

UPCOMING EVENTS

- **North American Membrane Society (NAMS) 26th Annual Meeting** (May 21-25, 2016, Washington, USA)

Visit <http://www.membranes.org/2016/index.html> for more information.

- **Desalination for the Environment: Clean Water and Energy** (May 22-26, 2016, Rome, Italy)

The conference will give overview of the most recent developments in desalination technology, its cost and extent of application, including socio-economic and environmental issues. Visit the website: <http://www.desline.com/congress/Rome2016/home.shtml> for more information.

- **14th International Conference on Inorganic Membranes (2016)** (July 10-13, 2016, Georgia Tech Global Learning Center, Atlanta, GA)

The International Conference on Inorganic Membranes (ICIM) is the premier international meeting in the area of inorganic membranes. ICIM is organized every other year. (<http://www.icimconference2016.com/>)

- **The 10th Conference of Aseanian Membrane Society** (July 26-July 29, 2016, Nara, Japan)

Sessions include water treatment (RO, FO, NF, UF, MF), gas and liquid separation, energy and environmental application, bio-related and bio-inspired membranes, membrane preparation and characterization, and novel membranes and processes. Website: <http://www.ams10.org/>

- **Gordon Research Conference—Membranes: Materials and Processes** (July 31– August 5, 2016, New Hampshire, USA)

The “Membranes: Materials and Processes” GRC is an interdisciplinary meeting that has gained significant international recognition, attracting leading experts on membranes and related areas from around the world. Visit the website for more information:

<https://www.grc.org/programs.aspx?id=12117>

- **7th International Zeolite Membrane Meeting (IZMM2016)** (August 20-23, 2016, Dalian, China)

The Local Organizing Committee has the pleasure to invite you to participate in the 7th International Zeolite Membrane Meeting, IZMM2016, which will be held from 20 to 23, August, 2016 in Dalian (China). IZMM2016 will be organized by the Dalian Institute of Chemical Physics and Jilin University. (Visit the website for more info: <http://www.izmm2016.com/dct/page/1>)

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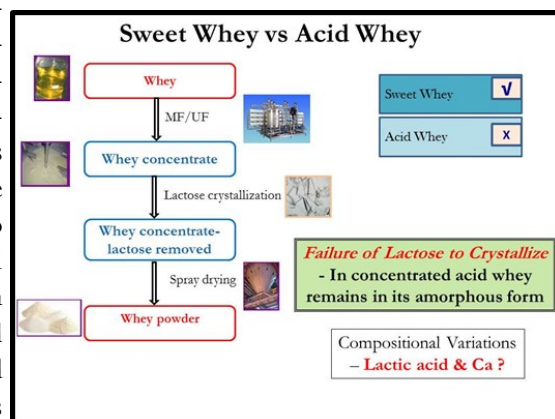
Membrane Filtration– Adding value to dairy by-products

In the dairy industry, the precise separation and concentration of components is increasingly important in adding value to by-products from various dairy production streams. Membrane filtration is a good example of a simple and efficient technology used to solve a growing waste disposal issue with excellent future prospects.

Combined microfiltration (MF) and ultrafiltration (UF) is an effective means of recovering by-products such as sweet whey from the cheese industry into excellent nutritional food ingredients, which can be used in food formulations. Increased market trends towards consumption of Greek

yoghurt driven mainly by health brand resulted in generation of “acid whey”, which has emerged as a hard to process dairy by-product. Storage and disposal of acid whey is subject to strict environmental regulations and can add significant cost to the industry. The highly acidic nature of acid whey, comprised more of lactic acid (LA) and Ca as compared to sweet whey, makes it a challenging by-product to deal with. Thus removing large quantities of LA and Ca appears as a vital step prior to further processing of this stream. Thus, membrane filtration, especially NF has emerged as an ideal approach to remove these hindering components. Now working in close collaboration with the Australian dairy industry, Victoria University (VU) researchers are developing a range of trials in evaluating how the elements of acid whey can be similarly processed and reused, with the use of membrane filtration, potentially saving millions of dollars for the industry. VU researchers have stated that, “If we can separate purified lactose, which can be used in infant formulas, then we are turning an expensive and environmentally sensitive disposal issue into an environmentally friendly money earner”. Purification through separation of components by the use of membrane filtration would improve the quality of the food ingredient vastly.

