

PROGRAM

INTERNATIONAL CONFERENCE Dynamical Systems – Theory and Applications DSTA 2019

0. Sunday, December 1, 2019

Registration of participants, 18:00 -20:00, DSTA 2019 Office

Welcome reception

1. Monday, December 2, 2019

Registration of participants, 8:00 - 9:00, DSTA 2019 Office

Opening ceremony, 9:00 - 9:45, assembly hall

Keynote lecture, 9:45 - 10:25, assembly hall

Balakumar Balachandran

Data-driven nonlinear dynamics

Coffee break, 10:25 - 10:45

Session S2-1, 10:45 - 12:15, room A

1.	Rodrigo T. Rocha, Remei H. Junior, Wagner B. Lenz, Maurício A. Ribeiro, Angelo M. Tusset, Jose M. Balthazar, Elzbieta Jarzebowska	<i>Investigation of energy harvesting in a 2DOFs portal frame by means of the positioning of the piezoelectric material</i>	BIF 066
2.	Joao Francisco Silva Trentin, Samuel da Silva, Jean Marcos de Souza Ribeiro, Hanspeter Schaub	<i>Nonlinear control of an inverted pendulum actuated by two reaction wheels</i>	CON 022
3.	Jaroslav Zapoměl, Petr Ferfecki, Jan Kozánek	<i>Effect of the rotor support elements lubricated by magnetic fluids on chaotic and regular vibration of rotors during rubbing</i>	CON 029
4.	Wagner B. Lenz, Mauricio A. Ribeiro, Angelo M. Tusset, Jose M. Balthazar, Elzbieta Jarzebowska	<i>Slosh analyzes of a full vehicle-tank model with SDRE control and a hydraulic damper</i>	CON 113
5.	Gustavo de Freitas Fonseca, Airtton Nabarrete	<i>Finite element analysis of magnetorheological fluid embedded on journal bearings</i>	CON 336
6.	Rafael Teloli, Samuel da Silva, Gaël Chevallier	<i>Parameters estimation by harmonic probing of hysteresis models of bolted jointed</i>	MAT 165

Session S3-1, 10:45 - 12:15, room B

1.	Antonio Palermo, Farhad Zeighami, Athanasios Vratsikidis, Zhibao Cheng, Dimitris Ptilakis, Alessandro Marzani	<i>Design of a medium-scale test for the assessment of a resonant seismic barrier within the ReWarD Project</i>	CON 249
2.	Roberta Santoro, Giuseppe Failla	<i>Effect of uncertainty in dynamic response of multi-cracked beams</i>	CON 129
3.	Anass Mayou, Vincent Denoël	<i>Perturbation analysis of a Multi-Degree-Of-Freedom system equipped with only one tuned mass damper</i>	MAT 205
4.	Giuseppe Muscolino, Federica Genovese, Tiziana Alderucci	<i>Response sensitivity of damper-connected adjacent structural systems subjected to fully non-stationary random excitations</i>	CON 024
5.	Daniely Neves, Kleverton Sousa, Adriano Fabro	<i>Experimental investigation of wave propagation in light weight structures undergoing flexural vibration</i>	CON 288

Session S12, 10:45 - 12:15, room C			
1.	Aleksandra Waszczuk-Młyńska, Stanisław Radkowski	<i>Analytical model of a circular membrane with damage in the form of scratches</i>	ENG 079
2.	Grzegorz M. Szymański, Piotr Krawiec	<i>Testing and analysis of vibrations of a tension transmission with a thermally sealed belt</i>	EXP 171
3.	Antonio Zippo, Francesco Pellicano, Giovanni Iarriccio	<i>Synchronicity phenomenon of circular cylindrical shell under random excitation</i>	EXP 343
4.	Paweł Komorski, Grzegorz M. Szymanski, Tomasz Nowakowski, Małgorzata Orczyk	<i>Application of the wheel-flat detection algorithm using advanced acoustic signal analysis</i>	MAT 075
5.	Juliana C. Santos, Marcus V. G. de Moraes, Erwin U. L. Palechor, Ramon S. Y. R. C. Silva	<i>Damage detection in beams using an additional roving mass based on the natural frequency shifting</i>	VIB 243
6.	Huria Ibrahim, Dalia Ezzeddine, Rabih Sultan	<i>Complex patterned precipitation dynamics in toroidal reactors with two diffusion sources</i>	BIF 256
Coffee break, 12:15 - 12:30			
Keynote lecture, 12:30 - 13:10, assembly hall			
Yuri V. Mikhlin		<i>Nonlinear normal vibration modes and associated problems</i>	
Lunch, 13:10 - 15:00			
Meeting of the Scientific Committee of DSTA 2019, 14:10 - 15:00			
Keynote lecture, 15:00 - 15:40, assembly hall			
Tarek Amer		<i>New trends for the motion of a rigid body and dynamical systems</i>	
Coffee break, 15:40 - 15:50			
Session S2-2, 15:50 - 17:20, room A			
1.	Elżbieta Jarzębowska, Marcin Kłak	<i>Quaternion based free-floating space manipulator dynamics modeling using the dynamically equivalent manipulator approach</i>	CON 037
2.	Virgil-Florin Duma	<i>Optomechatronic disk choppers with generalized window profiles: Ascertainment and multi-parameter analysis of non-linear transmission functions</i>	MAT 010
3.	Andrzej Urbaś, Krzysztof Augustynek	<i>Evaluation of the crane's actuators strength based on the results obtained from dynamics model</i>	MAT 101
4.	Krzysztof Augustynek, Andrzej Urbaś	<i>The dynamics analysis of a spatial linkage with flexible links and imperfect revolute joints</i>	MAT 103
5.	Elżbieta Jarzębowska, Andrzej Urbaś, Krzysztof Augustynek	<i>Dynamics and vibration analysis of a spatial linkage model with flexible links and joint friction subjected to position and velocity motion constraints</i>	NUM 036
Session S3-2, 15:50 - 17:20, room B			
1.	Lecture invited by the special session organizers		
	Antonina Pirrotta	<i>Advances in modeling controlled structures</i>	
2.	Leo Acho Zuppa, Jan Awrejcewicz, Nataliya Losyeva, Volodymyr Puzyrov, Nina Savchenko	<i>The use of the dynamic vibration absorber for energy harvesting</i>	VIB 339
3.	Andrea Burlon, Mario Di Paola, Giuseppe Failla	<i>Fractional nonlinear viscoelastic rubbers for base isolated systems</i>	MAT 163
4.	Krzysztof Kęcik, Rafał Rusinek	<i>Improving functionality of absorber/harvester system by a smart adaptive suspension</i>	STA 077
Session S5, 15:50 - 17:20, room C			
1.	Margarita Kovaleva, Leonid Manevitch	<i>Interchain energy exchange in the DNA coarse-grained model</i>	ASY 211

