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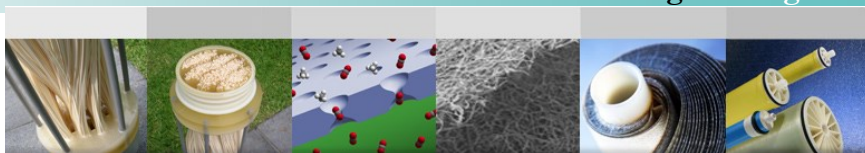
Future Water CRC on new re-search centre funding shortlist

The Australian government through the Ministry for Industry, Innovation and Science announced on August 30, 2016 the inclusion of the Future Water Cooperative Research Centre (FWCRC) proposal as one of the seven shortlisted applications to proceed to Stage 2 of the selection process. This is part of the government's effort in delivering important research on the critical sectors of the economy through new technologies, products and services by creating the \$653 million Cooperative Research Centres (CRC) Programme.

The FWCRC envisions to provide innovative water technologies and management and has secured the support of leading universities and industries in Australia and internationally. Significant research is aimed on doing field trials and case studies. Professor Don Bursill AM and Mr Neil Palmer will lead the proposed new research centre. Several individual and corporate MSA members are part of the proposal. Stage 2 of the selection process involves the submission of an extended business case for FWCRC by the end of October 2016 and the decision coming out in early 2017. Original versions of the news can be accessed [here](#) (NCEDA website) and [here](#) (Greg Hunt website).

Upcoming events

- **World Water Congress & Exhibition 2016**, 9-14 October 2016, Brisbane, Australia (Visit: <http://www.iwa-network.org/event/world-water-congress-exhibition-2016/>)
- **International Conference on Engineering with Membranes (EWM2017): Recent Advances in Membrane Science and Technology**, 26-28 April 2017, Singapore (Visit: www.ewm2017.com) - (Further details on page 3)
- **9th International Membrane Science and Technology Conference 2016 (IMSTEC2016)**, 5-8 December 2016, Adelaide Convention Centre, Australia (Visit: <http://www.imstec.com.au/>)
- **International Forward Osmosis Summit (IFOS)**, December 2-4, 2016, University of Technology Sydney, Australia (Visit: <http://www.ifosummit.org/>)



MSA workshop on advanced membrane technologies held in Monash University

The MSA workshop on advanced membrane technologies was held in Monash University on the 20th of July 2016 with speakers from Monash University, Melbourne University, Victoria University, UNSW, University of Wollongong, Adelaide University, Curtin University, UQ, UTS, CSIRO and Deakin University invited to share their recent work and ideas on membrane technologies.



Photo session after the workshop with participants and speakers.

As one of the leading countries in membrane field, Australia has seen increasing research activities in last few years on the development of innovative membrane technologies for various applications. The goal of this MSA workshop is to bring together the leading Australian researchers in the membrane field to discuss about current status of research and development of membrane technologies.

This MSA workshop focused on three main themes, which were membrane synthesis, emerging application and process optimisation. Researchers discussed about innovative ways to develop high performance membranes by incorporating nanomaterials, two-dimensional materials, functional materials and etc. The membrane applications in gas separation, wastewater treatment and water desalination were also highlighted in the workshop. Researchers also expressed their ideas with fellows and discussed about the future developments and challenges of membrane developments at the workshop.

