

Kang, Dun-Yen (康敦彥)

Assistant Professor

B.S. in Chemical Engineering
National Taiwan University, 2004
M.S. in Applied Mechanics
National Taiwan University, 2006
Ph.D. in Chemical & Biomolecular Engineering
Georgia Institute of Technology, 2012
Postdoc in Chemistry and Biochemistry
Georgia Institute of Technology, 2012-2013

Research and Professional Interests
Functional Nanomaterials
Inorganic Microporous Membranes

Projects (started from 2013)

1. Fundamentals of Inorganic Nanotubes: Self-assembly Mechanisms, Morphology Control, and Surface Properties.
無機奈米管之基礎研究：自組裝機制、微結構控制、與表面性質分析。
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Journal Papers

1. Singh, T; **Kang, D.-Y.**; Nair, S.*, "Rigorous Calculations of Permeation in Mixed-Matrix Membranes: Evaluation of Interfacial Equilibrium Effects and Permeability-Based Models", *J. Membr. Sci.*, 2013, 448, 160-169 (SCI, EI)
2. Wunsch, B.H.; Rumi M.; Tummala, N.R.; Risko Chad; **Kang, D.-Y.**; Steirer, X; Gantz, J; Said, M.; Armstrong, N; Bredas, J.-L; Bucknall, D.G.; Marder S. R.*, "Structure-Processing-Property Correlations in Solution-Processed Small-Molecule Organic Solar Cells", *J. Mater. Chem. C*, 2013, 34 (1), 5250-5260 (SCI, EI)
3. Yucelen, G. I.; **Kang, D.-Y.**; Schmidt-Krey, I.; Beckham, H. W.; Nair, S.*, "A Generalized Kinetic Model for the Formation and Growth of Single-Walled Metal Oxide Nanotubes", *Chem. Eng. Sci.*, 2013, 90 (7), 200-212 (SCI, EI)
4. Zhang, J.; Kang, D.-Y.; Barlow S.; Marder, S. R.*, "Transition Metal-Catalyzed C-H Activation as a Route to Structurally Diverse Di(arylthiophenyl)-Diketopyrrolopyrroles", *J. Mater. Chem.*, 2012, 22 (40), 21392-21394 (SCI, EI)
5. Kuwahara, Y.; **Kang, D.-Y.**; Copeland, J.; Bollini, P.; Sievers, C.; Kamegawa, T.; Yamashita, H.; Jones, C. W.*, "Enhanced CO₂ Adsorption over Polymeric Amines Supported on Heteroatom-incorporated SBA-15 Silica: Impact of Heteroatom Type and Loading", *Chem. Eur. J.*, 2012, 18 (52), 16649-16664 (SCI, EI)
6. Kuwahara Y.; **Kang, D.-Y.**; Copeland, J.; Brunelli, N. A.; Didas S. A.; Bollini, P.; Sievers, C.; Kamegawa, T.; Yamashita H.; Jones, C. W.*, "Dramatic Enhancement of CO₂ Uptake by Poly(ethyleneimine) Using Zirconosilicate Supports", *J. Am. Chem. Soc.*, 2012, 134 (26), 10757-10760 (SCI, EI)
7. Yucelen, G. I.; **Kang, D.-Y.**; Guerrero, R. C.; Wright, E. R.; Beckham, H. W.; Nair, S.*, "Shaping Nanotubes at the Molecular Scale from Precursors of Controlled Curvature",

Nano Lett., 2012, 12 (2), 827-832 (SCI,EI)

8. **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 (SCI,EI)
9. **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 (SCI,EI)
10. **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 (SCI,EI)
11. **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 (SCI,EI)

Conference Papers

1. **Kang, D.-Y.**; Jones, C.W.; Nair, S., "Poly(vinyl alcohol)/Single-Walled Aluminosilicate Nanotube Mixed-Matrix-Membrane for Ethanol-Water Mixture Dehydration." Invited Speaker, International Membrane Conference in Taiwan, Chung, Taiwan August 2013
2. **Kang, D.-Y.**; Jones, C.W.; Nair, S., "An Inorganic Nanotube/Polymer Composite Membrane Platform for Molecular Separations." Oral Presentation, AIChE Annual Meeting, Pittsburgh, USA, October 2012
3. **Kang, D.-Y.**; Zang, J.; Sholl, D.S.; Jones, C.W.; Nair, S., "Single-Walled Aluminosilicate Nanotubes with Organic-Modified Interiors." Oral Presentation, AIChE Annual Meeting, Minneapolis, USA, October 2011
4. **Kang, D.-Y.**; Jones, C.W.; Nair, S., "Modeling Molecular Transport In Composite Membranes with Tubular Fillers." Oral Presentation, AIChE Annual Meeting, Minneapolis, USA, October 2011.
5. **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." Oral Presentation, Pacificchem, Hawaii, USA, December 2010
6. **Kang, D.-Y.**; Zang, J.; Jones, C.W.; Nair, S., "Dehydration, Dehydroxylation, and Rehydroxylation of Single-Walled Aluminosilicate Nanotubes." Oral Presentation, ACS Fall Meeting, Boston, USA, August 2010.

Patents

1. **Kang, D.-Y.**; Nair, S; Jones, C.W., "Single-Walled Metal Oxide Nanotubes", US and PCT Patent Application, 2011, #20110230672