

LIST OF ABSTRACTS

KEYNOTE LECTURES

Elias C. Aifantis	
<i>Continuum & statistical aspects of gradient theory.....</i>	33
M. Aziz Alaoui	
<i>Synchronization of complex interaction networks of reaction-diffusion systems. Application in neuroscience.....</i>	34
Tarek Amer	
<i>New trends for the motion of a rigid body and dynamical systems.....</i>	35
Bala Balachandran	
<i>Data-driven nonlinear dynamics</i>	36
Romesh C. Batra	
<i>Optimum first failure load design of one/two-core sandwich plates under blast loads, and their ultimate loads.....</i>	37
Albert Luo	
<i>Analytical periodic motions to chaos in nonlinear dynamical systems</i>	38
Yuri V. Mikhlin	
<i>Nonlinear normal vibration modes and associated problems</i>	39
Miguel A.F. Sanjuan	
<i>Unpredictability in physical systems: Basin entropy and Wada basins</i>	40

SPECIAL SESSION 1

Viktor Avrutin, Zhanybai Zhusubaliyev	
<i>Nested closed invariant curves in the 2D piecewise linear normal form</i>	43
Marina Barulina, Alexey Golikov, Sofia Galkina	
<i>Dynamics of sensing element of micro- and nanoelectromechanical sensors as anisotropic size-dependent plate</i>	44
Anastasios Bountis, Yannis Kominis, Joniald Shena, Vassilios Kovaniis	
<i>Asymmetry induced complex dynamics of coupled laser systems</i>	45
Xavier Carton, Konstantin Koshel, Jean Renaud, Charly De Marez	
<i>The interaction of two point vortices with sources in an unsteady 2D shear flow and the transition to chaos</i>	46
Lock Yue Chew	
<i>Kuramoto Oscillators under local unidirectional coupling: the phenomenon of bunching and anti-bunching</i>	47
Ezequiel Del Rio, Sergio Elaskar	
<i>An experimental investigation on noisy intermittency</i>	48

Virgil-Florin Duma	
<i>Exact non-linear scan patterns of laser scanners with rotational Risley prisms: mathematical analysis, simulations, and experiments</i>	49
Mark Edelman	
<i>Stability of discrete fractional systems under random perturbations and lifespan distribution of living species</i>	50
Alexander Goltsev	
<i>Impact of topology on directed network dynamics</i>	51
Rodolfo de Jesús Escalante Gonzalez, Eric Campos Cantón,	
<i>Generation of hidden multiscroll attractors based on piecewise linear systems</i>	52
David Guéry-Odelin	
<i>Evolution of a wave function in a mixed phase space: chaos-assisted tunnelling</i>	53
Takehiko Horita	
<i>Final state sensitivity of intermingled basins</i>	54
Alejandro Jenkins	
<i>From dissipation-induced instability to the dynamics of engines</i>	55
Sijo K. Joseph	
<i>Quantum-gravity in a dynamical system perspective</i>	56
Roberta Lima, Rubens Sampaio	
<i>Maximal stick duration for an electromechanical system</i>	57
Wei Lin	
<i>Locating unknown steady states: When machine learning meet time series dataset</i>	58
Aleksei Lukin, Ivan Popov, Lev Shtukin, Olga Privalova, Dmitry Indeitsev	
<i>Nonlinear dynamics of microbeam resonators under periodical and pulse opto-thermal excitations</i>	59
Elbert Macau	
<i>Topologies that favor synchronization in energy transmission networks</i>	60
Oleg Maslennikov, Mechislav Pugavko, Vladimir Nekorkin	
<i>Dynamics of a network of map-based neurons in problems of reservoir computing</i>	61
Pablo Medina, Alejandro Valdivia	
<i>Probabilistic paths dynamics over weighted complex networks</i>	62
José Fernando Mendes	
<i>Structural stability of interaction networks against negative external fields</i>	63
Vladimir Nekorkin	
<i>Cloning of chimera states in a multiplex network of relaxation oscillators</i>	64
Alberto Robledo, Carlos Velarde	
<i>Rank distributions, nonlinear dynamics, and number theory</i>	65

Wojciech Sawczuk, Grzegorz Marek Szymański	
<i>Experimental analysis of dynamic susceptibility of selected elements of the railway braking system</i>	66
David Simpson, Viktor Avrutin, Soumitro Banerjee	
<i>Nordmark map and the problem of large-amplitude chaos in an impact oscillator</i>	67
Arūnas Tamaševičius, Elena Adomaitienė, Skaidra Bumelienė	
<i>Local control of an array of globally coupled oscillators</i>	68
Juan A. Valdivia, Jose Rogan, Pablo Medina, Miguel Kiwi, Felipe Torres	
<i>Deciphering the transport in complex systems</i>	69
Zhigang Zheng	
<i>Order-parameter analysis of collective dynamics in networks of oscillators</i>	70
Zhanybai Zhusubaliyev, Viktor Avrutin	
<i>Border-collisions in a periodically forced self-oscillatory piecewise smooth system with a high number of switching manifolds</i>	71
<u>SPECIAL SESSION 2</u>	
Krzysztof Augustynek, Andrzej Urbaś	
<i>The dynamics analysis of a spatial linkage with flexible links and imperfect revolute joints</i>	75
Claudio Basquerotto, Adrián Ruiz, Edison Righetto, Samuel da Silva	
<i>Application of the Lie symmetries in the moving frames theory to solve nonholonomic constraints problems</i>	76
Virgil-Florin Duma	
<i>Optomechatronic disk choppers with generalized window profiles: Ascertainment and multi-parameter analysis of non-linear transmission functions</i>	77
Saransh Jain, Sarthak Jain, Mohit Makkar	
<i>Nonlinear modelling and control of self-balancing human transporter</i>	78
Mateusz Jakubowski	
<i>Consideration about H-type rotor with the Magnus effect</i>	79
Elżbieta Jarzębowska, Marcin Kłak	
<i>Quaternion based free-floating space manipulator dynamics modeling using the dynamically equivalent manipulator approach</i>	80
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>	81
Remei H. Junior, Wagner B. Lenz, Rodrigo T. Rocha, Mauricio A. Ribeiro, Angelo Marcelo Tusset, Jose M. Balthazar, Elżbieta Jarzebowska	
<i>Dynamic and control applied to a non-ideal portal frame structure to energy harvesting</i>	82

