

National Water Research Institute

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Report on “Development and Testing of 'Smart' Nanofiltration Membranes” Now Available

NWRI has published a Final Project Report that investigates developing “smart” membranes designed to selectively remove particles from water or wastewater.

Particle filtration primarily depends on the ratio of particle size to membrane pore size, as well as feed water chemistry, particle properties, and membrane chemistry. Today’s membranes have fixed physical-chemical properties, meaning their selectivity is relatively static.

Developing “smart” filtration membranes that are more selective and robust may not only lower chemical and energy inputs, but could also help the water and wastewater industry address rising energy costs, emerging contaminants, stricter environmental regulations, and industrial demand.

In response, researchers at the University of California, Los Angeles (UCLA), formed and tested membranes made from conducting polymers to determine if particle transport could be selectively controlled by externally applied electrical fields. The results are detailed in the 46-page NWRI Final Project Report prepared in July 2010 by Gregory R. Guillen and Dr. Eric M.V. Hoek of UCLA.

The Final Project Report is available to download at www.nwri-usa.org under “NWRI Highlights.”

Two Students Awarded with AMTA-NWRI Fellowships for Membrane Technology

This summer, NWRI and the American Membrane Technology Association (AMTA) awarded two doctoral students with 2-year NWRI-AMTA Fellowships for Membrane Technology.

The students include:

- **Yaolin Liu, George Washington University**
Biofouling of Forward Osmosis Membranes: Mechanisms and Fouling Control
A Civil and Environmental Engineering Major, Ms. Liu is working on developing a better quantification of concentration polarization in the membrane channel of realistic reverse osmosis processes. Concentration polarization is known to be responsible for increased energy consumption and exaggerated membrane fouling. Her advisor is Dr. Baoxia Mi.

- **Alberto Tiraferri, Yale University**
Nanocomposite Polymeric Membranes for Enhanced Water and Energy Production in Membrane-Based Separation Processes
An Environmental Engineering Major, Mr. Tiraferri is working on developing robust nanocomposite membranes to enhance the performance and expedite the implementation of advanced membrane-based water and energy production technologies. His advisor is Dr. Menachem Elimelech.

Established in 2007, the AMTA-NWRI Fellowship for Membrane Technology awards \$10,000 per year to graduate students helping to solve water supply and quality issues through the widespread application of membrane technology.

Membranes are used to filter unwanted particles and pathogens from target water sources and are important tools in the water treatment industry. As the leading advocate of membrane processes in the U.S., AMTA is committed to promoting and advancing the understanding and application of membrane technology. More information about AMTA is available at www.amtaorg.com.

NWRI is thankful to have AMTA as a partner in supporting the NWRI Fellowship Program. For more information about the NWRI Fellowship Program, please visit www.nwri-usa.org/fellowship.htm.

Support Graduate Fellowships through NWRI Corporate Associates Program

NWRI is launching an effort to increase funding for graduate student research in water and wastewater. For more than 10 years, we have supported over 40 students with research topics varying from addressing essential needs (e.g., Rapid Detection of Coliphages as Indicators of Fecal Contamination of Water) to novel and groundbreaking (Hydrogen Gas Production Using a Microbial Electrolysis Cell).

Your company can help support innovative student research by becoming a member of the NWRI Corporate Associates. Membership fees from the NWRI Corporate Associates are used to fund our Graduate Student Fellowship Program, which provides funding for students at U.S. universities conducting research in water and wastewater.

Membership dues for NWRI Corporate Associates are \$2,500 year. Our goal is to expand Corporate Associate membership to increase the number of graduate students we can support with fellowships.

More information about the NWRI Corporate Associates program is available at www.nwri-usa.org/associates.htm. For a direct link to the application form, [please click here](#). For questions, please contact Jeff Mosher at jmosher@nwri-usa.org or (714) 378-3278.

Managed Aquifer Recharge Symposium: Sponsors and Abstracts Welcome

The Water Research Foundation (WaterRF), Orange County Water District (OCWD), and NWRI invite you to participate in the "Managed Aquifer Recharge Symposium," to be held on January 25-26, 2010, in Irvine, CA.

The purpose of this 2-day event is to provide a forum for detailed discussions about managed aquifer recharge issues and to exchange information. The focus will be on technical and policy issues regarding augmenting aquifers through **recharge basins** with surface waters, including river water, recycled water, and storm water.

Attendees will include engineers, consultants, academics, researchers, government officials, and the managers, staff, and officials of water and wastewater utilities.

We are seeking the following:

- Abstracts for oral or poster presentations.
- Event sponsors.

Call for Abstracts

We would like to invite practitioners, researchers, consultants, water agency staff, and others involved in basin recharge activities to submit an abstract for an oral or poster presentation. Student posters are also welcome.

Topic areas include:

- Recharge Basin Performance.
- Recharge Basin Operations.
- Modeling of Recharge Basin Performance.
- Basin Optimization.
- Facility Planning and Engineering.
- Innovative Recharge Ideas.
- Research.
- Operational Experience.

The deadline for abstracts is **September 15, 2010**.

Further information regarding the abstract submittal process (including the downloadable "Abstract Submittal Form") is available at www.regonline.com/rechargesymposium.

Sponsorship Opportunity

As a sponsor of the Managed Aquifer Recharge Symposium, you will become part of the discussion on issues that are critical to managing aquifer recharge basins. The cost of sponsorship is \$750.

Sponsorship benefits include:

- One (1) complimentary full symposium registration.
- Promotion as a symposium sponsor.
- Company logo on the symposium program.
- Signage recognition at the symposium.
- One (1) skirted 6-foot tabletop exhibit (optional).

To become a sponsor, please apply online at www.regonline.com/rechargesymposium.

EPA Invites Utilities and Government Agencies to Sign Up for Water Sector Security Resource

The U.S. Environmental Protection Agency (EPA) is inviting water and wastewater systems and federal, state and local government agencies in the U.S. to sign up for a free 12-month subscriptions to the water and wastewater sector's official source of information on infrastructure protection: WaterISAC Pro.

EPA is covering the cost for new subscribers, given the importance of utility security, emergency preparedness, and public health.

Free subscriptions to WaterISAC Pro are available to:

- Water/wastewater utilities and contract operators.
- Public works departments.
- Rural water circuit riders.
- State primacy agency staff.
- Federal and state staff with environment, homeland security, and emergency response agencies.
- State and local public health and emergency response officials.
- Water utility association staff.

New subscribers can take advantage of the free subscription at anytime over the next year. A subscription period starts as soon as you sign-up and extends for 12 months.

For more information or to sign up, please visit www.waterisac.org.

Upcoming Events

Urban Water Institute 17th Annual Water Conference (August 2010)

The Urban Water Institute will be holding its 17th Annual Water Conference on August 25-27, 2010, at the Hilton Mission Bay Resort in San Diego, California. The theme of the conference is "Wanted – Regional Water Solutions."

NWRI will be exhibiting at this event. For more information about the conference or to register, please visit www.urbanwater.com.

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