

# MUNICIPAL WASTEWATER MICROBIOME AS IMPORTANT BIOINFORMATIC AND BIOMEDICAL RESOURCES

## Speaker

## Dr. Tao Yan

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## Abstract

Municipal wastewater represents a largely untapped information source for public health protection and a nearly unlimited biological resource for biomedical applications. In this talk, we will discuss lessons learned from previous studies that explored the potential of extracting biological information from wastewater in achieving synchronous detection of foodborne disease outbreaks, understanding genomic underpinning of subclinical Salmonella strains, realizing early detection of COVID-19, and understanding ARGs and ARBs to the last resort medicines in human populations. We will also discuss the potential of wastewater as a resource for the exploration and discovery of novel biological agents for biomedical and biotechnology applications.

## Biography

Dr. Tao Yan graduated from Wuhan University of Technology, Tsinghua University, and the University of Minnesota with BS, MS, and PhD degrees in Environmental Engineering, respectively. He completed a three-year postdoctoral training at the Biotechnology Institute at the University of Minnesota. Currently, he is the Director of Water Resources Research Center, and a Professor of Civil and Environmental Engineering at the University of Hawaii at Manoa. His research interests are in the areas of environmental microbiology, microbial ecology, and environmental biotechnology. Recent research has mainly focused on microbiological quality of environmental and drinking water, wastewater infrastructure sustainability issues, bacterial antibiotic resistance in the environment, novel methods for detection and quantification of microbial risks in the environment, and expanded role of water infrastructures in public health protection.



**22 September 2025  
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**Room 3574 (Lift 27/28),  
Civil Engineering  
Conference Room,  
HKUST**

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