

Chen, Li-Jen (陳立仁)

Professor

B.S. in Chemical Engineering
National Taiwan University, 1980
M.S. in Chemical Engineering
National Taiwan University, 1984
Ph.D. in Chemical Engineering
Rice University, 1989

Research and Professional Interests

Gas hydrates
Interfacial phenomena
Superhydrophobic surfaces
Phase behavior experiments and Interfacial
behavior measurements
Liquid crystal alignment film

Journal Papers

1. M. Khimani, H. W. Tseng, V. K. Aswal, **L. J. Chen** and P. Bahadur, "Salt-assisted microstructure evaluation of hydrophilic block copolymer F98: A thermal and scattering study", *Journal of Molecular Liquids*, 246, 363-371, 2017(Nov), (SCI,EI)
2. B. Y. Liu, C. H. Meng and **L. J. Chen**, "Role of Monomer Alkyl Chain Length in Pretilt Angle Control of Polymer-Stabilized Liquid Crystal Alignment System", *Journal of Physical Chemistry C*, 121(38), 21037-21044, 2017(Sep), (SCI,EI)
3. B. Sarac, Z. Medos, A. Cognigni, K. Bica, **L. J. Chen** and M. Bester-Rogac, "Thermodynamic study for micellization of imidazolium based surface active ionic liquids in water: Effect of alkyl chain length and anions", *Colloids and Surfaces a-Physicochemical and Engineering Aspects*, 532, 609-617, 2017(Nov), (SCI,EI)
4. H. W. Tseng, P. C. Chen, H. W. Tsui, C. H. Wang, T. Y. Hu and **L. J. Chen***, "Effect of molecular weight of poly(acrylic acid) on the interaction of oppositely charged ionic surfactant-polyelectrolyte mixtures", *Journal of the Taiwan Institute of Chemical Engineers*, 92, 50-57, 2018(Nov)
5. Y. A. Chen, C. K. Chu, Y. P. Chen, L. S. Chu, S. T. Lin and **L. J. Chen***, "Measurements of diffusion coefficient of methane in water/brine under high pressure", *Terrestrial Atmospheric and Oceanic Sciences*, 29(5), 577-587, 2018(Oct)
6. S. A. Pillai, C. F. Lee, D. Ray, V. K. Aswal, M. R. Wang, **L. J. Chen** and P. Bahadur, "Influence of urea on single and mixed micellar systems of Tetronics (R)", *Journal of Molecular Liquids*, 252, 9-17, 2018(Feb)
7. C. F. Lee, H. W. Tseng, P. Bahadur and **L. J. Chen***, "Synergistic Effect of Binary Mixed-Pluronic Systems on Temperature Dependent Self-assembly Process and Drug Solubility", *Polymers*, 10(1), 105, 2018(Jan)
8. S. A. Pillai, E.V. Lage, M. Casas, I. Sández-Macho, M.R. Wang, **L.J. Chen** and P. Bahadur, "A comparative study on the effect of structural variations of co-solvent on the Tetronic® micelles with widely different hydrophobicity", *Journal of Molecular Liquids*, 282, 97-104, 2019(May), (SCI,EI)
9. I. V. Postnova, **L.J. Chen** and Y.A. Shchipunov, "The Formation of Macropores in a Bimodal Silica Synthesized on P123 Block Copolymer as a Template", *Colloid Journal*, 81(2), 158-164, 2019(May), (SCI,EI)
10. Y.A. Chen, L.K. Chu, C.K. Chu, R. Ohmura and **L.J. Chen***, "Synthesis of Methane

