

YUHE TIAN

Assistant Professor

Department of Chemical and Biomedical Engineering, West Virginia University

1306 Evansdale Drive, Morgantown, WV, 26506-6102

Tel: 304-293-9365, Email: yuhe.tian@mail.wvu.edu

Webpage: <https://yuhetian.faculty.wvu.edu>

RESEARCH ACTIVITIES

Process Systems Engineering

Process synthesis and optimization, Machine learning, Modular process intensification, Microwave-assisted energy systems, Risk-based explicit model predictive control

EDUCATION

Texas A&M University , College Station, TX	Ph.D. in Chemical Engineering	2016-2021
Tsinghua University , Beijing, China	B.Sc. in Chemical Engineering	2012-2016
	B.Sc. in Pure & Applied Mathematics	

PROFESSIONAL EXPERIENCE

West Virginia University, Morgantown, WV

Assistant Professor, Department of Chemical and Biomedical Engineering 2021-present
Stuart and Karen Goodman Fellow 2024-present

Cornell University, Ithaca, NY

Visiting Assistant Professor, Smith School of Chemical and Biomolecular Engineering 2024-present

HONORS AND AWARDS

- American Chemical Society Petroleum Research Funds Doctoral New Investigator Award 2024
- Winner, FOCAPD 2024 Outstanding Doctoral Dissertation Award 2024
- Ezra's Round Table/Systems Seminar, Cornell Systems Engineering 2024
- Thiele Lecture Series, Notre Dame Chemical and Biomolecular Engineering 2024
- Cover feature, AIChE J. (July) – Arunthavanathan, Sajid, Amin, Tian, Khan, Pistikopoulos 2024
- Finalist, AIChE CAST Division Directors' Student Presentation Awards 2021
- Most downloaded & Most cited article, Chemical Engineering and Processing: Process Intensification Journal – Tian, Demirel, Hasan, Pistikopoulos 2018

MENTORING AND STUDENT SUCCESS

• **Graduate student mentoring**

- Venkata Srikar Devarakonda – Ph.D. 2024-present
- Beatriz Dantas – Ph.D., WVU Statler Dianne Dubetz Anderson Fellow 2024-present
- Austin Braniff – Ph.D., NSF Graduate Research Fellow, WVU Provost Fellow 2023-present
- Md Masud – Ph.D., ACS I&EC Graduate Student Award 3rd Place 2023-present
- Ayooluwa Akintola – Ph.D., Chancellor Scholar 2021-present
- Yazhou Jiang – M.Sc. 2023-present
- Benjamin Akoh – M.Sc. 2021-2023

• **Undergraduate student mentoring**

- Theodore Malencia – AIChE RAPID Intern, WVU NASA Scholar 2024-present
2nd place AIChE CAST Division Undergraduate Poster Award
1st place Computing and Process Control Section II Poster Award
- Kaden Schreiber 2024-present
- Cassandra Booth 2024-present
- Dylan Miller 2024-present

- Dylan Nice *2024-present*
- Thisali Wadunambu *2023-present*
- Larry Clevenger *2023-2024*
- Austin Braniff *2022-2023*
- Tyler Dennis *2022-2023*
- Joshua Swecker – Best Steady State Simulation, AVEVA Academic Competition *2021-2024*

TEACHING ACTIVITIES

- **Curriculum teaching**
 - Elective: CHE 493F/593C Advanced Topics on Process Systems Engineering (Fall 2022-2024)
 - Core course: CHE355 Process Simulation and Design (Spring 2022-2024)
- **Faculty advisor for experiential learning**
 - EPA People, Prosperity and the Planet (P3) Student Design Competition *2024*
 - AVEVA Academic Competition *2023*
- **Research-oriented eLearning courses and workshops**
 - Synthesis and Operability for Computer-Aided Process Intensification, Houston Dow *2022*
 - CH377: Strategies for Computer-Aided Process Intensification. Virtual course *2021*
 - DOE/RAPID eLearning ELA350: Process Design for Process Intensification *2019*
 - DOE/RAPID eLearning ELA351: Modeling and Simulation for Process Intensification *2019*