2.	Valeri Smirnov, Leonid Manevitch	<i>Strong mode coupling in vibrations of single-walled carbon nanotubes</i>	ASY 213
3.	Igor V. Andrianov, Jan Awrejcewicz, Wim T. van Horssen	<i>Correct nonlinear dynamic equation of buckled beam</i>	ASY 303
4.	Klaus Zimmermann, Igor Zeidis, Victor Lysenko, Simon Gast, Lars Günther, Florian Schale, Michel Rohn	<i>Mathematical model and a prototype of a linear motor controlled by a periodic magnetic field</i>	ENG 021
5.	Ali Mubarak, Danila Prikazchikov	<i>Explicit model for surface waves on an elastic half-space coated by a thin vertically inhomogeneous layer</i>	VIB 133
6.	Mohammed Alkinidri, Julius Kaplunov, Ludmila Prikazchikova	<i>Two-mode long-wave low-frequency approximations for anti-plane shear deformation of a high-contrast asymmetric laminate</i>	VIB 134
Coffee break, 17:20 - 17:30			
Session R1, 17:30 - 19:00, room A			
1.	Hans True	<i>Bifurcations and transitions in railway vehicle dynamics</i>	BIF 223
2.	Minh-Tuan Nguyen-Thai, Paul Wulff, Nils Gräbner, Utz von Wagner	<i>On the influence of external stochastic excitation on linear oscillators with subcritical self-excitation applied to brake squeal</i>	ENG 338
3.	Jan Kozánek, Jaroslav Zapoměl	<i>Some special properties of dynamical system caused by nonlinear eigenvalue problem</i>	LIF 052
4.	Biljana Tojtovska, Panche Ribarski	<i>Stability of coupled systems of stochastic Cohen-Grossberg neural networks with time delays, impulses and Markovian switching</i>	NUM 203
5.	Alireza Ture Savadkoohi, Claude Henri Lamarque, Celien Goosaert	<i>Control of tremors of human's arm by a passive nonlinear absorber</i>	STA 141
6.	Iwona Adamiec-Wójcik, Lucyna Brzozowska, Stanisław Wojciech	<i>Influence of bending and torsional flexibility on displacements and loading of risers</i>	VIB 204
Session S3-3, 17:30 - 19:00, room B			
1.	Andrea Burlon	<i>Vibration mitigation of coupled bending-torsion beams via tuned mass dampers</i>	VIB 177
2.	Mina Ghassempour, Giuseppe Failla, Felice Arena, Giovanni Malara	<i>On the use of tuned mass dampers for vibration mitigation in offshore wind turbines</i>	VIB 114
3.	Giuseppe Failla, Gioacchino Alotta	<i>Novel concepts of resonators for beam structures</i>	VIB 057
4.	Krzysztof Kęćik	<i>Theoretical and experimental investigations of a magnetic levitation system for energy recovery</i>	ENG 078
Session S9, 17:30 - 19:00, room C			
1.	K. R. Jayaprakash, Yuli Starosvetsky	<i>Analytical and numerical study of piecewise linear Mathieu equation with non-zero offset</i>	STA 090
2.	Leonid Manevitch	<i>New development of non-stationary resonant dynamics</i>	ASY 212
3.	Aurélien Grolet, Zein Alabidin Shami, Sadaf Arabi, Olivier Thomas	<i>Experimental nonlinear localisation in a system of two coupled beams</i>	EXP 097
4.	Margarita Kovaleva, Leonid Manevitch	<i>Non-conventional synchronization in the chains of weakly coupled nonlinear autogenerators</i>	ASY 208
5.	Yuri V. Mikhlin, Nataliia S. Goloskubova, Tatyana V. Shmatko	<i>Stability of steady states with regular or chaotic behaviour in time</i>	STA 237
6.	Valery Pilipchuk	<i>On mode formation and transitions in self-sustained friction induced vibrations</i>	VIB 143
Supper 19:00 - 20:30			
2. Tuesday, December 3, 2019			
8:00 - 13:00 Sightseeing the city of Łódź			