- Hydrate from Ice Powder Accelerated by Doping Ethanol into Methane Gas", Scientific Reports , 9, 12345, 2019(August), (SCI,EI)
11. C.F. Lee, C.H. Yang, T.L. Lin, P. Bahadur and **L.J. Chen***, "Role of Molecular Weight and Hydrophobicity of Amphiphilic Tri-block Copolymers in Temperature-Dependent Co-micellization Process and Drug Solubility", Colloids and Surfaces B: Biointerfaces, 183, 110461, 2019(September), (SCI,EI)
 12. B.Y. Liu, R. Seemann, **L.J. Chen** and M. Brinkmann, "Directional liquid wicking in regular arrays of triangular posts", Langmuir, 35(50), 16476–16486, 2019(Nov), (SCI,EI)
 13. B. Vyas, S.A. Pillai, D. Ray, V.K. Aswal, M.R. Wang, **L.J. Chen** and P. Bahadur, "Interactions of Alkyltriphenyl Phosphonium Based Ionic Liquids with Block Copolymer Microstructures: A Multitechnique Study", Journal of Molecular Liquids, 300, 112341, 2020(Feb), (SCI,EI)
 14. Ryo Koyama, Li-Jen Chen, Saman Alavi, and Ryo Ohmura, "Improving thermal efficiency of hydrate-based heat engine generating renewable energy from low-grade heat sources using a crystal engineering approach", Energy 198, 117403, 2020, (SCI,EI)
 15. Kai-Chieh Yang, Chieh Wang, Ting-Yu Hu, Hui-Ping Lin, Kuan-Hung Cho, and **Li-Jen Chen***, "Self-Pinning of Silica Suspension Droplets on Hydrophobic Surfaces", Journal of Colloid and Interface Science 579, 212–220, 2020.
 16. Chin-Fen Lee, Mu-Rong Wang, Tsang-Lang Lin, Ching-Hsun Yang, and **Li-Jen Chen***, "Dynamic Behavior of the Structural Phase Transition of Hydrogel Formation Induced by Temperature Ramp and Addition of Ibuprofen", Langmuir 36, 8929–8938, 2020.
 17. O. N. Khlebnikov, I. V. Postnova, Li-Jen Chen and Yu. A. Shchipunov, "Silication of dimensionally stable cellulose aerogels for improving their mechanical properties", Colloid Journal 82(4), 448-459, 2020.
 18. Kuang-Yu Chang, Che-Kang Chu, Lee-Shin Chu, Yen-An Chen, Shiang-Tai Lin, Yan-Ping Chen and **Li-Jen Chen***, "Effect of Small Cage Guests on Dissociation Properties of Tetrahydrofuran Hydrates", J. Phys. Chem. B 124, 7217–7228, 2020.
 19. Riku Matsuura, Kosuke Watanabe, Yuji Yamauchi, Haruka Sato, Li-Jen Chen, and Ryo Ohmura, "Theoretical analysis on thermodynamic performance of hydrate-based refrigeration cycle", Energy 220, 119652, 2021.
 20. Pooja Patidar, Bharatkumar Kanoje, Anita Bahadur, Ketan Kuperkar, Debes Ray, Vinod KAswal, Mu-Rong Wang, Li-Jen Chen, and Pratap Bahadur, "Micellar characteristics of an amphiphilic star-block copolymer in DES-water mixture", Colloid and Polymer Science 299, 117–128, 2021.
 21. Chao-Jen Wang, Wei-Fan Kuan, Hui-Ping Lin, Yury A. Shchipunov, and **Li-Jen Chen***, "Facile hydrophilic modification of polydimethylsiloxane-based sponges for efficient oil-water separation", Journal of Industrial and Engineering Chemistry, 96, 144-155, 2021.
 22. Hui-Ping Lin and **Li-Jen Chen***, "Direct observation of wetting behavior of water drops on single micro-scale roughness surfaces of rose petal effect", Journal of Colloid and Interface Science 603, 539–549, 2021.
 23. Dhruvi Patel, Rabindranath Jana, Min-Hsuan Lin, Ketan Kuperkara, Debabrata Seth, Li-Jen Chen, and Pratap Bahadur, "Revisiting the salt triggered self-assembly in very

- hydrophilic triblock copolymer Pluronic® F88 using multitechnique approach”, *Colloid and Polymer Science* 299, 1113–1126, 2021.
24. Ting-Yu Hu, Chieh Wang, Kai-Chieh Yang, and **Li-Jen Chen***, “Gravity effect of silica and polystyrene particles on deposition pattern control and particle size distribution on hydrophobic surfaces”, *Journal of Industrial and Engineering Chemistry*, 106, 214–224, 2022. <https://doi.org/10.1016/j.jiec.2021.10.030>
 25. Wei-Fan Kuan, Wen-Yueh Yu, Fang-Yi Tu, Ching-Hsiu Chung, Yu-Cian Chang, Monica Mengdie Lin, Tzu-Hsien Yu, and **Li-Jen Chen***, “Facile Reflux Preparation of Defective Mesoporous Ceria Nanorod with Superior Catalytic Activity for Direct Carbon Dioxide Conversion into Dimethyl Carbonate”, *Chemical Engineering Journal* 430, 132941, 2022. <https://doi.org/10.1016/j.cej.2021.132941>
 26. V. R. Belosludov, K. V. Gets, R. K. Zhdanov, Yu. Yu. Bozhko, R. V. Belosludov, L.-J. Chen, “Collective effect of the hydrogen bond network transformation at initial stage of the methane hydrate growth”, *JETP Letters* 115(3), 124-129, 2022. <https://doi.org/10.1134/S0021364022030031>
 27. Yau Zu Khoo, Yu-Hsuan Ho, Kuang-Yu Chang, Yan-Ping Chen, and **Li-Jen Chen***, “Dual inhibition effect of reline deep eutectic solvent on methane hydrate nucleation and formation”, *Fuel* 328, 125376, 2022. <https://doi.org/10.1016/j.fuel.2022.125376>.
 28. Chi-Chun Lo and **Li-Jen Chen***, “Dropwise Condensation on Single-micro-scale Roughness Hydrophobic Surfaces”, *Surfaces and Interfaces* 33, 102281, 2022. <https://doi.org/10.1016/j.surfin.2022.102281>.
 29. Chieh Wang, Yu-Shiou Chen, and **Li-Jen Chen***, “Evaporation-induced deposition morphology of suspension droplets on hydrophobic surfaces manipulated by controlling the relative humidity”, *International Journal of Heat and Mass Transfer* 202, 123709, 2023. <https://doi.org/10.1016/j.ijheatmasstransfer.2022.123709>

