

## Editorial

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# Modelling of magnetic and electric circuits

This special section of the International Journal of Applied Electromagnetics and Mechanics (IJAEM) is a selection of extended papers presented originally at the 25th Symposium on Electromagnetic Phenomena in Nonlinear Circuits (EPNC 2018) held from June 26th to 28th 2018 in Arras, France. The 25th EPNC Symposium was organized by Artois University, Environment and Electrotechnical Systems research Lab (LSEE, [www.lsee.fr](http://www.lsee.fr)), the Faculty of Applied Sciences, (France), the Polish Academy of Sciences and Poznan University of Technology, the Faculty of Electrical Engineering (Poland). Professors Ewa Napieralska and Jean-Philippe Lecointe from Artois University were the Chairmen of the Organizing Committee and Professor Andrzej Demenko was the chairman of the conference.

The first EPNC Symposium took place in Poznań, Poland, in November of 1972. The first 11 conferences were local meetings and the last 14 conferences were international events with proceedings published in English. The aim of the EPNC conferences is to present the recent advances in the analysis and synthesis of nonlinear electric and magnetic circuits and in nonlinear optics and nonlinear electromagnetic problems in medicine. The event is also a forum for discussions and dissemination of recent results on applications of nonlinear phenomena in electrical engineering. The EPNC conferences constitute a great opportunity to exchange ideas and experiences between specialists and young PhD students in electromagnetic field modelling, electric drives, electronics, electrical machines and electric and magnetic materials. Two special sessions have been introduced for the 2018 edition. The first session, dedicated to “Smart and Integrated Motor Drive”, was focused on problems related to the integration of the power electronic converter within the motor drive whereas the second session concerned the electrical insulation system of electrical machines.

97 papers were presented by participants from 15 countries. The papers and the discussion at the Symposium confirmed the recent trends in electromagnetism and electrical engineering. Modern field models are applied in the analysis and design of electrical machines, electric drives and other electromagnetic devices. These models consider the multi-physical phenomena in electrical systems and include the new accurate descriptions of magnetic and conducting materials. New materials are also applied to design electrical machines with high efficiency or working at high temperatures.

We hope that this issue of the IJAEM will provide new, stimulating information to the readers!

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