Lunch 13:00 - 15:00

Keynote lecture, 15:00 - 15:40, assembly hall

Miguel A.F. Sanjuan

*Unpredictability in physical systems:
Basin entropy and Wada basins*

Photo session

Coffee break 16:00 - 16:15

Session S1-1, 16:15 - 17:45, room A

1.	Anastasios Bountis, Yannis Kominis, Joniald Shena, Vassilios Kovaniis	<i>Limit cycles and resonances in asymmetric laser dimers: New oscillatory phenomena in photonic arrays</i>	BIF 206
2.	Vladimir Nekorkin	<i>Cloning of chimera states in a multiplex network of relaxation oscillators</i>	BIF 081
3.	Pablo Medina, Alejandro Valdivia	<i>Probabilistic paths dynamics over weighted complex networks</i>	ASY 040
4.	Ezequiel Del Rio, Sergio Elaskar	<i>An experimental investigation on noisy intermittency</i>	BIF 252
5.	Oleg Maslennikov, Mechislav Pugavko, Vladimir Nekorkin	<i>Dynamics of a network of map-based neurons in problems of reservoir computing</i>	BIF 076

Session S1-2, 16:15 - 17:45, room B

1.	Marina Barulina, Alexey Golikov, Sofia Galkina	<i>Dynamics of sensing element of micro- and nanoelectromechanical sensors as anisotropic size-dependent plate</i>	MAT 291
2.	Virgil-Florin Duma	<i>Exact non-linear scan patterns of laser scanners with rotational Risley prisms: mathematical analysis, simulations, and experiments</i>	MAT 009
3.	José Fernando Mendes	<i>Structural stability of interaction networks against negative external fields</i>	LIF 219
4.	Juliana Lacerda, Celso Freitas, Elbert Macau	<i>Topologies that favor synchronization in energy transmission networks</i>	MAT 043
5.	R.J. Escalante-González, E. Campos--Cantón	<i>Generation of hidden multiscroll attractors based on piecewise linear systems</i>	BIF 126
6.	Sijo K. Joseph	<i>Quantum-gravity in a dynamical system perspective</i>	MAT 235

Session S1-3, 16:15 - 17:45, room C

1.	Zhanybai Zhusubaliyev, Viktor Avrutin	<i>Border-collisions in a periodically forced self-oscillatory piecewise smooth system with a high number of switching manifolds</i>	NON 123
2.	Lock Yue Chew	<i>Kuramoto Oscillators under local unidirectional coupling: the phenomenon of bunching and anti-bunching</i>	STA 051
3.	Wojciech Sawczuk, Grzegorz M. Szymański	<i>Experimental analysis of dynamic susceptibility of selected elements of the railway braking system</i>	NUM 132
4.	Viktor Avrutin, Zhanybai Zhusubaliyev	<i>Nested closed invariant curves in the 2D piecewise linear normal form</i>	NON 050
5.	Juan A. Valdivia, Jose Rogan, Pablo Medina, Miguel Kiwi, Felipe Torres	<i>Deciphering the transport in complex systems</i>	NON 220
6.	David Simpson, Viktor Avrutin, Soumitro Banerjee	<i>Nordmark map and the problem of large-amplitude chaos in an impact oscillator</i>	NON 119

Bus to the Banquet 18:30

Banquet 19:00-22:00

3. Wednesday, December 4, 2019

Hanging posters 8:30-9:00

Poster Session, 9:00 - 10:00
(The list of posters is attached at the end of the program)

Coffee break, 10:00 - 10:15

Session R2, 10:15 - 11:30, room A

1.	Mohamed Mohamed, Tarek Amer, Mohamed Abohamer	<i>On the vibrational analysis for the motion of a rotating cylinder</i>	ASY 015
2.	Mohamed Mohamed, Tarek Amer, Yasser Gamiel	<i>On the spinning motion of a disc under the influence a gyrostatic moment</i>	ASY 016
3.	Jan Awrejcewicz, Roman Starosta, Grażyna Sypniewska-Kamińska	<i>Vibration of nonlinear lumped systems with serially connected elastic element</i>	ASY 284
4.	Grażyna Sypniewska-Kamińska, Jan Awrejcewicz, Henryk Kamiński, Robert Salamon	<i>Resonance study of spring pendulum based on MSM solutions with polynomial approximation</i>	ASY 292
5.	Prashant Kambali, Tova Mintz, Karin Mora, Eyal Buks, Oded Gottlieb	<i>The influence of asymmetric electrodes on the non-planar dynamics of a parametrically excited nonlinear microbeam</i>	ASY 341

Session R3, 10:15 - 11:30, room B

1.	Tadeusz Kaczorek	<i>Application of the Drazin inverse of matrices to analysis of the pointwise completeness and the pointwise degeneracy of the descriptor linear systems</i>	ENG 120
2.	Anna Jaskot, Bogdan Posiadała, Szczepan Śpiewak	<i>Motion cases analysis of the mobile platform with four-wheel drive under slippage conditions</i>	EXP 242
3.	Piotr Weber	<i>Dynamics of chains as a tool to study thermomechanical properties of proteins</i>	LIF 332
4.	Rajarithinam M, Vinoth Krishnan, Aravindan M, Shaikh Faruque Ali	<i>Investigation of piezoelectric and multiple electromagnetic hybrid vibration energy harveste</i>	VIB 172
5.	Aravindan M, Shaikh Faruque Ali	<i>System size resonance in a 1-D array of noisy bistable piezoelectric harvesters</i>	VIB 175

Session R4, 10:15 - 11:30, room C

1.	Carlos Argaez, Peter Giesl, Sigurdur Freyr Hafstein	<i>Critical tolerance evolution: Classification of the chain-recurrent set</i>	MAT 004
2.	István Kecskés, Ákos Odry, Péter Odry	<i>Uncertainties in the movement and measurement of a hexapod robot</i>	MAT 063
3.	Tarek Amer, Mohamed Mohamed, Asmaa Arab	<i>Asymptotic analysis of submerged spring pendulum motion in liquid</i>	MAT 169
4.	Antonio M. Lopes and J.A. Tenreiro Machado	<i>Fractional dynamics and power law behaviour in soccer leagues</i>	MAT 247
5.	Ádám Zsiros, János Lelkes, Bendegúz Dezső Bak, Tamás Kalmár-Nagy	<i>Energy spectrum of inhomogeneous rod with elastic and viscous boundary conditions</i>	MAT 268