SERVICE ACTIVITIES

- AIChE Early Career Community Programming Chair *2024 (vice), 2025*
- AIChE CAST Young Professionals Academic Liaison *2023-present*
- Editorial board, Digital Chemical Engineering *2023-present*
- Guest Editor, Processes *2023-present*
- Review Editor, Computational Methods in Chemical Engineering *2022-present*
- Member, FOCAPD International Scientific Committee *2023*
- Junior mentor, AIChE Education Division Future Faculty Program *2021-2022*
- Session chairing and symposium organizer of major chemical engineering and process systems engineering conferences (AIChE Annual Meeting, AIChE Spring Meeting, ACS Fall Meeting, FOCAPO/CPC, American Control Conference, etc.)
- Peer reviewer of major academic journals and conferences in process systems engineering, optimization, and control
- Proposal review and panels: NSF, ACS Petroleum Research Fund, Ocean Energy Safety Institute, Dutch Research Council, Natural Sciences and Engineering Research Council of Canada, etc.
- Graduate advisory committees: chemical engineering, industrial and management engineering, mechanical and aerospace engineering, etc.
- External dissertation examiner: University of South Africa

AUTHORED BOOK

1. Pistikopoulos, E. N., **Tian, Y.** Synthesis and Operability Strategies for Computer-Aided Modular Process Intensification, Elsevier, 2022.

BOOK CHAPTERS (Corresponding author is underlined)

1. **Tian, Y.**, Bindlish, R., Pistikopoulos, E. N. Integrated Design and Operability Optimization of Sustainable Process Intensification Systems. Optimization of Sustainable Process Systems: Multiscale Models and Uncertainties. Under Review.
2. Dantas, B., Braniff, A., Akundi, S. S., Liu, Y., Niknezhad, S. S., Khan, F., Pistikopoulos, E. N., Lima, F., **Tian, Y.** (2024) An Operability-based Approach for Integrated Process Design, Operations, and Risk Management. MCPS Vol 8: Method of Process Systems in Energy Systems, Chapter 4, 115-131.

3. Akundi, S. S., Braniff, A., Dantas, B., Liu, Y., Tian, Y., Niknezhad, S. S., Khan, F., Pistikopoulos, E. N. (2024) Model Predictive Control for enhanced safety and efficiency of process and energy systems. MCPS Vol 8: Method of Process Systems in Energy Systems, Chapter 8, 243-260.
4. Liu, Y., Akundi, S. S., Braniff, A., Dantas, B., Tian, Y., Niknezhad, S. S., Khan, F., Pistikopoulos, E. N. (2024) Cyber-Physical Systems in Chemical and Energy Processes: Concepts, Applications, and Methodology Framework. MCPS Vol 8: Method of Process Systems in Energy Systems, Chapter 7, 215-241.

JOURNAL ARTICLES (Corresponding author is underlined)

1. Braniff, A., Akundi, S. S., Liu, Y., Dantas, B., Niknezhad, S. S., Khan, F., Pistikopoulos, E. N., Tian, Y. Real-Time Process Safety and Systems Decision-Making Toward Safe and Smart Chemical Manufacturing. Digital Chemical Engineering. Under Review.
2. Lima, F. V., Tian, Y., Durand, H. E., Paulson, J. A., Biegler, L. T. Innovations in Chemical Process Control: Challenges and Opportunities. Current Opinion in Chemical Engineering. Under Review.
3. Masud, M. A. A., Araia, A., Wang, Y., Hu, J., Tian, Y. (2024) Machine Learning-Aided Process Design Using Limited Experimental Data: A Microwave-Assisted Ammonia Synthesis Case Study. AIChE Journal, e18621. (Futures Issue)
4. Wang, W., Zhang, H., Wang, Y., Tian, Y., Wu, Z. (2024) Fast Explicit Machine Learning-Based Model Predictive Control of Nonlinear Processes Using Input Convex Neural Networks. Industrial & Engineering Chemistry Research, 63 (40), 17279-17293.
5. Braniff, A., Tian, Y. (2024) A Hierarchical Multi-Parametric Programming Approach for Dynamic Risk-based Model Predictive Quality Control. Control Engineering Practice, 152, 106062.
6. Ji, C., Dai, J., Zhai, C., Wang, J., Tian, Y., Sun, W. (2024) A Review on Lithium-ion Batteries Modelling: From Mechanism-Based and Data-Driven Perspectives. Processes, 12(9), 187. (Feature Paper)
7. Arunthavanathan, R., Sajid, Z., Amin, M. T., Tian, Y., Khan, F., & Pistikopoulos, E. N. (2024) Process Safety 4.0: Artificial Intelligence or Intelligence Augmentation for Safer Process Operation? AIChE Journal. e18475. (Cover Feature)
8. Wang, W., Wang, Y., Tian, Y., & Wu, Z. (2024) Explicit Machine Learning-Based Model Predictive Control of Nonlinear Processes via Multi-Parametric Programming. Vol. 186: 108689.
9. Pistikopoulos, E. N., & Tian, Y. (2024) Advanced Modeling and Optimization Strategies for Process Synthesis. Annual Review of Chemical and Biomolecular Engineering. Vol. 15: 10.1–10.23.
10. Ang, T., Tsai, C-Y., Adi, V. S. K., Tian, Y., Kong, Z. Y., & Sunarso, J. Toward a flexible design for the bioethanol dehydration using extractive distillation. Part II: Control validation. (2023) Industrial & Engineering Chemistry Research, 62(51), 22058-22070.
11. Kong, Z. Y., Tsai, Y-T., Tian, Y., Sunarso, J., & Adi, V. S. K. (2023) Inherent flexibility design strategy of extractive distillation for binary azeotropic separation: Novel multi-objective approach with penalty values. Separation and Purification Technology, 124705.
12. Ali, M., Cai, X., Khan, F., Pistikopoulos, E. N., Tian, Y. Dynamic Risk-based Process Design and Operational Optimization via Multi-Parametric Programming. Digital Chemical Engineering, 7, 100096, 2023.
13. Tian, Y., Meduri, V., Bindlish, R., Pistikopoulos, E. N. A Process Intensification Synthesis Framework for the Design of Dividing Wall Column Systems, Computers & Chemical Engineering, 160, 107679, 2022.
14. Tian, Y., Pistikopoulos, E. N. A process intensification synthesis framework for the design of extractive separation systems with material selection, Journal of Advanced Manufacturing and Processing, e10097, 2021.
15. Pistikopoulos, E. N., Tian, Y., Bindlish, R. Operability and Control in Process Intensification and Modular Design: Challenges and Opportunities, AIChE Journal, e17204, 2021.

