Workshopreihe: „Zukünftige Aspekte der Theorie der Elektrotechnik"

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Some challenges faced by computational electromagnetics issued by the latest applications of electrical engineering

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First a short review on the educational activities taking place at the Faculty of Electrical Engineering and Informatics, Budapest University of Technology and Economics related to the teaching of linear and nonlinear networks and systems and electromagnetic theory are given. Following this, some current application areas are considered by highlighting the related unsolved problems both in the theory and application of numerical field calculation. The selected application areas are mainly related to high frequency engineering, such as: electrical engineering aspects of automated driving, 5G communications, IoT devices, electromagnetic compatibility, wireless power transfer, etc. By discussing these topics it is aimed to prove the hypothesis that - by using only computational tools available on the market - one cannot conduct top quality research. The understanding and active development of the theory and practice of numerical modeling of electromagnetic fields are essential for reaching prime research results.

Biography: József Pávó is a professor of Electrical Engineering in the Department of Broadband Infocommunications and Electromagnetic Theory, Budapest University of Technology and Economics (BUTE), Hungary. He received MSc degree in Electrical Engineering in 1987 from BUTE. His first PhD was issued by the Hungarian Academy of Sciences in 1992 and his second PhD was received in 1994 in Quantum Engineering and Systems Science followed by three years postgraduate studies in The University of Tokyo, Japan. He received the Doctor of the Hungarian Academy of Sciences degree in 2009. He spent several stays in different research institutes in Europe and Japan, the longest stay was spent at the Supelec, France. His main research topics are related to numerical electromagnetic field analysis, network analysis, solution of inverse problems with special emphases on nondestructive testing applications, optimization and design of electromagnetic systems and modeling of propagation and scattering at high frequency applications. He is teaching Electromagnetic Field Theory and Signals and Systems at the Faculty of Electrical Engineering and Informatics of BUTE. He was the Chairman of the 19th COMPUMAG Conference held in 2013 in Budapest, Hungary. He is member of the Board of the International Compumag Society.