

CROUCHER LECTURE

on Beach Water Quality and Dense Jets

***The Beach Boundary Layer:
A framework for identifying the causes of
recreational water quality impairment at
enclosed beaches (3:00 - 4:00 PM)***

Professor Stanley Grant
University of California, Irvine, USA

Abstract

Beaches in sheltered bays, harbors, and estuaries are frequently contaminated with human pathogens and fecal indicator bacteria. Tracking down sources of this contamination is complicated by the many point and non-point sources of fecal pollution that could potentially degrade water quality along the shore. From a critical review of the published literature, Professor Grant proposes a conceptual and mathematical framework, the "beach boundary layer", for understanding and quantifying the relative impact of shore-side and bay-side sources of fecal pollution on shoreline water quality. In this lecture Professor Grant will evaluate the utility of the model for identifying risk factors and pollutant sources likely to impact shoreline water quality, and explore the underlying assumptions of the model using hydrodynamic simulations of flow, turbulence, and mass transport in a tidal channel.

About Speaker



Professor Stanley Grant is Professor of Environmental Engineering, and Chair of the Department of Chemical Engineering & Materials Science at the University of California, Irvine (UCI). He is recipient of the prestigious Career Award from the National Science Foundation (1985-2000), and a number of local awards including Conservator of the Year (2002) from

the Bolsa Chica Wetlands Conservancy, and the Distinguished Assistant Professor Award for Teaching from the UCI Academic Senate (1999). Professor Grant is a member of the US Environmental Protection Agency's Science Advisory Board (Drinking Water Panel), and is the lead on several multidisciplinary research projects.

Enquiries: 2859 2663

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May 10, 2010
3:00-5:30PM

VENUE

T6, 1/F, Meng Wah Complex
The University of Hong Kong

***Applications of Dense Jets in
Environmental Mixing (4:30 - 5:30 PM)***

Professor Philip Roberts
Georgia Institute of Technology, USA

Abstract

Dense jets arise in a number of situations and are of rapidly increasing importance around the world due to the discharge of brines associated with seawater desalination. The dynamics of dense jets are complex, and in this lecture Professor Roberts will discuss the basic mechanisms of mixing and the use of advanced instrumentation, particularly laser-induced fluorescence, to investigate their dynamics and visualize the flows. Techniques for mathematically modeling dense jets are discussed and other applications given, including mixing in water storage tanks.

About Speaker



Professor Philip Roberts is currently Professor of School of Civil & Environmental Engineering at the Georgia Institute of Technology. His professional interests are in environmental fluid mechanics, particularly its application to the engineering design of water intakes and ocean outfalls for disposal of wastewaters and desalination brine, and density-stratified flows in lakes, estuaries, and coastal waters.

Professor Roberts has lectured widely on outfall design and is presently Co-Chairman of the IAHR/IWA Committee on Marine Outfall Systems. He is presently one of only two Distinguished Scholars in the National Ocean and Atmospheric Administration (NOAA) Oceans and Human Health Initiative (OHHI) in which he is conducting research on the hydrodynamic aspects of bacterial and pathogen transport in coastal waters.