16. **Tian, Y.**, Pappas, I., Burnak, B., Katz, J., Pistikopoulos, E. N. Simultaneous Design & Control of a Reactive Distillation System – A Parametric Optimization & Control Approach, *Chemical Engineering Science*, 230, 116232, 2021.
17. **Tian, Y.**, Pistikopoulos, E. N. Towards an Envelope of Design Solutions for Combined/Intensified Reaction/Separation Systems. *Industrial & Engineering Chemistry Research*, 59(24), 11350–11354, 2020.
18. **Tian, Y.**, Pappas, I., Burnak, B., Katz, J., Pistikopoulos, E. N. A Systematic Framework for Synthesis of Operable Process Intensification Systems – Reactive Separation, *Computers & Chemical Engineering*, 134, 106675, 2020.
19. Avraamidou, S., Baratsas, S., **Tian, Y.**, Pistikopoulos, E. N. Circular Economy – A Challenge and an Opportunity for Process Systems Engineering. *Computers & Chemical Engineering*, 133, 106629, 2020.
20. **Tian, Y.**, Pistikopoulos, E. N. Synthesis of Operable Process Intensification Systems – Steady-State Design with Safety and Operability Considerations. *Industrial & Engineering Chemistry Research*, 58(15), 6049-6068, 2019.
21. **Tian, Y.**, Pistikopoulos, E. N. Synthesis of Operable Process Intensification Systems: Advances and Challenges. *Current Opinion in Chemical Engineering*, 25, 101-107, 2019.
22. **Tian, Y.**, Demirel, S. E., Hasan, M. M. F., Pistikopoulos, E. N. An Overview of Process Systems Engineering Approaches for Process Intensification: State of the Art. *Chemical Engineering and Processing: Process Intensification*, 133, 160-210, 2018.
23. Niziolek, A. M., Onel, O., **Tian, Y.**, Floudas, C. A., Pistikopoulos, E. N. Municipal Solid Waste to Liquid Transportation Fuels – Part III: An Optimization-Based Nationwide Supply Chain Management Framework. *Computers & Chemical Engineering*, 116, 468-487, 2018.

