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Professor

B.S. in Chemical Engineering
UC Berkeley, 2001

Ph.D. in Chemical Engineering
UC Santa Barbara, 2005

Research and Professional Interests

Industrial Crystallization

Process Design and Intensification

Journal Papers

1. H. Y. Wang and **J. D. Ward**, "Seeding and Optimization of Batch Reactive Crystallization", *Industrial & Engineering Chemistry Research*, 54(38), 9360-9368, 2015(Sep), (SCI, EI), (IF: 3.448)
2. C. Y. Su, C. C. Yu, I. L. Chien and **J. D. Ward**, "Control of Highly Interconnected Reactive Distillation Processes: Purification of Raw Lactic Acid by Esterification and Hydrolysis", *Industrial & Engineering Chemistry Research*, 54(27), 6932-6940, 2015(Jul), (SCI, EI), (IF: 3.448)
3. Y. T. Tseng, W. J. Wang, **J. D. Ward** and H. Y. Lee, "Design and control of a process to produce furfuryl alcohol", *Journal of the Taiwan Institute of Chemical Engineers*, 51, 44-52, 2015(Jun), (SCI, EI), (IF: 3.763)
4. L. D. Shiau, Y. F. Lu, C. H. Lin and **J. D. Ward**, "A new model and a design procedure for an Oslo-Krystal cooling crystallizer", *Journal of the Taiwan Institute of Chemical Engineers*, 50, 76-83, 2015(May), (SCI, EI), (IF: 3.763)
5. Y. L. Kao and **J. D. Ward**, "Batch Reactive Distillation with Off-Cut Recycling", *Industrial & Engineering Chemistry Research*, 54(7), 2188-2200, 2015(Feb), (SCI, EI), (IF: 3.448)
6. Y. L. Kao and **J. D. Ward**, "Simultaneous Optimization of the Design and Operation of Batch Reactive Distillation Processes", *Industrial & Engineering Chemistry Research*, 55(1), 267-278, 2016(Jan), (SCI, EI), (IF: 3.448)
7. P. H. Lee, Y. L. Kao and **J. D. Ward**, "A Systematic Method for the Development of Operating Policies for Two-Step Processes with Semibatch Reactive Distillation", *Industrial & Engineering Chemistry Research*, 55(31), 8602-8615, 2016(Aug), (SCI, EI), (IF: 3.448)
8. Y. T. Tseng, **J. D. Ward** and H. Y. Lee, "Design and control of a continuous multi-product process with product distribution switching: Sustainable manufacture of furfuryl alcohol and 2-methylfuran", *Chemical Engineering and Processing-Process Intensification*, 105, 44124, 2016(Jul), (SCI, EI), (IF: 3.091)
9. H. Y. Wang and **J. D. Ward**, "Dynamics and control of continuous reactive crystallization processes", *Journal of the Taiwan Institute of Chemical Engineers*, 65, 28-42, 2016(Aug), (SCI, EI), (IF: 3.763)
10. H. Y. Lee, T. Y. Huang, P. H. Lee and **J. D. Ward**, "Design and control of a process to produce furan from furfural", *Journal of the Taiwan Institute of Chemical Engineers*, 73, 62-74, 2017(Apr), (IF: 3.763)
11. Y. T. Tseng and **J. D. Ward**, "Comparison of objective functions for batch

- crystallization using a simple process model and Pontryagin's minimum principle", *Computers & Chemical Engineering*, 99, 271-279, 2017(Apr), (SCI,EI), (IF: 3.334)
12. H. Y. Wang, K. L. Tung and **J. D. Ward**, "Design and economic analysis of membrane-assisted crystallization processes", *Journal of the Taiwan Institute of Chemical Engineers*, 81, 159-169, 2017(Dec), (SCI,EI), (IF: 3.763)
 13. Y. S. Kang and **J. D. Ward**, "Analysis of Seed Loading and Supersaturation Trajectories for Two-Dimensional Crystallization Systems", *Industrial & Engineering Chemistry Research*, 56(38), 10798-10812, 2017(Sep), (SCI,EI), (IF: 3.448)
 14. K. L. Wu, H. Y. Wang and **J. D. Ward**, "Economic Comparison of Crystallization Technologies for Different Chemical Products", *Industrial & Engineering Chemistry Research*, 57(37), 12444-12457, 2018(Sep), (SCI,EI), (IF: 3.448)
 15. X. L. Yang and **J. D. Ward**, "Extractive Distillation Optimization Using Simulated Annealing and a Process Simulation Automation Server", *Industrial & Engineering Chemistry Research*, 57(32), 11050-11060, 2018(Aug), (SCI,EI), (IF: 3.448)
 16. Y. W. Ni and **J. D. Ward**, "Automatic Design and Optimization of Column Sequences and Column Stacking Using a Process Simulation Automation Server", *Industrial & Engineering Chemistry Research*, 57(21), 7188-7200, 2018(May), (SCI,EI), (IF: 3.448)
 17. Y. T. Tseng, H. J. Pan and **J. D. Ward**, "Pareto-Optimal Fronts for Simple Crystallization Systems Using Pontryagin's Minimum Principle", *Industrial & Engineering Chemistry Research*, 58(31), 14239-14251, 2019(Aug), (SCI,EI), (IF: 3.448)
 18. P. C. Su and **J. D. Ward**, "Modeling of Membrane-Assisted Seeded Batch Crystallization", *Industrial & Engineering Chemistry Research*, 58(36), 16787-16797, 2019(Sep), (SCI,EI), (IF: 3.448)
 19. L. D. Shiau, H. Y. Wu and **J. D. Ward**, "Modeling and design of a semi-continuous fluidized bed pellet reactor", *Desalination and Water Treatment*, 150, 58-72, 2019(May), (SCI), (IF: 1.29)