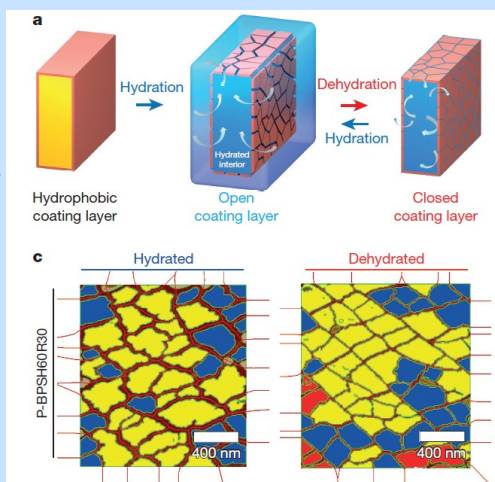
For more information, contact: Victoria University Researchers: Todor Vasiljevic (Todor.Vasiljevic@vu.edu.au) & Jayani Chandrapala (Janage.Chandrapala@vu.edu.au)



Cactus skin-inspired membrane: Towards more efficient electric cars

A collaborative work by the teams from Hanyang University and CSIRO has resulted to a waterproof membrane inspired from the cactus skin that could improve the efficiency of fuel cells in cars. The discovery has recently been published in the world-renowned Nature journal (download it from here: (<http://www.nature.com.ezproxy.lib.uts.edu.au/nature/journal/v532/n7600/pdf/nature17634.pdf>)).

The new membrane has the ability to control the water absorption and transport within the membrane thereby keeping the membrane hydrated for longer period of time. This property of the membrane is based on the cactus plant's ability to open and close its pores to retain water in harsh environments. Tests showed that the membranes improved the efficiency of the fuel cell up to four times under hot and dry conditions. Two of the co-authors, Dr Aaron Thornton and Dr Cara Doherty from CSIRO indicated that this invention could be a game-changer and could replace traditional sources of fuel. A number of media outlets have already reported this news: [ABC](#), [Nine News](#), [Huffington Post](#), [Science Daily](#), etc.).



Basic concept of self-humidifying nanovalved membrane (Source: www.nature.com)

MEMBRANE RESEARCH HIGHLIGHTS

- [2D nanoseeds for the growth of ultrathin molecular sieving membranes](#)
- [Asymmetrical diffusion dialysis membranes for rapid acid recovery with high purity](#)
- [Status and progress of membrane contactors in post-combustion carbon capture: A state-of-the-art review of new developments](#)
- [Phosphorus and water recovery by a novel osmotic membrane bioreactor–reverse osmosis system](#)
- [Membrane-based processes for wastewater nutrient recovery: Technology, challenges, and future direction](#)
- [Graphene/PVDF flat-sheet membrane for the treatment of RO brine from coal seam gas produced water by air gap membrane distillation](#)
- [Ageing of membranes for water treatment: Linking changes to performance](#)
- [Aquaporin-based biomimetic reverse osmosis membranes: Stability and long term performance](#)
- [Biodegradation of cellulose triacetate and polyamide forward osmosis membranes in an activated sludge bioreactor: observations and implications](#)
- [Fertiliser drawn forward osmosis process: Pilot-scale desalination of mine impaired water for fertigation](#)

Call for contributions — Special edition on “Advanced Membranes for Water Treatment” — Water journal

The on-line journal Water (<http://www.mdpi.com/journal/water>) is requesting articles for a special edition on "Advanced Membranes for Water Treatment", with submission due on the 31st October 2016. This special edition will highlight advances in membrane technology, including fabrication, fouling and operation of membranes, as well as new membrane processes, and submission details can be found at (http://www.mdpi.com/journal/water/special_issues/advanced_membranes).

As guest co-editors for this special edition, we would like to invite MSA members to submit a manuscript for publication in this special edition.

The Water journal is an open access on-line journal with a growing impact factor of 1.428, and being an open access journal your manuscript will be readily accessible to the scientific community.