Session S10-1, 10:15 - 11:30, room D

1.	Wojciech Paszkowiak, Tomasz Bartkowiak	<i>Dynamics of logistic train</i>	ENG 068
2.	Aleksander Skurjat	<i>The influence of lateral swaying on the trajectory of articulated rigid body vehicles</i>	CON 115
3.	Leon Prochowski, Mateusz Ziubiński, Patryk Szwałkowski, Tomasz Pusty, Mirosław Gidlewski	<i>Experimental and simulation examination of the impact of the control model on the motion of a motorcar with a trailer in a critical situation</i>	CON 180
4.	Mirosław Gidlewski, Leszek Jemioł, Dariusz Żardecki	<i>Influence of control system parameters and it's disturbances on lane change process</i>	CON 116

5.	Aleksander Skurjat, Andrzej Kosiara	<i>A system for improving directional stability involving individual braking of 1, 2, or 3 wheels of articulated rigid body vehicles</i>	CON 150
Coffee break, 11:30 - 11:45			
Session S4-1, 11:45 - 13:00, room A			
1.	Roberta Lima, Rubens Sampaio, Peter Hagedorn	<i>On the decoupling of electromechanical systems</i>	MAT 334
2.	Nurtay Albanbay, Bekbolat Medetov, Michael A. Zaks	<i>Distribution of lifetimes for transient bursting states in coupled noisy excitable systems</i>	BIF 260
3.	Ferdinand Verhulst	<i>Systems with fast limit cycles and slow interaction</i>	ASY 230
4.	Jarosław Latański, Jerzy Warmański	<i>Primary and combined multi-frequency parametric resonances of a rotating thin-walled composite beam under harmonic base excitation</i>	STA 045
5.	Ngoc-Loi Dang, So-Young Lee, and Jeong-Tae Kim	<i>Electromechanical impedance tomography for strand breakage localization in multi-strands anchorage</i>	VIB 053
Session S6-1, 11:45 - 13:00, room B			
1.	Moritz Scharff	<i>Bio-Inspired tactile sensing: distinction of the overall object contour and macroscopic surface features</i>	LIF 161
2.	Katarzyna Koter, Łukasz Frącczak, Kalina Chojnacka, Konrad Jabłoński, Sandra Zarychta, Leszek Podsedkowski	<i>Snake robot based on McKibben pneumatic artificial muscles</i>	EXP 039
3.	Carsten Behn, Daniel Baldeweg, Christoph Will	<i>Bending vibration systems as tactile sensors for contact point detection using natural frequencies</i>	LIF 189
4.	Wiktoria Wojnicz, Bartłomiej Zagrodny, Michał Ludwicki, Jerzy Mrozowski, Jan Awrejcewicz, Edmund Wittbrodt	<i>Multibody models for gait analysis</i>	LIF 142
5.	Liliána Zajcsuk, Giuseppe Habib, Ambrus M. Zelei	<i>Antropomorphic parameters of a nonlinear dynamic model of self sustained hopping</i>	LIF 167
Session S7-1, 11:45 - 13:00, room C			
1.	Mohit Makkar, Saransh Jain	<i>Bond graph modeling and simulation of left ventricle of human heart</i>	LIF 350
2.	Marat Z. Dosaev, Vitaly A. Samsonov, Shyh-Shin Hwang	<i>Friction coefficient estimating in problem of planar motion of a friction-powered robot</i>	MAT 035
3.	Marat Dosaev	<i>On features of the contact model of an elastic brake shoe with a wheel</i>	MAT 034
4.	Chi-chuan Hsu, Shia-chung Chen, Shyh-shin Hwang	<i>Study on the properties of the microcellular injection molded polyolefin/beta cyclodextrin composites</i>	EXP 221
5.	Mirosław Bocian, Krzysztof Jamrozak, Maciej Kulisiewicz	<i>Dynamic identification method for determining the plastic properties of the material used as a front layer of impact shields</i>	CON 155
Session S10-2, 11:45 - 13:00, room D			
1.	Andrzej Burghardt, Piotr Gierlak, Wincenty Skwarek	<i>Modeling of dynamics of cooperating wheeled mobile robots</i>	MAT 102
2.	Piotr Dudziński, Jakub Chołodowski	<i>Modeling and experimental tests on motion resistance of double-flanged rollers of rubber track systems due to sliding friction between the rollers and guide lugs of rubber tracks</i>	EXP 226
3.	Witold Grzegożek, Krzysztof Weigel-Milleret	<i>Stability of three wheeled narrow vehicle</i>	EXP 153
4.	Jakub Chołodowski, Piotr Dudziński	<i>On the influence of rubber tracks vibrations upon energy losses in crawler vehicles drive systems</i>	EXP 073
5.	Łukasz Kłoda, Stefano Lenci, Jerzy Warmański	<i>Nonlinear dynamics of a planar beam-spring system: a 2:1 internal transversal-axial resonance</i>	VIB 048
Lunch, 13:00 - 15:00			
Keynote lecture, 15:00 - 15:45, assembly hall			
M. Aziz Alaoui		<i>Synchronization of complex interaction networks of reaction-diffusion systems. Application in neuroscience</i>	