Conference Papers

1. H. Y. Wang and **J. D. Ward**, "Dynamics and Control of Continuous Reactive Crystallization Processes.", AIChE Annual Meeting 2015, Salt lake city Utah USA, 2015(Nov)
2. H. Y. Wang and **J. D. Ward**, "Seeding and Optimization of Batch Reactive Crystallization.", AIChE Annual Meeting 2015, Salt lake city Utah USA, 2015(Nov)
3. P. H. Lee, Y. L. Kao and **J. D. Ward**, "Optimization of Semi-Batch Reactive Distillation for the Synthesis of Isopropyl Acetate and Ethyl Acetate.", AIChE Annual Meeting 2015, Salt lake city Utah USA, 2015(Nov)
4. Y. L. Kao and **J. D. Ward**, "Simultaneous Optimization of the Design and Operation of Batch Reactive Distillation Processes.", AIChE Annual Meeting 2015, Salt lake city Utah USA, 2015(Nov)
5. Y. T. Tseng, H. Y. Lee, **J. D. Ward** and T. Y. Huang, "Design and Control of Processes

Producing Derivatives of Furfural: Furan, Furfuryl Alcohol and 2-Methylfuran.", AIChE Annual Meeting 2015, Salt lake city Utah USA, 2015(Nov)

6. Y. T. Tseng and **J. D. Ward**, "Seeding Policy and Optimization of Batch Crystallization Processes.", AIChE Annual Meeting San Francisco, California, 2016(Nov)
7. H. Y. Wang and **J. D. Ward**, "Design and Economic Analysis of Membrane Crystallization Processes", AIChE Annual Meeting San Francisco, California, 2016(Nov)
8. H. F. Hsieh and **J. D. Ward**, "Empirical trajectories for batch crystallization control with constraints.", The 6th International Symposium on Advanced Control of Industrial Processes (ADCONIP 2017) Taipei, Taiwan, 2017(May)
9. W. Chen, H. C. Cho and **J. D. Ward**, "Control of two batch crystallization processes with apparent growth-rate dispersion.", The 6th International Symposium on Advanced Control of Industrial Processes (ADCONIP 2017) Taipei, Taiwan, 2017(May)
10. X. L. Yang and J.D. Ward, "Design of a Pressure-Swing Distillation Process for the Separation of n-Hexane and Ethyl Acetate Using Simulated Annealing", Process Systems Engineering PSE 2018, San Diego California, 2018(Jul)
11. Y. W. Ni and **J. D. Ward**, "Plantwide Process Design with Automatic Column Optimization, Sequencing and Stacking Using a Rigorous Process Simulator", 2018 AIChE Annual Meeting, Pittsburgh PA, 2018(Oct)
12. K. L. Wu and **J. D. Ward**, "Ward Economic Analysis of Alternative Continuous Crystallization Technologies for Mass Production", 2018 AIChE Annual Meeting, Pittsburgh PA, 2018(Oct)
13. X. L. Yang and **J. D. Ward**, "Design of Extractive Distillation Processes Using Simulated Annealing and a Rigorous Process Simulator", 2018 AIChE Annual Meeting, Pittsburgh PA, USA, 2018(Oct)
14. Pan, H. J., Tseng, Y. T., and **Ward, J. D.**, "Pareto-optimal fronts for simple crystallization systems using optimal control theory.", Asia Pacific Confederation of Chemical Engineering (APCCHE), Sapporo, Japan, 2019(Sep)
15. Pan, H. J., Tseng, Y. T., and **Ward, J. D.**, "Multi-Objective Optimization of Simple Crystallization Systems", 2019 AIChE Annual Meeting, Orlando, FL, USA, 2019(Nov)

Honors and Others

1. 榮獲臺灣大學 103 學年度教學優良獎(2015/08)
2. 榮獲臺灣大學 104 學年度教學優良獎(2016/08)
3. Secretary of the National Organizing Committee of the 6th International Symposium on Advanced Control of Industrial Processes (ADCONIP 2017)