Conference Papers

1. **Li-Jen Chen**, Cheng-Hao Su, Chih-Kang Wu and Ping-Chang Lin, "Wetting Behavior in Binary Mixtures of the Type Water + Ethylene Glycol Ether", 18th International Conference on Petroleum Phase Behavior and Fouling, Le Havre, France, 2017(Jun)
2. Liang-Kai Chu, Yen-An Chen, Che-Kang Chu, Bo-Chun Chen, and **Li-Jen Chen**, "Using Ethanol as a Kinetic Promoter for Methane Hydrate Formation and Dissociation via Ice Seed Method", 9th International Conference on Gas Hydrates, Denver, Colorado, USA, 2017(Jun)
3. Yen-An Chen, Laing-Kai Chu, Che-Kang Chu, Bo-Chun Chen, and **Li-Jen Chen**, "Kinetic Effect of Ethanol on Carbon Dioxide Hydrate Formation and Dissociation via Ice Seed Method", 9th International Conference on Gas Hydrates, Denver, Colorado, USA, 2017(Jun)
4. Kai-Chieh Yang, Shih-Yao Lin and **Li-Jen Chen**, "Effect of Particle Size and Surface Hydrophobicity on Self-Pinning Behavior of Nanofluid Droplets", *Bubble & Drop 2017*, Lyon, France, 2017(Jun)
5. Kai-Chieh Yang and **Li-Jen Chen**, "Effect of Particle Size on the Coffee Ring Formation on Different Hydrophobic Surfaces", 7th Asian Conference on Colloid and Interface Science., Kuala Lumpur, Malaysia, 2017(Aug), (Invited talk)

6. Peiheng Chang and **Li-Jen Chen**, "Observation of impregnating wetting behaviour of a liquid drop on hydrophilic patterned surfaces", 31st Conference of the European Colloid and Interface Society, Madrid, Spain, 2017(Sep)
7. Hsueh-Peng Chuang, Arwut Promraksa and **Li-Jen Chen**, "Modeling contact angle of a liquid droplet sitting on a cosine wave-like square-array pattern surface with different surface roughnesses", 31st Conference of the European Colloid and Interface Society, Madrid, Spain, 2017(Sep)
8. **Li-Jen Chen**, "Wetting and Phase Behaviour in Ternary Mixtures of the Type Water + Oil + Surfactant C_iE_j", Asian Conference on Oleo Science 2017 (ACOS 2017), Tokyo, Japan, 2017(Sep), (Plenary talk)
9. Kai-Chieh Yang, Shih-Yao Lin, Kuan-Hung Cho and **Li-Jen Chen**, "Effect of Surface Hydrophobicity and Particle Size on the Self-pinning Concentration for the Coffee Ring Formation", 13th Nanoscience and Nanotechnology Conference, Antalya, Turkey, 2017(Oct)
10. Kai-Chieh Yang, Ting-Yu Hu, Kuan-Hung Cho, and **Li-Jen Chen**, "Effect of particle size on self-pinning for the coffee ring formation on hydrophobic surfaces", 6th World Congress on Adhesion and Related Phenomena (WCARP) & 41st Annual Meeting The Adhesion Society, San Diego, California, USA, 2018(Feb)
11. **Li-Jen Chen**, Yen-An Chen, Che-Kang Chu, and Po-Chun Chen, "Kinetic Effect of Ethanol on the Formation and Dissociation of Methane Hydrate", 2018 Symposium on Thermodynamics & Process Systems Engineering, Tainan, Taiwan, 2018(May)
12. Hsueh-Wen Tseng, Po-Chia Chen, Hung-Wei Tsui, Chieh-Hsiang Wang, Ting-Yu Hu, and **Li-Jen Chen**, "Effect of Molecular Weight of Poly(Acrylic Acid) on the Interaction of Ionic Surfactant and Polyelectrolyte Mixtures", 11th Conference on Colloid Chemistry, Eger, Hungary, 2018(May)
13. **Li-Jen Chen**, Po-Chia CHEN, Chieh-Hsiang WANG, Hung-Wei TSUI and Hsueh-Wen TSENG, "Effect of alkyl chain length of alkyltrimethylammonium bromide on the interaction of ionic surfactant and poly(acrylic acid) mixtures", 12th European Symposium on Thermal Analysis and Calorimetry, Brasov, Romania, 2018(Aug)
14. **Li-Jen Chen**, Che-Kang CHU, Yan-Ping CHEN, and Shiang-Tai LIN, "Chain length effect of ionic liquid 1-alkyl-3-methylimidazolium chloride on the dissociation temperature of methane hydrate at elevated pressure up to 35.0 MPa", 12th European Symposium on Thermal Analysis and Calorimetry, Brasov, Romania, 2018(Aug)
15. **L.J. Chen**, S.Y. Lin, K.C. Yang, T.Y. Hu, and K.H. Cho, "Effect of surface hydrophobicity and particle size on the coffee ring formation", V-th International Conference on Colloid Chemistry and Physicochemical Mechanics (V-th IC-CCPCM), Saint Petersburg, Russia, 2018(Sep), (Key Lecture)
16. **Li-Jen Chen**, Da-Ren Chiou, Bang-Yan Liu, Kuan-Yu Yeh and Ching-Hsuan Meng, "Effect of surface hydrophobicity on the pretilt angle control of nematic liquid crystal alignment", The 7th Asian Symposium on Advanced Materials, Beijing, China, 2019(Sep), (Keynote Lecture, International Advisory Committee)
17. Chin-Fen Lee, Mu-Rong Wang, Tsang-Lang Lin and **Li-Jen Chen**, "Kinetic Effect of heating rate on gel formation for Pluronic-based solutions", The 8th Asian Conference on Colloid and Interface Science, Kathmandu, Nepal, 2019(Sep)
18. **Li-Jen Chen**, "Role of Surface Hydrophobicity in Tuning Pretilt Angle of Nematic Liquid Crystal", The 8th Asian Conference on Colloid and Interface Science,

