

FOREWORD

This issue of the quarterly „Elektryka” contains ten papers, whose authors are employees of Polish and foreign scientific centers.

The authors of the first one, Lukáš Koudela, Petr Polcar, Oldrich Tureček, present the results of their research. The aim was to obtain the time evolution of acoustic pressure when the source of signal is Gaussian monocycle pulse with defined parameters. The first two authors in the next paper deal with the possibility of improving the output characteristics of an electromechanical actuator by filling the air gap with ferromagnetic liquid.

In the next article Tadeusz Kaczorek analyzed pointwise completeness and pointwise generacy of descriptor electrical circuits by the use of Drazin inverse of matrices.

Paper by Krzysztof Budnik, Wojciech Machczyński and Jan Szymenderski concerns a theoretical study of the calculation of electric field induced in vicinity of an overhead current carrying conductor.

Work of authors Ryszard Porada and Adam Gulczyński is focused on characteristics of classical and modern methods with application of digital regulators for control. It presents algorithms of these regulators and description of possibility of their use in the control of independent power electronics current source. Selected simulation results of such system for different type of reference signals are also included.

Wojciech Mitkowski, author of the next paper, conducted analysis of spectral properties of heterogeneous LC systems. The LC systems have undamped oscillations.

Results of investigations undertaken by Krzysztof Górecki and Janusz Zarębski on the influence of the manner of mounting semiconductor devices on its transient thermal impedance are described in the next work.

Paper by Andrzej Zawadzki and Maciej Włodarczyk presents application of fractional differential calculus in modelling a class of nonlinear generators, linearization method for nonlinear equation of state by using the geometric transformation of state variables is also shown.

In the article by Andrzej Kukielka dual active two-port networks in hybrid connection are discussed and their voltage to current (M) and current to voltage (N) transfer functions for parallel to serial (and serial to parallel) connections are determined.

The mathematical model of B-H loop is the subject of the paper by Krzysztof Sztymelski and Marian Pasko. The formulae describing the B-H loop using the parametric functions and obtained results have been illustrated by examples.

All papers included in this quarterly “Elektryka” received positive reviews in accordance with the accepted principle of double-blind review process.

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