

Sustainable Water Production and Waste Treatment: Emerging Technologies for the Treatment and Utilization of Impaired Water Sources

Clean water and abundant energy are essential for our nation's continued economic prosperity. Reduced availability of freshwater sources has forced us to turn to nontraditional source waters such as saline waters and a variety of waste waters. Treating these impaired waters with existing technologies, however, requires prohibitive amounts of energy, further straining our energy supplies. Recently, technologies have been developed which can sustainably treat these impaired waters or even use them to produce fuel and electricity directly. The purpose of this session is to emphasize these new technologies which can produce water and energy sustainably from impaired waters and waste streams. By using these previously ignored or discarded materials as sources of water and energy, we can greatly reduce the environmental impact of our consumption. Examples of valorized waste streams may include agricultural waste, municipal wastewater, and food processing wastewater as they can provide valuable organic material for anaerobic biogas production or, in more recent technologies conceived, hydrogen and electricity. Saline waters can be targeted for water production if they can be treated in a cost effective and sustainable manner. This session will also include investigations on desalination technologies with emphasis on novel processes which can treat a variety of saline waters with minimal energy, cost, and environmental impact.

The topics that would be covered in this session, but not limited to, are:

- Biomass energy production from waste treatment
- Novel material development to improve energy production
- Wastewater reuse
- Emerging pollutants
- Physical/chemical/biological waste minimization processes
- Seawater/brackish water desalination
- Sustainable brine discharge management strategies and treatment technologies
- Novel water/wastewater treatment technologies
- Produced water treatment and management
- Biofouling mechanisms and anti-biofouling approaches
- Energy balances on existing and novel technologies
- Cogeneration of water and energy
- Case studies of energy issues in waste treatment and water purification
- Pilot scale demonstrations and commercialization efforts

Please send your abstracts and your inquiries to:

Baikun Li

Assistant Professor

Department of Civil and Environmental Engineering

University of Connecticut

Storrs, CT 06066

Tel: 860-486-2339

Fax: 860-486-2298

E-mail: baikun@engr.uconn.edu

Jeffrey R. McCutcheon, Ph.D.

Assistant Professor

Department of Chemical, Materials and Biomolecular Engineering

University of Connecticut

Storrs, CT 06269-3222

Phone: (860) 486-4601

Fax: (860) 486-2959

Email: jeff@engr.uconn.edu