

# Conference Programme

<b>Thursday 04.07.2013</b>		
12.00-12.15	Official conference opening	
12.15-13.00	Plenary session – H24 – Chair: W. Mitkowski	
	Realization problem for descriptor positive fractional continuous-time linear systems <b>T. Kaczorek</b>	
13.00-14.20	Block A – H24 Chairs: T. Kaczorek, W. Mitkowski	Block B – H16 Chairs: K. Oprzędkiewicz, A. Piłat
	<p>Frequency domain method for stability analysis of linear continuous-time state-space systems with double fractional orders <b>M. Busłowicz</b> p. 13</p> <p>Stability of fractional difference systems with two orders <b>M. Wyrwas, E. Girejko, D. Mozyrska, E. Pawłuszewicz</b> p. 13</p> <p>Stability conditions of fractional discrete-time scalar systems with two delays <b>A. Ruszewski</b> p. 14</p> <p>Stability conditions of fractional-order continuous-time scalar LTI state space system <b>R. Stanisławski, K.J. Latawiec</b> p. 14</p>	<p>Reflection Symmetry in Fractional Calculus – Properties and Applications <b>M. Klimek, M. Lupa</b> p. 14</p> <p>A general fractional-order thermal model for buildings and its properties <b>P. Skruch</b> p. 15</p> <p>Heat transfer modeling in ceramic materials using fractional order equations <b>A. Obrączka, J. Kowalski</b> p. 15</p> <p>A comparative study of <math>PI^\lambda D^\mu</math> controller approximations exemplified by Active Magnetic Levitation System <b>A. Piłat</b> p. 16</p>
14.20-14.40	Coffee break	
14.40-16.00	Block A – H24 Chairs: K.J. Latawiec, D. Mozyrska	Block B – H16 Chairs: D. Sierociuk, M. Busłowicz
	<p>Stabilization of wave equation using standard/fractional derivative in boundary damping <b>P. Grabowski</b> p. 16</p>	<p>The application of fractional order differential calculus for the description of temperature profiles in a granular layer <b>E. Szymanek</b> p. 18</p>

	<p>Fundamental Solutions to the Central Symmetric Space-Time Fractional Heat Conduction Equation and Associated Thermal Stresses <b>Y. Povstenko</b> p. 17</p> <p>Variable Order Fractional Isoperimetric Problem of Several Variables <b>T. Odziejewicz</b> p. 17</p> <p>Mittag-Leffler pattern in anomalous diffusion <b>B. Dybiec</b> p. 17</p>	<p>Fractional-order P2D<sup><math>\beta</math></sup> controller for uncertain parameter dc motor <b>W. Mitkowski, K. Oprzędkiewicz</b> p. 18</p> <p>Synchronization of the chaotic Ikeda systems of fractional order <b>M. Busłowicz, A. Makarewicz</b> p. 18</p> <p>Analog modeling of fractional switched-order derivatives: experimental approach <b>D. Sierociuk, M. Macias, W. Malesza</b> p. 19</p>
16.00-17.20	<p>Block A – H24 Chairs: P. Grabowski, A. Dzieliński</p>	<p>Block B – H16 Chairs: P. Ostalczyk, P. Skruch</p>
	<p>Positive stable minimal realization of fractional discrete-time linear systems <b>Ł. Sajewski</b> p. 19</p> <p>Constrained controllability of h-difference linear systems with two fractional orders <b>E. Pawłuszewicz, D. Mozyrska</b> p. 19</p> <p>Observability of positive fractional-order discrete-time systems <b>W. Trzasko</b> p. 20</p> <p>Optimal control problem for fractional dynamic systems – linear quadratic discrete-time case <b>A. Dzieliński, P. M. Czyronis</b> p. 20</p>	<p>Fractional-Order Models of the Supercapacitors <b>P. Skruch, W. Mitkowski</b> p. 20</p> <p>Non-integer order PI<sup><math>\alpha</math></sup>D<sup><math>\mu</math></sup> control ICU-MM <b>W. Bauer, J. Baranowski, W. Mitkowski</b> p. 21</p> <p>Comparison of Fractal- and Integer-order Filters in Filtration of Myoelectric Activity Acquired from Biceps Brachii <b>T. Moszkowski, E. Pociask</b> p. 21</p> <p>Variable-, Fractional-Order Dead-Beat Control of a Robot Arm <b>P. Duch, M. Łaski, S. Błaszczuk, P. Ostalczyk</b> p. 21</p>
END OF THE DAY		

**Friday 05.07.2013**

9.00-10.30		<b>DSpace workshop</b> ul. Oboźna (meeting in front of B1 at 8:30)
10.30-12.00	<b>Maple<sup>TM</sup> workshop</b> Room 316	
12.00-13.20	Block A – H24 Chairs: S. Domek, Y. Povstenko	Block B – H16 Chairs: A. Bień , P. Piątek
	<p>Approximation of fractional differential equations in Banach spaces <b>S. Piskarev</b> p. 22</p> <p>Piecewise affine representation of discrete in time, non-integer order systems <b>S. Domek</b> p. 22</p> <p>Solutions of systems with two-terms fractional difference operators <b>E. Girejko, D. Mozyrska, M. Wyrwas</b> p. 22</p> <p>Comparison of h-difference fractional operators <b>D. Mozyrska, E. Girejko, M. Wyrwas</b> p. 23</p>	<p>Subdiffusion in a system with thin membranes <b>T. Kosztołowicz, K. Lewandowska, M. Piwnik</b> p. 23</p> <p>Modelling of anomalous diffusion processes utilizing equations with fractional derivatives which are generated by different stochastic processes <b>K. Lewandowska, T. Kosztołowicz, M. Piwnik</b> p. 24</p> <p>Fractional order model of heat transfer in metals <b>A. Obrączka, A. Bień</b> p. 24</p> <p>Relative controllability of stationary fractional differential-algebraic systems with delay <b>Z. Zaczekiewicz</b> p. 25</p>
13.20-13.40	Coffee break	
13.40-14.00	Presentation – Non integer control of a mechatronic system	
14.00-15.20	Block A – H24 Chairs: W. Mitkowski, P. Skruch	Block B – H16 Chairs: M. Klimek, D. Idczak
	<p>Integral form of fractional oscillator equation and its numerical solution <b>T. Błaszczyk, M. Ciesielski</b> p. 25</p>	<p>Exact Solution of Two-Term Nonlinear Fractional Differential Equation with Sequential Riemann-Liouville Derivatives <b>M. Błaszik, M. Klimek</b> p. 27</p>

15.20-15.40	<p>Laguerre polynomial approximation of fractional order linear systems  <b>P. Bania, J. Baranowski</b>  p. 25</p> <p>Simulational analysis of non-integer order system behaviour under relay control  <b>M. Zagórska, J. Baranowski, W. Mitkowski</b>  p. 26</p> <p>Model-based testing techniques for fractional-order control systems  <b>M. Kaźmierski, M. Kowalski, M. Rosa, P. Skruch, K. Żołopa</b>  p. 26</p>	<p>Sensitivity of some fractional integro-differential Cauchy problem  <b>D. Idczak, A. Skowron, S. Walczak</b>  p. 27</p> <p>Fractional linear control systems with the Caputo derivative and their optimization  <b>R. Kamocki, M. Majewski</b>  p. 28</p> <p>Application of non-linear equations with derivatives of a fractional order in modelling a subdiffusion-reaction process  <b>M. Piwnik, T. Kosztołowicz, K. D. Lewandowska</b>  p. 29</p>
CONFERENCE CLOSING		