

High-performance biocatalytic membrane fabrication & their environmental application:

Developing innovative nanostructured coating and functionalization technologies to fabricate nanocomposite biocatalytic membranes to solve challenging environmental problems including micro-pollutants elimination and CO₂ separation and conversion.



UNESCO Centre for Membrane Science & Technology is the leading centre for membrane development in Australia and has an extensive range of resources available within the group and across UNSW.



UNSW
Centre for
Transformational
Environmental
Technologies

CTET houses a wide range of state-of-art facilities, enabling the development of cutting-edge technologies and commercialisation.

More information

Dr. Chao Ji

Manager, Operations, UNSW Centre for Transformational Environmental Technologies (CTET)

T: +86 18355349668

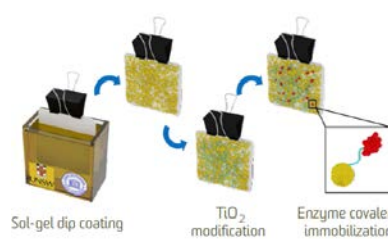
E: chao.ji@unsw.edu.au

High-Performance Biocatalytic Membrane Fabrication & Their Environmental Application

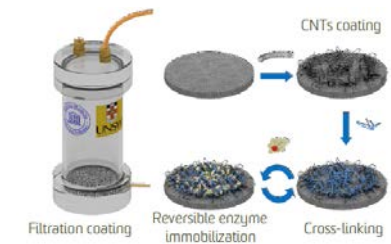
UNESCO Centre for Membrane Science & Technology,
School of Chemical Engineering, UNSW

Biocatalytic membranes fabrication

1. TiO₂ sol-gel dip coating technology

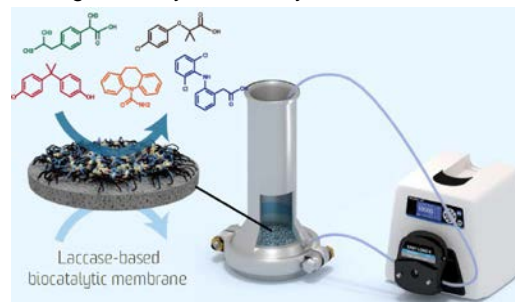


2. CNTs filtration cross-linking Technology



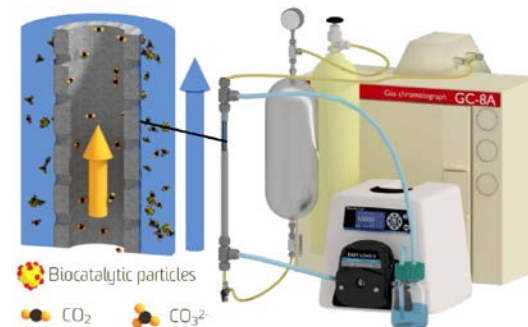
Micro-pollutants elimination

- Integration of enzymatic treatment and membrane technique;
- High capability for micro-pollutants elimination;
- High stability, reusability and low membrane fouling.



CO₂ separation and conversion

- Novel Janus-like hydrophilic and hydrophobic membrane;
- Enhanced CO₂ hydration by immobilized carbonic anhydrase;
- Cascade enzyme treatment allows production of formate.



Our experts

- **Dr. Chao Ji**, Manager, Operations, CTET