(Contributed by A/Prof Xiwang Zhang)

Innovator's corner

Rapid plasma surface modification technique — A controlled route to improve the membrane performance and to uniformly tailor surface charge

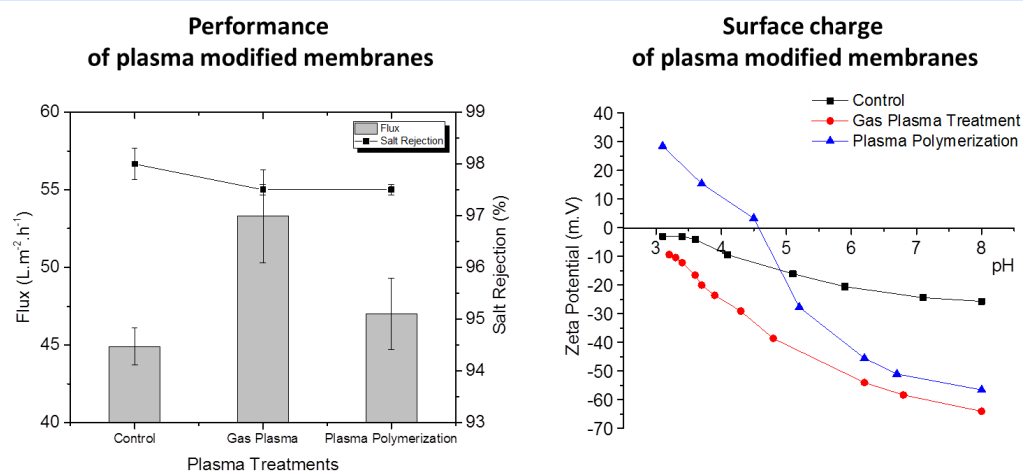
The combination of selectivity and performance of thin film composite (TFC) membranes makes them excellent materials for many membrane separation applications. However, the chemistry and morphology of the polyamide layer of TFC membranes tend to promote unfavorable affinity with contaminants in the water. In a recent study at the University of Victoria, new routes to refine the surface properties of TFC membranes were developed via plasma modification to produce functional coatings and more permeable membranes with controlled surface charge.

Plasma modification is a controllable and rapidly developing technique which requires little quantity of chemicals that can uniformly induce the polymerization of selected monomers or functionalization by simply using a gas environment. In her project, Rackel Reis, a PhD candidate from Victoria University investigated the feasibility and physicochemical mechanisms of plasma for surface functionalization of TFC membrane surfaces in order to tune surface properties such as charge, morphology and chemistry without compromising permeation and selectivity properties.

In the plasma technique, two different routes were explored - the first used

reactant gases, such as argon and helium to chemically etch and modify the texture of the membrane. The second involved polymerization of 1-vinylimidazole (VIM) to increase the density of amines functional groups and therefore alter the surface charge and morphology characteristics. Surface etching promoted by plasma treatment was shown to be beneficial to enhance wettability, negative charges, and in the case of argon plasma glows. The water permeation was found to increase by up to 20% at low power densities without compromising salt rejection (98%). The plasma polymerization processes lead to the formation of positive surface charge and uniform coatings which thicknesses were found to increase with longer process duration.

Plasma surface modification opens the way for versatile and environmentally friendly surface modification techniques which provide tuneable functionalization pathways for post-treatment of commercial membrane products and potentially favouring anti-fouling and pH selective permeation behaviours. *(Contributed by Rackel Reis, Victoria University)*



Membrane Research Highlights

- [Phosphorus and water recovery by a novel osmotic membrane bioreactor–reverse osmosis system](#), *Bioresource Technology* (University of Wollongong)
- [Effect of operation parameters on the mass transfer and fouling in submerged vacuum membrane distillation crystallization \(VMDC\) for inland brine water treatment](#), *Journal of Membrane Science* (University of New South Wales)
- [Water desalination using graphene-enhanced electrospun nanofiber membrane via air gap membrane distillation](#), *Journal of Membrane Science* (University of Technology Sydney)
- [Towards enhanced performance thin-film composite membranes via surface plasma modification](#), *Scientific Reports* (Victoria University)
- [A critical review of membrane crystallization for the purification of water and recovery of minerals](#), *Reviews in Environmental Science and Bio/Technology* (RMIT University)
- [Rapid thermal treatment of interlayer-free ethyl silicate 40 derived membranes for desalination](#), *Journal of Membrane Science* (University of Queensland)
- [Zeolitic imidazolate framework/graphene oxide hybrid nanosheets as seeds for the growth of ultrathin molecular sieving membranes](#), *Angewandte Chemie* (Monash University)
- [Hypercrosslinked additives for ageless gas-separation membranes](#), *Angewandte Chemie* (CSIRO)

**MSA Workshop Funding Support Program:
Call for proposals and applications for 2017**

The MSA Funding Support Program provides funding support to membrane-related events such as workshop and symposia that are held in Australasia.