REFEREED CONFERENCE PROCEEDINGS (Corresponding author is underlined)

1. Masud, M., Araia, A., Wang, Y., Hu, J., **Tian, Y.** (2024) Machine Learning-Aided Process Design for Microwave-Assisted Ammonia Production. In *Systems & Control Transactions Volume 3*, 316-321.
2. **Tian, Y.**, Akintola, A., Jiang, Y., Wang, D., Bao, J., Zamarripa, M. A., Paul, B., Chen, Y., Gao, P., Noring, A., Iyengar, A., Liu, A., Marina, O., Koepfel, B., Xu, Z. (2024) Reinforcement Learning-Driven Process Design: A Hydrodealkylation Example. In *Systems & Control Transactions Volume 3*, 387–393 (2024).
3. **Ball, M., Sanyal, O., Tian, Y.** Integration of Process Design and Intensification Learning Via Combined Junior Course Project. In *Systems & Control Transactions Volume 3*, 959–965 (2024).
4. Braniff, A., **Tian, Y.** (2024) Dynamic Risk-based Model Predictive Quality Control with Online Model Updating. *American Control Conference 2024*. Accepted.
5. Braniff, A., Akundi, S. S., Liu, Y., Khan, F., Pistikopoulos, E. N., **Tian, Y.** (2024) A Real-Time Risk-Based Optimization Framework for Safe and Smart Operations. In *Computer Aided Chemical Engineering (Vol. 53, pp. 1915-1920)*. Elsevier.
6. **Tian, Y.**, Akintola, A., Akoh, B. (2023) A Process Design, Intensification, and Modularization Approach for Membrane-Assisted Reaction Systems. *33rd European Symposium on Computer Aided Process Engineering (ESCAPE-33)*.
7. Ali, M., **Tian, Y.**, De, S., van Bavel, A. P., Pappas, I., Demirhan, C. D., & Pistikopoulos, E. N. (2023) Process Design and Intensification of Circulating Catalytic Fluidized Bed Membrane Reactor for Oxidative Coupling of Methane. *33rd European Symposium on Computer Aided Process Engineering (ESCAPE-33)*.
8. Ali, M., Cai, X., Khan, F., **Tian, Y.** Dynamic Risk-based Design and Explicit Model Predictive Control via Multi-Parametric Programming. *FOCAPO/CPC 2023*, January 2023.
9. Vedant, S., Atencio, M. R., **Tian, Y.**, Meduri, V., Pistikopoulos, E. N. Towards a Software Prototype for Synthesis of Operable Process Intensification Systems. *31st European Symposium on Computer Aided Process Engineering (ESCAPE-31)*, June 2021. In *Computer Aided Chemical Engineering*, 50, 767-772. Elsevier.

10. **Tian, Y.**, Pistikopoulos, E. N. Operability and Safety Considerations in Process Intensification. 21st International Federation of Automatic Control (IFAC) World Congress, July 2020. In IFAC-PapersOnLine, 53(2), 11434-11439.
11. **Tian, Y.**, Pistikopoulos, E. N. Generalized Modular Representation Framework for the Synthesis of Extractive Separation Systems. Foundations of Computer-Aided Process Design (FOCAPD 2019), July 2019, Copper Mountain, Colorado. In Computer Aided Chemical Engineering, 7, 475-480. Elsevier.
12. **Tian, Y.**, Pappas, I. S., Burnak, B., Katz, J., Avraamidou, S., Diangelakis, N. A., Pistikopoulos, E. N. Towards a Systematic Framework for the Synthesis of Operable Process Intensification Systems – Application to Reactive Distillation Systems. 29th European Symposium on Computer-Aided Process Engineering (ESCAPE-29), June 2019, Eindhoven, Neitherlands. In Computer Aided Chemical Engineering, 46, 73-78. Elsevier.
13. **Tian, Y.**, Mannan, M. S., Pistikopoulos, E. N. Towards a Systematic Framework for the Synthesis of Operable Process Intensification Systems. 13th International Symposium on Process Systems Engineering (PSE 2018), July 2018, San Diego, California. In Computer Aided Chemical Engineering, 44, 2383-2388. Elsevier.
14. **Tian, Y.**, Mannan, M. S., Kravanja, Z., Pistikopoulos, E. N. Towards the Synthesis of Process Intensification Systems with Safety and Operability Considerations – Application to Heat Exchanger Network. 28th European Symposium on Computer-Aided Process Engineering (ESCAPE-28), June 2018, Graz, Austria. In Computer Aided Chemical Engineering, 43, 705-710. Elsevier.

