



## Smart Lighting ERC Tutorial Series

Please join us for another event in the Smart Lighting ERC Tutorial Series, a series designed to present a non-academic, mostly industry perspective on smart lighting technologies and markets. In addition, each speaker will briefly share some personal insights about their own career paths.

Wednesday, November 16<sup>th</sup>, 3:15 pm

JEC 3117

(1.5-hour tutorial – refreshments will be served)

### The Bright Future of Smart Lighting

**Dr. Francis Rubinstein**

Lead, Lighting Research Group  
Building Technology Department  
Lawrence Berkeley National Laboratory

#### Abstract:

Despite enormous strides in Light Emitting Diode (LED) lighting in recent years, smart lighting controls, which can eliminate lighting waste and improve user comfort, have lagged far behind. The speaker will present the history of lighting controls including an early demonstration project at the World Trade Center. Next, the speaker will describe in detail the different lighting controls protocols, including analog (0-10 volt) and digital (DALI) control, wireless technologies and energy-scavenging sensors. Measured energy savings from recent lighting control demonstrations at various sites across California will be presented. Finally, the speaker will give a look ahead at some of the exciting new control technologies that are in the pipeline.



**Bio:** Francis Rubinstein, is a Staff Scientist at the Lawrence Berkeley National Laboratory, where he leads the Building Technology Department's Lighting Research Group and is the Principal Investigator for the Lighting Research Group. He is an internationally-recognized expert in advanced lighting

controls research. At the Berkeley Lab, he developed a low-cost building equipment control network (IBECS) that will allow lighting systems and other building equipment to be controlled wirelessly from the Internet. He was Department of Energy's lighting expert for the Greening of the White House Initiative under President Clinton in 1993.

He has also managed the development of lighting analysis software including the RADIANCE suite, which remains the most advanced simulation and visualization program for lighting applications. He currently Chairs the IESNA Research Committee. He is a principal author of the respected 2001 Advanced Lighting Guidelines. He has expertise in wireless communications, lighting energy management, lighting technology assessment, commissioning of control systems, and photometry.



#### About the Berkeley Lab:

Berkeley Lab is a member of the national laboratory system supported by the U.S. Department of Energy through its Office of Science. It is managed by the University of California (UC) and is charged with conducting unclassified research across a wide range of scientific disciplines. Located on a 200-acre site in the hills above the UC Berkeley, Berkeley Lab employs approximately 4,200 scientists, engineers, support staff and students.

Berkeley Lab was founded in 1931 by Ernest Orlando Lawrence, a UC Berkeley physicist who won the 1939 Nobel Prize in physics for his invention of the cyclotron, a circular particle accelerator that opened the door to high-energy physics. It was Lawrence's belief that scientific research is best done through teams of individuals with different fields of expertise, working together. His teamwork concept is a Berkeley Lab legacy that continues today.

For details contact: **Dr. Silvia Mioc, Director of Industrial Collaborations**, [miocs@rpi.edu](mailto:miocs@rpi.edu), 518-276-4010