Who can apply for the MSA workshop support program?

All MSA members can apply for funding support from the MSA.

Funding use – What the MSA workshop funding support program is for?

Financial support is provided for activities and projects that are beneficial to membrane technology in Australasia. This includes a wide range of activities, such as but not limited to:

- Sharing of knowledge on one particular topic related to membrane technology in the laboratory, pilot or full scale level,
- Dissemination of results/outcomes at the end of a project and highlight future trends,
- Promoting new activities.

Funding support is available to help out with:

- Administrative activities (e.g., venue, materials),
- Catering (e.g., cost of lunch, coffee),
- Sponsoring speakers (e.g. travel and accommodation expenses),
- Awards,
- Free or discount registration fees for ECR.

How to apply?

The application form must be submitted to the MSA at your earliest time before the date of the event. Please advise the MSA as soon as possible of any planned event so that we can consider it for budgeting. The chances of success are likely to be improved by an early application. The outcome of the application will announced approximately 1 month after the submission of the application.

Conditions

To qualify for this funding program, your group has to meet the following terms and conditions:

- Matched funding – your application must include at least an equal monetary or in-kind contribution from you or your project partners;
- Registration fees – the event should provide free or more than \$50 discount registration fees for MSA members;
- Reporting – write a short article on the event for publication in the MSA newsletter, highlighting relevant points of interest to MSA members;
- Acknowledgment – the MSA (including the logo) must be acknowledged for providing financial support in all printed media (programs, flyers, cover slides, websites, etc.) and presentation materials.

Contact us

For further information, contact the funding program coordinators at the following email address:

workshop@membrane-australasia.org

International Conference on
Engineering with Membranes (EWM2017)
Recent Advances in Membrane Science and Technology
InterContinental, Singapore
26 – 28 April, 2017

The conference themes will cover:

—Overview of R&D activities, future directions and strategic issues in several membrane centres—Membranes for desalination—Hybrid or low pressure membranes for drinking water, food, life science and pharmaceutical industries—Osmotic and thermal membrane processes—Membranes for gas separation and energy related applications—Novel membranes – functionalized, responsive, modified—Membranes for special need

Deadline of abstract submission:
November 15, 2016

Highlight:
Special Session to honour Professor Tony Fane’s contributions in the field of membrane science and technology
(Prof Tony Fane is a Patron of MSA.)



IMSTEC 2016 Update

www.membrane-australasia.org

5-8 December 2016
Adelaide Convention Centre



REGISTER NOW

for IMSTEC Conference!

PRE-CONFERENCE WORKSHOPS

There are 2 workshops being run during the IMSTEC 2016 Conference. Click on the title below to see more information about each of them.

- [Membranes in Mining](#)
- [How to Build a Career in Membranes for ECR’s](#)

For delegates wishing to attend a workshop only on Monday 5 December 2016, please register [here](#). The cost of the workshop is \$220.

IFOS 2016 Update

2016 International Forward Osmosis Summit (IFOS)
Co-organized by International Forward Osmosis Association (IFOA)

Forward Osmosis: Prospects and Challenges

2 (Fri) – 4 (Sun) Dec 2016 (<http://www.ifosummit.org/>)
University of Technology Sydney

REGISTER NOW!

EXTENDED!!! Abstract submission (for poster only) - 30 Sep 2016

Early bird registration—30 Sep 2016

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