



COST ACTION GREENERING – DATA COLLECTION

First name, Family Name: P. Zeynep, Çulfaz-Emecen

Type (Academic or Industrial): Academic

Country: Turkey

Leadership position in the COST: MC Member on CA18224

Working Group in which you are involved: WG1 and WG3

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Laboratory/Company: Middle East Technical University, Chemical Engineering Department. PI of the Membranes for Liquid Separations Research Lab.

Laboratory/Company info: The lab consists of MSc, PhD and undergraduate students under my supervision. Some of the students are co-supervised by professors from Chemical Engineering, Chemistry, Environmental Engineering or Food Engineering Departments. We develop membranes and membrane-based processes aimed at water treatment and reuse, and energy-efficient separation techniques such as Organic Solvent Nanofiltration.

Link to the home page of the Laboratory/Company: <https://blog.metu.edu.tr/zculfaz/>

Fields of expertise:

- Membrane fabrication (primarily polymeric membranes via phase inversion)
- Membrane processes (focused on ultrafiltration, microfiltration and nanofiltration)
- Analysis of membrane fouling phenomena
- Wastewater treatment
- Organic Solvent Nanofiltration

5 Main publications or patents:

- F.M. Sukma, P.Z. Çulfaz-Emecen, *Cellulose membranes for organic solvent nanofiltration*, Journal of Membrane Science, 545, 2017, pp. 329-336.
- Y. Gençal, E.N. Durmaz, P.Z. Çulfaz-Emecen, *Preparation of patterned microfiltration membranes and their performance in crossflow yeast filtration*, Journal of Membrane Science, 476, 2015, pp. 224-233.
- M. Erkanlı, L. Yılmaz, P.Z. Çulfaz-Emecen, Ü. Yetiş, *Brackish water recovery from reactive dyeing wastewater via ultrafiltration*, Journal of Cleaner Production, 165, 2017, pp. 1204-1214.
- C. Aksoy, P. Kaner, A. Asatekin, P.Z. Çulfaz-Emecen, *Co-deposition of stimuli-responsive microgels with foulants during ultrafiltration as a fouling removal strategy*, ACS Applied Materials & Interfaces, 11(20), 2019, pp. 18711-18719.
- P.Z. Çulfaz, E. Rolevink, C. van Rijn, R.G.H. Lammertink, M. Wessling, *Microstructured hollow fibers for ultrafiltration*, Journal of Membrane Science 347 (1-2), 2010, pp. 32-41.



Collaborations:

Assoc. Prof. Dr. Ayşe Asatekin (Tufts University, Chemical and Biological Engineering Department, U.S.A.)

Prof. Dr. Rob G.H. Lammertink (University of Twente, Soft Matter, Fluidics and Interfaces Group, Netherlands)

Prof. Dr. Matthias Wessling (RWTH Aachen University, Chemical Process Engineering Department, Germany)

Asst. Prof. Dr. Emre Büküşoğlu (Middle East Technical University, Chemical Engineering Department, Turkey)

Assoc. Prof. Dr. Akın Akdağ (Middle East Technical University, Chemistry Department, Turkey)

Prof. Dr. Ülkü Yetiş (Middle East Technical University, Environmental Engineering Department, Turkey)

Prof. Dr. Haluk Hamamcı (Middle East Technical University, Food Engineering Department, Turkey)

Prof. Dr. Levent Yılmaz (Middle East Technical University, Chemical Engineering Department, Turkey)

Prof. Dr. Halil Kalıpçılar (Middle East Technical University, Chemical Engineering Department, Turkey)

Prof. Dr. Pınar Çalık (Middle East Technical University, Chemical Engineering Department, Turkey)

Facilities:

- Lab-scale membrane filtration systems (dead-end and cross-flow, high and low pressure, for aqueous as well as organic solvent based systems)
- Hollow fiber membrane spinning line
- Gel Permeation Chromatography
- Optical microscopes