

STYLIANI AVRAAMIDOU

Assistant Professor, University of Wisconsin-Madison
(608) 265-9026 ♦ avraamidou@wisc.edu

EDUCATION

- 2014-2018** **PhD, Chemical Engineering**, Imperial College London, UK
Thesis Title: Mixed-Integer Multi-level Optimization through Multi-Parametric Programming
- 2010-2014** **MEng (4YFT) Chemical Engineering**, Imperial College London, UK

PROFESSIONAL APPOINTMENTS

- 2021-** **Assistant Professor**
Department of Chemical and Biological Engineering, University of Wisconsin-Madison, US
- 2020-2021** **Assistant Research Scientist**
Texas A&M Energy Institute, Texas A&M University, US
- 2018-2020** **Postdoctoral Research Associate**
Texas A&M Energy Institute, Texas A&M University, US

AWARDS/ACHIEVEMENTS

- 2020** Awarded 1st place on AIChE's CAST Poster Competition 2020.
- 2019** Awarded "Best Oral Presentation Award" at the 4th Annual 2019 Texas A&M Conference on Energy.
- 2019** Awarded an NSF travel award to present my work in AIChE Food-Energy-Water Nexus Conference.
- 2017** Contribution selected for a keynote lecture at ESCAPE-27 conference.
- 2016** Awarded "Session's Best Paper" for my presented work at the Annual AIChE Meeting 2016.
- 2016** Awarded a "FOCAPO/CPC 2017 Travel Award" to present my work in FOCAPO/CPC 2017.
- 2016** Awarded "Outstanding reviewer status" for my contributions to the peer review process of Elsevier.
- 2015** Awarded "Best Poster Award" in the 2nd Texas A&M Energy Institute Research Workshop.
- 2014-2018** Awarded an EPSRC-funded DTP studentship by Imperial College London.
- 2010-2014** Awarded a scholarship from the Republic of Cyprus for my undergraduate studies.
- 2009** Awarded "Best A-Level results" by The Grammar School, Nicosia.

PROFESSIONAL BODIES

American Institute of Chemical Engineers (AIChE)	Membership #: 9903236638
Institution of Chemical Engineers (IChemE)	Membership #: 99948533
The Institute for Operations Research and the Management Sciences (INFORMS)	Membership #: 155452

TEACHING EXPERIENCE

- 2020** **Co-Instructor, Texas A&M Energy Institute, Texas A&M University, US**
• ICPE 604 - Energy Systems Engineering I
• ICPE 605 - Energy Systems Engineering II
- 2019-2020** **Co-Instructor, Texas A&M Energy Institute, Texas A&M University, US**
• ICPE 610 - The Global Energy Future
- 2019** **Co-Instructor, DYCOPS 2019 – Workshop, BR**
• Multi-parametric Optimization and Control
- 2017-2019** **Teaching Assistant, Texas A&M Energy Institute, Texas A&M University, US**
• ICPE 604 - Energy Systems Engineering I
• ICPE 605 - Energy Systems Engineering II
- 2016-2017** **Teaching Assistant, Artie McFerrin Department of Chemical Engineering, Texas A&M University, US**
• CHEN 656 - Advanced Process Optimization
- 2014-2017** **Graduate Teaching Assistant, Chemical Engineering, Imperial College London, UK**
• CE2-03-2 - Reactor Design and Control Design Project
• CE4-06A - Advanced Process Optimisation

PROFESSIONAL SERVICE

Journal Reviewer Contributions:

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| • Computers & Chemical Engineering | • Applied Soft Computing |
| • Journal of Global Optimization | • Resources, Conservation & Recycling |
| • Optimization Letters | • Mathematical Problems in Engineering |
| • Science of the Total Environment | • The IEEE Control Systems Society Conference |
| • Chemical Engineering Research and Design | • AIChE Journal |
| • Expert Systems with Applications | • International Journal of Management Science and Engineering Management |
| • Computational and Applied Mathematics | |

Sessions Chaired at Major Conferences:

- AIChE 2021** Session Co-Chair: Foundations of Systems and Process Operations
- AIChE 2020** Session Co-Chair: Operation of Energy Systems
- WCGO 2019** Session Chair: Multiobjective Programming 1
- ECC 2018** Session Chair: Game Theory & Applications
- GOC 2017** Session Chair: Multilevel and Other Problems

Google Scholar: Citations=470, h-index=13, i10-index=15 (8th of September 2021)

Peer-Reviewed Journal Publications (19)

