Oscillation Detection and Analysis in Power Systems

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Wednesday March 4th, 2015
8:30-9:30am
Engineering Building R-3
(SSIE Conference Room)

A smart grid calls for efficient decision-making based on quick problem diagnosis. New measurement systems deployed in a power grid are producing more and more measurement data every minute. However, many data cannot be used to directly guide practice because the relevant information cannot be effectively extracted. The "data rich/information poor" problem calls for an effective methodology to extract valuable information and knowledge carried by the measurement data.

This presentation will give an overview on challenges and opportunities in using measurement data for studying oscillation problems in power systems. Oscillation problems are one of the major threats to power grid stability. To operate a power grid reliably and efficiently, an oscillation needs to be detected, categorized and located using measurement data. Some measurement-based methods for detecting and analyzing oscillations are discussed. In addition, some challenges and opportunities in analyzing power grid data (e.g. load forecasting) are also going to be overviewed.

Dr. Ning Zhou is an Assistant Professor of Electrical and Computer Engineering at Binghamton University. From 2005 to 2013, Dr. Zhou worked as a power system engineer at the Pacific Northwest National Laboratory. His research interests include power system dynamics and statistical signal processing.

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