Joint Event on

30th Annual Congress on

Nanotechnology and Nanomaterials

&

8th World Congress on

Spectroscopy and Analytical Techniques

September 10 - 11, 2018 I Stockholm, Sweden

Leaf-inspired photo-responsive hierarchical nano-fibrous membrane for oil-water separation

Zhengtao Li

Nanyang Technological University, Singapore

co-authors: W Tio and **D D Sun**
Nanyang Technological University, Singapore

Oil contaminated wastewater from industry and oil spills threatens our environment and sustainable development. Conventional separation methods are suffering from several limitations. Membrane technology as well as nano-technology shows great potential in oil-water separation. Inspired by the stomata of leaves, a smart photo-sensitive hierar-chical nano-fibrous membrane was success-fully fabricated by a facile and highly effec-tive method with the combination of elec-trospinning and hydrothermal reaction in this research. ZnO nanorods can easily grow on the electrospun PSF nanofibers to form three-dimensional hierarchical structure with large specific surface area by hydrothermal reaction. Due to the photo-sensitivity of ZnO nanorods, without UV light, the surface is super-hydrophobic and air gaps in the pores will prevent the passage both of water and oil, while under UV light irrita-tion, the surface becomes super-hydrophilic and water will be able to pass through the membrane leaving oil at the other side. This photo-responsive nano-fibrous membrane shows excellent performance for oil-water separation.
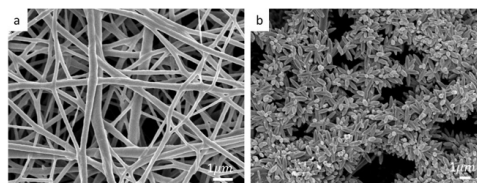
Biography

Z Li is currently a PhD student at School of Civil and Environmental Engineering, Nanyang Technological University, Singapore. He joined Prof. Darren Sun's group in 2015. His re-search focuses on fabrication and application of bio-inspired super-hydrophilic materials

zli018@e.ntu.edu.sg

Notes: