



Amilcare Porporato earned a MS (cum laude) and Ph.D. from the Polytechnic of Turin. Porporato has been editor of *Water Resources Research*, and he is editor for *Hydrological Processes*. He serves in the editorial board of *Advances in Water Resources* and the *Hydrologic Science Journal*. He is author of more than 200 peer-reviewed papers and also co-author of the book "Ecohydrology of water controlled ecosystems" (Cambridge Univ. Press, 2004) and the edited the book "Dryland Ecohydrology" (Springer, 2005).



**International Association for Hydro-Environment Engineering and Research, University of Central Florida, Student Chapter 2017 Spring Seminar**

**"Soil moisture dynamics and stoichiometry controls on soil nutrient cycling"**

**Dr. Amilcare Porporato from Duke University**

Addy Professor, AGU fellow, the winner of the Borland Lecture in Hydrology (Hydrology Days), the AGU Hydrology Award, the Arturo Parisatti International Price etc.

**Abstract:** The coupled nonlinear dynamics of biotic and abiotic processes in ecohydrological systems give rise to complex system with several nonlinearities and feedbacks whose understanding will help us to sustainably use soil and water resources and maintain valuable ecosystem services. With this background, we discuss how soil moisture dynamics controls the cycling of soil nutrients (nitrogen and phosphorous in particular) at different time scales, driving the competition for mineral nutrients between microbial biomass and plants. We also show how the role of stoichiometry on soil organic matter decomposition and mineralization may be disentangled from the one of soil moisture and climate and formalized into universal curves governing the decomposition of soil organic matter. We discuss open problems related to the spatial soil moisture control of soil organic matter from the pore to topographic scales and show the above approaches and results may be relevant for the sustainable management of soil and water resources, optimal stochastic irrigation and in general to prevent soil and ecosystem degradation.

**Thursday, February 2<sup>nd</sup>, 2017 in Room ENG II 202A at 11:00 AM**