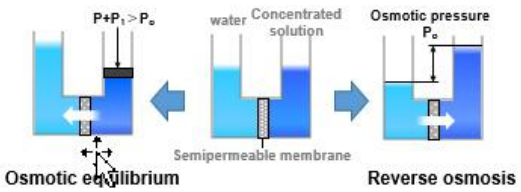
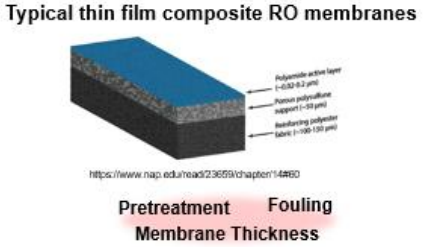
樊昭君赴日本香川大学创造工学部先进材料学科攻读硕士研究生

Research Direction：

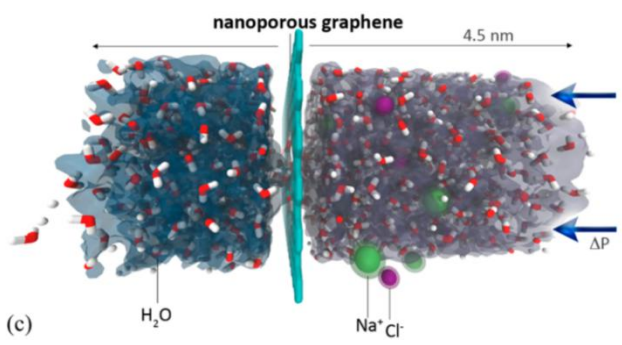
Desalination of sea water using reverse osmosis (RO) membranes： Seawater accounts for 97.3% of all forms of water on earth, so desalination is now considered the most practical and feasible way to provide a sustainable source of fresh water。

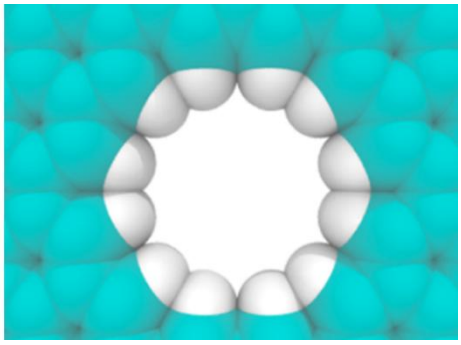




（香川大院工・香川大工）郷　拓也･多田大地･上村　忍 ，ナノ分散窒化炭素ー酸化グラフェン薄膜の膜厚制御と透過能評価

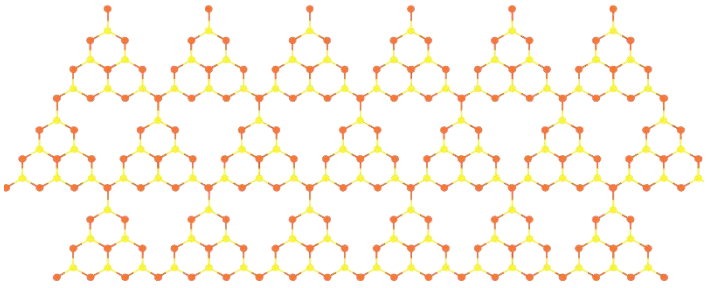
When the pore diameter is as low as 1 nm, 100% salt resistance can be achieved. However, the high cost of nanoporous graphene and the delicate operation of the equipment aren't suitable for large-scale applications in actual desalination systems。



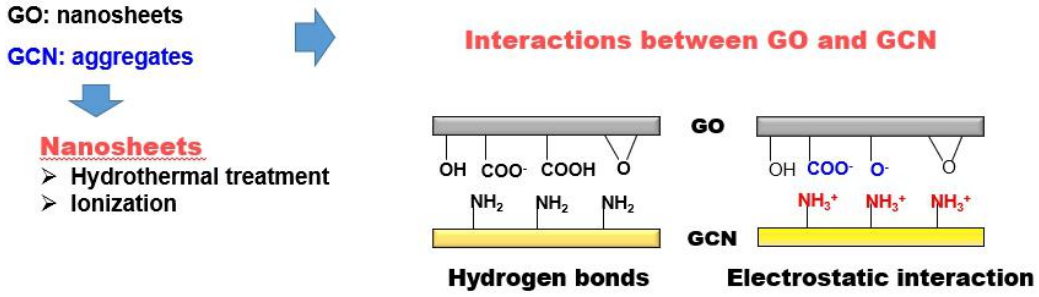


D. Cohen-Tanugi, J. Grossman, Nano Lett., 12(7), 3602 (2012).

For some organics and gases, GO is a complete barrier, because it can only be transmitted through nanowires between GO layers when the size of solute particles is appropriate.the ionic GO membrane with different valence states will be separated to different degrees according to the amount of charge.The GO sheet ishighly regulated, with covalently bonds and electrostatically bonds between GOlayers to achieve directional screening of large organic molecules to small ions.



GCN has good thermal stability and chemical stability. Only when the thermal stability exceeds 600℃ will it begin to decline and maintain stable performance under strong acids and bases. Non-toxic. Environmental protection, no secondary pollution. The absorption spectrum is wide and requires no ultraviolet light to act as photocatalysis only in ordinary visible light. And easy preparation. It has the characteristics of short process flow, less equipment, low requirement for equipment and short preparation time.



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In Future we try to hybrid the large GO anion (several 10 μm) and large GCN cation (>several μm) to prepare the membrane.

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