Res. Assist. Emrullah ERTÜRK

Department of Chemical Engineering – İzmir Institute of Technology
emrullaherturk@iyte.edu.tr

Education

2021 – continue	**MSc.**	– GEBZE TECHNICAL UNIVERSITY – Chemical Engineering
2014 – 2020	**BSc.**	– YILDIZ TECHNICAL UNIVERSITY – Chemical Engineering
2014 – 2019	**BSc.**	– YILDIZ TECHNICAL UNIVERSITY – Bioengineering

Certificates

Short Course 2022, Center for Advanced Process Decision-Making, Online, 05.02.2022 – 05.12.2022

- Module A: Process Synthesis, *Jeffrey Siirola*
- Module B: Nonlinear Programming, *Larry Biegler*
- Module C: Mixed-integer and Disjunctive Programming, *Ignacio Grossmann*
- Module D: Global Optimization and Optimization under Uncertainty, *Nikolaos Sahinidis*
- Module E: Modeling Extensions and Solution of Large-Scale Problems in Pyomo, *Carl Laird*
- Module F: Mixed-integer Models for Planning and Scheduling, *Ignacio Grossmann*
- Module G: Models and Algorithms for Supply Chain Optimization, *Chrysanthos Gounaris*
- Module H: DAE Models for Real Time Optimization, *Larry Biegler*
- Module I: Process Analytics using Multivariate Analysis Techniques in Python, *Salvador Garcia Muñoz*

Mathematical Optimization Techniques, Artelys, Online, 12.09.2021 – 03.02.2022

- Linear Programming
- Combinatorial Optimization I: Integer Programming
- Combinatorial Optimization II: Constraint Programming & Local Search
- Combinatorial Optimization III: Relaxation & Hybridization
- Nonlinear Optimization

Experience

02/2023 – Present	Research Assistant, Department of Chemical Engineering, İzmir Institute of Technology, İzmir, Turkiye
01/2021 – 01/2023	Research Assistant, Department of Chemical Engineering, Gebze Technical University, Kocaeli, Turkiye

Research Interests

- *Optimization and Modelling*

The development of MINLP on identifiability problems and application to chemical processes. Topology optimization of complex systems with PDE constrained optimization.

Publications

[1] Erturk, E., Aydin, E., & Sildir, H. (2021). Tam Sayılı ve Sürekli Optimizasyon Problemi ile Reaksiyon Ağ Modellerinin Küçültülmesi. Konya Journal of Engineering Sciences, Vol. 9, 142–156. https://doi.org/10.36306/konjes.970103

Book Chapters

[1] Erturk, E., Aydın, E., Sarrafı, S., Deliismail, O., Zahidova, A., Sildir, H., (2022). Superstructure Optimization of Dimethyl Ether Process, in: Computer Aided Chemical Engineering. Elsevier, pp. 661–666. https://doi.org/10.1016/B978-0-323-95879-0.50111-9

Proceedings & Presentations

[4] Topac E., Erturk E., Sildir H., Deliismail O., Sarrafi S., (2022). A mixed integer optimization formulation for the reduction of complex systems based on uncertainty, ICASEM 4th International Applied Sciences, Engineering and Mathematics Congress, Tekirdağ, Turkey

[3] Sildir H., Erturk E., Sarrafi S., (2022). Simultaneous Design and Optimization of Complex Processes Constrained by Partial Differential Equations using Mixed Integer Formulations, The 19th EUROPT Workshop on Advances in Continuous Optimization, Lisbon, Portugal.

[2] Erturk E., Aydin E., Deliismail O., Zahidova A., Sarrafi S., Sildir H., (2022). Superstructure Optimization of Dimethyl Ether Process, European Symposium on Computer-Aided Process Engineering-32, Toulouse, France.

[1] Erturk E., Aydin. E., Sildir H., (2021). Tam Sayili ve Sürekli Optimizasyon Problemi ile Reaksiyon Ağ Modellerinin Küçültülmesi, *Ulusal Kimya Mühendisliği Kongresi*, Online.

Honors

[1] The 2nd highest GPA in Bioengineering Department in 2019

Academy - Industry Collaborations

References

Hasan ŞILDIR	Gebze Technical University – Assistant Professor hasansildir@gtu.edu.tr
Belma ÖZBEK	Yıldız Technical University – Professor bozbek@yildiz.edu.tr
Mesut AKGÜN	Yıldız Technical University – Professor akgunm@yildiz.edu.tr