

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

EPSTEIN INSTITUTE SEMINAR • ISE 651 SEMINAR

***The Unit Commitment Problem: Dealing
with the Uncertainties***

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University of California, Davis**

ABSTRACT

ISO (Independent System Operators) manage the writing of contracts with generating- and consuming-units (on day D-1) and the dispatching of the electricity (on day D). Given the inherent uncertainty of the weather dependent requirements (loads) and even more significantly, the uncertainty of the power to be generated by renewables (wind, solar,...). The optimal choice of contracts (on day D-1) becomes a rather complex (large) mixed integer stochastic programming problem that needs to be solved in a rather short time frame. This gets compounded with the fact that essentially no satisfactorily procedures have been developed to go from information available on day D-1 to potential scenarios on day D. The lecture will provide a brief survey of the solution procedure but will mostly focus on the building of a new technology, relying heavily on optimization, theory and technology, used to build the uncertainty which in turn leads to generating day D scenarios.

**TUESDAY, JANUARY 21, 2014
VON KLEINSMID CENTER (VKC) ROOM 100
3:30 – 4:50 PM**

SPEAKER BIO – ROGER J-B WETS



Roger Wets is a Distinguished Research Professor of Mathematics at the University of California, Davis. He guided nineteen students to their Ph.D. His main research interests have been stochastic optimization and variational analysis. For this work he has received a number of prizes that include Guggenheim and Erskine Fellowships, the SIAM-MPS Dantzig Prize in Mathematical programming and the INFORMS Lanchester prize for the book “Variational Analysis” that he co-authored with R.T. Rockafellar. During the last decade his research has been focused on equilibrium problems, in particular equilibrium problems in a stochastic environment, and on nonparametric estimation, in particular on the fusion of hard and soft information. Over time, he has been associated with the Boeing Scientific Research Labs, the International Institute of Applied Systems Analysis (Laxenburg, Austria), the IBM-T.J. Watson Research Center (Yorktown Heights, N.Y.), the Center for Mathematical Modeling of the University of Chile and the World Bank. This resulted in getting involved in projects related to aerospace, telecommunications, finance, soil management and water resources, manufacturing and energy. He has published about 200 technical articles, mostly in pure and applied mathematical journals, but also in journals dealing with probability, statistics, economics and ecology. He held, or holds, editorial positions on a number of leading journals in mathematics and operations research.