Stefan Kaczmarczyk	
<i>The dynamics and control of a high-rise vertical transportation system with a hydraulic damper-actuator system</i>	83
Wagner Barth Lenz, Mauricio A. Ribeiro, Angelo M. Tusset,	
Elżbieta Jarzębowska, Jose Manoel Balthazar	
<i>Slosh analysis on a full car model with SDRE control and hydraulic damper</i>	84
Airton Nabarrete, Gustavo de Freitas Fonseca	
<i>Finite element analysis of magneto-rheological fluid embedded on journal bearings</i>	85
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>	86
Rafael Teloli, Samuel da Silva, Gaël Chevallier	
<i>Parameters estimation by harmonic probing of hysteresis models of bolted jointed</i>	87
Andrzej Urbaś, Krzysztof Augustynek	
<i>Evaluation of the crane's actuators strength based on the results obtained from dynamics model</i>	88
Viktorija Volkova	
<i>Application of trajectories in extended phase space for identification of external excitement</i>	89
Jaroslav Zapomel, 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>	90
SPECIAL SESSION 3	
Elias C. Aifantis	
<i>Gradient fractional elasticity and models in statics and dynamics</i>	93
Tiziana Alderucci, Federica Genovese, Giuseppe Muscolino	
<i>Response sensitivity of damper-connected adjacent structural systems subjected to fully non-stationary random excitations</i>	94
Andrea Burlon	
<i>Vibration mitigation of coupled bending-torsion beams via tuned mass dampers</i>	95
Andrea Burlon, Mario Di Paola, Giuseppe Failla	
<i>Fractional nonlinear viscoelastic rubbers for base isolated systems</i>	96
Vincent Denoël	
<i>Perturbation analysis of a MDOF system equipped a tuned mass damper</i>	97
Alberto Di Matteo, Mario Di Paola, Iain Peter Dunn,	
Chiara Masnata, Antonina Pirrotta	
<i>A novel procedure for dynamic identification from ambient vibration data</i>	98

Alberto Di Matteo, Mario Di Paola, Antonina Pirrotta	
<i>Path integral approach and Kolmogorov-Feller equation for nonlinear systems under parametric Poisson white noise</i>	99
Salah Djerouni, Mouncef Eddine Charrouf, Mahdi Abdeddaim,	
Nassim Djedoui, Abdelhafid Ounis	
<i>Control base isolation structure (BIS) with a novel passive tuned mass damper inerter (TMDI) device</i>	100
Giuseppe Failla, Gioacchino Alotta	
<i>Novel concepts of resonators for beam structures</i>	101
Federica Genovese, Giuseppe Muscolino	
<i>Response spectrum analysis of mid-story seismically isolated building structures</i>	102
Mina Ghassempour, Giuseppe Failla, Felice Arena, Giovanni Malara	
<i>On the use of tuned mass dampers for vibration mitigation in offshore wind turbines</i>	103
Krzysztof Kecik	
<i>Theoretical and experimental investigations of a magnetic levitation system for energy recovery</i>	104
Krzysztof Kecik, Rafal Rusinek	
<i>Improving functionality of absorber/harvester system by a smart adaptive suspension</i>	105
Valentina Laface, Carlo Ruzzo, Giuseppe Failla, Felice Arena	
<i>Innovative tuned resonant devices for offshore floating wind turbines</i>	106
Juliano Ferreira Martins, Marcus Vinicius Girão De Moraes,	
Suzana Moreira Ávila	
<i>Parametric optimization of TLCD-Main Structure Coupled System subject to seismic excitations</i>	107
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>	108
Antonina Pirrotta, Alberto Di Matteo, Chiara Masnata	
<i>Optimal design of Tuned Mass Damper Inerter for base isolated structures</i>	109
Fernando Rochinha, Reniene Santos, Daniel Castello	
<i>Bayesian assessment of viscoelastic damping models</i>	110
Roberta Santoro, Giuseppe Failla	
<i>Effect of uncertainty in dynamic response of multi-cracked beams</i>	111
Leo Acho Zuppa, Jan Awrejcewicz, Nataliya Losyeva,	
Volodymyr Puzyrov, Nina Savchenko	
<i>The use of the dynamic vibration absorber for energy harvesting</i>	112

SPECIAL SESSION 4

Nurtay Albanbay, Bekbolat Medetov, Michael Zaks <i>Distribution of lifetimes for transient bursting states in coupled noisy excitable systems</i>	115
Fadi Dohnal, Wolfgang Hörtnagel <i>Numerical and analytical investigation of chatter suppression by parametric excitation</i>	116
Piotr Gierlak, Andrzej Burghardt, Krzysztof Kurc, Dariusz Szybicki <i>Analysis of parametric vibration of a roller coaster flexible wheel</i>	117
Jarosław Latański, Jerzy Warmański <i>Primary and combined multi-frequency parametric resonances of a rotating thin-walled composite beam under harmonic base excitation</i>	118
Shuai Li, Jin-Ting Wang, Guang-Heng Luo, Zhi-Qian Xiang <i>Dynamic monitoring and online automatic modal parameters of a super high arch dam</i>	119
Roberta Lima, Rubens Sampaio, Peter Hagedorn <i>On the decoupling of electromechanical systems</i>	120
Grzegorz Stachyra, Jerzy Warmański <i>Vortex induced vibrations (VIV) in rotating blade structures</i>	121
Ferdinand Verhulst <i>Systems with fast limit cycles and slow interaction</i>	122
Jerzy Warmański <i>Dynamics and control of self-excited system under parametric or external excitations and time delay</i>	123
Ekaterina Zavorotneva, Alexei Lukin, Ivan Popov <i>Dynamics of MEMS Coriolis Vibrating Gyroscope with an annular disk resonator under parametric excitation</i>	124

