

UNIVERSITY of HOUSTON

CULLEN COLLEGE of ENGINEERING
Department of Civil & Environmental Engineering

CIVE 6111 Graduate Seminar Series

Paulo J. M. Monteiro

Roy W. Carlson Distinguished Professor
Civil and Environmental Engineering
University of California, Berkeley

Two Thousand Years of Concrete Technology and Challenges for the New Millennium

Monday, September 22, 2014

10:30 am - 11:30 am

Room: D3 W205

Abstract

Production and use of concrete consumes a significant amount of energy and produces large amounts of CO₂. On a global scale, in 2010 ~ 3.2 billion tons of CO₂ were emitted to the atmosphere from the production of 3.9 billion metric tons of cement, through fuel consumed in kiln-fired production of clinker and CO₂ emitted during calcination of carbonaceous rock. New holistic solutions are necessary to tackle such challenge. The talk will describe our recent research on how the Romans made such durable and resilient concrete with volcanic rock, which stands the tests of time while maintaining its mechanical properties and aesthetic elegance. The Roman maritime concretes can provide fresh perspectives for the production of modern day durable, environmentally friendly concrete and highlights the importance of using appropriate natural pozzolans to produce durable concrete. The presentation will then summarize the research we are conducting on modern concrete to obtain sustainable construction materials.

About the speaker:



Dr. Paulo J. M. Monteiro is the Roy W. Carlson Distinguished professor in Civil and Environmental Engineering at the U.C. Berkeley. He worked on various aspects of concrete technology such as thermal stresses, creep of concrete, alkali-aggregate reaction, corrosion of reinforced concrete, sulfate attack, and modeling of the concrete microstructure. Prof. Monteiro co-authored a comprehensive textbook on concrete that is widely used and has been translated into Japanese, Chinese, Greek, Spanish, Portuguese, and Persian. Recently he has received the following awards for this research: *Premio Ari Torres*, *Brunauer Award* and *Wason Medal for Materials Research*.