- [1] Chen, Z.; **Avraamidou, S.**; Li, Z.; Ni, W.; Pistikopoulos, E.N.; Liu, P. Optimal Design of Integrated Urban Energy Systems Under Uncertainty and Sustainability Requirements. *Computers & Chemical Engineering*, 2021, Recently Accepted.
- [2] Kotidis, P.; Papathanasiou, M. M.; Pappas, I.; **Avraamidou, S.**; Pistikopoulos, E.N.; Kontoravdi, C. DigiGlyc: a hybrid tool for reactive scheduling in cell culture systems. *Computers & Chemical Engineering*, 2021, 794, 148726.
- [3] Baratsas, S.; Pistikopoulos, E.N.; **Avraamidou, S.*** A multi-objective systems engineering framework for circular economy food supply chains. *Science of the Total Environment*, 2021, Recently Accepted.
- [4] Pappas, I.; **Avraamidou, S.**; Katz, J.; Burnak, B.; Beykal, B.; Turkay, M.; Pistikopoulos, E.N. Mixed-integer Linear Multi-objective Optimization through Multiparametric Programming. *Industrial & Engineering Chemistry Research*, 2021, 60 (23), 8493-8503.
- [5] Di Martino, M.; **Avraamidou, S.**; Cook, J.; Pistikopoulos, E.N. An Optimization Framework for the Design of Reverse Osmosis Desalination Plants under Food-Energy-Water Nexus Considerations. *Desalination*, 2020, 503, 114937.
- [6] Pappas, I.; Kenefake, D.; Burnak, B.; **Avraamidou, S.**; Ganesh, H. S.; Katz, J.; Diangelakis N. A.; Pistikopoulos E.N. Multiparametric Programming in Process Systems Engineering: Recent Developments and Path Forward. *Frontiers in Chemical Engineering*, 2020, Accepted Manuscript.
- [7] Bi, K.; Beykal, B.; **Avraamidou, S.**; Pappas, I.; Pistikopoulos, E.N.; Qiu, T. Integrated Modeling of Transfer Learning and Intelligent Heuristic Optimization for Steam Cracking Process. *Industrial & Engineering Chemistry Research*, 2020, 59(37), 16357-16367.
- [8] Katz, J.; Pappas, I. S.; **Avraamidou, S.**; Pistikopoulos, E.N. Integrating Deep Learning Models and Mutliparametric Programming, *Computers & Chemical Engineering*, 2020, 138, 106801.
- [9] Beykal. B; **Avraamidou, S.**; Pistikopoulos, E.N. DOMINO: Data-driven Optimization of Multi-level Nonlinear Problems, *Journal of Global Optimization*, 2020, 78, 1–36.
- [10] **Avraamidou, S.**; Baratsas, S.; Tian, Y.; Pistikopoulos, E.N. Circular Economy - a challenge and an opportunity for Process Systems Engineering, *Computers & Chemical Engineering SI: In memory and honor of Professor Roger Sargent*, 2020, 133, 106629.
- [11] Nie, Y.; **Avraamidou, S.**; Lie, J.; Zeng, Y.; Xiao, X.; Pistikopoulos, E.N. A Food-Energy-Water Nexus approach for land use optimization, *Science of the Total Environment*, 2019, 659, 7-19.
- [12] **Avraamidou, S.**; Pistikopoulos, E. N Adjustable Robust Optimization through multi-parametric programming. *Optimization Letters SI: In Memory of Professor Christodoulos A. Floudas*, 2020, 14(4), 873-887.
- [13] **Avraamidou, S.**; Pistikopoulos, E.N. B-POP: Bi-level Parametric Optimization Toolbox. *Computers & Chemical Engineering SI: ESCAPE 27*, 2019, 122,193-202.
- [14] **Avraamidou, S.**; Pistikopoulos, E.N. A Multi-Parametric global optimization approach for bilevel mixed-integer linear and quadratic programming problems. *Computers & Chemical Engineering*, 2019, 125, 98-113.
- [15] **Avraamidou, S.**; Pistikopoulos, E.N. Multi-parametric global optimization approaches for tri-level mixed-integer linear optimization problems. *Journal of Global Optimization SI: Global Optimization Conference 2017*, 2019, 74 (3), 443-465.

- [16] Oberdieck, R.; Diangelakis, N. A.; **Avraamidou, S.**; Pistikopoulos, E.N. On unbounded and binary parameters in multi-parametric programming: Applications to mixed-integer bilevel optimization and duality theory. *Journal of Global Optimization*, 2017, 69 (3), 587-606.
- [17] Oberdieck, R.; Diangelakis, N. A.; Nascu, I.; Papathanasiou, M. M.; Sun, M.; **Avraamidou, S.**; Pistikopoulos, E.N. On multi-parametric programming and its applications in process systems engineering. *Chemical Engineering Research and Design*, 2016, 116, 61-82.
- [18] Diangelakis, N. A.; **Avraamidou, S.**; Pistikopoulos, E.N. Decentralized Multiparametric Model Predictive Control for Domestic Combined Heat and Power Systems. *Industrial & Engineering Chemistry Research* 2016, 55 (12), 3313-3326.
- [19] Papathanasiou, M. M.; **Avraamidou, S.**; Steinebach, F.; Oberdieck, R.; Mueller-Spaeth, T.; Morbidelli, M.; Mantalaris, A.; Pistikopoulos, E.N. Advanced Control Strategies for the Multicolumn Countercurrent Solvent Gradient Purification Process (MCSGP). *AIChE Journal* 2016, 62 (7), 2341-2357.