SPECIAL SESSION 5

Mohammed Alkinidri, Ludmila Prikazchikova, Julius Kaplunov <i>Two-mode low-frequency approximations for anti-plane shear of a high-contrast asymmetric laminate</i>	127
Igor Andrianov, Vladyslav Danishevskyy, Bernd Markert <i>Low and high frequency dynamic models and modes coupling in vibration of a non-linear lattice</i>	128
Igor V. Andrianov, Jan Awrejcewicz, Wim T. van Horssen <i>Bolotin's reduce beam model for various boundary conditions</i>	129
Mikhail Dmitriev, Yulia Danik <i>Approximate solutions of some classes of dynamic and control problems based on Pade approximations</i>	130

Margarita Kovaleva, Leonid Manevitch

<i>Interchain energy exchange in the DNA coarse-grained model</i>	131
---	-----

Leonid Manevitch, Valery Smirnov

<i>Beam-like and shell-like nonlinear normal modes interaction of single-walled carbon nanotubes</i>	132
--	-----

Ali Mubarak, Danila Prikazchikov

<i>Surface waves in a multi-layered elastic half-space</i>	133
--	-----

Klaus Zimmermann, Igor Zeidis, Simon Gast, Florian Schale,

Michel Rohn, Victor Lysenko

<i>Mathematical model and a prototype of a linear motor controlled by a periodic magnetic field</i>	134
---	-----

SPECIAL SESSION 6

Carsten Behn, Daniel Baldeweg, Christoph Will

<i>Bending vibration systems as tactile sensors for contact point detection using natural frequencies</i>	137
---	-----

László Bencsik, Dalma Nagy, Ambrus Zelei, Tamás Insperger

<i>The mechanical background of devices for balancing skill development</i>	138
---	-----

Andjelka Hedrih

<i>Synchronisation of biological oscillators in reproductive biology</i>	139
--	-----

Małgorzata Klepczyńska, Bartłomiej Zagrodny, Wiktoria Wojnicz,

Michał Ludwicki, Jan Awrejcewicz

<i>Influence of the shoe type on the ground reaction forces during gait</i>	140
---	-----

Katarzyna Koter, Łukasz Fraczkak, Kalina Chojnacka, Konrad Jablonski,

Sandra Zarychta, Leszek Podsedkowski

<i>Snake robot based on McKibben Pneumatic Artificial Muscles</i>	141
---	-----

Balint Petro, Rita M. Kiss

<i>A double pendulum in 3 dimensions – a model-based analysis of the balancing human body</i>	142
---	-----

Moritz Scharff, Lukas Merker

<i>Bio-Inspired Tactile Sensing: Distinction of the overall object contour and macroscopic surface features</i>	143
---	-----

Yang Shu, Jan Awrejcewicz, Bartłomiej Zagrodny

<i>Biomechanical analysis of different foot morphology during standing on a dynamic support surface</i>	144
---	-----

Tomasz Walczak, Grażyna Sypniewska-Kamińska, Renata Ferdula,

Adam Pogorzała

<i>Identification of muscle forces of upper limbs based on the registration of motion capture system</i>	145
--	-----

Wiktoria Wojnicz, Bartłomiej Zagrodny, Michał Ludwicki, Jerzy Mrozowski,

Jan Awrejcewicz, Edmund Wittbrodt

<i>Multibody models for gait analysis</i>	146
---	-----

Liliána Zajcsuk, Giuseppe Habib, Ambrus M. Zelei

<i>Antropomorphic parameters of a nonlinear dynamic model of self-sustained hopping</i>	147
---	-----

Adam Zawadzki, Tomasz Mirosław, Jakub Deda, Zbigniew Żebrowski

<i>Structure and control strategies of exoskeletons for fatigue limitation of a healthy man</i>	148
---	-----

SPECIAL SESSION 7

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>	151
---	-----

Oleg Cherkasov, Nina Smirnova, Sheng Huang

<i>Optimal thrust control for the Modified Brachistochrone Problem</i>	152
--	-----

Marat Dosaev

<i>On features of the contact model of an elastic brake shoe with a wheel</i>	153
---	-----

Marat Dosaev, Shyh-Shin Hwang, Vitaly Samsonov

<i>Friction coefficient estimating in problem of planar motion of a friction-powered robot</i>	154
--	-----

Piotr Gamorski

<i>Quasistatic frictional contact problem governed by a variational-hemivariational inequality</i>	155
--	-----

Elena Gebel, Victor Glazunov

<i>Singularity analysis of planar 8-bar lever mechanism using screw theory</i>	156
--	-----

Chi-Chuan Hsu, Shia-Chung Chen, Shyh-Shin Hwang

<i>Study on the properties of the microcellular injection molded Polyolefin/Beta Cyclodextrin composites</i>	157
--	-----

Mohit Makkar, Saransh Jain

<i>Bond graph modeling and simulation of left ventricle of human heart</i>	158
--	-----

Yury Selyutskiy, Rinaldo Garziera, Luca Collini

<i>On dynamics of a rigid block on visco-elastic foundation</i>	159
---	-----

Yury Selyutskiy, Andrei Holub, Ching-Huei Lin

<i>Piezoeoelastic system based on a double aerodynamic pendulum</i>	160
---	-----

