



Nanotechnology Enabled Water Treatment Center

NEWT Industry/Practitioner Membership Program

What Is NEWT?

NEWT is a National Science Foundation Engineering Research Center (ERC) comprised of four academic institutions – **Rice University, Arizona State University, University of Texas – El Paso, and Yale University**. Over a 10 year period, the ERC will receive \$37MM from NSF for research in four different areas – Multifunctional Nanomaterials for Removing Priority Pollutants, Low Energy Desalination, Scaling and Fouling Control and Safety & Sustainability. NEWT's vision is to enable access to

suitable water almost anywhere in the world by developing next-generation, easy-to-deploy water treatment systems enabled by nanotechnology. Research teams within the center are developing high-performance materials and treatment systems with interchangeable modules that are highly efficient in targeting priority pollutants while offering flexibility needed to tap unconventional water sources and respond to changes in source water characteristics or treatment objectives. Our initial focus is on two

markets in need of significant technological innovation: (1) point-of-use, point-of-entry drinking water treatment, and (2) industrial wastewater treatment and reuse, with a particular focus on water-intensive operations such as those present on oil and gas production sites. **NEWT's Industry/Practitioner Membership Program fosters 'win-win' collaborations within these markets to drive transformational research and industrial outcomes in the US and worldwide.**





Building Partnerships...

"We believe that NEWT's efforts to facilitate access to clean water globally through the use of technology and our expertise and experience in water treatment and nanotechnology innovation will create a constructive and ideal partnership."

-- Baker Hughes,
a GE Company

Research Thrusts & Theme

Thrust 1 – Multifunctional Nanomaterials for Removing Priority Pollutants

Researchers in Thrust 1 are developing superior sorbents, catalytic, magnetic and other nanomaterials that selectively target specific pollutants and facilitate matching of treated water quality to intended use (or reuse). Our multifunctional nanomaterials may be immobilized on a variety of substrates while maintaining superior treatment capacity and selectivity.

Thrust 2 – Low Energy Desalination

Thrust 2 teams are developing new membrane materials and systems that utilize sunlight and waste heat to drastically reduce electrical energy consumption for desalination and water purification. Thrust 2 technologies include nanophotonics-enhanced solar membrane distillation (NESMD) for desalination of high salinity feed waters, and nanophotonics-enhanced waste heat

membrane distillation (NEWMD) systems that enable low energy desalination even when solar energy is not available (i.e. during overnight hours).

Thrust 3 – Scaling and Fouling Control

Teams in Thrust 3 are exploiting unique nanoscale phenomena to develop technologies that ensure NEWT systems (a) control fouling and scaling in water and wastewater treatment systems, and (b) operate reliably with a wide range of feed waters. Thrust 3 research covers expanded applications of capacitive deionization/selective electrosorption, creation of new antimicrobial and chemically or electrochemically active surface coatings, and development of pre-treatment methods and materials including those targeting removal of silica.

Safety & Sustainability Theme

The overarching, cross-cutting research theme for the NEWT center is Safety & Sustainability (S&S). Research conducted within this S&S domain will inform

nanomaterial selection and design, device development, and technology implementation. Technical, societal and regulatory barriers recognized within each thrust project will be channeled through this theme. S&S researchers are focusing on quantifying the potential costs and impacts of nano-enabled discoveries across technology life cycles while also assessing societal contexts for system use. To this end, S&S teams are studying technology impacts, acceptability and appropriateness for a wide range of populations and communities that are potential users of NEWT solutions.



Industry Partnerships Are Key to Our Success



Join Us!

Our Vision: Enable access to suitable water almost anywhere in the world by developing next-generation high-performance, easy-to-deploy drinking water and industrial wastewater treatment systems enabled by nanotechnology

Membership Program

In order to facilitate closer partnerships with industry, NEWT has created an Industry/Practitioner Membership Program. The Program includes three membership tiers: **Full Member, Associate Member and Practitioner Member**. All members are entitled to the following benefits through NEWT:

- Industry/Practitioner Advisory Board participation
- Early access to NEWT research products such as reports, papers, and other publications
- Access to facilities and instrumentation utilized in NEWT research, subject to any requirements of the applicable NEWT academic institution
- On-location short courses that may be provided by researchers per mutual agreement between the researchers and members
- Access to a NEWT Center knowledge base of research advances
- Opportunities to sponsor targeted NEWT/Member research projects at a reduced overhead rate
- Opportunities to commercialize available NEWT intellectual property

NEWT is a unique resource for its Members, providing a collaborative environment whereby the research and market expertise of all Members can be leveraged to develop next-generation affordable, mobile, modular, high-performance water treatment systems enabled by nanotechnology.

Membership Annual Fees

Full Members (for profit companies):

≥ 500 Full-Time Employees	\$25,000 cash
50 – 499 Full Time Employees	\$15,000 cash
< 50 Full Time Employees	\$5,000 cash

Associate Members (for profit companies):

All Companies	\$8,000 cash & \$2,000 in-kind
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Practitioner Members (agencies, non-profits):

All Organizations	\$10,000 in-kind
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NEWT Members