Coffee break, 15:45 - 16:00

Session S4-2, 16:00 - 17:15, room A

1.	Piotr Gierlak, Andrzej Burghardt, Krzysztof Kurc, Dariusz Szybicki	<i>Analysis of parametric vibration of a roller coaster flexible wheel</i>	VIB 104
2.	Jerzy Warminski	<i>Dynamics and control of self-excited system under parametric or external excitations and time delay</i>	STA 047
3.	Simona Doneva, Jerzy Warminski, Emil Manoach	<i>Dynamics of circular plates under selected heat loadings: Finite element and analytical models</i>	STA 110
4.	Fadi Dohnal, Wolfgang H'ornagel, Mariusz Zamojski	<i>Numerical and analytical investigation of chatter suppression by parametric excitation</i>	STA 087

Session S6-2, 16:00 - 17:15, room B

1.	László Bencsik, Dalma Nagy, Ambrus Zelei, Tamás Insperger	<i>The mechanical background of devices for balancing skill development</i>	LIF 192
2.	Andjelka Hedrih	<i>Synchronisation of biological oscillators in reproductive biology</i>	LIF 200
3.	Tomasz Walczak, Grażyna Sypniewska-Kamińska, Renata Ferduła, Adam Pogorzala	<i>Identification of muscle forces of upper limbs based on the registration of motion capture system</i>	LIF 201
4.	Adam Zawadzki, Tomasz Mirosław, Jakub Deda, Zbigniew Żebrowski	<i>Structure and control strategies of exoskeletons for fatigue limitation of a healthy man</i>	MTR 121

Session S7-2, 16:00 - 17:15, room C

1.	Oleg Cherkasov, Nina Smirnova, Sheng Huang	<i>Thrust programming for the range maximization and modified brachistochrone problem</i>	OPT 018
2.	Yury Selyutskiy, Rinaldo Garziera, Luca Collini	<i>On dynamics of a rigid block on visco-elastic foundation</i>	VIB 147
3.	Yury Selyutskiy, Andrei Holub, Ching-Huei Lin	<i>Piezoaeroelastic system based on a double aerodynamic pendulum</i>	STA 093
4.	Piotr Gamorski	<i>Quasistatic frictional contact problem governed by a variational-hemivariational inequality</i>	MAT 046
5.	S. Zermout, F. Mokhtari, F.Haddad, A.Merah, I.Lasloudji	<i>Numerical analysis of phase change during solidification</i>	NUM 293

Session S10-3, 16:00 - 17:15, room D

1.	Hanna Zsófia Horváth, Dénes Takács	<i>Stability of snaking trailers</i>	NON 265
2.	Tomasz Mirosław	<i>Model of a pneumatic tire and road cooperation based on 3-state flexible elements</i>	NON 122
3.	Dariusz Żardecki	<i>Non-smooth nonlinear model of suspension based on piecewise linear luz(...) and tar(...) projections</i>	NON 112
4.	Andrzej Dębowski, Dariusz Żardecki	<i>Modelling of torsional vibrations in a motorcycle steering system</i>	VIB 080
5.	Andrzej Harlecki, Adam Przemys, Szymon Tengler	<i>Application of homogenous transformations in the dynamic analysis of truck trailers</i>	MAT 162

Coffee break, 17:15 - 17:30

Session R5, 17:30 - 19:00, room A

1.	Peter Benner, Andreas Seidel-Morgenstern, Alexander Zuyev	<i>Analysis of switching strategies for the optimization of periodic chemical reactions with controlled flow-rate</i>	CON 027
2.	Luz Adriana Ocampo, Fabiola Angulo, David Angulo-Garcia	<i>Lyapunov function-based control of a DC/DC buck converter using Hybrid Systems formalism</i>	CON 038
3.	Jacek Przybylski, Krzysztof Kuliński	<i>Stability and vibration of a two-member cantilever column with an integrated PZT rod</i>	CON 056