SPECIAL SESSION 8

David Angulo-García, Fabiola Angulo, Luz-Adriana Ocampo

<i>Secondary feedback control in smart grids</i>	163
--	-----

Enric Trullols, Imma Massana, Joana d'arc Prat, Josefina Antonijuan,

Gerard Olivar

<i>Nonlinear tourist flows in Barcelona</i>	164
---	-----

Hernán Darío Toro Zapata, Gerard Olivar Tost

<i>Evolution models for urban metabolism in Bogota</i>	165
--	-----

SPECIAL SESSION 9

Aurélien Grolet, Zein Alabidin, Sadaf Arabi, Olivier Thomas

<i>Experimental nonlinear localisation in a system of two coupled beams</i>	169
---	-----

Victor Kislovsky, Margarita Kovaleva, Yuli Starosvetsky

<i>Damped driven response of granular chain</i>	170
---	-----

Margarita Kovaleva, Leonid Manevitch

<i>Non-conventional synchronization in the chains of weakly coupled nonlinear autogenerators</i>	171
--	-----

Leonid Manevitch

<i>New development of non-stationary resonant dynamics</i>	172
--	-----

Yuri Mikhlin, Natalya S. Goloskubova, Tatyana V. Shmatko

<i>Stability of steady states with regular or chaotic behaviour in time</i>	173
---	-----

Valery Pilipchuk

<i>On mode formation and transitions in self-sustained friction induced vibrations</i>	174
--	-----

Jayaprakash Kalkunte Raghunath, Yuli Starosvetsky

<i>Analytical and numerical study of piecewise linear Mathieu equation with non-zero offset</i>	175
---	-----

SPECIAL SESSION 10

Andrzej Burghardt, Piotr Gierlak, Wincenty Skwarek

<i>Modeling of dynamics of cooperating wheeled mobile robots</i>	179
--	-----

Jakub Chołodowski, Piotr Dudziński

<i>On the influence of rubber tracks vibrations upon energy losses in crawler vehicles drive systems</i>	180
--	-----

Andrzej Dębowski, Dariusz Żardecki

<i>Modelling of torsional vibrations in a motorcycle steering system</i>	181
--	-----

Piotr Dudziński, Aleksander Skurjat

<i>The influence of lateral swaying on the trajectory of articulated rigid body vehicles</i>	182
--	-----

Piotr Dudziński, Jakub Chołodowski

<i>Modeling and experimental tests on motion resistance of double-flange rollers of rubber track systems due to sliding friction between the rollers and guide lugs of rubber tracks</i>	183
--	-----

Mirosław Gidlewski, Leszek Jemioł, Dariusz Żardecki

<i>Influence of control system parameters and its disturbances on lane change process</i>	184
---	-----

Witold Grzegożek, Krzysztof Weigel-Milleret

<i>Stability of three wheeled narrow vehicle</i>	185
--	-----

Andrzej Harlecki, Adam Przemys, Szymon Tengler	
<i>Application of homogenous transformations in dynamic analysis of truck trailers</i>	186
Hanna Zsófia Horváth, Dénes Takács	
<i>Stability of snaking trailers</i>	187
Tomasz Mirosław	
<i>Model of a pneumatic tire and road cooperation based on 3-state flexible elements</i>	188
Wojciech Paszkowiak, Tomasz Bartkowiak	
<i>Dynamics of logistic train</i>	189
Leon Prochowski, Mirosław Gidlewski, Mateusz Ziubiński,	
Krzysztof Dziewiecki	
<i>Analysis of the kinematics of the process of deformation of motorcar bodies during side impact crash tests carried out to the FMVSS 214 and conventional test procedures</i>	190
Leon Prochowski, Mateusz Ziubiński, Patryk Sz wajkowski,	
Tomasz Pusty, Mirosław Gidlewski	
<i>The control model's impact on the car and trailer set movement in experimental and simulation research</i>	191
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>	192
Dariusz Żardecki	
<i>Non-smooth nonlinear model of suspension system based on piecewise linear luz(...) and tar(...) projections</i>	193
SPECIAL SESSION 11	
Isabela Birs, Ioan Nascu, Eva Dulf, Cristina Muresan	
<i>Comparisons of various fractional order controllers on a poorly damped system</i>	197
Oana Brandibur, Eva Kaslik, Dorota Mozyrska, Malgorzata Wyrwas	
<i>A Rulkov neuronal model with Caputo fractional variable-order differences of convolution type</i>	198
João Maurício de Carvalho, Carla Pinto	
<i>Role of the immune system in AIDS-defining malignancies</i>	199
Eva-H. Dulf, Cristina-I. Muresan, Daniel D. Timis	
<i>Adaptive fractional order control of a quadrotor</i>	200
Eva-H Dulf, Clara-M. Ionescu, Cristina Ioana Muresan	
<i>Risk related prediction for recurrent stroke and post-stroke epilepsy using Fractional Fourier Transform analysis of EEG signals</i>	201
Cristina Muresan, Carla Pinto, Eva Dulf	
<i>Special session on advances in fractional order modelling and control</i>	202