Journal Publications Under Review (6)

- Baratsas, S.; Pistikopoulos, E.N.; **Avraamidou, S.*** “A quantitative, holistic and robust circular economy assessment framework at the micro level”
- Kakodkar, R.; Arbabzadeh, M.; Baratsas, S.; He, G.; Demirhan, D.; Allen, R.; Miller, I.; **Avraamidou, S.**; Mallapragada, D.; Genger, E.; Pistikopoulos, E.N. “A Review of Analytical and Optimization Methodologies for Transitions in Multi-scale Energy Systems
- Beykal, B.; **Avraamidou, S.**; Pistikopoulos, E.N. “Data-Driven Optimization of Mixed-integer Bilevel Multi-follower Integrated Planning and Scheduling Problems Under Demand Uncertainty”
- Namany, S.; Govindan, R.; Di Martino, M.; Pistikopoulos, E.N.; Linke, P.; **Avraamidou, S.**; Al-Ansari, T. “The Sustainability, Security and Resilience Matrix: A Decision-making Framework to Guide National Priorities based on an Energy-Water-Food Nexus Approach”
- Allen, R.; **Avraamidou, S.**; Baratsas, S.; Pistikopoulos, E.N. “An Energy-Water Nexus Approach to Infrastructure Planning and Operational Scheduling”
- Allen, R.; **Avraamidou, S.**; Sergiy, B.; Pistikopoulos, E.N. “A Dynamic Single Commodity Supply Chain Problem with Modular Production Units: A Branch-and-Cut Approach”

Chapters in Books (2)

- [20] Ogumerem, G. S.; **Avraamidou, S.**; Pistikopoulos, E.N. Chapter 9 - Computational framework for smart manufacturing via parametric optimization and control (PAROC), Soroush, M., Baldea, M., Edgar, T. F.; *Smart Manufacturing*, Elsevier, 2020; pp 245-259.
- [21] **Avraamidou, S.**; Pistikopoulos, E.N. A global optimization algorithm for the solution of tri-level mixed-integer quadratic programming problems. In *Optimization of Complex Systems: Theory, Models, Algorithms and Applications*. WCGO 2019; Le Thi, H., Le, H., Pham Dinh, T., Eds.; *Advances in Intelligent Systems and Computing*, Vol. 991; Springer, Cham, 2019; pp 579-588.

Conference Proceedings (23)

- [22] Allen, R.; Baratsas, S.; Kakodkar, R.; **Avraamidou, S.**; Powell, J. B.; Heuberger, C. F.; Demirhan, C. D.; Pistikopoulos, E.N.; An Optimization Framework for Solving Integrated Planning and Scheduling Problems for Dense Energy Carriers. *Proceedings of the 11th IFAC International Symposium on Advanced Control of Chemical Processes (ADCHEM 2021)*; 2021.
- [23] Baratsas, S.; Masoud, N.; Pappa, V. A.; Pistikopoulos, E.N.; **Avraamidou, S.***; Towards a Circular Economy Calculator for measuring the “Circularity” of companies, *ESCAPE-31 2021*, pp 1547-1552.

- [24] Baratsas, S; Pistikopoulos, E.N.; **Avraamidou, S.***; Circular Economy Systems Engineering: A case study on the Coffee supply chain, ESCAPE-31 2021, pp 1541-1546.
- [25] Beykal, B.; **Avraamidou, S.**; Pistikopoulos, E.N.; Bi-level Mixed-Integer Data-Driven Optimization of Integrated Planning and Scheduling Problems, ESCAPE-31 2021, pp 1707-1714.
- [26] **Avraamidou, S.**; Baratsas, S.; Birnabaum, S.; Lombardini, L.; Pistikopoulos, E.N.; Circular Economy Systems Engineering for Food Supply Chains: A Case Study on the Coffee Supply Chain, ICSD 2020; Recently Accepted.
- [27] Katz, J.; Pappas, I.; **Avraamidou, S.**; Pistikopoulos, E.N.; The Integration of Explicit MPC and Deep Learning. 21st IFAC World Congress; 2020; Recently Accepted.
- [28] Allen, R.; **Avraamidou, S.**; Pistikopoulos, E.N.; Production Scheduling of Supply Chains Comprised of Modular Production Units. 21st IFAC World Congress; 2020; Recently Accepted.
- [29] Chen, Z.; **Avraamidou, S.**; Liu, P.; Pistikopoulos, E.N.; Optimal design of integrated urban energy system under uncertainty and sustainability requirements. 30th European Symposium on Computer-Aided Process Engineering (ESCAPE-30); 2020; Recently Accepted.
- [30] Di Martino, M.; **Avraamidou, S.**; Cook, J.; Pistikopoulos, E.N.; Superstructure Optimization for the Design of a Desalination Plant to Tackle the Water Scarcity in Texas (USA). 30th European Symposium on Computer-Aided Process Engineering (ESCAPE-30); 2020; Recently Accepted.
- [31] Katz, J.; Pappas, I.; **Avraamidou, S.**; Pistikopoulos, E.N.; Integrating Deep Learning and Explicit MPC for Advanced Process Control; 2020 American Control Conference (ACC 2020); 2019; Recently Accepted.
- [32] **Avraamidou, S.**; Pistikopoulos, E.N. A bi-level formulation and solution method for the integration of process design and scheduling. Foundations of Computer-Aided Process Design (FOCAPD 2019); 2019.
- [33] Allen, R.; Nie, Y.; **Avraamidou, S.**; Pistikopoulos, E.N.; Xiao, X. Infrastructure planning and operational scheduling for power generating systems: An energy-water nexus approach. Foundations of Computer-Aided Process Design (FOCAPD 2019); 2019.
- [34] Nie, Y.; **Avraamidou, S.**; Xiao, X.; Pistikopoulos, E.N., Li, J. Two-stage land use optimization for a Food-Energy-Water Nexus system: A case study in Texas Edwards region. Foundations of Computer-Aided Process Design (FOCAPD 2019); 2019.
- [35] 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); 2019.
- [36] **Avraamidou, S.**; Milhorn, A.; Sarwar, O.; Pistikopoulos, E.N. Towards a quantitative Food-Energy-Water Nexus metric to facilitate decision making in process systems: A case study on a dairy production plant. 28th European Symposium on Computer-Aided Process Engineering (ESCAPE-28); 2018.
- [37] **Avraamidou, S.**; Beykal, B; Pistikopoulos, I.; Pistikopoulos, E.N. A hierarchical Food- Energy-Water Nexus (FEW-N) Decision-making Approach for Land Use Optimization. Process Systems Engineering, PSE 2018.
- [38] Nie, Y.; **Avraamidou, S.**; Li, J.; Xiao, X.; Pistikopoulos, E.N. Land use modeling and optimization based on food-energy-water nexus: a case study on crop-livestock systems. Process Systems Engineering, PSE 2018.
- [39] **Avraamidou, S.**; Pistikopoulos, E.N.; A novel algorithm for the global solution of mixed-integer bi-level multi-follower problems - Application on the problem of Planning and Scheduling integration. European Control Conference, ECC 2018.

