

Mass Transport Through 2D Materials Based Membranes

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Mass transport through nanometre-pore materials has been attracting unwavering interest due to fundamental differences in governing mechanisms at macroscopic and molecular scales, the importance of water permeation in living systems, and relevance for filtration and separation techniques. Graphene-based materials can have well-defined nanometer pores and can exhibit low frictional water flow inside them, making their properties of interest for filtration and separation^{1,2}. In addition, recent developments in exfoliating and assembling other layered materials open the possibility of fabricating variety of membranes with different properties. In my talk, I will discuss our recent results on molecular and ionic mass transport of various 2D materials based membranes and its prospect for several applications^{1,2,3}.

References

- [1] Nair R. R., Wu H. A., Jayaram P. N., Grigorieva I. V., Geim A. K. ,*Science*, 335 (2012) 442
- [2] Joshi, R. K., Carbone, P., Wang, F. C., Kravets, V. G., Su, Y., Grigorieva, I. V., Wu, H. A., Geim, A. K., Nair, R. R. *Science*, 343(2014) 752
- [3] Su, Y., Kravets, V. G., Wong, S. L., Waters, J., Geim, A. K., Nair, R. R., *Nature Communications*,5(2014) 4843

Figures

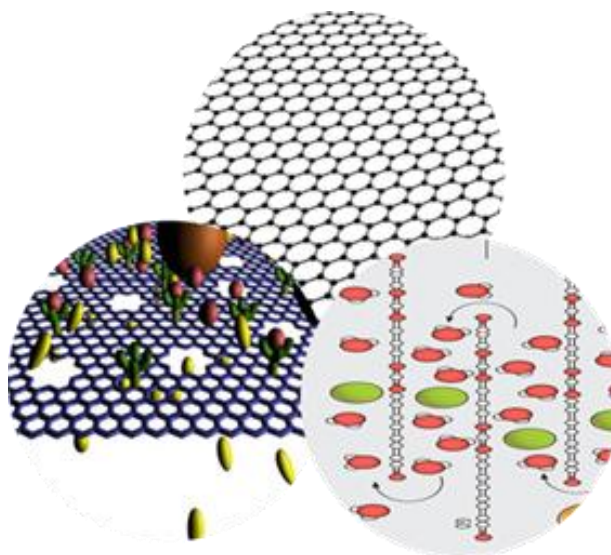


Figure 1: Various mass transport behaviours through 2D materials constructed membranes.