Pritesh Shah, Ravi Sekhar	
<i>Closed loop system identification using fractional order model</i>	203
Małgorzata Wyrwas, Dorota Mozyrska, Piotr Oziabło	
<i>Asymptotic stability of fractional variable order discrete-time equations with terms of convolution operators</i>	204
SPECIAL SESSION 12	
Jan Awrejcewicz, Lidiya Kurpa, Tetyana Shmatko	
<i>Free vibration analysis of FGM shell with complex planform in thermal environments</i>	207
Eduard-Sebastian Cukas, Dorin Demian, Virgil-Florin Duma	
<i>Comparison using FEA between cylindrical, spherical, and conical configurations of optical choppers with shafts</i>	208
Paweł Komorski, Grzegorz M. Szymanski, Tomasz Nowakowski,	
Malgorzata Orczyk	
<i>Application of the wheel-flat detection algorithm using advanced acoustic signal analysis</i>	209
Lidiya Kurpa, Victoriya Tkachenko, Anna Linnik	
<i>Vibration and buckling of laminated plates of complex form under in-plane uniform and non-uniform loading</i>	210
Mariusz Pawlak, Wojciech Klein, Jan Kania, Arkadiusz Mężyk	
<i>Sensitivity analysis of the new concept of a vibration-reduction system for continuous miner</i>	211
Juliana Santos	
<i>Damage detection in beams using an additional roving mass based on the natural frequency shifting</i>	212
Grzegorz M. Szymański, Piotr Krawiec	
<i>Testing and analysis of vibrations of a tension transmission with a thermally sealed belt</i>	213
Aleksandra Waszczuk-Młyńska, Stanisław Radkowski	
<i>Analytical model of a circular membrane with damage in the form of scratches</i>	214
Antonio Zippo, Francesco Pellicano, Giovanni Iariccio	
<i>Synchronicity phenomenon of circular cylindrical shell under random excitation</i>	215
LECTURES	
Iwona Adamiec-Wójcik, Lucyna Brzozowska, Stanisław Wojciech	
<i>Influence of bending and torsional flexibility on displacements and loading of risers</i>	219
Shohel Ahmed, Md. Kamrujjaman	
<i>Modeling the spatiotemporal transmission of Cholera disease involving infectiology, epidemiology and controls</i>	220

Mohammad AL-Shudeifat, Oleg Shiryavev, Tariq Alzarooni, Chandrasekhar Nataraj	
<i>Full spectrum analysis for studying the backward whirl in accelerated rotor systems</i>	221
Tariq Alzarooni, Mohammad AL-Shudeifat, Oleg Shiryavev, Chandrasekhar Nataraj	
<i>On backward whirl excitation in linear-time-variant intact and cracked rotor systems</i>	222
Carlos Argaez, Peter Giesl, Sigurdur Freyr Hafstein	
<i>Critical tolerance evolution: Classification of the chain-recurrent set</i>	223
Ivana Atanasovska, Dejan Momcilovic	
<i>Great persons and results make biomimetics incredibly inspirational</i>	224
Jan Awrejcewicz, Dmytro Bilichenko, Akram Khalil Cheib, Nataliya Losyeva, Volodymyr Puzyrov	
<i>Estimation of the domain of attraction for a nonlinear mechanical system with three degrees of freedom</i>	225
Jan Awrejcewicz, Anton V. Krysko, E.Yu. Krylova, T.Y. Yaroshenko, M.V. Zhigalov, Vadim A. Krysko	
<i>Shells subjected to mechanical and thermal loads and corrosion</i>	226
Jan Awrejcewicz, Anton V. Krysko, Maxim V. Zhigalov, Vadim A. Krysko	
<i>Comparative analysis of the theories of nano-mechanical systems on the example of contact interaction of nano-Bernoulli-Euler beams</i>	227
Jan Awrejcewicz, Vadim A. Krysko-jr, Olga A. Saltykova, Irina V. Papkova, Vadim A. Krysko	
<i>Nonlinear dynamics of Euler-Bernoulli nanobeams in temperature/magnetic fields and under radiation with an account of physical nonlinearity</i>	228
Jan Awrejcewicz, Olga Mazur	
<i>Size-dependent nonlinear vibrations of micro-plates subjected to in-plane magnetic field</i>	229
Jan Awrejcewicz, Olga A. Saltykova, Vadim A. Krysko	
<i>Nonlinear dynamics of flexible nanobeams taking into account the Casimir, van der Waals and Coulomb forces</i>	230
Jan Awrejcewicz, Roman Starosta, Grażyna Sypniewska-Kamińska	
<i>Vibration of nonlinear lumped systems with serially connected elastic elements</i>	231
Jan Awrejcewicz, Tatyana Y. Yaroshenko, Maxim V. Zhigalov, Igor I. Shulga, Ivan A. Bulatov, Vadim A. Krysko	
<i>Methods of nonlinear dynamics for analyzing historical processes</i>	232

Jan Awrejcewicz, Maxim V. Zhigalov, Sergey P. Pavlov, Vadim A. Krysko	
<i>Nonlinear dynamics of thermoelastic Sheremetiev-Pelekh nanobeams with topologically optimal microstructure</i>	233
Peter Beda	
<i>Dynamical systems and stability in fractional solid mechanics</i>	234
Maksymilian Bednarek, Donat Lewandowski, Jan Awrejcewicz	
<i>Using electromagnetic springs for tailoring dynamical characteristics</i>	235
Carsten Behn, Christoph Will, Joachim Steigenberger	
<i>Bending vibrations with boundary damping – unlike behavior of tactile sensors</i>	236
Carsten Behn, Christoph Will, Lukas Merker, Joachim Steigenberger	
<i>Bending vibration systems which are complementary with respect to eigenvalues</i>	237
Peter Benner, Andreas Seidel-Morgenstern, Alexander Zuyev	
<i>Analysis of switching strategies for the optimization of periodic chemical reactions with controlled flow-rate</i>	238
Jaroslav Robert Blaszcak	
<i>Analysis of dynamic properties of an aeroacoustic anechoic room</i>	239
Jaroslav Robert Blaszcak	
<i>Vibro-acoustic interactions of a dynamic system – the case of two contra-rotors</i>	240
Alexey Borisov, Ivan Mamaev, Ivan Bizyaev, Alexander Kilin	
<i>Nonholonomic acceleration and chaotic dynamics of locomotion</i>	241
Alexey Borisov, Ivan Mamaev, Evgenii Vetchanin, Alexander Kilin	
<i>Locomotion of a foil with a sharp edge in a fluid due to periodic controls</i>	242
Vyacheslav Burlayenko	
<i>Finite element modelling and simulations of sandwich beam dynamics considering crack growth and contact</i>	243
Vasily Buyadzi, Anna Buyadzi, Alexey Chernyshev	
<i>Nonlinear dynamics of laser systems: Chaos, bifurcations and strange attractors</i>	244
Vasily Buyadzi, Olga Khetselius, Yuliya Bunyakova, Iryna Buchko	
<i>Nonlinear dynamics of the industrial city's atmospheric ventilation: New differential equations model and chaos</i>	245
Dawid Cekus, Paweł Kwiatkoń, Tomasz Geisler	
<i>Analysis of the movement of the load during the interaction of wind force</i>	246
Oleg Cherkasov, Elina Makieva	
<i>Optimal rendezvous with proportional navigation unmanned aerial vehicle</i>	247
Stefan Chwastek	
<i>Finding globally optimal combinations of cranes drive mechanisms by the method of exhausting alternative design structures of mechanisms</i>	248