INVITED TALKS

1. **Tian, Y.** Toward Safe and Sustainable Process Systems via Risk-based Design, Intensification, and Control. PSE Seminar at University of Minnesota, September 2024.
2. **Tian, Y.** Synthesis of Sustainable Process Intensification Systems. CAST Webinar Series, July 2024.
3. **Tian, Y.** Synthesis Strategies for Computer-Aided Modular Process Intensification. Keynote, FOCAPD, July 2024, CO.
4. **Tian, Y.** Systematic Process Design, Intensification, and Innovation of Chemical and Energy Systems. Ezra's Round Table/Systems Seminar, Cornell University, April 2024, NY.
5. **Tian, Y.** Toward Systematic Process Design, Intensification, and Innovation. Department of Chemical and Biomolecular Engineering, University of Notre Dame, January 2024, IN.
6. **Tian, Y.** Synthesis and Operability Strategies for Computer-Aided Modular Process Intensification. Seminar on Process Intensification Applied to the Oil and Energy Industry, Mexican Petroleum Institute, March 2023, Virtual.
7. **Tian, Y.** Synthesis and Operability Strategies for Computer-Aided Modular Process Intensification. Second Symposium of Process Intensification Challenges and Opportunities: Towards Sustainable Chemical Processes in the XXI Century, January 2023, Virtual.
8. **Tian, Y.** Fault-Prognostic Predictive Control via Multi-Parametric Optimization, BioCON 4.0 Online Conference, August 2022, Virtual.
9. **Tian, Y.**, Akintola, A. Modular Process Intensification Synthesis of Membrane-Based Reactive Separation Systems for Sustainable Hydrogen Production, Advanced Manufacturing and Processing Conference, June 2022, Bethesda, MD.
10. Zitney, S., Bhattacharyya, D., Lima, F., **Tian, Y.** Science-Informed Virtual Digital Twin for an Integrated Energy System with Carbon Capture: Research, Training, and Education. Advanced Manufacturing and Processing Conference, June 2022, Bethesda, MD.
11. **Tian, Y.** Synthesis and Operability Strategies for Computer-Aided Modular Process Intensification. Joint Del Rio Chanona and Zhang Research Group Meeting. May 2022, Virtual.
12. **Tian, Y.**, Innovation-Driven Sustainable Process Systems Engineering. AIChE Student Chapter Meeting, February 2022, Morgantown, West Virginia.
13. **Tian, Y.**, Pistikopoulos, E. N. A Framework for Synthesis of Operable Process Intensification Systems. AIChE Annual Meeting, CAST Director's Student Presentation Award Session, November 2020.

14. **Tian, Y.**, Pistikopoulos, E. N. Design and Optimization of Operable Process Intensification Systems. Texas A&M Chemical Engineering Departmental Seminar, October 2020.