- [40] Pistikopoulos, E.N.; **Avraamidou, S.**; Multi-parametric programming based algorithms for the global solution of bi-level mixed-integer linear and quadratic programming problems. 27th European Symposium on Computer-Aided Process Engineering (ESCAPE-27); 2017.
- [41] **Avraamidou, S.**; Pistikopoulos, E.N. A multi-parametric bi-level optimization strategy for hierarchical model predictive control. 27th European Symposium on Computer-Aided Process Engineering (ESCAPE-27); 2017.
- [42] **Avraamidou, S.**; Pistikopoulos, E.N. A Multiparametric Mixed-Integer Bi-Level Optimization Strategy for Supply Chain Planning under Demand Uncertainty. The 20th World Congress of the International Federation of Automatic Control; 2017.
- [43] **Avraamidou, S.**; Diangelakis, N. A.; Pistikopoulos, E.N. Mixed Integer Bilevel Optimization through Multi-parametric Programming. Foundations of Computer Aided Process Operations / Chemical Process Control; In Press, 2017.
- [44] Papathanasiou, M. M.; Oberdieck, R.; **Avraamidou, S.**; Nascu, I.; Mantalaris, A.; Pistikopoulos, E.N. Development of advanced control strategies for periodic systems: An application to chromatographic separation processes. American Control Conference (ACC); 2016; pp 4175-4180.

ORAL & POSTER PRESENTATIONS (60)

- [45] **Avraamidou, S.***; Baratsas, S.; Pistikopoulos, E.N.; A Circular Economy Systems Engineering Framework for the Optimization of Food Supply Chains. 2021 AIChE Annual Meeting; 2021; Oral Presentation.
- [46] Martino, M.; **Avraamidou, S.**; Pistikopoulos, E.N.; Data-Driven Modeling and Optimization of an Industrial Scale Reverse Osmosis Desalination Plant. 2021 AIChE Annual Meeting; 2021; Oral Presentation.
- [47] Allen, R.C.; Baratsas, S.; Kakodkar, R.; Martino, M.; **Avraamidou, S.**; Demirhan, D.C.; Heuberger, C.F.; Klokkenburg, M.; Pistikopoulos, E.N.; An Efficient Solution Strategy for Solving Enterprise-Wide Multi-Period Planning and Scheduling Problems: A Case Study on a Hydrogen-Based Economy. 2021 AIChE Annual Meeting; 2021; Oral Presentation.
- [48] Kenefake, D.; Pappas, I.; **Avraamidou, S.**; Beykal, B.; Ganesh, H. S.; Cao, Y.; Wang, Y.; Leyland, S.; Flores-Carrillo, J.; Pistikopoulos, E.N.; Smart Manufacturing and Optimal Operation of an Industrial Air Separation Unit Via Surrogate Modeling and Multiparametric Programming. 2021 AIChE Annual Meeting; 2021; Oral Presentation.
- [49] Beykal, B.; **Avraamidou, S.**; Pistikopoulos, E.N. Simultaneous Planning and Scheduling Under Demand Uncertainty for Multi-Product Systems Using Data-Driven Bi-Level Optimization. 2021 AIChE Annual Meeting; 2021; Oral Presentation.
- [50] Baratsas, S.; Pistikopoulos, E.N.; **Avraamidou, S.***; Micron: A Quantitative, Holistic and Robust Circular Economy Assessment Framework at the Micro Level. 2021 AIChE Annual Meeting; 2021; Oral Presentation.
- [51] Kakodkar, R.; Allen, R.C.; Baratsas, S.; Martino, M.; **Avraamidou, S.**; Demirhan, D.C.; Heuberger, C.F.; Klokkenburg, M.; Pistikopoulos, E.N.; Energia - an Integrated Framework and Software Prototype for Multiscale Energy Systems Transition Modeling, Optimization and Scenario Analysis. 2021 AIChE Annual Meeting; 2021; Oral Presentation.
- [52] Martino, M.; Namany, S.; **Avraamidou, S.**; Al-Ansari, T.; Pistikopoulos, E.N.; An Optimization Framework for the Evaluation of Energy-Water Systems for Agricultural Applications. 2021 AIChE Annual Meeting; 2021; Oral Presentation.
- [53] Baratsas, S.; Pistikopoulos, E.N.; **Avraamidou, S.***; MICRON: A quantitative, holistic and robust circular economy assessment framework for the micro level; International Conference on Sustainable

