

## The IPSI Lecture Series Presents:



### Security Analysis with Incomplete Information and Cyber-Physical Simulation for Power Grid

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The major part of the electric grid modernization efforts includes utilizing a number of advanced computing, information, networking and measurement technologies. With these increasing cyber components, controlled synergy between heterogeneous physical power system and cyber components is required to meet the enhanced requirement of resiliency, security, and reliability. Security analysis requires analyzing vulnerability of the electric grid based on attack scenarios.

In this work, attack with incomplete information has been analyzed using graph theory based approach. Common attack vectors have been also utilized to operate breakers associated with generating resources to model aurora-like event. Real Time simulations for modified IEEE 14 bus test case system and graph theory analysis for IEEE 118 bus system will be discussed. This talk will also present real time modeling and simulation for cyber-physical system using smart grid test bed at Washington State University.

**Friday, Oct 11, 2013**

**11:30 AM – 12:30 PM**

**MB 128**

**Cost: Free**



Dr. Anurag K. Srivastava has been an Assistant Professor at the School of Electrical Engineering & Computer Science at the Washington State University since August 2010. He received the Ph.D. degree in Electrical Engineering from the Department of Electrical & Computer Engineering, Illinois Institute of Technology, Chicago in 2005 and the M.Tech. and B.Tech. degrees from India. He has worked as an Assistant Research Professor at Mississippi State University from 2005-2010. Previous to that, he worked as a Research and Teaching Assistant at Illinois Institute of Technology, a Senior Research Associate at the Indian Institute of Technology, Kanpur, India and a Research Fellow at Asian Institute of Technology, Bangkok, Thailand.

His research interests include power system operation and control, cyber-physical system analysis and real-time power system simulation. Dr. Srivastava is a senior member of IEEE and member of IEEE Power and Energy Society (PES). He is editor of IEEE Transactions on Smart Grid, past-chair of IEEE PES career promotion subcommittee, chair of IEEE PES student activities and is an active member of several other PES technical committees. He is the recipient of numerous awards including IEEE best paper award and author of more than 100 technical publications and a book.

