



FAULT RESILIENT MASSIVE GRID INTEGRATION OF INVERTER-BASED RESOURCES

~ by ~

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Tuesday, February 22 • 11:00 AM – Noon (PT) • **TEAMS ONLY**
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OVERVIEW

The large-scale grid integration of inverter-based resources (IBRs) such as wind and solar power generations, high voltage DC (HVDC) systems and battery energy storages poses new challenges to the operational security of power grids. The distinct dynamics and fault response characteristics of IBRs create unexpected fault responses as experienced in recent major power outages in IBR dominated power systems.

This talk first presents a brief overview of some of our proposed solutions for modeling, analyzing, and enhancing the stability and fault response behavior of IBR dominated power grids. The proposed solutions develop methodologies based on nonlinear control theory, machine learning and big data analytics, and signal processing.

The talk then discusses a co-simulation platform that captures dynamic interactions between vulnerable protection functions and power grids, providing a realistic fault response modeling for dynamic security assessment of power systems. Afterwards, mitigation solutions will be presented.

BIO

Dr. Saeed Lotfifard is an associate professor in the school of electrical engineering and computer science at Washington State University. He received his Ph.D. degree in electrical engineering from Texas A&M University in 2011. His research interests include operational security of inverter-dominated power systems, focusing on stability, protection, and control challenges of grid integration of inverter-based resources. Dr. Lotfifard is a senior member of IEEE and serves as an Editor for the IEEE Transactions on Sustainable Energy.