Development (ICSD); 2021; Poster Presentation.

- [54] Cook, J.; **Avraamidou, S.**; Allen, R.C.; Martino, M.; Pistikopoulos, E.N.; A decision-making tool for the optimal selection and allocation of renewable energy generation and storage systems under Food-Energy-Water nexus considerations. American Chemical Society (ACS) Fall 2021; 2021; Oral Presentation.
- [55] Beykal, B.; **Avraamidou, S.**; Pistikopoulos, E.N.; A Bi-level Mixed-Integer Data-Driven Optimization Approach for the Integrated Planning and Scheduling Problem Under Demand Uncertainty. 31st European Conference of Operational Research (EURO 2021); 2021; Oral Presentation.
- [56] Pappas, I.; **Avraamidou, S.**; Katz, J.; Burnak, B.; Beykal, B.; Turkay, M. Pistikopoulos, E.N.; A Multiparametric Programming Approach for the Multiobjective Optimization of Mixed-Integer Linear Programs. 31st European Conference of Operational Research (EURO 2021); 2021; Oral Presentation.
- [57] Baratsas, S.; Pistikopoulos, E.N.; **Avraamidou, S.***; A quantitative framework for the optimization of food supply chains under circular economy considerations. 3rd Conference on Sustainable Supply Chains (SustSC 2021); 2021; Oral Presentation.
- [58] Kenefake, D.; Ganesh, H. S.; **Avraamidou, S.**; Cao, Y.; Wang, Y.; Leyland, S.; Flores-Carrillo, J.; Pistikopoulos, E.N.; Smart Manufacturing for Monitoring and Control of an Industrial Air Separation Unit. Chemical Engineering Graduate Student Association Symposium; 2021; Oral Presentation.
- [59] Kenefake, D.; Ganesh, H. S.; **Avraamidou, S.**; Cao, Y.; Wang, Y.; Leyland, S.; Flores-Carrillo, J.; Pistikopoulos, E.N.; Smart Manufacturing for Monitoring and Control of an Industrial Air Separation Unit. 2020 AIChE Annual Meeting; 2020; Oral Presentation.
- [60] Papathanasiou, M.M.; Kotidis, P.; Kontoravdi, C.; Pappas, I.; **Avraamidou, S.**; Pistikopoulos, E.N.; Real Time Dynamic Optimisation for Enhanced Product Quality in Bioprocesses. 2020 AIChE Annual Meeting; 2020; Oral Presentation.
- [61] Beykal, B.; **Avraamidou, S.**; Pistikopoulos, E.N.; Data-Driven Optimization of Integrated Planning and Scheduling Problems Under Demand Uncertainty. 2020 AIChE Annual Meeting; 2020; Poster Presentation.
**1st place - AIChE's CAST Poster Competition 2020*
- [62] Ganesh, H.S.; **Avraamidou, S.**; Pappas, I.; Pistikopoulos, E.N.; Interacting Dynamical System Control By Multi-Parametric Distributed Model Predictive Control. 2020 AIChE Annual Meeting; 2020; Oral Presentation.
- [63] Allen, R. C.; **Avraamidou, S.**; Butenko, S.; Pistikopoulos, E.N.; An Efficient Solution Strategy for Solving Large-Scale Dynamic Supply Chains Problems with Modular Production Units. 2020 AIChE Annual Meeting; 2020; Oral Presentation.
- [64] Allen, R.C.; **Avraamidou, S.**; Demirhan, C.D.; Tso, W.W.; Kakodkar, R.; Heuberger, C.F.; Powell, J.B.; Pistikopoulos, E.N.; Design and Operation of Renewable Energy Carrier Production Considering Energy-Water Nexus Connections. 2020 AIChE Annual Meeting; 2020; Oral Presentation.
- [65] **Avraamidou, S.**; Pappas, I.; Pistikopoulos, E.N.; Mixed-Integer Adjustable Robust Optimization through Multi-Parametric Programming. 2020 AIChE Annual Meeting; 2020; Oral Presentation.
- [66] Pappas, I.; **Avraamidou, S.**; Katz, J.; Diangelakis, N.A.; Pistikopoulos, E.N.; Multi-Objective and Hierarchical Explicit Model Predictive Control. 2020 AIChE Annual Meeting; 2020; Poster Presentation.
- [67] Baratsas, S.; **Avraamidou, S.**; Birnbaum, A.; Lombardini, L.; Pistikopoulos, E.N.; Circular Economy Systems Engineering: A Case Study on the Coffee Supply Chain. 2020 AIChE Annual Meeting; 2020; Oral Presentation.

