

## Tech Highlight

### Waste Water to Clean Water

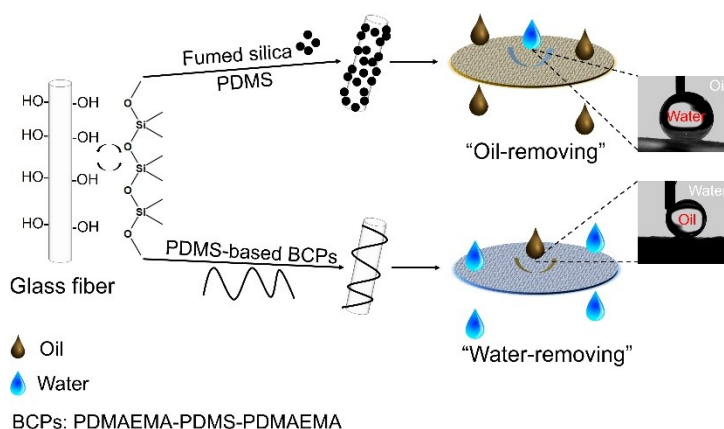
Have you ever wondered if the oily waste water swept into drains at local hawker centres could be recycled?

A team of IMRE scientists might have the answer. Prof He Chaobin\* and his team have developed a new and effective method that manipulates the surface chemistry and roughness of commercial glass fibre microfiltration membranes without the need for special equipment or additional chemicals such as solvents or catalysts.

Compared with other types of membranes, e.g. polymeric membranes designed for applications in oil/ water separation, glass fibre-based filtration materials are more ideal in terms of reliability, recyclability, and cost effectiveness. The team used the strong attractive interaction between the surfaces of glass fibres and poly(dimethylsiloxane) (PDMS) to fabricate superhydrophobic and superoleophilic glass fibre membranes with “oil selectivity” and superoleophobic glass fibre membranes with “water selectivity”.

Dr. He hopes to work with industry partners to further develop this low cost, environmentally-friendly and easy-to-process oil-water separation method and scale up the process for commercial applications.

To find out more about the technology or collaboration opportunities, please contact Dr. He Chaobin ([cb-he@imre.a-star.edu.sg](mailto:cb-he@imre.a-star.edu.sg))



*A schematic illustration of the interactions between PDMS and glass fibre surfaces, and their application in oil-water separation: a superhydrophobic and superoleophilic glass fibre membrane for oil removal and a pH-responsive and underwater superoleophobic glass fibre membrane for water removal.*