4.	Philipp Schorr, Valter Böhm, Lena Zentner, Klaus Zimmermann	<i>Investigation of a tensegrity structure with multiple equilibrium configurations as jumping motion system</i>	CON 083
5.	Adnan S. Saeed, Mohammad A. AL-Shudeifat	<i>A comparison of the common types of nonlinear energy sinks</i>	CON 290
6.	Adnan S. Saeed, Mohammad A. AL-Shudeifat	<i>A study on the coefficient of restitution effect on single-sided vibro-impact nonlinear energy sink</i>	VIB 289
Session R6, 17:30 - 19:00, room B			
1.	Paweł Latosiński, Andrzej Bartoszewicz	<i>Discrete-time model reference sliding mode control using an exponential reaching law</i>	CON 095
2.	Enrique Roberto Carrillo Li, Philipp Schorr, Tobias Kaufhold, Jorge Antonio Rodríguez Hernández, Lena Zentner, Klaus Zimmermann, Valter Böhm	<i>Kinematic analysis of the rolling locomotion of mobile robots based on tensegrity structures with spatially curved compressed components</i>	CON 152
3.	Jacek Jackiewicz	<i>Controlled dynamical system for lowering vibrations of longitudinal forces in railway couplers of multiple-unit railway trains</i>	CON 166
4.	Yubo Lin, Hiroshi Yabuno, Xuan Liu, Yasuyuki Yamamoto, Sohei Matsumoto	<i>Experimental validity of highly sensitive atomic force microscope (AFM)</i>	CON 236
5.	Marcela Machado, Adriano Fabro, Braion Barbosa de Moura	<i>Flexural waves propagation in piezoelectric metamaterial beam</i>	CON 278
6.	Sungyeup Kim, Hiroshi Yabuno, Kohei Mitaka	<i>An experimental observation of the spatial motions of strings in resonance points under the planar excitation</i>	EXP 020
Session R7, 17:30 - 19:00, room C			
1.	Andrzej Rysak, Magdalena Gregorczyk	<i>Study of the Duffing van der Pol system dynamics using RQA measures</i>	BIF 149
2.	Larysa Dzyubak, Oleksandr Dzyubak, Jan Awrejcewicz	<i>Condition evaluation of components of multi-parametric space determining the evolution of carcinogenesis in biological systems</i>	LIF 082
3.	Wiesław Fiebig	<i>The use of mechanical resonance for the reduction of torque pulsation and energy demand in machines with crankshaft systems</i>	ENG 094
4.	František Klimenda, Josef Soukup, Blanka Skočilasová, Jan Skočilas, Lenka Rychlíková	<i>Convergence of dual infinity series</i>	ENG 193
5.	Yuki Kasai, Hiroshi Yabuno, Takeshi Ishine, Yasuyuki Yamamoto, Sohei Matsumoto	<i>Ultrasensitive mass sensing using a single cantilever coupled with a computational cantilever</i>	ENG 227
6.	Ryszard Walentyński, Damian Słota, Marcin Szczygieł	<i>Vibration Busters – an interdisciplinary approach to education of dynamical systems</i>	ENG 321
Session R8, 17:30 - 19:00, room D			
1.	Renan Siqueira, Osman Altun, Paul Gembariski, Roland Lachmayer	<i>A hydraulic delta-robot-based test bench for validation of smart products</i>	EXP 026
2.	B. Gunn, S. Theodossiades, S. J. Rothberg	<i>A rotational energy harvester for propulsion systems: design and experimental validation</i>	EXP 088
3.	Krzysztof J. Kaliński, Marek Galewski, Michał Mazur, Natalia Morawska	<i>Optimization of the spindle speed during milling of large-sized structures with the use of technique of Experiment-Aided Virtual Prototyping</i>	EXP 215
4.	Yanne Marcela Soares Fernandes, Marcela Rodrigues Machado, Maciej Dutkiewicz	<i>Structural dynamic response of coupling between transmission lines and tower under random excitation</i>	EXP 279
5.	Emil Manoach, Simona Doneva, Jerzy Warminski	<i>Coupled, large amplitude vibration of bimaterial beams</i>	VIB 074
6.	Olga Szlachetka, Jacek Jaworski, Marek Chalecki	<i>Free vibration frequencies of simply supported bars with variable cross section</i>	VIB 086
Supper, 19:00 - 20:30			
4. Thursday, December 5, 2019			
Keynote lecture, 9:00 - 9:40, assembly hall - cancelled			
Elias C. Aifantis		<i>Gradient & fractional elasticity models for dislocations and cracks</i>	

Break, 9:40 - 9:50

Session S11, 9:50 - 11:20, room A

1.	Eva-H. Dulf, Cristina-I. Muresan, Daniel D. Timis	Adaptive fractional order control of a quadrotor	CON 111
2.	Eva-H. Dulf, Clara-M. Ionescu, Cristina-I. Muresan	Risk related prediction for recurrent stroke and post-stroke epilepsy using Fractional Fourier Transform analysis of EEG signals	LIF 109
3.	João Mauricio de Carvalho, Carla Pinto	Role of the immune system in AIDS-defining malignancies	LIF 158
4.	Isabela Birs, Ioan Nascu, Eva Dulf, Cristina Muresan	Comparison of various fractional order controllers on a poorly damped system	MAT 067
5.	Małgorzata Wyrwas, Dorota Mozyrska, Piotr Oziabło	Asymptotic stability of fractional variable-order discrete-time equations with terms of convolution operators	STA 069
6.	Oana Brandibur, Eva Kaslik, Dorota Mozyrska, Małgorzata Wyrwas	A Rulkov neuronal model with Caputo fractional variable-order differences of convolution type	STA 185

Session R9, 9:50 - 11:20, room B

1.	Enric Trullols, Immaculada Massana, Joana d'Arc Prat, Josefina Antonijuan, Gerard Olivar	Nonlinear tourist flows in Barcelona	ENG 125
2.	Hernán Darío Toro Zapata, Gerard Olivar Tost	Evolution models for urban metabolism in Bogota	ENG 070
3.	Jacek Kabziński	Adaptive, nonlinear synchronization of a Duffing oscillator with unknown parameters	CON 263
4.	Jan Awrejcewicz, Dmytro Bilichenko, Akram Khalil Cheib, Nataliya Losyeva, Volodymyr Puzyrov	Estimation of the domain of attraction for a nonlinear mechanical system	STA 340
5.	Luboš Smolík, Pavel Polach, Michal Hajžman	Dynamics of a turbocharger rotor supported on full-oating ringbearings with shallow axial grooves of uncertain dimensions	VIB 138
6.	Bhaben Kalita, Santosha K. Dwivedy	Nonlinear study of a pneumatic artificial muscle (PAM) under superharmonic resonance condition using method of multiple scales	STA 345

Session R10, 9:50 - 11:20, room C

1.	Miguel Neves, Dmitri Tcherniak, Hugo Policarpo, Nuno Maia	On the use of transmissibility to estimate vibro-acoustic responses in operational conditions	NUM 335
2.	Anish R, K Shankar	Identification of nonlinear joint interface parameters using instantaneous power flow balance approach	NUM 259
3.	Anish R, K Shankar	Parametric identification of nonlinear structures using Particle Swarm Optimization based on power flow balance criteria	NUM 173
4.	František Klimenda, Josef Soukup, Lenka Rychlíková	Impact wave propagation in a thin elastic isotropic plate	NUM 190
5.	Josef Soukup, Milan Zmindak, Pavol Novak, Frantisek Klimenda, Michal Kaco, Lenka Rychlikova	Dynamic analysis and damage of composite layered plates reinforced by unidirectional fibers subjected low velocity impact	NUM 195

