2021
44. **Kang, D.-Y.* (Invited Speaker)**, Mass Transfer in MOFs and Their Applications on Membrane Gas Separations, *MACRO 2020+*, online — May 2021
43. **Kang, D.-Y.* (Award Lecture)**, Advancing Metal-Organic Framework Membranes for Highly-Efficient Molecular Separations, *Annual Meeting of The Society of Chemical Engineers*, *Japan*, online — Mar. 2021
42. **Kang, D.-Y.* (Keynote Speaker)**, CO_2 Selective MOF Membrane with Favorable Charge Effect, *30th Anniversary of Membrane Society of Korea*, online — Oct. 2020
41. **Kang, D.-Y.* (Invited Speaker)**, Emerging Applications of Zeolite/Ceramic Nanotube Thin Films and MOF Membranes for Gas Separations, *International Symposium on Porous Materials*, Tokyo, Japan — Nov. 2019
40. **Kang, D.-Y.* (Invited Speaker)**, Zeolite/MOF membranes for antifogging coating and molecular separations, *KIChE Annual Meeting*, Daejeon, Korea — Oct. 2019
39. **Kang, D.-Y.* (Invited Speaker)**, Effects of Framework Flexibility and Aperture Size of Metal-Organic Frameworks on Molecular Transport in Membranes, *12th Conference of the Aseanian Membrane Society*, Jeju, Korea — Jul. 2019
38. **Kang, D.-Y.* (Invited Speaker)**, Influence of Structural Flexibility of MOF Membranes on Molecular Transport Properties, *International Membrane Conference in Taiwan (IMCT)*, Taipei, Taiwan — Jun. 2019
37. **Kang, D.-Y.* (Invited Speaker)**, MOF and Zeolite Membranes: Fabrication and Applications, *Annual Meeting of Taiwan Filtration and Separations Society*, Taipei, Taiwan — May 2019
36. **Kang, D.-Y.* (Invited Speaker)**, *Advanced Hybrid Materials and Membrane Separation Symposium*, Chung Yuan Christian University, Taoyuan City, Taiwan — May 2019
35. **Kang, D.-Y.* (Invited Speaker)**, Deposition and Applications of Zeolite/MOF Membranes, *2nd SGU-NTU ChemE Symposium*, Sogang University, Seoul, Korea — Apr. 2019
34. **Kang, D.-Y.* (Invited Speaker)**, Metal-organic framework membranes for liquid-phase and gas-phase separations, *Symposium on Advanced Drying Techniques*, ITRI, Hsinchu, Taiwan — Oct. 2018
33. **Kang, D.-Y.* (Invited Speaker)**, Metal-organic framework membranes for liquid-phase and gas-phase separations, *Summer Workshop of KIChE*, Cheonan, Korea — Aug. 2018
32. **Kang, D.-Y.* (Invited Speaker)**, Wet Deposition of Nanoporous Thin Films, *7th Summer Course and Workshop on Emergent Functional Matter Science*, Hsinchu, Taiwan — Jun. 2018
31. **Kang, D.-Y.* (Keynote Speaker)**, High-Value Products Produced from Waste or Reusable Resources, *International Symposium on the Circular Economy, Chemical Industry, and Tax Policy*, Taipei, Taiwan — Apr. 2018
30. **Kang, D.-Y.***, Membranes Comprising Metal-Organic Frameworks for Water — Jan. 2018

Treatment, ICAMR, Fukuoka, Japan

29. **Kang, D.-Y.* (Invited Speaker)**, Composite Membranes Comprising Two Microporous Materials for Gas Separation, *Fall Meeting of Catalysis Society of Taiwan*, Taipei, Taiwan — Dec. 2017
28. **Kang, D.-Y.***, Metal-Organic Frameworks as Membrane Adsorber for Water Treatment, *IUMRS-ICA*, Taipei, Taiwan — Nov. 2017
27. **Kang, D.-Y.* (Invited Speaker)**, Wet Deposition of Inorganic Nanoporous Thin Films, *KIChE Annual Meeting*, Daejeon, Korea — Oct. 2017
26. **Kang, D.-Y.***, Wet Deposition of Low-k Thin Films Composed of Ceramic Nanotubes, *ICMSET*, Seoul, Korea — Oct. 2017
25. **Kang, D.-Y.* (Invited Speaker)**, Microwave-Assisted Synthesis of Inorganic Nanomaterials, *CEM Workship*, Taipei, Taiwan — May 2017
24. **Kang, D.-Y.* (Invited Speaker)**, Wet Deposition of Inorganic Nanoporous Thin Films, *Japan-Taiwan International Engineering Forum*, Tokyo, Japan — Mar. 2017
23. **Kang, D.-Y.* (Invited Speaker)**, Simulations of Transport Phenomena Using COMSOL Multiphysics – Class Projects, *COMSOL Multiphysics Conference*, Taipei, Taiwan — Nov. 2016
22. **Kang, D.-Y.***, Direct Deposition of Inorganic Nanoporous Thin Films for Applications in Electronics, *7th Internation Zeolite Membrane Meeting*, Dalian, China — Aug. 2016
21. **Kang, D.-Y.***, Hybrid Zeolite Imidazolate Framework Thin Films for Gas Separations, *Advances in Functional Materials*, Jeju, Korea — Aug. 2016
20. **Kang, D.-Y.* (Invited Speaker)**, Emerging methods for fabrication of MOF, zeolite, and nanotube membranes, *7th International Symposium on Inorganic Membranes*, Tokyo, Japan — Jul. 2016
19. **Kang, D.-Y.* (Invited Speaker)**; Lo, Y., Hybrid ZIF Membranes with Enhanced Hydrogen Separation Performance, *International Membrane Conference in Taiwan*, Chungli, Taiwan — May 2016
18. **Kang, D.-Y.* (Invited Speaker)**; Lo, Y., ZIF-ZIF Hybrid Membranes for Hydrogen Purification, *12th World Filtration Congress*, Taipei, Taiwan — Apr. 2016
17. **Kang, D.-Y.* (Invited Speaker)**, Estimations of Effective Diffusivity of Various Types of Mixed Matrix Membranes, *TwIChE Annual Meeting 2015*, Kaohsiung, Taiwan — Nov. 2015
16. **Kang, D.-Y.*(Keynote Speaker)**, Mechanical Properties of Single-Walled Aluminosilicate Nanotubes, *1st Computational Mechanics Conference in Taiwan*, Taipei, Taiwan — Oct. 2015
15. **Kang, D.-Y.*(Invited Speaker)**, Ultra Nanotube Composite Membranes for Molecular Separations, *NTU-NIMS Workshop*, Nantou, Taiwan — Sep. 2015
14. **Kang, D.-Y.***, Facile Removal of Structure Directing Agent from Zeolite Membranes Using Atmospheric Pressure Plasma Jet, *Sol-Gel 2015*, Kyoto, Japan — Sep. 2015
13. **Kang, D.-Y.***, Ultra Thin Nanotube Composite Membranes for Molecular Separations, *9th Conference of Asian Membrane Society*, Taipei, Taiwan — Jul. 2015