- [68] Pappas, I.; Katz, J.; **Avraamidou, S.**; Pistikopoulos, E.N.; The Integration of Relu-Based Deep Neural Networks for Explicit Model Predictive Control. 2020 AIChE Annual Meeting; 2020; Oral Presentation.
- [69] Pappa, V.A.; Pappas, K.; Daher, B.; Saeed, H.; **Avraamidou, S.**; Mormann, F.; Greer, R.; Pistikopoulos, E.N.; “Circular Economy”: a Framing Concept to Catalyze Greater Climate Policy Action. 2020 President’s Excellence Fund Symposium; 2020; Poster Presentation
- [70] Beykal, B.; **Avraamidou, S.**; Pistikopoulos, E.N. Bi-Level Mixed-Integer Optimization for Planning and Scheduling Integration Using the DOMINO Framework. Chemical Engineering Graduate Student Association Symposium, 2020; Oral Presentation
- [71] Cook, J; **Avraamidou, S.**; Allen, R.; Pistikopoulos, E.N.; Optimal Allocation of Renewable Energy Generation and Storage Systems Under Food-Energy-Water Nexus Considerations. Food-Energy-Water Nexus; 2019; Poster Presentation
- [72] **Avraamidou, S.**; Allen, R.; Cook, J.; Di Martino, M; Daher, B.; Pistikopoulos, E.N.; Infrastructure Expansion Planning Under Food-Energy-Water Nexus Considerations. Food-Energy-Water Nexus; 2019; Oral Presentation
- [73] Cook, J; **Avraamidou, S.**; Allen, R.; Pistikopoulos, E.N.; Optimal Allocation of Renewable Energy Generation and Storage Systems. Clean Energy Education & Empowerment (C3E); 2019; Poster Presentation
- [74] Pappas, I.; **Avraamidou, S.**; Diangelakis, N. A.; Pistikopoulos, E.N.; A Multiparametric Programming-Based Approach for Multi-Objective Model Predictive Control. 2019 AIChE Annual Meeting; 2019; Oral Presentation.
- [75] **Avraamidou, S.**; Pistikopoulos, E.N.; Parametric & Adjustable Robust Optimization for the Integration of Design and Operation. 2019 AIChE Annual Meeting; 2019; Oral Presentation.
- [76] **Avraamidou, S.**; Katz, J.; Burnak, B.; Beykal, B.; Pappas, I. S.; Turkay, M.; Pistikopoulos, E.N.; Mixed-Integer Multi-Objective Optimization through Multiparametric Programming. 2019 AIChE Annual Meeting; 2019; Oral Presentation.
- [77] Tian, Y.; Pappas, I.; **Avraamidou, S.**; Pistikopoulos, E.N.; A Modular Approach to Process Integration and Intensification. 2019 AIChE Annual Meeting; 2019; Oral Presentation.
- [78] Beykal, B.; **Avraamidou, S.**; Pistikopoulos, E.N.; Bi-Level Mixed-Integer Optimization for Planning and Scheduling Integration Using the Domino Framework. 2019 AIChE Annual Meeting; 2019; Oral Presentation.
- [79] Tian, Y.; Pappas, I.; **Avraamidou, S.**; Pistikopoulos, E.N.; Process Intensification Framework for Extractive Separation Systems. 2019 AIChE Annual Meeting; 2019; Oral Presentation.
- [80] Nie, Y.; **Avraamidou, S.**; Xiao, X.; Pistikopoulos, E.N.; Li, J.; Spatial Optimization for Land Use Allocation Under Food-Energy-Water Nexus Considerations. 2019 AIChE Annual Meeting; 2019; Oral Presentation.
- [81] Pappas, I.; Tian, Y.; Katz, J.; Burnak, B.; **Avraamidou, S.**; Pistikopoulos, E.N.; Towards Safe and Operable Process Intensification Systems. 2019 AIChE Annual Meeting; 2019; Oral Presentation.
- [82] **Avraamidou, S.**; Pistikopoulos, E.N.; Circular Economy Systems Engineering. 2019 AIChE Annual Meeting; 2019; Oral Presentation.
- [83] Allen, R.; **Avraamidou, S.**; Pistikopoulos, E.N.; Scenario Reduction for Power System Planning and Scheduling Problems Under Energy-Water Nexus Considerations. 2019 AIChE Annual Meeting; 2019; Oral Presentation.

