

# TOWARDS ENHANCING POWER SYSTEM FLEXIBILITY AND RESILIENCE: METRIC, MODEL, AND ALGORITHM

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## ABSTRACT

The power grid disruptions caused by extreme weather, although rare, can bring catastrophic impacts to the power industry and the society in general. The evaluation and mitigation of disruption-related risks and impacts are often computationally prohibitive due to the complexity of the power system, uncertainty of weather conditions, and the combinatorial nature of component failures. In addition, the intermittent nature of renewable energy brings another challenge for the independent system operators to maintain a reliable power system. In this talk, we propose (distributionally) robust optimization models to assess power system flexibility and enhance the power system resilience in face of uncertain renewable energy output and extreme weather conditions.

## DATE/TIME



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1:30 pm - 2:20 pm PST



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## SPEAKER BIO

Dr. Chaoyue Zhao is an Assistant Professor in Industrial and Systems Engineering, University of Washington. Before that, she was hired as the Jim & Lynn Williams Assistant Professor in Oklahoma State University. She obtained her PhD degree at the University of Florida in 2014 and B.S. degree in Fudan University in China in 2010. Dr. Zhao works on data-driven optimization and reinforcement learning methodologies to support strategic and operational planning in power systems management. She has received multiple grants from the federal agencies such as the National Science Foundation, Department of Transportation and Argonne National Laboratory. She is the recipient of awards including the runner up of the Pritsker Doctoral Dissertation Award, and Energy Systems Division Outstanding Young Investigator Award in IISE.