



Membrane-based processes for water, wastewater treatment, seawater desalination, and sustainable power generation

Chon, Kangmin **전강민**

Department of Environmental Engineering, College of Engineering
Ph.D., Gwangju Institute of Science and Technology (GIST)
kmchon@kangwon.ac.kr

Descriptions of Research Topics

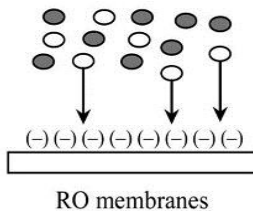
- Membrane processes for water, wastewater treatment, and seawater desalination
- Membrane-based processes for sustainable power generation
- Characterization and dissolved organic matter and membrane foulants
- Development of fouling mitigation and control strategies

Applications:

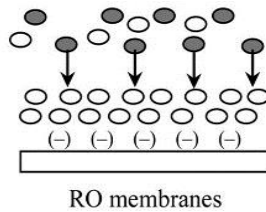
- Seawater desalination
- Sustainable power generation
- Removal of micropollutants
- Water and wastewater treatment
- Recovery of valuable resources from wastewater or seawater

● : Negatively charged hydrophobic fractions ○ : Non-charged hydrophilic fractions

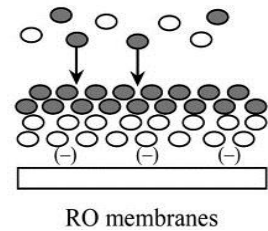
Adsorption of non-charged hydrophilic fractions on the RO membrane



A decrease in the surface charge of the RO membrane

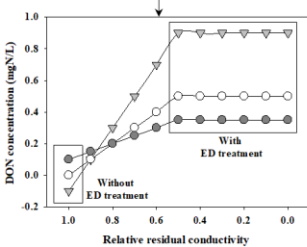


Enhancement of hydrophobic interactions

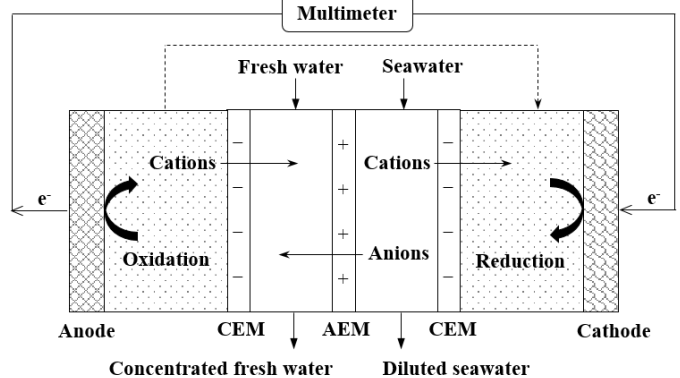
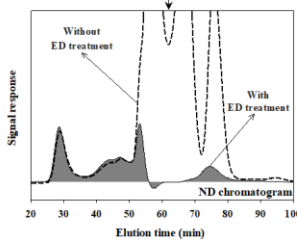


Wastewater effluents

Dissolved organic nitrogen detection
ED treatment



Size exclusion-organic nitrogen detection
Enhanced ED treatment using cation-exchange



Research Fields 1 Process-Engineering 2 Energy-Resource

Keywords Membrane fouling, Seawater desalination, Sustainable power generation, Water treatment, Wastewater treatment