



U organizaciji IEEE PES Podružnice za Srbiju i Crnu Goru i Elektrotehničkog instituta “Nikola Tesla” u Beogradu, u petak 18. 01. 2019. u 12 h u Sali 211 Elektrotehničkog instituta “Nikola Tesla” održaće se predavanje pod nazivom

"POWER DEFINITIONS IN THE PRESENCE OF VOLTAGE AND CURRENT HARMONICS"

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Abstract – The main concepts of power definitions in the presence of voltage and current harmonics will be presented along with a detailed discussion of these concepts. In particular two approaches will be considered, the one relating to the IEEE Standard 1459-2010 and the other relating to the German Standard DIN 40110. The underlying ideas for each concept will be given and the differences between them will be discussed. The traditional Budeanu’s concept of reactive and distortion power will also be considered, as well as the inductive and capacitive reactive power definitions based on optimal reactive power compensation. Finally, the Currents' Physical Components (CPC) theory providing a physical interpretation of the power quantities will be discussed. The extension of the CPC theory to the three-phase four-wire systems will also be explained. Based on application of the Fortescue transformation to time-varying voltage and current space vectors, definitions of the complex, apparent, active and non-active powers in terms of the symmetrical components will be given. The analysis related to the influence of zero-sequence voltages to power quantities will be performed. These analyzes of power properties of the electrical circuits are not addressed only to experts on powers, but also to electrical engineers that face problems of improving power quality.



Author's Biography

Jovan Mikulović received his Dipl.Ing. (1994), M.Sc. (2001) and Ph.D. (2008) Degrees in Electrical Engineering from the University of Belgrade, Serbia. From 1994 to 1995, he was a researcher at the Institute Mihajlo Pupin, Belgrade. In 1995 he joined the University of Belgrade (Faculty of Electrical Engineering, Power System Department) and worked as teaching and research assistant. From 2000 till 2002 he was with "C.E.M. s.r.l." Company in Italy. In 2002 he returned to the University and in 2009 he became an assistant professor teaching courses in electric power systems. Presently, he is an associated professor at the University of Belgrade (Faculty of

Electrical Engineering, Power System Department). He is included in teaching the following courses: Power Quality, Renewable Energy Sources, High Voltage Equipment, Energy Storage Systems and Electromagnetic Compatibility. He is also engaged as visiting professor at the University of Eastern Sarajevo in Bosnia and Herzegovina. His areas of scientific research are power quality, renewable energy resources and high voltage equipment.