
Wei Cheng

Visiting Ph.D. student

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Education Background

Nov. 2016 – Apr. 2018: Visiting PhD student at Yale.

Advisor: Pro. Menachem Elimelech.

2014 – Present: PhD candidate of Civil Engineering, Harbin Institute of Technology, China.

Supervisor: Professor Jun Ma.

2012 – 2014: Master's Degree of Municipal Engineering, Harbin Institute of Technology, China.

Supervisor: Professor Jun Ma.

2008 – 2012: Bachelor's Degree of Material Chemistry, Harbin Engineering University, China.

Research Experience

In 2011, Wei participated in her first research project as a leader and was directed by associate Professor Jun Shen, using cellulose derivative to separate chiral pharmaceuticals. This project was supported by her undergraduate school, Harbin Engineering University.

In 2012, Wei did some work about membrane fouling in forward osmosis process as her undergraduate thesis under the guidance of Professor Jun Ma. That was the first time she learned the basic theory of FO, especially the fouling behavior of humic acid, BSA and sodium alginate on the surface of CTA membrane in both PRO and FO modes. This thesis was named as the outstanding thesis by her undergraduate college.

From 2013 to 2014, with the guidance of Pro. Ma and Dr. Zhenghui Wang, some interesting work was completed in Wei's master's project. They obtained some uniform and honeycomb-like pores on polymer films by the addition of nonvolatile organic molecules.

From the fall of 2015 to present, Wei is focusing her study on FO. Some behaviors of ion bidirectional transport behavior in FO process were investigated, and Dr. Xinglin Lu gave Wei many help and guidance.

Research Interests

1. Mass transport mechanisms in FO membrane and FO progress.
2. High-performance membrane fabrication and modification.

Publication

1. Cheng, W.; Lu, X.; Yang, Y.; Jiang, J.; Ma, J. Influence of composition and concentration of saline water on cation exchange behavior in Forward osmosis desalination. *Water Research*. 2018, 137, 9-17.
2. Dizge, N.; Epsztein, R.; Cheng, W.; Porter, C.J.; Elimelech, M. Biocatalytic and Salt Selective Multilayer Polyelectrolyte Nanofiltration Membrane. *Journal of Membrane Science*. 2018, 549, 357-365.
3. Epsztein, R.; Cheng, W.; Shaulsky, E.; Dizge, N.; Elimelech, M. Elucidating the mechanisms underlying the difference between chloride and nitrate rejection in nanofiltration. *Journal of Membrane Science*. 2018, 548, 694-701.
4. Lu, D.; Cheng, W.; Zhang, T.; Hydrophilic Fe₂O₃ dynamic membrane mitigating fouling of support ceramic membrane in ultrafiltration of oil/water emulsion. *Separation and Purification Technology*. 2016, 165: 1-9.
5. Wang, Z.; Cheng, W.; Liu, C.; Ma, J.; Zhang, W.; Li, J. Diffuse-in/condense-out behavior of glycerol induces formation of composite membranes with uniform pores. *Macromolecular Materials and Engineering*. 2015, 301(1):36-41.
6. Wang, Z.; Cheng, W.; Ma, J. Seeding nuclei for the phase-separation of cellulose acetate solution. *Journal of Membrane Science*. 2015, 489, 129-134.
7. Wang, Z.; Cheng, W.; Liu, C.; Ma, J.; Li, J. Condensed low-volatile alcohol droplet-directed uniform pore formation on polystyrene films. *Macromolecular Chemistry and Physics*. 2015, 216, (15), 1638-1645.
8. Wang, Z.; Cheng, W.; Ma, J.; Wang, P. Condensed solute droplets templated honeycomb pattern on polymer films. *Journal of Colloid and Interface Science*. 2014, 436, 16-8.

Conference

1. Cheng, W., Wang, Z.; Ma, J. "Hydrophobicity of the honeycomb patterned polymeric membrane surfaces". **The 10th International Congress on Membranes and Membranes Progress**, Suzhou, China. July 20-25, 2014. (Poster)
2. **China-EU International Workshop and Training Course on Membrane Engineering in Water Treatments and Water Reuse**, Weihai, China. November 12-14, 2012.