Environmental and Water Resources Engineering and Center for Water and the Environment Seminar Series Supports: 5th Annual Lawler Lecture

TEXAS

Thursday, September 24, 2026 | 3:30-4:30 pm

Mulva Auditorium (no virtual option)

Protecting public health at the speed of (UV) light: How novel UV sources are transforming disinfection and oxidation in water treatment and reuse

Karl G. Linden, PhD

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Abstract

UV-C irradiation (200-280 nm) is known to be effective for pathogen disinfection in air and water treatment, and the conventional low-pressure mercury vapor lamp emitting at 254 nm has been employed for over 100 years. Since the coronavirus pandemic, interest in the use of Far-UVC (200-235 nm) has grown as this wavelength range is not very harmful to human skin and eyes. Specifically, research into krypton chloride excimer (KrCl*) sources emitting at 222 nm has unveiled some intriguing mechanisms for accelerating UV-based treatment in water and wastewater. This talk will trace through Professor Linden's academic journey, illuminating the important role of UV wavelength in treatment of water, the fundamental mechanisms linking wavelength to increased efficacy for pathogen inactivation, and the exciting role that low-wavelength UV can play in enhancing photolysis and oxidation of contaminants of concern in water/wastewater treatment and water reuse.

Background

Karl is Chair of the Civil, Environmental, and Architectural Engineering Department, a University Distinguished Professor, and the Mortenson Professor in Sustainable Development at the University of Colorado Boulder, USA. He teaches classes on Sustainable Water Reuse, Water and Wastewater Treatment, and Water and Sanitation in Developing Communities. He served as 2013-2015 President of the International Ultraviolet Association (IUVA), and 2020 President of the Association of Environmental Engineering and Science Professors (AEESP). He is a Fellow of AAAS and AEESP, received the 2013 Pioneer Award in Disinfection and Public Health from the Water Environment Federation and the 2019 AEESP Walter J Weber Jr. Frontier in Research Award. In 2020 he received the Borchardt-Glysson Water Treatment Innovation Prize and was named the 2020 NWRI Clarke Prize Laureate. In 2025 he received the A.P. Black Research Award from AWWA. Karl is a proud academic grandson of Des Lawler via his PhD advisor Jeannie Darby at UC Davis.

EWRE Seminar Committee Members: Alexandra Stephens, Diego Castellano, Ella Junker, Hani Ghamkhar, Tyler Trimble
Supervising Faculty: Dr. Blair Johnson