University of Cyprus
Department of Electrical and
Computer Engineering

KOIOS
Research and Innovation Center of Excellence

IEEE
Advancing Technology
for Humanity

IEEE PES
Power & Energy Society®

«Big Data in Smart Grids: Challenges and Opportunities»

Prof. Mladen Kezunovic

IEEE PES Distinguished Lecturer
Texas A&M University, USA
Friday, 8th June 2018, 11:00 – 12:00
Room B104, Building ΧΩΔ02, University of Cyprus

Abstract:

The issue of Big Data was introduced relatively recently (last 15 years) as the huge amounts of data became available through the space exploration, weather forecasting and medical biogenetic investigations. Social media and outlets such as Google, YouTube, and Facebook have also faced similar problems of handling huge data sets. The power systems are now experiencing huge amount of data obtained through field measurements as well. This talk focuses on the role of Big Data in managing and controlling future power systems, which will be characterized by "explosion" of data and unprecedented computational and communication capabilities to automatically extract the knowledge.

The focus is on different data sources that range from field measurements obtained through substation/feeder intelligent electronic devices such as Digital Protective Relays (DPRs), Digital Fault Recorders (DFRs), Phasor Measurement Units (PMUs), to other data sets obtained from specialized commercial and/or government/state databases: weather data of different types, lightning detection data, seismic data, fire detection data, electricity market data, etc. Due to the massive amount of such data (petabytes) available in real time and through historical records, processing and management of such data requires revisiting data analytics used to correlate data and extract features already developed in the Big Data industries such as banking, insurance and health care. This talk will point out the Big Data characteristics in the power industry where the temporal and spatial properties, as well as correlation to the power system and component models are necessary for an efficient data use.

Biography:

Mladen Kezunovic is the Regents Professor and Eugene E. Webb endowed Professor at Texas A&M University, USA where he is employed since 1986. He serves in several leading roles at the university: Director, Smart Grid Center; Site Director, Power Systems Engineering Research Center (PSerc); Director, Power Systems Control and Protection Lab. He is also the Principal Consultant, as well as President and CEO of XpertPowerTM Associates, which has been providing consulting services for the utility industry for over 25 years. He worked for Westinghouse Electric in the USA as a Systems Engineer on developing the first all-digital substation design during 1979-1980 and for Energoinvest Company in Europe as the Technical Lead for substation automation development during 1980-86. He was a consultant for EdF's Research Centre in Clamart, France in 1999-2000 and was a Visiting Professor at the University of Hong Kong in the fall of 2009. He was an Eminent Scholar at the Texas A&M University-Qatar in 2015/2016 and a Special Visiting Researcher in Brazil in 2015-2017. He also acted as a consultant to over 50 utilities and vendors worldwide, and served three terms (2009-2013) as a

Director on the Board of Directors of the Smart Grid Interoperability Panel (SGIP) representing research organizations and universities. He has been recently appointed by the US Secretary of Energy to serve on the Electricity Advisory Committee for the Department of Energy.

Dr. Kezunovic was a Principal Investigator on over 120 R&D projects, published more than 550 papers and gave over 100 invited lectures, short courses and seminars around the world. He is an IEEE Life Fellow and Distinguished Speaker, CIGRE Fellow, Honorary and Distinguished Member, and Registered Professional Engineer in Texas.