Session R11, 9:50 - 11:20, room D

1.	Pawel Fritzkowski, Roman Starosta, Jan Awrejcewicz	Analytical approach to vibro-impact dynamics of two coupled oscillators	ASY 327
2.	Filip Sarbinowski, Roman Starosta	Optimization of geometry of flow energy harvester	OPT 092
3.	Katica R. (Stevanovic) Hedrih	Rolling heavy ball over the surface with arbitrary shape in real Rn^3 space	STA 012
4.	Peter Beda	Dynamical systems and stability in fractional solid mechanics	STA 085
5.	Yury Selyutskiy	Alternation of stability character in systems with positional non-conservative forces	STA 117

6.	Kiyotaka Yamashita, Naoto Nishiyama, Kohsuke Katsura, Hiroshi Yabuno	<i>Nonlinear stability of a spring-supported pipe conveying fluid</i>	STA 127
Coffee break, 11:20 - 11:30			
Session R12, 11:30 - 13:00, room A			
1.	Jakub Lorencki	<i>Switched reluctance motor dynamic eccentricity modelling</i>	EXP 108
2.	Wieslaw Fiebig, Piotr Kruczek	<i>Influence of the sliding bearing parameters on the dynamic behavior of external gear pumps</i>	NUM 352
3.	Oleg Cherkasov, Elina Makieva	<i>Optimal rendezvous with proportional navigation unmanned aerial vehicle</i>	OPT 017
4.	Stefan Chwastek	<i>Finding globally optimal combinations of cranes drive mechanisms by the method of exhausting alternative design structures of mechanisms</i>	OPT 096
5.	Radosław Pytlak, Damian Suski, Tomasz Tarnawski	<i>Numerical procedure for the sensitivity analysis of hybrid systems</i>	OPT 154
6.	Tamara Nestorović, Kevin Hassw, Atta Oveisi	<i>Optimization of the actuator/sensor placement for active vibration control of a funnel shaped piezoelectric structure</i>	OPT 281
Session R13, 11:30 - 13:00 room B			
1.	Sergiy Mykulyak, Sergii Skurativskiy	<i>Nonlinear dynamics of the hierarchic system of oscillators</i>	BIF 005
2.	Joseph D. Taylor, Kamal Abu-Hassan, Joanne J. A. van Bavel, Marc A. Vos and Alain Nogaret	<i>Robust design of inhibitory neuronal networks displaying rhythmic activity</i>	LIF 118
3.	Vasile Marinca, Nicolae Herisanu	<i>Nonlinear vibration of Bernoulli-Euler beam on a Winkler elastic foundation</i>	MAT 179
4.	Adam Martowicz, Mikołaj Żabiński, Jakub Bryła, Jakub Roemer	<i>Improving capabilities of constitutive modeling of shape memory alloys for solving dynamic problems via application of neural networks</i>	MAT 251
5.	Adam Martowicz, Sławomir Kantor, Jan Pawlik, Jakub Bryła, Jakub Roemer	<i>Dynamics assessment of mechanically induced solid phase transitions in shape memory alloys via nonlocal thermomechanical coupling</i>	MAT 254
6.	Ivanna Dronyuk	<i>q-Ateb-functions and their properties</i>	MAT 344
Session R14, 11:30 - 13:00 room C			
1.	Dóra Patkó, Ambrus Zelei	<i>Alternative inverse kinematic calculation methods in velocity and acceleration level</i>	CON 191
2.	Rafał Rusinek, Krzysztof Kęćik, Andrzej Mitura	<i>Effect of electromechanical coupling in the middle ear with implantable hearing device</i>	LIF 041
3.	Tariq Alzarooni, Mohammad AL-Shudeifat, Oleg Shiryayev, C. Nataraj	<i>On backward whirl excitation in linear time-variant intact and cracked rotor systems</i>	ENG 328
4.	Mohammad AL-Shudeifat, Oleg Shiryayev, Tariq Alzarooni, C. Nataraj	<i>Full spectrum analysis for studying the backward whirl in accelerated rotor systems</i>	ENG 329
5.	Ivan Bizyaev, Alexey Borisov, Alexander Kilin, Ivan Mamaev, Elena Pivovarova	<i>Nonholonomic acceleration and chaotic dynamics of locomotion</i>	CON 135
6.	Yury Karavaev, Alexander Kilin, Alexey Borisov	<i>Dynamics of a spherical robot in cases of periodical control actions and oscillations of the underlying surface</i>	CON 182
Session R15, 11:30 - 13:00, room D			
1.	Azhar Ali Zafar, Jan Awrejcewicz	<i>On the dynamics of blood through the circular tube along with magnetic properties</i>	MAT 202
2.	Włodzimierz Bielski, Ryszard Wojnar	<i>Gravity waves in channels with corrugated bottom: asymptotic approaches</i>	MAT 331
3.	Olga Mazur, Jan Awrejcewicz	<i>Size-dependent nonlinear vibrations of micro-plates subjected to in-plane magnetic field</i>	MAT 353
4.	Paweł Olejnik, Jan Awrejcewicz	<i>Analysis of dynamical response of a Stewart platform operating in six degrees of freedom</i>	MTR 001
5.	Jakub Deda, Tomasz Mirosław, Adam Zawadzki	<i>Dynamic model of remotely controlled swarm of robots</i>	MTR 124
6.	Maksymilian Bednarek, Donat Lewandowski, Jan Awrejcewicz	<i>Using electromagnetic springs for tailoring dynamical characteristics</i>	MTR 317

Closing ceremony, 13:00 - 13:15

Lunch, 13:15 - 14:30

Laboratories of the Automation, Biomechanics and Mechatronics Department - short tour, 14:30 -

