

12.09.2019 Thursday

| | | |
|---------------|--|---|
| 10.00 – 11.45 | Registration (FACULTY OF MECHANICAL ENGINEERING AND COMPUTER SCIENCE, al. Armii Krajowej 21, Częstochowa) | |
| 11.45 – 12.00 | Conference opening (Room B1) | |
| 12.00 – 13.00 | Plenary lecture I (Room B1) Chair: P. Ostalczyk <i>Tadeusz Kaczorek, Frobenius block matrices in analysis of different orders fractional electrical circuits</i> | |
| | Session A (Room B2) Chairs: Y. Povstenko, M. Klimek | Session B (Room B3) Chairs: T. Kaczorek, D. Sierociuk |
| 13.00 – 13.20 | B. Datsko, C. Nakonechna, A. Włoch, <i>Interaction of different types of instabilities in the brusselator model with fractional derivatives</i> | T. Kaczorek, Ł. Sajewski, <i>Finite-time observers for fractional positive continuous-time linear systems</i> |
| 13.20 – 13.40 | B. Datsko, V. Gafiychuk, <i>Pattern formation in fractional reaction-diffusion systems in a stability domain of homogeneous solutions</i> | J. Wiora, A. Wiora, <i>Steady-state errors in closed-loop control systems with fractional-order PID controllers</i> |
| 13.40 – 14.00 | I. Matychyn, V. Onyshchenko, <i>Solution to homogeneous systems of linear fractional differential equations with variable coefficients</i> | D. Sierociuk, M. Macias, W. Malesza, <i>Numerical solution of fractional variable order linear control system in state-space form with initial conditions</i> |
| 14.00 – 14.20 | M. Klimek, <i>Fractional eigenvalue problem with Prabhakar derivatives and Robin boundary conditions</i> | P. Oziablo, D. Mozyrska, M. Wyrwas, J. Viola, YQ Chen, <i>A fractional variable-order PID controller implementation for a temperature control lab testbed</i> |
| 14.20 – 14.40 | M.V. Kukushkin, <i>Abstract algebraic model for the fractional differential operator</i> | A. Trojnar, P. Ostalczyk, <i>Implementation of fractional order PID control algorithm for temperature regulation via solenoid gas valve</i> |
| 14.40 – 15.00 | Y. Povstenko, T. Kyrylych, <i>Fractional fracture</i> | M. Matusiak, P. Ostalczyk, <i>Towards the optimal digital implementation of fractional-order models on a microcontroller</i> |
| 15.00 – 16.00 | Lunch | |
| | Session C (Room B2) Chairs: HG. Sun, D. Mozyrska | Session D (Room B3) Chairs: P. Ostalczyk, A. Ruszewski |
| 16.00 – 16.20 | B. Łuczak, T. Gajewski, W. Sumelka, G.Z. Voyiadjis, <i>Utilization of time-fractional damage model for assessment of human aorta condition</i> | A. Jakubowska-Ciszek, J. Walczak, <i>Equivalent models of fractional-order element connections in frequency domain</i> |

| | | |
|---------------|---|--|
| 16.20 – 16.40 | A. Ramírez-Torres, S. Di Stefano, A. Grillo, <i>Non-local transport of nutrient substances in growing tumours</i> | M. Sowa, Ł. Majka, <i>Hysteresis modeling trials using simple fractional models</i> |
| 16.40 – 17.00 | O. Brandibur, E. Kaslik, D. Mozyrska, M. Wyrwas, <i>Fractional variable-order biquadratic difference equations</i> | A. Ruszewski, <i>Minimum energy control of fractional discrete-time linear systems with delays in state - the model without a time shift in the difference</i> |
| 17.00 – 17.20 | R. Sibatov, <i>Fractional dispersive transport in aligned quantum wires with fractal distribution of localized states</i> | M. Bąkała, R. Wojciechowski, P. Ostalczyk, M. Matusiak, <i>Fractional Discrete Model Of An Electrical Drive With 3-phase Brushless Micro-motor</i> |
| 17.20 – 17.40 | X. Hao, HG Sun, R. Sibatov, <i>Hausdorff fractal deriviate and fractional derivative models for arsenic transport</i> | T. Błaszczuk, J. Siedlecki, <i>Fractional Euler–Bernoulli cantilever beam equation – exact and approximate solution</i> |

13.09.2019 Friday

| | |
|---------------|--|
| 08.30 – 09.00 | Meeting of the RRNR Scientific Committee |
| 09.00 – 10.00 | Plenary lecture II (Room B2) Chair: T. Kaczorek Piotr Ostalczyk, <i>Equivalent descriptions of the variable-, fractional-order SISO linear systems</i> |
| | Session E (Room B2) Chairs: E. Pawłuszewicz, K. Rogowski |
| 10.00 – 10.20 | A. Koszewnik, E. Pawłuszewicz, <i>Application of the Grünwald-Letnikov operator with fractional order on $P_{\delta, \delta+h}$ time scale to energy harvesting signals</i> |
| 10.20 – 10.40 | E. Pawłuszewicz, <i>State feedback law for discrete-time fractional order nonlinear systems</i> |
| 10.40 – 11.00 | K. Rogowski, <i>General response formula for CFD-fractional 2D continuous linear systems described by the Roesser model</i> |
| 11.00 – 11.20 | Coffee break |
| | Session F (Room B2) Chairs: K. Oprzędkiewicz, S. Kukła |
| 11.20 – 11.40 | K. Oprzędkiewicz, K. Dziedzic, M. Podsiadło, <i>GWO tuning of the fractional order PID controller in the forced air heating system</i> |
| 11.40 – 12.00 | K. Oprzędkiewicz, W. Mitkowski, <i>Accuracy estimation of the approximated Atangana-Baleanu operator</i> |
| 12.00 – 12.20 | M. Błasik, <i>A numerical method for the solution of the two-phase fractional Lam'e-Clapeyron-Stefan problem</i> |
| 12.20 – 12.40 | S. Kukła, U. Siedlecka, <i>On some numerical properties of the generalized trigonometric functions useful in fractional calculus</i> |
| 12.40 – 13.00 | Closing Ceremony (Room B2) |
| 13.00 – 14.00 | Lunch |