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In the frame of the PhD Course on 'Information Engineering' on 21th October 2020 Prof. N. Borges Carvalho from University of Aveiro, PT, will give the two following webinar

Webinar #1, 9:45 11:30 AM: Wireless Power Transmission – Creation of focus energy

Abstract: Wireless Power Transmission are strongly based on RF-DC converters, which is one of the main bottlenecks when designing Wireless Power Transmission Links, its design and analysis is fundamental to increase the overall DC-DC efficiency of wireless power transmission solutions. In this course we will discuss the overall WPT link and optimization of full DC-DC efficiency, including the transmitter side, the RF focus instead of RF beam and finally the RF-DC converter. The talk will address electronics, electromagnetics and signal processing for the complete link.

Webinar #2, 2:30-4:00 PM: Simultaneous Wireless Backscatter and Power Transfer

Abstract: In this course the use of Simultaneous Wireless and Power Transfer for IoT Applications will be discussed and presented. The discussion will be on how to the bit rate and reduction of batteries in long range backscatter solutions as also how to include information data on top of it, for different sensor applications, including IoT and Space communications.



Nuno Borges Carvalho (S'97–M'00–SM'05–F'15) was born in Luanda, Angola, in 1972. He received the Diploma and Doctoral degrees in electronics and telecommunications engineering from the University of Aveiro, Aveiro, Portugal, in 1995 and 2000, respectively.

He is currently a Full Professor and a Senior Research Scientist with the Institute of Telecommunications, University of Aveiro and an IEEE Fellow. He coauthored *Intermodulation in Microwave and Wireless Circuits* (Artech House, 2003), *Microwave and Wireless Measurement Techniques* (Cambridge University Press, 2013), *White Space Communication*

Technologies (Cambridge University Press, 2014) and *Wireless Power Transmission for Sustainable Electronics* (Wiley, 2020). He has been a reviewer and author of over 200 papers in magazines and conferences. He is the Editor in Chief of the Cambridge Wireless Power Transfer Journal, an associate editor of the IEEE Microwave Magazine and former associate editor of the IEEE Transactions on Microwave Theory and Techniques and IET Microwaves Antennas and Propagation Journal.

He is the co-inventor of six patents. His main research interests include software-defined radio front-ends, wireless power transmission, nonlinear distortion analysis in microwave/wireless circuits and systems, and measurement of nonlinear phenomena. He has recently been involved in the design of dedicated radios and systems for newly emerging wireless technologies.

Dr. Borges Carvalho is a member of the IEEE MTT ADCOM, the past-chair of the IEEE Portuguese Section, MTT-20 and MTT-11 and also belong to the technical committees, MTT-24 and MTT-26. He is also the vice-chair of the URSI Commission A (Metrology Group). He was the recipient of the 1995 University of Aveiro and the Portuguese Engineering Association Prize for the best 1995 student at the University of Aveiro, the 1998 Student Paper Competition (Third Place) of the IEEE Microwave Theory and Techniques Society (IEEE MTT-S) International Microwave Symposium (IMS), and the 2000 IEE Measurement Prize.

He was a Distinguished Microwave Lecturer for the IEEE Microwave Theory and Techniques Society.

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