Tunable graphene-based membranes

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Permeation 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. Latest advances in the fabrication of artificial channels and membranes using two-dimensional (2D) materials have enabled the prospect of understanding the nanoscale and sub-nm scale permeation behaviour of water and ions extensively. In particular, graphene oxide (GO) membrane containing 2D graphene capillaries shows unique permeation properties such as ultrafast permeation of water and molecular sieving. In my talk, I will discuss our recent results on molecular and ionic permeation properties of GO membranes and its prospect for several applications.

Reference

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