- [84] Chen. Z.; **Avraamidou, S.**; Liu, P.; Li, Z.; Ni, W.; Pistikopoulos, E.N.; An Integrated Demand and Supply Modeling Approach for the Energy System Design of a New Urban Area. 2019 AIChE Annual Meeting; 2019; Oral Presentation.
- [85] Tian, Y.; Demirel S. E.; Li, J.; **Avraamidou, S.**; Kumar, A. T.; 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. 2019 AIChE Annual Meeting; 2019; Oral Presentation.
- [86] Pistikopoulos, E.N.; Allen, R.; **Avraamidou, S.**; An Energy-water Nexus Approach For Energy Infrastructure Planning. 2019 INFORMS Annual Meeting; 2019; Oral Presentation.
- [87] **Avraamidou, S.**; Pappas, I.; Beykal, B.; Burnak, B.; Katz, J.; Turkay, M.; Pistikopoulos, E.N. Mixed-Integer Multi-Objective Optimization Through Multiparametric Programming. 2019 INFORMS Annual Meeting; 2019; Oral Presentation.
- [88] Martino, M.; **Avraamidou, S.**; Pistikopoulos, E.N.; Superstructure Optimization of a Desalination Plant to Tackle the Water Scarcity in Texas (USA). 4th Annual 2019 Texas A&M Conference on Energy; 2019; Oral Presentation.
**Best Oral Presentation Award*
- [89] Martino, M.; **Avraamidou, S.**; Pistikopoulos, E.N.; Superstructure Optimization of a Desalination Plant. Texas Desal 2019 Annual Conference; 2019; Poster Presentation.
- [90] Allen, R.; **Avraamidou, S.**; Allaire, D. L.; El-Halwagi, M. M.; Pistikopoulos, E.N.; Optimal allocation of modular and transportable methane processing units for use in oil and gas fields. 12th Natural Gas Conversion Symposium; 2019; Oral Presentation.
- [91] Allen, R.; Nie, Y.; **Avraamidou, S.**; Pistikopoulos, E.N.; Xiao, X. A Multi-objective Energy-Water Nexus Planning model: A Case Study of the Power Systems in Texas Edwards Aquifer. 2018 AIChE Annual Meeting; 2018; Oral Presentation.
- [92] Nie, Y.; **Avraamidou, S.**; Li, J.; Xiao, X.; Pistikopoulos, E.N.; Towards a Two-Level Superstructure Optimization Framework for Land Use Based on Food-Energy-Water Nexus. 2018 AIChE Annual Meeting; 2018; Oral Presentation.
- [93] Pistikopoulos, E.N.; Allen, R.; Nie, Y.; **Avraamidou, S.** Food-Energy-Water Nexus Systems Engineering. 2018 AIChE Annual Meeting; 2018; Invited Talk.
- [94] Allen, R.; Nie, Y.; **Avraamidou, S.**; Pistikopoulos, E.N.; Xiao, X. A Multi-Scale Energy-Water Nexus Model: A Case Study of the Power Systems in Texas Edwards Aquifer. Texas A&M Conference on Energy; 2018; Oral Presentation.
- [95] **Avraamidou, S.**; Ning, C.; You, F.; Pistikopoulos, E.N. Derivation of Generalized Affine Decision Rules for Mixed Integer Linear, Quadratic and Nonlinear Adjustable Robust Optimization Problems by multi-parametric programming. 2017 AIChE Annual Meeting; 2017; Oral Presentation.
- [96] **Avraamidou, S.**; Diangelakis, N. A.; Pistikopoulos, E.N. A multi-parametric bi-level optimization strategy for hierarchical model predictive control. 2017 AIChE Annual Meeting; 2017; Poster Presentation.
- [97] Nie, Y.; **Avraamidou, S.**; Pistikopoulos, E.N. The application of a Food-Energy-Water (FEW) Nexus approach on land use optimization. Texas A&M Conference on Energy; 2017; Poster Presentation.
- [98] **Avraamidou, S.**; Ning, C.; You, F.; Pistikopoulos, E.N. Generalized Affine Decision Rules For Mixed Integer Linear, Quadratic And Nonlinear Adjustable Robust Optimization Problems By Multiparametric Programming. 2017 INFORMS Annual Meeting; 2017; Oral Presentation.
- [99] **Avraamidou, S.**; Diangelakis, N. A.; Pistikopoulos, E.N.; B-POP: A Multi-Parametric Programming Based Toolbox For The Global Solution Of Bi-level Mixed-integer Linear And Quadratic Programming.

