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OXYGEN TRANSFER IN WASTEWATER TREATMENT PROCESSES: RESEARCH PERSPECTIVES IN THE 21ST CENTURY

There are several layouts for biological wastewater treatment, and the most commonly implemented is the activated sludge process (ASP). Oxygen transfer in the ASP is the most energy-intensive unit operation in wastewater treatment, amounting to 45-75% of plant energy costs. After almost one century since the invention of the ASP by Ardern and Lockett, this complex biological system has been studied and successfully modeled by generations of researchers.

Oxygen transfer, the heart of the process, has been the object of investigation for half of the ASP's life. Although numerous studies have been carried out in the past 50 years, there is still a large degree of uncertainty associated with the prediction of oxygen transfer efficiency parameters in process conditions.

In this seminar you will be presented with the state-of-the-art on oxygen transfer research in wastewater systems, and with the latest research developments. Also, the effects of energy usage for oxygen transfer in wastewater processes will be presented and framed within the context of carbon and energy footprint analysis.

Bio

Diego Rosso is an Assistant Professor in the Civil and Environmental Engineering Department at the University of California, Irvine. During the past ten years he has studied wastewater treatment processes, process energy modeling, and carbon footprint models. Since January 2008 he has been leading the UCI Environmental Processes Laboratory, with a team of 12 student researchers focusing on carbon- and energy- footprint analyses and the water-energy-carbon nexus.

Previously, he was at UCLA, where he received his Ph.D. in Environmental Engineering in 2005. He is also a Chemical Engineering Laureate from the University of Padua in Italy. He is an active member and campus adviser of Engineers Without Borders.

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9:30 - 10:30 AM

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