Announcing the Northwestern Center for Water Research

Water is essential to economic prosperity and human well-being, but achieving long-term resource stability represents a major challenge for U.S. communities under increasingly severe socioeconomic constraints and climate variability. Urban and rural landscapes are facing changing weather patterns including shifts in temperature and precipitation, and increasing risks from extreme weather events. Globally, a reliable supply of water is a critical foundation for sustained human health, economic development, and political stability. Economic prosperity and population growth have increased demand for water, providing strong impetus to improve water use efficiency and manage tradeoffs between human consumption, energy production, food production, industrial activity, and ecosystem maintenance. Improved forecasting tools, purification technologies, and management strategies are needed to ensure water security and water resources sustainability for the U.S. and our global partners.

The Northwestern Center for Water Research formed in September 2015 to link the University’s water research efforts in basic sciences, technology development, law and policy, and systems analysis and simulation. The Water Center will enable the Northwestern community to achieve:

- **Fundamental advances in water science**, enabling new water technologies and improved prediction of water systems.
- **High-performance discovery, design, and commercialization** of materials for water monitoring and processing technologies.
- **Efficient, robust, and durable solutions** for water reuse, low-purity water sources, and resource recovery from wastewaters.
- **Integration of theory, data, and models** to predict large-scale, long-term outcomes in complex water/energy/food/ecosystems, and enable safe, efficient, and sustainable management of water.

The Water Center will develop **global solutions for regional problems** by engaging diverse industrial, governmental, and community partners to apply the highest levels of science and engineering to solve water challenges in the Chicago region and throughout the Great Lakes and Mississippi Valley. NAISE (Institutional Linkages) fosters collaboration with Argonne National Laboratory and other regional research powerhouses. Partnerships with conservation organizations including the Chicago Botanic Garden and The Nature Conservancy engage students and the public in sustainable water solutions.

**Northwestern Innovation in Water Research**

- **Extensive water research portfolio** spanning science, engineering, and technology development, with >$20M/year of external research funding related to water.
- **World-renowned analytical facilities** for characterizing, designing, and synthesizing transformative materials ranging from biological structures to novel nanomaterials.
- **Advanced systems analytics and simulations** supporting multi-component optimization, risk mitigation, resilience and sustainability assessments.
- **Structured environment** for technology development and translation. Engineering capability to accelerate integration of new technologies into industrial processes.
- **Innovative water and energy technologies**, with 53 patents issued, provisional, or filed on water/energy systems, antifouling materials, and water treatment.

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