12. **Kang, D.-Y.*** (**Invited Speaker**); Liou, K.-H., Rational Engineering Metal Oxide Nanotubes, International Conference on Nanospace Materials, Taipei, Taiwan — Jun. 2015
11. **Kang, D.-Y.*** (**Invited Speaker**), Inorganic Nanotube-Polymer Composite Membranes for Separation Technology, *Emerging Information and Technology Association (EITA)-New Materials*, Tainan, Taiwan — Nov. 2014
10. **Kang, D.-Y.*** (**Invited Speaker**), Estimation of Effective Thermal Conductivity and Diffusivity of Nanocomposites using COMSOL, *COMSOL Multiphysics Conference*, Taipei, Taiwan — Nov. 2014
9. **Kang, D.-Y.***, Novel Inorganic Nanotubular Materials for CO_2 Capture, *IUMRS-ICA*, Fukuoka, Japan — Aug. 2014
8. **Kang, D.-Y.***, Polymer-Inorganic Nanotube Nanocomposite Membranes for Alcohol Dehydration, *IUMRS-ICA*, Fukuoka, Japan — Aug. 2014
7. **Kang, D.-Y.***, Inorganic Nanotube-Polymer Composites for Novel Separation Platforms, International Conference on Mechanical, *Automotive, and Materials Engineering*, Singapore — May 2014
6. **Kang, D.-Y.** (**Invited Speaker**)*; Jones, C.W.; Nair, S., Poly(vinyl alcohol)/ Single-Walled Aluminosilicate Nanotube Mixed-Matrix-Membrane for Ethanol-Water Mixture Dehydration, *International Membrane Conference in Taiwan*, Chungli, Taiwan — Aug. 2013
5. **Kang, D.-Y.**; Jones, C.W.*; Nair, S.*, An Inorganic Nanotube/Polymer Composite Membrane Platform for Molecular Separations, *AIChE Annual Meeting*, Pittsburgh, USA — Oct. 2012
4. **Kang, D.-Y.**; Zang, J.; Sholl, D.S.; Jones, C.W.*; Nair, S.*, Single-Walled Aluminosilicate Nanotubes with Organic-Modified Interiors, *AIChE Annual Meeting*, Minneapolis, USA — Oct. 2012
3. **Kang, D.-Y.**; Jones, C.W.*; Nair, S.*, Modeling Molecular Transport In Composite Membranes with Tubular Fillers, *AIChE Annual Meeting*, Minneapolis, USA — Oct. 2012
2. **Kang, D.-Y.**; Zang, J.; Sholl, D.S.; Jones, C.W.*; Nair, S.*, Single-Walled Aluminosilicate Nanotubes: Emerging Materials for Separations and Renewable Energy Technology, *Pacifichem*, Hawaii, USA — Dec. 2010
1. **Kang, D.-Y.**; Zang, J.; Jones, C.W.*; Nair S.*, Dehydration, Dehydroxylation, and Rehydroxylation of Single-Walled Aluminosilicate Nanotubes, *ACS Fall Meeting*, Boston, USA — Aug. 2010

Teaching

• ChemE 1006	Chemical Enginering Fundamentals	Fa 2022
• ChemE 2004	Mass and Energy Balances	Sp 2022
• ChemE 3004	Chemical Engineering Thermodynamics	Fa 2014, Fa 2015, Fa 2016, Fa 2017, Fa 2018, Fa 2019, Su 2020, Fa 2021, Fa 2022
• ChemE 3007	Fluid Mechanics and Operations	Fa 2013, Fa 2014
• ChemE 4006	Chemical Engineering Laboratory	Fa 2015, Fa 2016, Sp 2017, Fa 2020, Sp 2021, Fa 2021

• ChemE 5030	Thin-Film Technology and Surface Analysis	Sp 2015, Sp 2016, Sp 2017
• ChemE 5036	Computer-Aided Computation for Chemical Engineers	Sp 2016, Sp 2017, Sp 2018, Sp 2019, Fa 2019
• ChemE 5053	Introduction to Composite Materials	Fa 2013, Fa 2014
• ChemE 2006	Physical Chemistry II	Fa 2023, Fa 2024
• ChemE 7003	Advanced Chemical Engineering Thermodynamics	Sp 2014, Sp 2015, Sp 2016, Sp 2018, Sp 2019, Sp 2020, Sp 2021, Sp 2024, Sp 2025

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