

**GeoEngineering Seminar – Thursday 04 Nov 2010: 11:05-11:55 a.m. Mason 142A**

**“Puerto Rico Testsite for Exploring Contamination Threats (PROTECT)”**

**– NIEHS funded Superfund Research Program –**

<http://www.northeastern.edu/protect/>

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Supported with \$9.9M from the National Institute of Environmental Health Sciences’ Superfund Research Program, The PROTECT P42 Research Program evaluates exposure to environmental contamination in Puerto Rico and its contribution to preterm birth (less than 37 completed weeks of gestation). PROTECT also seeks to better understand the phenomena affecting fate and transport of hazardous substances (specifically chlorinated solvents and phthalates) in karstic aquifers and to develop green remediation strategies that attenuate and mitigate exposure to protect human health and ecosystems. Through integrated analytical, mechanistic, epidemiology, fate-transport, and remediation studies, along with a centralized, indexed data repository, PROTECT will deliver new knowledge and technology in the area of contaminants of interest to the Superfund Research Program as a potential cause of preterm birth. The new knowledge and technology will also be useful more broadly in the overall field of environmental health.

PROTECT strives to assist in reaching the “Healthy People 2010” objective of reducing preterm births to 7.6%. Preterm birth is a major and costly health problem in the United States. Resulting in significant infant and maternal morbidity and mortality, it is the leading cause of neonatal mortality in the US, contributing to over one-third of infant deaths. In 2005, the estimated annual cost associated with preterm birth in the US was at least \$26.2 billion.

Puerto Rico has been selected as a testsite because it has the highest rate of preterm birth (~20%) among the states and territories of the U.S., and because of the extent of hazardous waste contamination on the island. Puerto Rico has more than 150 contaminated sites that include 14 active Superfund sites. Although Puerto Rico is an island with an unusually high burden of pollution, including a considerable density of Superfund sites, this project is the first to investigate the causal relationships between environmental pollutants and preterm birth in this at-risk population.

PROTECT is a multi-project, multi-institution collaboration that includes Northeastern University, University of Puerto Rico-Medical Sciences Campus, University of Puerto Rico- Mayaguez and University of Michigan; and involves significant interaction and sharing of samples, testing and results among the disciplines of engineering, analytical chemistry, epidemiology, and toxicology.

**Speaker: Akram Alshawabkeh** is the PI and Co-Director of the PROTECT Research Program. He is professor of Civil and Environmental Engineering at Northeastern University. His research interests include soil physicochemical processes, soil remediation, electrokinetic/electrolytic processes and modeling contaminant fate and transport in soil. He received his PhD (1994) from LSU, his BS (1988) and MS (1990) from Yarmouk University in Jordan.