

Welcome to the presentation on:

## Advanced Control in Modern Power Grids

### Dr. Shahab Mehraeen



**Where: University of California,  
Los Angeles (UCLA)**

420 Westwood Plaza  
Engineering IV, Third floor  
Room # 38-138  
Los Angeles, CA. 90095, USA

**When: Thursday 20 April 2017**

3:00 – 4:00 PM : Presentation

**No Cost, Space is limited –  
Please RSVP at registration link**  
<https://mehraeen.eventbrite.com>

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**Upcoming Events**

<http://www.ieee-sfv.org/>  
<http://www.smartgrid.ucla.edu/>

### Short Description of the Presentation

Modern grids are different than the traditional power networks in various aspects. They interconnect different types of energy sources and loads. They comprise ac and dc components and circuits. Finally, they are designed to operate independently or connected to the large power networks. The dc micro grids have attracted much attention recently due to the advances in dc components. Stability of such systems is an attractive area of research especially when nonlinear components such as constant-power loads (CPLs) exist. In this presentation, dynamic modeling, stability, and safe operation of dc network powered by solar power is introduced. The destabilizing effect of CPL is considered and an advanced adaptive control mechanism is introduced to mitigate it. Hardware tests on an interconnected dc network is presented to support theoretical conjectures.

### Speaker's Biography

Dr. Shahab Mehraeen received his B.S. and M.S. degrees in electrical engineering from Iran University of Science and Technology and Esfahan University of Technology, Iran, respectively. He received his Ph.D. in electrical engineering from the Missouri University of Science and Technology, Rolla, Missouri, in 2009. He joined Louisiana State University, Baton Rouge, Louisiana, as assistant professor, in 2010. He conducts research on power system control, renewable energy integration, fault and stability analysis, and micro grids. He also conducts research in decentralized, and adaptive control of dynamical systems. Shahab Mehraeen is a recipient of the National Science Foundation CAREER Award and a holder of a US patent.