Tomasz Czapla, Mariusz Pawlak	
<i>The model of wheel-surface interaction for all terrain vehicle dynamics simulation</i>	249
Tomasz Czapla, Marcin Fice, Roman Niestrój	
<i>Experimental identification of wheel-surface model parameters – various terrain conditions</i>	250
Jakub Deda, Tomasz Mirosław, Adam Zawadzki	
<i>Dynamic model of a remotely controlled swarm of robots</i>	251
Simona Doneva, Jerzy Warminski, Emil Manoach	
<i>Dynamics of circular plates under selected heat loadings: Finite element and analytical models</i>	252
Ivanna Dronyuk	
<i>Q-Ateb-functions and their properties</i>	253
Adriano Fabro, Daniely Amorim	
<i>Experimental investigation of wave propagation in light weight structures undergoing flexural vibration</i>	254
Tomasz Falborski, Natalia Lasowicz	
<i>Numerical investigation on pounding effects between two adjacent base-isolated building models under dynamic excitations</i>	255
Hamed Farahmand, Reza Abdollahi	
<i>Fault detection of PTO with accurate MBS method</i>	256
André Fenili, Leonardo Monteiro Mazzariol	
<i>Nonlinear dynamics and control of two tethered satellites: rigid body approach</i>	257
Yanne Soares Fernandes, Marcela Machado, Maciej Dutkiewicz	
<i>Structural dynamic response of the coupling between transmission lines and tower under random excitation</i>	258
Wiesław Fiebig	
<i>The use of mechanical resonance for the reduction of torque pulsation and energy demand in machines with crankshaft systems</i>	259
Wiesław Fiebig, Piotr Kruczek	
<i>Influence of sliding bearing parameters on the dynamical behavior of external gear pumps</i>	260
Szymon Finke, Tomasz Staśkiewicz, Bartosz Firlik	
<i>Passenger distribution versus a light rail vehicle running behaviour</i>	261
Paweł Fritzkowski, Roman Starosta, Jan Awrejcewicz	
<i>Analytical approach to vibro-impact dynamics of two coupled oscillators</i>	262
Lin Fu, Jan Awrejcewicz	
<i>A biomechanical investigation of center of pressure velocity characteristics for scoliosis during walking</i>	263
Elena Gebel, Asylbek Jomartov	
<i>Approximate kinematic synthesis of the four-bar mechanism by two given positions of the links</i>	264
Alexander V. Glushkov, Vasily V. Buyadzh, Alexander Mashkantsev, Alexey Lavrenko	
<i>Deterministic chaos in a damage dynamics of the engineering (vibrating) structures under varying environmental and operational conditions</i>	265
Alexander V. Glushkov, Anna Ignatenko, Anna Kuznetsova, Anna Buyadzh	
<i>Nonlinear dynamics of atomic and molecular systems in an electromagnetic field: Deterministic chaos and strange attractors</i>	266
Dariusz Grzelczyk, Jan Awrejcewicz	
<i>An influence of the external electric field and internal imperfections on the reflectance and transmittance of light propagated in liquid crystals</i>	267
Dariusz Grzelczyk, Jan Awrejcewicz	
<i>Stability and control of a hybrid walking robot on vibrating and unstable terrain</i>	268
Dariusz Grzelczyk, Olga Jarzyna, Jan Awrejcewicz	
<i>Modelling and control of a lower limb exoskeleton driven by linear actuators</i>	269
Jose Mario Vicensi Grzybowski, Cassio Luciano Baratieri	
<i>Application of the Unscented Kalman Filter to experimental estimation of states and parameters of synchronous generators</i>	270
Ben Gunn, Stephanos Theodossiades, Steve Rothberg	
<i>A rotational energy harvester for propulsion systems: design and experimental validation</i>	271
Nicolae Herisanu, Vasile Marinca	
<i>A new analytical approach to nonlinear free vibration of microtubes</i>	272
Nicolae Herisanu, Vasile Marinca	
<i>Nonlinear vibration of Bernoulli-Euler beam resting on a Winkler elastic foundation</i>	273
Wolfgang Hörtnagel, Stefan Plagg, Fadi Dohnal	
<i>Harmonic transfer path analysis of a wine refrigerator</i>	274
Jia Lin Hu, Giuseppe Habib	
<i>Optimal dynamic vibration absorber for friction-induced vibration mitigation</i>	275
Vasilisa Igumnova, Lev Shtukin, Aleksei Lukin, Ivan Popov	
<i>Dynamics of the microresonator in the regime of supercritical compression</i>	276
Artur Iluk	
<i>Optimization of mitigation strategy for Under-Body Blast load to minimize injury of spine</i>	277