Poster Session
Wednesday, December 4, 2019, 9:00 - 10:00

Poster Number	Author(s)	Title	
1	Naoto Nishiyama, Kiyotaka Yamashita	<i>Suppression of impact oscillations in a railway current collection system with an additional oscillatory system</i>	BIF 091
2	Jakub Petryszyn, Jakub Możaryn, Stepan Ozana	<i>Experimental evaluation of PLC based fractional order PIADμ temperature control in pipeline</i>	CON 159
3	Jakub Możaryn, Arkadiusz Winnicki, Damian Suski	<i>Modeling of electro-hydraulic servo-drive for advanced control system design</i>	MTR 160
4	Izabela Krzysztofik, Zbigniew Koruba	<i>A sensitivity research of the gyro system tracking the ground target from the quadrotor in conditions of external disturbances impact</i>	CON 239
5	Izabela Krzysztofik, Zbigniew Koruba	<i>An optimal control of the gyroscope system in the process of homing an air-to-air missile</i>	CON 257
6	Krzysztof Sokół	<i>Instability and vibration control by means of piezoceramic element</i>	CON 244
7	Mariusz Zamojski, Paul Summerauer, Christoph Bacher, Fadi Dohnal	<i>Towards online transient simulation of a real heat pump</i>	EXP 089
8	Wolfgang Alois Hörtnagel, Stefan Plagg, Fadi Dohnal	<i>Harmonic transfer path analysis of a wine refrigerator</i>	EXP 330
9	Leon Prochowski, Mirosław Gidlewski, Mateusz Ziubiński, Krzysztof Dziewiecki	<i>The kinematics analysis of the body deformation process during frontal and lateral collision according to the FMVSS 214 procedure and classical test</i>	EXP 222
10	Nicolae Herisanu, Vasile Marinca	<i>A new analytical approach to nonlinear free vibration of microtubes</i>	MAT 174
11	Andrzej Kosiara, Aleksander Skurjat, Jakub Chołodowski	<i>Assessment of implementation of neural networks in on-board dynamic payload weighing systems</i>	MTR 186
12	Sebastian Uzny, Łukasz Kutrowski, Michał Osadnik	<i>Nonlinear vibrations of simply supported column loaded by the mass element</i>	VIB 245
13	Dawid Cekus, Paweł Kwiatkoń, Tomasz Geisler	<i>Analysis of the movement of the load during the interaction of wind force</i>	LIF 261
14	Paweł Olejnik, Fryderyk Wiądkowicz, Jan Awrejcewicz	<i>Experimental dynamical analysis of a mechatronic analogy of the human circulatory system</i>	LIF 106
15	Andrzej Mitura, Rafał Rusinek	<i>Two sound sources in implanted middle ear – numerical analysis</i>	LIF 058
16	Yang Shu, Jan Awrejcewicz, Bartłomiej Zagrodny	<i>Biomechanical analysis of different foot morphology during standing on a dynamic support surface</i>	LIF 305
17	Małgorzata Klepczyńska, Bartłomiej Zagrodny, Wiktoria Wojnicz, Michał Ludwicki, Jan Awrejcewicz	<i>Influence of the shoe type on the ground reaction forces</i>	LIF 019
18	Jarosław Chruściel, Anna Frątczak, Angelika Puchalska, Siam Streibl, Bartłomiej Zagrodny	<i>Thermographic analysis of the additional load influence on the muscle activation during gait</i>	EXP 107
19	Dariusz Grzelczyk, Jan Awrejcewicz	<i>Stability and control of a hybrid walking robot on planar, unstable and vibrating terrain</i>	MTR 314
20	Ewelina Ogińska, Krystian Polczyński, Dariusz Grzelczyk, Jan Awrejcewicz	<i>Numerical and experimental investigations of dynamics of magnetic pendulum with an aerostatic bearing</i>	MTR 253
21	Olga Jarzyna, Dariusz Grzelczyk, Jan Awrejcewicz	<i>A simple pattern generator for biped walking</i>	LIF 326

22	Krystian Polczyński, Adam Wijata, Jan Awrejcewicz	<i>Theoretical and numerical analysis of different modes in a system of a "kicked" magnetic pendulum</i>	CON 240
23	Krzysztof Witkowski, Grzegorz Kudra, Sergii Skurativskiy, Grzegorz Wasilewski, Jan Awrejcewicz	<i>Nonlinear forced oscillations of the coupled masses between repelling magnets</i>	BIF 320
24	Mateusz Wojna, Grzegorz Wasilewski, Jan Awrejcewicz	<i>The pair of oscillators coupled by the electromagnetic field</i>	BIF 318
25	Anton V. Krysko-jr, Jan Awrejcewicz, Maxim V. Zhigalov, Vadim A. Krysko	<i>Dimension reduction method in nonlinear equations of mathematical physics (MEMS/NEMS problems)</i>	NUM 297
26	V.A. Krysko-jr, J. Awrejcewicz, I.V. Papkova	<i>Complex vibrations of flexible beam NEMS elements, taking into account Casimir's forces under additive white noise</i>	MAT 299
27	Vadim A. Krysko-jr, Jan Awrejcewicz, Irina V. Papkova	<i>Nonlinear dynamics of flexible nanoplates resting on an elastic foundation in a stationary temperature field</i>	ENG 324
28	Carsten Behn, Christoph Will, Joachim Steigenberger	<i>Bending vibrations with boundary damping - unlike behavior of tactile sensors</i>	VIB 187
29	Carsten Behn, Christoph Will, Lukas Merker, Joachim Steigenberger	<i>Bending vibration systems which are complementary with respect to eigenvalues</i>	VIB 188
30	Oleksandr Nakonechnyi, Vasyl Martsenyuk, Aleksandra Kłos-Witkowska	<i>On qualitative analysis of lattice dynamical system of two- and three-dimensional biopixels array: bifurcations and transition to chaos</i>	BIF 210