IEEE Lecture, Belgrade, 12. May 2022

(1) Lecture title:

"Smart Technologies and Solutions for Future Sustainable and Resilient Energy Systems"

(2) Lecture **abstract**

As a result of high penetration of power electronics connected generation and load, as well as mixed ac-dc transmission and distribution networks, the nature of dynamics of modern electrical power systems has changed and their operation became a challenge, requesting new approaches for monitoring, protection and control. On the other hand, availability of modern smart technologies, e.g. sensor and ICT technology, opened new paradigms for coping with new challenges. The presentation is aiming at addressing new approaches for monitoring, protection and control of future sustainable and resilient energy systems. Experience from 3 flagship and large-scale projects funded by Ofgem (UK) Network Innovation Competition, VISOR, EFCC and FITNESS projects, will be summarized and discussed. Approaches based on Data Science and hardware in the loop testing using Real-time Digital Simulator (RTDS), explored under the umbrella of the prestigious AMPaC Megagrant project funded by The Ministry of Education and Science of Russian Federation (https://ampac.skoltech.ru/), will be presented, too.

(3) Vladimir Terzija **bio**

Vladimir Terzija received the Dipl-Ing., M.Sc., and Ph.D. degrees in electrical engineering from the University of Belgrade, Belgrade, Serbia. He is a Full Professor at Skoltech, Moscow, Russian Federation. He is also a Distinguished Professor at the Shandong University, Jinan, China. In the past, he has been with the University of Belgrade (Serbia), ABB (Germany) and The University of Manchester (UK). His research interests include smart grid applications; WAMPAC; power system protection; transient processes; data analytics and digital signal processing applications in power systems. Prof. Terzija is Editor in Chief of the International Journal of Electrical Power and Energy Systems, Alexander von Humboldt Fellow, Fellow of IEEE and the recipient of the National Friendship Award.