CONFERENCE PRESENTATIONS

1. Malencia, T., Dantas, B., Braniff, A., Lima, F. V., **Tian, Y.** A Process Operability Approach for Safety-Critical Chemical and Energy Production. AIChE Annual Student Conference, October 2024, San Diego, CA.
2. Wadunambu, T., Masud, M. M. A., **Tian, Y.** Data-Driven Surrogate Modeling and Optimization for Ammonia Production. AIChE Annual Student Conference, October 2024, San Diego, CA.
3. Miller, D., Braniff, A., **Tian, Y.** Explicit pH and Temperature Control of Complex Pharmaceutical Bioprocesses. AIChE Annual Student Conference, October 2024, San Diego, CA.
4. Akintola, A., **Tian, Y.** Development of a Machine Learning-Driven Surrogate Model for Steam Methane Reforming-Kinetics Towards Sustainable Hydrogen Production. AIChE Annual Meeting, October 2024, San Diego, CA.
5. Wang, W., Wang, Y., **Tian, Y.**, Wu, Z. Explicit Machine Learning-Based Model Predictive Control of Nonlinear Processes. AIChE Annual Meeting, October 2024, San Diego, CA.
6. Masud, M., Araia, A., Wang, Y., Hu, J., **Tian, Y.** Process Synthesis Optimization for Microwave-Assisted Ammonia Production with Data-Driven Modeling. AIChE Annual Meeting, October 2024, San Diego, CA.
7. Masud, M., Wadunambu, T., Piash, K. P. S., Sanyal, O., **Tian, Y.** Using Data-Driven Modeling and Systems Optimization for Advancing Sustainable Nutrient Recovery Technologies from Concentrated Wastewater Sources. AIChE Annual Meeting, October 2024, San Diego, CA.
8. Dantas, B., Akundi, S. S., Liu, Y., Niknezhad, S., Braniff, A., Khan, F., Pistikopoulos, E. N., **Tian, Y.**, Lima, F. V. An Operability-Based Approach for Integrated Process Design, Operations, and Risk Management. AIChE Annual Meeting, October 2024, San Diego, CA.
9. Braniff, A., Dantas, B., Akundi, S. S., Liu, Y., Niknezhad, S., Khan, F., Pistikopoulos, E. N., **Tian, Y.** Dynamic Risk-Based Batch Reactor Quality Control through Hierarchical Multi-Parametric Optimization. AIChE Annual Meeting, October 2024, San Diego, CA.
10. **Tian, Y.**, Pistikopoulos, E. N., Khan, F., Niknezhad, S., Liu, Y., Akundi, S. S., Dantas, B., Braniff, A. RETRO: A Real-Time Risk-Based Optimization Framework for Safe and Smart Operations. AIChE Annual Meeting, October 2024, San Diego, CA.
11. Braniff, A., Clevenger, L., Dantas, B., Akundi, S. S., Liu, Y., Niknezhad, S., Khan, F., Pistikopoulos, E. N., **Tian, Y.** Uncertainty-Informed Dynamic Risk Control of Safety-Critical Reaction Processes with Bayesian State Estimation. AIChE Annual Meeting, October 2024, San Diego, CA.
12. Braniff, A., Miller, D., Dantas, B., Akundi, S. S., Liu, Y., Niknezhad, S., Khan, F., Pistikopoulos, E. N., **Tian, Y.** Risk-Based Quality Control for the Safe and Efficient Biotechnological Batch Production of Lactic Acid. AIChE Annual Meeting, October 2024, San Diego, CA.
13. Liu, Y., Akundi, S. S., Braniff, A., Dantas, B., **Tian, Y.**, Niknezhad, S., Khan, F., Pistikopoulos, E. N. Real-Time Monitoring and Control of Lab-Scale Hydrogen Energy Systems: An Experimental and Modeling Approach. AIChE Annual Meeting, October 2024, San Diego, CA.
14. Liu, Y., Akundi, S. S., Braniff, A., Dantas, B., **Tian, Y.**, Niknezhad, S., Khan, F., Pistikopoulos, E. N. Modeling Challenges in the Analysis of Proton Exchange Membrane Water Electrolysis System. AIChE Annual Meeting, October 2024, San Diego, CA.
15. Akundi, S. S., Liu, Y., Braniff, A., Dantas, B., Niknezhad, S., **Tian, Y.**, Khan, F., Pistikopoulos, E. N. Integration of Dynamic Risk and Control for Enhanced Safety and Operational Efficiency. AIChE Annual Meeting, October 2024, San Diego, CA.
16. Masud, M., **Tian, Y.** Design Optimization of Microwave-Assisted Ammonia Production Processes: An Integrated Machine Learning and Superstructure-based Approach. ACS Fall, August 2024, Denver, CO.
17. Miller, D., Braniff, A., **Tian, Y.** Improved Fidelity Modeling of Pharmaceutical Bioprocesses for Advanced Control Applications. Summer Undergraduate Research Symposium, July 2024, Morgantown, West Virginia.

