

University of Southern California

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**DANIEL J. EPSTEIN DEPARTMENT OF  
INDUSTRIAL AND SYSTEMS ENGINEERING**

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**SEMINAR**

***Distributed Optimization and Market  
Analysis of Networked Systems***

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**ABSTRACT**

In the interconnected world of today, large-scale networked systems are ubiquitous. Some examples include communication networks, electricity grid and sensor networks. In this talk, we describe two recent results related to these networked systems. In the first part, we present a fast distributed asynchronous Alternating Direction Method of Multipliers (ADMM) based method for solving general separable convex problems in large-scale systems, which can be applied to the LASSO and many other machine learning problems. We show that this method has convergence guarantee and the best known rate of convergence. In the second part, we discuss our model on the competitive equilibrium in electricity markets where price fluctuation imposes difficulties in budgeting and planning. We introduce an explicit penalty on the price volatility and establish that price volatility penalty can be implemented via the use of storage.

**THURSDAY, FEBRUARY 13, 2014  
RONALD TUTOR HALL (RTH) ROOM 526  
10:00 – 11:00 AM**

## **SPEAKER BIO**

Ermin Wei received her undergraduate triple degree in Computer Engineering, Finance and Mathematics with a minor in German, from University of Maryland, College Park in 2008. She obtained her M.S. in 2010 and now is in her final year of PhD studies in Electrical Engineering and Computer Science at MIT, advised by Professor Asu Ozdaglar. Ermin has received many awards, including the Graduate Women of Excellence Award, second place prize in Ernst A. Guillemin Thesis Award and Alpha Lambda Delta National Academic Honor Society Betty Jo Budson Fellowship. Ermin's research interests include distributed optimization methods, convex optimization and analysis, smart grid and energy networks and market economic analysis.