Title: Simulation of heterogeneous energy systems

Abstract:
This talk will introduce the audience into the concepts of smart grid with its current research topics and the principles of cyber-physical energy systems, how to describe and how to work with them.
The smart grid is the ICT answer to the power challenges of today and tomorrow by enabling flexible loads, active distribution grids, storage management, smart energy markets, and bidirectional power flows. Conceptually it is a distributed IT and automation system that is amalgamated with the physical power infrastructure: a cyber-physical system, and even a system of systems. Designing, optimizing, running, and diagnosing such systems requires reliable and scalable models which is the main problem with cyber-physical systems: hybrid models (discrete and continuous) are hard to deal with. There are, however, new and promising languages and methods to deal with such systems.
Learn what works and what does not, and see how you can enhance your research and development with these methods.

CV:

Peter Palensky is Professor for intelligent electric power grids at TU Delft, Netherlands. Before that he was Principal Scientist for Complex Energy Systems at the Austrian Institute of Technology (AIT) / Energy Department, Austria, Head of Business Unit "Sustainable Building Technologies" at the AIT, CTO of Envidatec Corp., Hamburg, Germany, associate Professor at the University of Pretoria, South Africa, Department of Electrical, Electronic and Computer Engineering, University Assistant at the Vienna University of Technology, Austria, and researcher at the Lawrence Berkeley National Laboratory, California. He is active in international committees like IEEE and is associate editor for the IEEE Transactions on Industrial Informatics. His main research field is complex energy systems.