

FOREWORD

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

The authors of the first one, Seweryn Mazurkiewicz and Janusz Walczak, present the possibility of the SDE Toolbox intended for solving stochastic differential equations.

The paper by Piotr Pruski and Stefan Paszek presents the investigation results concerning the accuracy analysis of calculations of power system state matrix eigenvalues associated with electromechanical phenomena based on the disturbance waveforms of the instantaneous power, angular speed and power angle of generators of particular generating units of the power system.

Paper by Tadeusz Białoń and Marian Pasko three structures of linear, full-order, non-proportional state observers, applied to reconstruction of magnetic fluxes of an induction motor.

Paper of Adrian Nocoń and Dominik Szuster discuss the analysis of the quality of the control of a micro power source installed in a low-voltage network

Janusz Walczak and Agnieszka Jakubowska, authors of the next paper, conducted analysis of phase resonance phenomenon in a simple parallel $RL_{\beta}C_{\alpha}$ circuit consisting of a real coil and a capacitor (eg. supercapacitor), modelled as fractional – order elements. Simple fractional – order models have been assumed and relations for equivalent admittance of the concerned circuit have been derived

Paper by Sebastian Berhausen and Andrzej Boboń describes the parametr estimation of the mathematical model of a synchronous generator in a single-machine power system.

Paper by Piotr Legutko presents a systematic approach to design high performance gate drive circuits for high speed switching applications.

In the paper by Krzysztof Dębowski has been presented the application of fuzzy mathematical programming in optimization problem of one-phase electrical system with non-ideal periodical nonsinusoidal voltage source and linear load.

The theme of the text by Rafał Stepien was the analysis of the pseudo random signals in the statistical test suites.

Michał Lewandowski discussed in the next article a generalization of the frequency domain distortion measures (amplitude, phase nonlinearity and interband aliasing) for systems belong to an LTI-decimator/interpolator class which is a subclass of LTV systems.

The last paper by Dawid Makiela presents the possibilities to control a high-speed sensorless PM BLDC motor, with a maximal speed 100 000 rpm and power 1 kW, designed in the Department of Power Electronics, Electrical Drives and Robotics - KENER, Silesian University of Technology.

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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