- Kathmandu, Nepal, 2019(Sep), (Invited lecture, International Advisory Committee)
19. **Li-Jen Chen** and Cheng-Hao Su, "Effect of surfactant hydrophobicity on the wetting and phase behavior in ternary mixtures of the type water + oil + surfactant", The 12th Asian Thermophysical Properties Conference, Xi'an, China, 2019(Oct)
 20. Yu-Hsuan Ho, Yan-Ping Chen, and **Li-Jen Chen**, "Measurements for Dissociation Conditions of CO₂ Hydrate and Induction Time for CO₂ Hydrate Formation in the Presence of Polyethylenimine", presented at 2021 Symposium on Thermodynamics & Process Systems Engineering, May 24-31, 2021, Taipei, Taiwan.
 21. Hui-Ping Lin* and **Li-Jen Chen**, "Observation of wetting behavior beyond petal effect on single micro-scale hydrophobic surfaces", presented at 2021 Symposium on Thermodynamics & Process Systems Engineering, May 24-31, 2021, Taipei, Taiwan.
 22. Chi-Chun Lo* and **Li-Jen Chen**, "The effect of surface roughness on wetting behavior of condensed water drops on hydrophobic surfaces", presented at 2021 Symposium on Thermodynamics & Process Systems Engineering, May 24-31, 2021, Taipei, Taiwan.
 23. Hui-Ping Lin* and **Li-Jen Chen**, "Observation of wetting behavior beyond petal effect on single micro-scale hydrophobic surfaces", 2021年中華民國界面科學學會年會 · August 13, 2021 · 台北 ·
 24. Chi-Chun Lo* and **Li-Jen Chen**, "Wetting behavior of water droplets on single-micro-scale pillar array", 2022年中華民國界面科學學會年會 · July 22, 2022 · 中興大學 · 台中 ·
 25. Ding-Hao Sun*, Kuang-Yu Chang and **Li-Jen Chen**, "Pressure-dependence of dissociation temperature and enthalpy change for methane and THF-methane mixed hydrates", 台灣化學工程學會69週年年會 · December 2-3, 2022 · 淡江大學 · 淡水 ·
 26. Chi-Chun Lo* and **Li-Jen Chen**, "Dropwise condensation on single-micro-scale pillar array hydrophobic surfaces with various surface roughness", 台灣化學工程學會69週年年會 · December 2-3, 2022 · 淡江大學 · 淡水 ·

International Cooperation Projects (started from 2022)

The study of the mechanism of heterogeneous hydrate formation for desalination of sea water, 臺俄(RU)雙邊協議型擴充加值(add-on) 國際合作研究計畫 - 非均質水合物形成機制的海水淡化研究(3/3), Li-Jen Chen, Sponsor by Ministry of Science and Technology (MOST), NT\$440,000, 2023/01/01 ~ 2023/12/31