- Prof Stephen Gray and Hideto Matsuyama, Guest Editors, *Advanced membranes in water treatment special edition, Water*



The 9th International Conference "Challenges in Environmental Science and Engineering, CESE-2016, will be held from the 6th to the 10th of

November in Kaohsiung, Taiwan.

Deadline of abstract submission:

June 30, 2016

Notification of acceptance:

July 15, 2016

Kindly pre-register and submit your abstracts through CESE-2016 web page (<http://cese-conference.org/>); the web page also contains abstract template for your use. If you prefer poster presentation, kindly inform when submitting your abstract(s). As in the past one fee paying delegate can have maximum of two presentations (2 oral or 2 poster or 1 oral and 1 poster presentations).

INVITATION TO ALL MSA MEMBERS: ANNUAL GENERAL MEETING 2016

You are invited to attend our Annual General Meeting (AGM) that will be held in Melbourne this year. Details below:

When: **5-6pm, Monday, 30th May 2016**

Where: **Level 11, 300 Flinders street, Victoria University Campus, room CFL-FS1107**

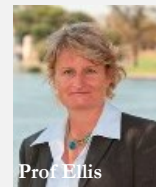
Guest Speakers: **Tony Fane, Amanda Ellis and Neil Palmer**

See you all!

- *Kris Konstas, MSA Secretary*



Prof Fane



Prof Ellis



Mr. Palmer



3rd International Conference on Desalination using Membrane Technology

2-5 April 2017 | Palacio de Congresos de Canarias, Las Palmas, Gran Canaria, Spain

The 3rd International Conference on Desalination using Membrane Technology will allow the dissemination and discussion of cutting edge research. The scope will include theoretical and applied research, technological and industrial development. Participants will include leading academic researchers, scientists and engineers from membrane desalination and associated industries as well as representatives of government organizations, international agencies and aid organizations.

Plenary Speakers:

- Enrico Drioli, *University of Calabria, Italy*
- Menachem Elimelech, *Yale University, USA*
- Anthony Fane, *Nanyang Technological University, Singapore*
- Juan María Sánchez, *Ecoagua, Spain*

Keynote Speakers:

- Mikel Duke, *Australia*
- Nick Hankins, *UK*
- Raed Hashaikh, *UAE*
- Ahmad Fauzi Ismail, *Malaysia*
- Nalan Kabay, *Turkey*
- Anastasios J. Karabelas, *Greece*
- Maria Kennedy, *The Netherlands*
- Takeshi Matsuura, *Canada*
- Marty Peery, *Spain*
- Raphael Semiat, *Israel*
- Mohamed Khayet Souhaimi, *Spain*
- Domingo Zarzo, *Spain*

Topics will include:

- Reverse osmosis
- Nanofiltration, ultrafiltration, microfiltration
- Aquaporin membranes
- Pre-treatment and post-treatment processes
- Novel desalination technologies
- Membrane distillation
- New membrane types
- Forward osmosis
- Pressure-retarded osmosis
- Membrane systems
- Hybrid systems
- Module design
- Novel membrane systems and configurations
- Brine/concentrate disposal and waste management
- Energy and sustainability
- Economics

16th Aachener Membran Kolloquium

2nd/3rd November 2016, Aachen

We would like to invite you and your colleagues to submit a short paper presenting novel research results for the 16th AMK, organized by Matthias Wessling at the RWTH Aachen University, Germany.

The submission deadline has been extended to **June 1st, 2016**.

The AMK tries to bring together people from a broad range of backgrounds with the aim of interdisciplinary knowledge exchange on membrane innovations. The topics of the presentations will be a well-balanced mixture discussing membranes in

- Water treatment
- Gas and vapor separation
- Solvent recovery
- Process engineering
- Energy applications
- Biotechnology
- Health

You can submit an original paper using the following link: <https://conferences.avt.rwth-aachen.de/AMK2016/>

Key Dates

Paper submission deadline: **June 1st, 2016**
 Notification of acceptance: **July 15th, 2016**

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Please contact the editors if you wish to contribute any article to future editions or send message to newsletter@membrane-australasia.org.