

RESOURCES FOR INDUSTRY

Water Equipment and Policy Center (WEP)

wepiucrc.com

Qian Liao, Director, liao@uwm.edu

Providing innovative water technologies and processes to promote advancement of the water industry, and conducts research to inform water policy makers.

Wisconsin Department of Workforce Development

uwm.edu/water-energy-internships

Sean Lybeck-Smoak, UWM Liaison, lybecksm@uwm.edu

Providing students flexible, paid industry internships in the high-demand fields of clean energy and clean water sponsored by the Wisconsin Fast Forward (WFF) internship program and the Wisconsin Department of Workforce Development (DWD)

Industrial Assessment Center (UWM IAC)

uwm.edu/ceas-iac/

Ryo Amano, Director, amano@uwm.edu

Helping manufacturers and utilities to increase their productivity and competitiveness by reducing energy and water consumption, enhancing cybersecurity, and adopting smart manufacturing technology with free assessments.

KEY PARTNERS



Partner with us:

Andrew J. Graettinger, Associate Dean for Research,
andrewjg@uwm.edu 414-229-7389

WATER & THE ENVIRONMENT RESEARCH EXPERTISE

OVERVIEW

Our researchers take advantage of our affiliation with UWM's School of Freshwater Science, UW System's Freshwater Collaborative and our proximity to Lake Michigan, Milwaukee Rivers, and over 200 water companies as they develop a highly skilled water technology workforce.

RESEARCH HIGHLIGHTS

Bringing industry and academia together to maximize efforts and improve efficiencies.

- Leading the Water Equipment Policy, NSF I/UCRC Research Center (WEP).
- Providing data-driven research allows regulators to make informed policy decisions.

Addressing emerging problems

- Innovative treatment systems to remove PFAS and other contaminants.
- Energy efficient high recovery membrane and filtration technologies.

Improving infrastructure

- Researching better water treatment and groundwater remediation
- Innovative materials to resist corrosion, and save energy in water treatment and distribution systems.
- Real-time sensors that detect contaminants in water and wastewater systems.



EXPERT FACULTY AND FACILITIES

Reducing Contaminants

Yin Wang, Lawrence E. Sivak '71 Associate Professor, Civil & Environmental Engineering, wang292@uwm.edu

- Lead detection
- Mitigating antibiotic resistance
- Pesticide contamination
- PFAS environmental behavior and treatment
- Heavy metal removal



Water Purification

Xiaoli Ma, Assistant Professor, Materials Science & Engineering, ma26@uwm.edu

- Reducing PFAS using robust membrane barriers
- Gas separation and liquid separation by membranes and adsorbents
- Vapor phase processing techniques, such as atomic layer deposition

Junjie Niu, Richard and Joanne Grigg Associate Professor, Materials Science & Engineering, niu@uwm.edu

- Improving water treatment technology to remove PFAS/bacteria/metal ions contaminations from groundwater, drinking water and wastewater

Water Filtration

Nidal Abu-Zahra, Associate Professor, Department Chair, Materials Science & Engineering, nidal@uwm.edu

- Water filtration (heavy metal removal)
- Biofouling in water filtration systems
- Lithium extraction from seawater and desalination brines
- Polymer functionalization and performance characterization
- MD (Molecular Dynamics) and DFT (Density Functional Theory) applications



Flow & Transport in Porous Media

Krishna Pillai, Professor, Mechanical Engineering, krishna@uwm.edu

- Designing next-generation water filters
- Wicking in porous media
- Flow modeling in green composites
- Evaporation in porous media



3D Flow Measurement

Qian Liao, Professor, Civil & Environmental Engineering, liao@uwm.edu

- Identifying contaminants, sediments, and greenhouse gases in aquatic environments
- Hydrodynamic-biogeochemical modeling
- Mixing and turbulence in aquatic systems
- Imaging-based flow analysis

Sensors

Woo Jin Chang, Associate Professor, Mechanical Engineering, wjchang@uwm.edu

- Developing low-cost, easy-to-use, portable, and accurate water quality monitoring devices and systems
- Prototyping portable lead detector
- pH, phosphate and heavy metals detection

Nathan Salowitz, Richard and Joanne Grigg Associate Professor, Mechanical Engineering, salowitz@uwm.edu

- Novel sensing systems to monitor for damage and degradation in water handling equipment
- Rapid prototyping of sensors and structures
- Design for low cost and simple data interpretation