2017 INFORMS Annual Meeting; 2017; Oral Presentation.

- [100] **Avraamidou, S.**; Diangelakis, N. A.; Oberdieck, R.; Pistikopoulos, E.N. Multi-parametric programming based algorithms for the global solution of bi-level programming problems. 15th EUROPT Workshop on Advances in Continuous Optimization; 2017; Oral presentation.
- [101] **Avraamidou, S.**; Nie, Y.; Pistikopoulos, E.N., A framework for Food-Energy-Water Nexus system analysis: A case study on a dairy production plant. Texas A&M Energy Institute Research Workshop: Water-Energy-Food Nexus Dialogue; 2017; Poster presentation.
- [102] **Avraamidou, S.**; Pistikopoulos, E.N. Multi-Parametric Programming Based Algorithms for the Exact and Global Solution of Multi-Level Mixed-Integer Linear and Quadratic Programming Problems. Global Optimization Conference; 2017; Oral Presentation.
- [103] **Avraamidou, S.**; Pistikopoulos, E.N. Multiparametric Programming Based Algorithms for Bilevel Mixed-Integer Linear and Quadratic Programming Problems. 2016 AIChE Annual Meeting; 2016; Oral Presentation.
**Session's best Presentation award*
- [104] **Avraamidou, S.**; Pistikopoulos, E.N. Production Planning and Scheduling Integration through Multiparametric Bilevel Mixed-Integer Optimization. 2016 AIChE Annual Meeting; 2016; Oral Presentation.
- [105] **Avraamidou, S.**; Diangelakis, N. A.; Oberdieck, R.; Papathanasiou, M.M.; Nascu, I.; Sun, M.; Pistikopoulos, E.N. Fuel Cell Energy System Integration & Automation. 2nd Texas A&M Energy Institute Research Workshop; 2015; Poster presentation.
**Best Poster Award*

PANEL SESSIONS (2)

- [106] “Women in Energy Sector and Leadership”, Clean Energy, Education, and Empowerment (C3E) TAMU; August 2021
- [107] “Careers in Clean Energy: The Circular Economy”, DOE Manufacturing USA institutes: IACMI, RAPID, REMADE; June 2021

- 2021-** **Ioannis Koumentis**, Master Student
Thesis Title: Process intensification of natural gas dehydration with membrane separation under circular economy considerations
- 2020-** **Paola Holleway**, Master Student
Thesis Title: Pump operational optimization for water utilities
- 2020-2021** **Armando Blancq Cazaux Del Bosque**, Master Student
Thesis Title: Decentralized Energy Systems for Smart Grid Applications
- 2020-2021** **Sherralyn Sneezer**, Master Student
Thesis Title: Modeling and optimization of renewable energy supply chains with a focus on energy storage
- 2020-2021** **Jan Vincent Carag**, Master Student
Thesis Title: The Haber-Bosch hydrogen carrier: Dynamic modeling of renewable energy powered ammonia production
- 2020-2021** **Jessica Rodriguez**, Master Student
Thesis Title: Circular Economy Calculator – Data Analysis and Visualization
- 2019-2020** **Naseem Masoud**, Master Student
Thesis Title: Circular Economy Calculator
 Parts of thesis presented and published in ESCAPE-31 [23].
- 2019-2020** **Marcello Di Martino**, Visiting Master Student
Thesis Title: An Optimization Framework for the Design of Reverse Osmosis Desalination Plants under Food-Energy-Water Nexus Considerations
 Thesis published in Desalination [5], presented and published in ESCAPE-30 [30], presented in [88] and [89], and won “Best oral presentation” [88].
- 2019-2020** **Kexin Bi**, Visiting Ph.D. Student
Project Title: Integrated Modeling of Transfer Learning and Intelligent Heuristic Optimization for Steam Cracking Process
 Project published in Industrial & Engineering Chemistry Research [7].
- 2018-2019** **Zhihao Chen**, Visiting Ph.D. Student
Project Title: Optimal design of integrated urban energy system under uncertainty and sustainability requirements
 Project published in Computers & Chemical Engineering [1], presented and published in ESCAPE-30 [29], and presented in AIChE 2019 [84].
- 2018-2021** **Julie Cook**, UG Student
Project Title: Optimal Allocation of Renewable Energy Generation and Storage Systems
 Parts of project published in Desalination [5], presented and published in ESCAPE-30 [30], and presented in [54], [71], and [73].

- 2017** **Ioannis Pistikopoulos**, High School Student
Project Title: Land use optimization under Food-Energy-Water nexus considerations
 Parts of project published in Journal of Global Optimization [9], and also published and presented in PSE 2018 [37]
- 2017** **Aaron Milhorn**, UG Student
Project Title: Optimal Scheduling of a dairy production plant under Food-Energy-Water nexus considerations
 Parts of project published and presented in ESCAPE-28 [36]
- 2017** **Oasis Sarwar**, UG Student
Project Title: A quantitative Food-Energy-Water Nexus metric
 Parts of project published and presented in ESCAPE-28 [36]
- 2016-2018** **Yaling Nie**, Visiting Ph.D. Student
Project Title: Land use modeling and optimization based on food-energy-water nexus
 Parts of project published in Science of the Total Environment [11], published and presented in FOCCAPD 2019 [34] and PSE 2018 [38], and presented in AIChE 2019 [80], AIChE 2018 [92], and Texas A&M Conference on Energy 2017 [97].