18. Ball, M., Sanyal, O., **Tian, Y.** Integration of Process Design and Intensification Learning Via Combined Junior Course Project. FOCAPD, July 2024, Breckenridge, CO.
19. **Tian, Y.**, Akintola, A., Jiang, Y., Wang, D., Bao, J., Zamarripa, M. A., Paul, B., Chen, Y., Gao, P., Noring, A., Iyengar, A., Liu, A., Marina, O., Koepfel, B., Xu, Z. Reinforcement Learning-Driven Process Design: A Hydrodealkylation Example. FOCAPD, July 2024, Breckenridge, CO.
20. Masud, M., Araia, A., Wang, Y., Hu, J., **Tian, Y.** Machine Learning-Aided Process Design for Microwave-Assisted Ammonia Production. FOCAPD, July 2024, Breckenridge, CO.
21. Braniff, A., **Tian, Y.** Dynamic Risk-Based Model Predictive Quality Control with Online Model Updating. American Control Conference. July 2024, Toronto, Canada.
22. Akundi, S. S., Liu, Y., Braniff, A., Dantas, B., Niknezhad, S. S., **Tian, Y.**, Khan, F., Pistikopoulos, E. N. Integrating Dynamic Risk Assessment with Model Predictive Control for Enhanced Safety and Operational Efficiency. American Control Conference. July 2024, Toronto, Canada.
23. Akundi, S., Liu, Y., Braniff, A., Dantas, B., Niknezhad, S. S., **Tian, Y.**, Khan, F., Pistikopoulos, E. N. A Real-Time Risk-Based Optimization Framework for Safe and Smart Operations. ESCAPE 34, June 2024, Florence, Italy.
24. Masud, M., & **Tian, Y.** Design Optimization of Microwave-Assisted Ammonia Production Processes: An Integrated Machine Learning and Superstructure-Based Approach. Statler Research Week Open House, April 2024, Morgantown, West Virginia.
25. Braniff, A., Dantas, B., Akundi, S. S., Liu, Y., Niknezhad, S. S., Khan, F., Pistikopoulos, E. N. & **Tian, Y.** Smart and Safe Manufacturing via Risk-Aware Control and Data-Driven Uncertainty Analysis. Statler Research Week Open House, April 2024, Morgantown, West Virginia.
26. Wadunambu, T., Masud, M., Piash, K. P. S., Sanyal, O., & **Tian, Y.** Model-based analyses of fertilizer nutrient recoveries from wastewater. WV Undergraduate Research Day at the Capitol, February 2024, Charleston, West Virginia.
27. **Tian, Y.**, Zamarripa, M. A., & Paul, B. Systematic Process Design Via Reinforcement Learning: An Hydrodealkylation Example. AIChE Annual Meeting, November 2023, Orlando, Florida.
28. Masud, M., & **Tian, Y.** Machine Learning-Aided Process Design and Intensification using Sparse Experimental Data: An Ammonia Production Example. AIChE Annual Meeting, November 2023, Orlando, Florida.
29. Braniff, A., & **Tian, Y.** Multi-Time-Scale Model Predictive Quality Control via Multi-Parametric Programming. AIChE Annual Meeting, November 2023, Orlando, Florida.
30. Braniff, A., & **Tian, Y.** Fault-Prognostic Explicit Model Predictive Control with Physics-Data Driven Monitoring. AIChE Annual Meeting, November 2023, Orlando, Florida.
31. Ali, M., Kenefake, D., **Tian, Y.**, & Pistikopoulos, E. N. Optimal Operation of Intensified Fluidized Bed Membrane Reactor for Oxidative Coupling of Methane. AIChE Annual Meeting, November 2023, Orlando, Florida.
32. Braniff, A., Masud, M., & **Tian, Y.** Fault-Prognostic Model Predictive Control with Physics-Data Driven Monitoring. American Control Conference. June 2023, San Diego, California.
33. Ball, M. R., Sanyal, O., & **Tian, Y.** Combined ChemE junior level course project: Green methanol synthesis. ASEE North Central Section Conference. March 2023, Morgantown, West Virginia.
34. Masud, M., & **Tian, Y.** Machine Learning in Limited Data Regime – A Literature Survey & Motivating Chemical Example. Statler Research Week Open House. March 2023, Morgantown, West Virginia.
35. Akoh, B., Akintola, A., & **Tian, Y.** Machine Learning-Assisted Chemical Process Design. Statler College Artificial Intelligence Research Forum. December 2022, Morgantown, West Virginia.
36. **Tian, Y.**, & Akintola, A. Modular Process Intensification Synthesis of Membrane-Based Reactive Separation Systems Towards Sustainable Hydrogen Production. AIChE Annual Meeting, November 2022, Phoenix, Arizona.
37. **Tian, Y.**, & Akoh, B. An Operational Optimization Approach for Supply Network Decarbonization for Energy-Chemical Co-Production. AIChE Annual Meeting, November 2022, Phoenix, Arizona.