Jacek Jackiewicz	
<i>Controlled dynamical system for leveling vibrations of longitudinal forces in railway couplers of multi-part rail vehicles</i>	278
Olga Jarzyna, Dariusz Grzelczyk, Jan Awrejcewicz	
<i>A simple pattern generator for biped walking</i>	279
Anna Jaskot, Bogdan Posiadata, Szczepan Śpiewak	
<i>Motion cases analysis of the mobile platform with four-wheel drive under slippage conditions</i>	280
Jacek Kabziński	
<i>Adaptive, nonlinear synchronization of a Duffing oscillator with unknown parameters</i>	281
Krzysztof J. Kaliński, Marek Galewski, Michał Mazur, Natalia Morawska	
<i>Optimization of the spindle speed during milling of high-dimensional structures with the use of technique of Experiment-Aided Virtual Prototyping</i>	282
Bhaben Kalita, Santosha K. Dwivedy	
<i>Nonlinear study of a Pneumatic Artificial Muscle (PAM) under superharmonic resonance condition using method of multiple scales</i>	283
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>	284
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>	285
Yuki Kasai, Hiroshi Yabuno, Takeshi Ishine, Yasuyuki Yamamoto,	
Sohei Matsumoto	
<i>Ultrasensitive mass sensing using a single cantilever coupled with a computational cantilever</i>	286
István Kecskés, Ákos Odry, Péter Odry	
<i>Uncertainties in the movement and measurement of a hexapod robot</i>	287
Olga Khetselius, Andrey Svinarenko, Anna Ignatenko	
<i>New generalized chaos-geometric and neural networks approach to nonlinear modeling of complex chaotic dynamical systems</i>	288
Olga Khetselius, Andrey Svinarenko, Yuliya Bunyakova, Iryna Buchko	
<i>Chaos-geometric approach to analysis and forecasting evolutionary dynamics of complex systems: atmospheric pollutants dynamics</i>	289
Sungyeup Kim	
<i>An experimental observation of the spatial motions of strings in resonance points under the planar excitation</i>	290
Jeong-Tae Kim, Ngoc-Loi Dang	
<i>Electromechanical impedance tomography for strand breakage localization in multi-strands anchorage</i>	291

Matthias Klaerner, Lothar Kroll, Steffen Marburg	
<i>Rapid vibro-acoustic optimisation of laminated composites</i>	292
František Klimenda, Josef Soukup, Lenka Rychlíková	
<i>Impact wave propagation in a thin elastic isotropic plate</i>	293
František Klimenda, Josef Soukup, Blanka Skočilasová,	
Lenka Rychlíková	
<i>Convergence of dual infinity series</i>	294
Łukasz Kłoda, Stefano Lenci, Jerzy Warmiński	
<i>Nonlinear dynamics of a planar beam-spring system: a 2:1 internal transversal-axial resonance</i>	295
Petr Koludarov, Alexey Lukin, Ivan Popov	
<i>System-level modelling of resonant MEMS inertial sensors</i>	296
Zbigniew Koruba, Izabela Krzysztofik	
<i>Control of the gyroscopic observation and tracking system on deck of the quadrotor unmanned aerial vehicle in the conditions of random interference impact</i>	297
Andrzej Kosiara, Aleksander Skurjat, Jakub Chołodowski	
<i>Assessment of implementation of neural networks in on-board dynamic payload weighing systems</i>	298
Jan Kozanek	
<i>Some special properties of dynamical system caused by non-linear eigenvalue problem</i>	299
Alexander Krot	
<i>On the theory of wave gravitational field arising under orbital motion of a gravitating body</i>	300
Vitaly Krupenin	
<i>String lattices vibrating near limiters</i>	301
Ekaterina Krylova, Jan Awrejcewicz, Irina Papkova, Vadim Krysko	
<i>Nonlinear dynamics of flexible mesh cylindrical panels in the white noise's field</i>	302
Ekaterina Krylova, Jan Awrejcewicz, Irina Papkova, Vadim Krysko	
<i>Oscillations of flexible orthotropic meshed micropolar Timoshenko's plate</i>	303
Anton V. Krysko, Maxim V. Zhigalov, Sergey P. Pavlov, Olga A. Saltykova,	
Irina V. Papkova, Tatyana Y. Yaroshenko, Tatyana V. Yakovleva,	
Vitaliy V. Dobriyan, Ilya E. Kutepov, Nikolai P. Erofeev, Jan Awrejcewicz,	
Vadim A. Krysko	
<i>Analysis of human EEG to identify pathological conditions using nonlinear dynamics methods</i>	304

Anton V. Krysko, Jan Awrejcewicz, Igor A. Kopnin, Maxim V. Zhigalov, Vadim A. Krysko	
<i>Dynamics of the size-dependent plates based on reduction of the problem dimension</i>	306
Anton V. Krysko, Jan Awrejcewicz, Ilya E. Kutepov, Vadim A. Krysko	
<i>Nonlinear dynamics of NEMS resonators in temperature fields</i>	307
Vadim A. Krysko, Jan Awrejcewicz, Irina V. Papkova, Anton V. Krysko	
<i>Complex vibrations of flexible beam NEMS elements, taking into account Casimir's forces in additive white noise</i>	308
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>	309
Izabela Krzysztolik, Zbigniew Koruba	
<i>Sensitivity research of the gyro system tracking the ground target from the quadrotor in conditions of external disturbances impact</i>	310
Jakub Lagodzinski, Eliza Tkacz	
<i>Experimental validation of valve solenoid numerical model</i>	311
Natalia Lasowicz, Tomasz Falborski	
<i>Dynamic analysis of a steel temporary grandstand subjected to human-induced excitations due to jumping</i>	312
Paweł Łatosiński, Andrzej Bartoszewicz	
<i>Discrete-time model reference sliding mode control using an exponential reaching law</i>	313
Yulia Ledovskaya	
<i>Nanoparticle mass detection using suspended microchannel resonator with account for internal fluid flow</i>	314
Einrique Roberto Carrillo Li, Philipp Schorr, Tobias Kaufhold, Jorge Antonio Hernandez Rodriguez, Lena Zentner, Klaus Zimmermann, Valter Böhm	
<i>Kinematic analysis of the rolling locomotion of mobile robots based on tensegrity structures with spatially curved compressed members</i>	315
Yubo Lin, Hiroshi Yabuno, Xuan Liu	
<i>Experimental validity of highly sensitive atomic force microscope (AFM)</i>	316
Jakub Lorencki	
<i>Switched Reluctance Motor dynamic eccentricity modelling</i>	317
Michał Ludwicki, Kinga Ostrowska, Natalia Marcinowska, Mateusz Kaszowski	
<i>Portable system for upper limb movement tracking</i>	318
Marcela Machado, Adriano Fabro, Braion Moura	
<i>Flexural waves propagation in piezoelectric metamaterial beam</i>	319

