



**UTSA** Earth and Planetary Sciences

And

Klesse College of Engineering (KCEID)

And

Institute for Water Research Sustainability and  
Policy (IWRSP)

*Seminar Presentation*

*By*

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*On*

*Friday, February 10, 2023  
4:00 P.M.*

***“Application of Microbial Technologies for Environmental Remediation:  
Significance of Microbial Consortia and Interspecies Interactions”***

**Abstract**

Globally, environmental contamination resulting from the anthropogenic release of xenobiotics has emerged as a serious environmental problem and is considered a major threat to sustainable development. These xenobiotic compounds include a diverse group of chemical contaminants, which are highly toxic, persistent in the natural environment, and have the potential to cause severe environmental and human health effects. Microbial remediation technologies that utilize the enzymatic metabolic pathways of microbes are receiving substantial global attention as compared to conventional physicochemical treatment technologies to degrade a wide array of xenobiotics and clean-up the contaminated environments since microbial technologies are highly efficient, economical, eco-friendly, and feasible. This presentation will discuss the effectiveness of indigenous microbes to degrade various organic pollutants including emerging contaminants (ECs) such as 1,4-dioxane, carbon tetrachloride, and heavy oil. This talk will also cover why microbial consortia is a superior choice over axenic cultures for environmental remediation applications and how interspecies interactions within a microbial consortium can regulate the intrinsic abilities and functions of coexisting microbes for the biodegradation of ECs in complex environments. This presentation will provide valuable guidelines for designing and developing highly efficient and robust microbial systems for practical environmental remediation applications.