38. Ali, M., Cai, X., Khan, F., Pistikopoulos, E. N., & **Tian, Y.** A Systematic Safety-Oriented Process Design and Explicit Model Predictive Control Optimization Approach. AIChE Annual Meeting, November 2022, Phoenix, Arizona.
39. Ali, M., **Tian, Y.**, De, S., van Bavel, A. P., Demirhan, C. D., & Pistikopoulos, E. N. Dynamic Modeling and Explicit/Multi-Parametric Model Predictive Control Optimization of an Intensified Fluidized Bed Membrane Reactor for Oxidative Coupling of Methane. AIChE Annual Meeting, November 2022, Phoenix, Arizona.
40. Cai, X., Ali, M., Su-Feher, D., Pistikopoulos, E. N., **Tian, Y.** Systematic Incorporation of Safety Assessment in Process Design, Intensification, and Control. AIChE Spring Meeting, April 2022, San Antonio, Texas.
41. Ali, M., **Tian, Y.**, De, S., van Bavel, A. P., Demirhan, C. D., Pistikopoulos, E. N. Model-Based Design and Intensification of a Catalytic Fluidized Bed Membrane Reactor for Oxidative Coupling of Methane. AIChE Spring Meeting, April 2022, San Antonio, Texas.
42. Akintola, A., **Tian, Y.** Computer Aided Process Intensification for Hydrogen Production. Statler Research Open House, April 2022, Morgantown, West Virginia.
43. Ali, M., **Tian, Y.**, De, S., van Bavel, A. P., Demirhan, C. D., Pistikopoulos, E. N. Process Modeling, Design, and Intensification of Oxidative Coupling of Methane Process. ACS Spring Meeting, April 2022, San Diego, California.
44. **Tian, Y.**, Pistikopoulos, E. N. A Process Intensification Synthesis Approach to Adsorption-Based Reactive Separation Systems. AIChE Annual Meeting, November 2021, Boston, Massachusetts.
45. **Tian, Y.**, Meduri, M., Bindlish, R., Pistikopoulos, E. N. A Process Intensification Synthesis Framework for the Design of Divided Wall Columns. AIChE Annual Meeting, November 2021, Boston, Massachusetts.
46. Rivera, M., Vedant, S., Pistikopoulos, E. N., **Tian, Y.** A Data-Driven Optimization Approach and Software Toolkit for Modular Process Intensification Synthesis. AIChE Annual Student Conference, November 2021, Boston, Massachusetts.
47. **Tian, Y.** Process Intensification Synthesis of Multi-Scale and Multi-Functional Reaction Systems. 2021 Annual Meeting of Pittsburgh-Cleveland Catalysis Society, October 2021, Pittsburgh, PA.
48. **Tian, Y.**, Vlachos, D. G., Pistikopoulos, E. N. Generalized Modular/Collocation Framework for Representation and Synthesis of Intensified Multi-Scale Reaction Systems. AIChE Annual Meeting, November 2020.
49. **Tian, Y.**, Meduri, V., Vedant, S., Bindlish, R., Pistikopoulos, E. N. Process Design and Intensification of Dividing Wall Column for a Methyl Methacrylate Separation Process. AIChE Annual Meeting, November 2020.
50. **Tian, Y.** A Modular Approach to Process Intensification – Modeling, Optimization and Control. AIChE Annual Meeting, November 2020.
51. García-López, C. A., **Tian, Y.**, Pistikopoulos, E. N., Jiménez-Gutiérrez, A. Design and Control Optimization of Pressure Swing Adsorption Systems for Hydrogen Recovery from IGCC Plants with Co-Capture of Carbon Dioxide. AIChE Annual Meeting, November 2020.
52. **Tian, Y.**, Pistikopoulos, E. N. Material Selection in Process Intensification – Application to Extractive Separation Systems. AIChE Spring Meeting, August 2020.
53. **Tian, Y.**, Pappas, I. S., Burnak, B., Katz, J., Pistikopoulos, E. N. Process Intensification Framework for Reactive Separation Systems. AIChE Annual Meeting, November 2019, Orlando, Florida.
54. **Tian, Y.**, Pappas, I. S., Avraamidou, S., Pistikopoulos, E. N. A Modular Approach to Process Integration and Intensification. AIChE Annual Meeting, November 2019, Orlando, Florida.
55. **Tian, Y.**, Pappas, I. S., Avraamidou, S., Pistikopoulos, E. N. Process Intensification Framework for Extractive Separation Systems. AIChE Annual Meeting, November 2019, Orlando, Florida.
56. **Tian, Y.**, Demirel, S. E., Li, J., Avraamidou, S., Tula, A. K., Eden, M. R., Hasan, M. M. F., Gani, R., Pistikopoulos, E. N. Towards a Unified Strategy and Prototype Software Platform for the Synthesis of

Operable & Sustainable Process Intensification Systems. AIChE Annual Meeting, November 2019, Orlando, Florida.

57. **Tian, Y.**, Pappas, I. S., Katz, J., Burnak, B., Pistikopoulos, E. N. Towards the Incorporation of Operability and Safety in the Synthesis of Intensified Reactive Separation Systems. AIChE Spring Meeting, April 2019.
58. **Tian, Y.**, Mannan, M. S., Pistikopoulos, E. N. Towards a Systematic Process Intensification Framework for Advanced Distillation Systems. AIChE Annual Meeting, October 2018, Pittsburgh, Pennsylvania.
59. Pistikopoulos, E. N., Sholl, D., Hasan, M. M. F., Demirel, S. E., **Tian, Y.** Modeling and Simulation Challenges for Process Intensification. AIChE Annual Meeting, October 2017, Minneapolis, Minnesota.
60. **Tian, Y.**, Pistikopoulos, E. N., Mannan, M. S. Towards a Systematic Framework for the Synthesis of Safely Operable Process Intensification Systems. Mary Kay O'Connor Safety Center 2017 International Symposium, October 2017, College Station, Texas.