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are proud to present the

2017-18 AEESP Distinguished Lecturer

Nanotechnology-Enabled Water Treatment to Address Growing Challenges of the Water Energy Nexus

Pedro J. Alvarez, Ph.D., P.E., BCEE
George R. Brown Professor of Civil and Environmental Engineering
Director, NSF ERC on Nanotechnology-Enabled Water Treatment (NEWT)
Rice University

About Professor Alvarez: Dr. Alvarez received the B. Eng. Degree in Civil Engineering from McGill University and MS and Ph.D. degrees in Environmental Engineering from the University of Michigan. His research interests include environmental implications and applications of nanotechnology, bioremediation, fate and transport of toxic chemicals, water footprint of biofuels, water treatment and reuse, and antibiotic resistance control. He is the 2012 Clarke Prize laureate and also won the 2014 AAEES Grand Prize for Excellence in Environmental Engineering and Science. Past honors include President of AEESP, the AEESP Frontiers in Research Award, the WEF McKee Medal for Groundwater Protection, the SERDP cleanup project of the year award, and various best paper awards with his students. Dr. Alvarez currently serves on the advisory board of NSF Engineering Directorate and as Associate Editor of Environmental Science and Technology.
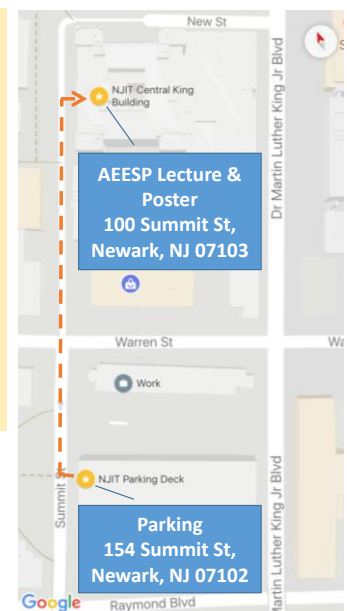
4 PM, Thursday, September 14, 2017

Central King Building L70, New Jersey Institute of Tech

Student Poster Session at 2 PM with Light Refreshments

Free Registration by Sept 5, 2017 via
https://goo.gl/forms/5R2mBCa0RDq0kGqw1

NJIT Contact: Dr. Mengyan "Ian" Li (mengyan.li@njit.edu)

Dr. Wen Zhang (wzhang81@njit.edu)

ALL ARE WELCOME.

AEESP Lecture & Poster
100 Summit St,
Newark, NJ 07103

Parking
154 Summit St,
Newark, NJ 07102

Abstract:

Through control over material size, morphology and chemical structure, nanotechnology offers novel materials that are nearly "all surface" and that can be more reactive per atom than bulk materials. Such engineered nanomaterials (ENMs) can offer superior catalytic, adsorptive, optical, quantum, electrical and/or antimicrobial properties that enable multi-functional technology platforms for next-generation water treatment. This presentation will address emerging opportunities for nanotechnology to improve the selectivity and efficiency to remove priority pollutants, decrease electrical energy requirements, and meet a growing need for safer and more affordable decentralized water treatment and reuse. Because water is by far the largest waste stream of the energy industry, we will also discuss technological innovation to enable produced water reuse in remote (off-grid) oil and gas fields, to minimize freshwater withdrawal and disposal challenges. Examples of applicable nano-enabled technologies include fouling-resistant membranes with embedded ENMs that allow for self-cleaning and repair; capacitive deionization with highly conductive and selective electrodes to remove multivalent ions that precipitate or cause scaling; rapid magnetic separation using superparamagnetic nanoparticles; solar-thermal processes enabled by nanophotonics to desalinate with membrane distillation; disinfection and advanced oxidation using nanocatalysts; and nanostructured surfaces that discourage microbial adhesion and protect infrastructure against biofouling and corrosion. We envision using these enabling technologies to develop compact modular water treatment systems that are easy to deploy and can treat challenging waters to protect human lives and support sustainable economic development.

Registration:

We kindly ask all attendants to fill the online registration by **September 5, 2017** via https://goo.gl/forms/5R2mBCa0RDq0kGqw1. This will be very helpful for us to prepare the event.

Student and postdoc participants are highly encouraged to present research posters. Submission can be simply made via the above link. We may be able to accommodate up to 40 poster exhibitions. So please submit early to secure a poster spot!

Transportation:

NJIT is located at the University Heights area of Newark, NJ, which is assessable through multiple major highways. We have reserved parking spots for the event. Please use the address (154 Summit St., Newark, NJ 07102) for your GPS or map apps to locate our parking deck. The AEESP Distinguished Lecturer event will be held at the Central King Building L70, also named the Agile Strategy Lab, which is one block away from the parking deck (5 minutes' walk). Its address is 100 Summit St., Newark, NJ 07103.

You can also take public transportations (e.g., PATH and NJ Transit trains) to the Newark Penn Station and then switch to the Newark light rail. After three stops, you will take off at the Warren Street/NJIT stop to reach our campus. More information regarding ways to get to the NJIT campus can be found at: http://www.njit.edu/about/visit/gettingtonjit.php

For any questions, please contact Dr. Mengyan "Ian" Li (mengyan.li@njit.edu) and Dr. Wen Zhang (wzhang81@njit.edu).

We look forward to your participation at NJIT!