Jose Tenreiro Machado, Antonio Mendes Lopes	
<i>Fractional dynamics and power law behaviour in soccer leagues</i>	320
Nikolai Magnitskii	
<i>Traveling waves and spatio-temporal chaos in nonlinear dynamical systems</i>	321
Paweł Malczyk, Paweł Maciąg, Janusz Frączek	
<i>Optimal control of constrained multi-rigid-body systems using recursive Hamiltonian formulation</i>	322
Emil Manoach, Simona Doneva, Jerzy Warminski	
<i>Thermoelastic large amplitude vibration of bi-material beams</i>	323
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>	324
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>	325
Agnieszka Misztal, Grzegorz M. Szymański, Wojciech Misztal	
<i>Innovative application of quality methods to assess the homogeneity of the noise level distribution generated by F-16 multirole aircrafts</i>	326
Andrzej Mitura, Rafał Rusinek	
<i>Two sound sources in implanted middle ear – numerical analysis</i>	327
Mohamed Mohamed, Mohamed Abohameer, Tarek Amer	
<i>On the vibrational analysis for the motion of a rotating cylinder</i>	328
Mohamed Mohamed, Tarek Amer, Yasser Gamiel	
<i>On the spinning motion of a disc under the influence a gyrostatic moment</i>	329
Jakub Mozaryn, Damian Suski, Arkadiusz Winnicki	
<i>Modeling of electro-hydraulic servo-drive for advanced control system design</i>	330
Nadezhda Mozhgova, Alexey Lukin, Ivan Popov	
<i>Electrostatically actuated initially curved micro beams: analytical and finite element modelling</i>	331
Aravindan Muralidharan, Shaikh Faruque Ali	
<i>System size resonance in a 1-D array of noisy bistable piezoelectric harvesters</i>	332
Rajarathinam Murugesan, Aravindan Muralidharan, Shaikh Faruque Ali	
<i>Investigation of coupled piezoelectric and multiple electromagnetic hybrid vibration energy harvester</i>	333
Sergiy Mykulyak, Sergii Skurativskyi	
<i>Nonlinear dynamics of the hierarchic system of oscillators</i>	334

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>	335
Tamara Nestorović, Kevin Hassw, Atta Oveisi <i>Optimization of the actuator/sensor placement for active vibration control of a funnel shaped piezoelectric structure</i>	336
Miguel Neves, Hugo Policarpo, Nuno Maia, Dmitri Tcherniak <i>On the use of transmissibility to estimate vibro-acoustic responses in operational conditions</i>	337
Naoto Nishiyama, Kiyotaka Yamashita <i>Suppression of impact oscillations in a railway current collection system with an additional oscillatory system</i>	338
Luz Adriana Ocampo, Fabiola Angulo, David Angulo-Garcia <i>Lyapunov function-based control of a DC/DC buck converter using Hybrid Systems formalism</i>	339
Ewelina Ogińska, Krystian Polczyński, Dariusz Grzelczyk, Jan Awrejcewicz <i>Numerical and experimental investigations of dynamics of magnetic pendulum with an aerostatic bearing</i>	340
Paweł Olejnik, Jan Awrejcewicz <i>Analysis of dynamical response of a Stewart platform operating in six degrees of freedom</i>	341
Paweł Ostapkowicz <i>Verification of various leak detection algorithms based on flow dynamics model using liquid transmission pipeline prototype</i>	342
Stepan Ozana, Tomas Docekal, Filip Krupa, Jakub Nemcik, Jakub Mozaryn <i>A comparative survey of software computational tools in the field of optimal control</i>	343
Alexei Papirovskiy, Alexei Lukin, Ivan Popov <i>Analytical and numerical modelling of surface acoustic waves in rotating piezoelectric media</i>	344
Irina V. Papkova, Vadim A. Krysko, Jan Awrejcewicz, Alena A. Zakharova, Anton V. Krysko <i>Vibrations of flexible beam NEMS elements in a temperature field taking into account Coulomb forces</i>	345
Dóra Patkó, Ambrus Zelei <i>Alternative inverse kinematic calculation methods in velocity and acceleration level</i>	346
Jakub Petryszyn, Jakub Mozaryn, Stepan Ozana <i>Experimental evaluation of PLC based fractional order $PI^{\lambda}D^{\mu}$ temperature control in pipeline</i>	347

Krystian Polczyński, Adam Wijata, Jan Awrejcewicz <i>Theoretical and numerical analysis of different modes in a system of a "kicked" magnetic pendulum</i>	348
Jacek Przybylski, Krzysztof Kuliński <i>Stability and vibration of a two-member cantilever column with an integrated PZT rod</i>	349
Radosław Pytlak, Damian Suski, Tomasz Tarnawski <i>Numerical procedure for sensitivity analysis of hybrid systems</i>	350
Anish Rajan, Shankar Krishnapillai <i>Identification of nonlinear joint interface parameters using instantaneous power flow balance approach</i>	351
Anish Rajan, Shankar Krishnapillai <i>Parametric identification of non linear structures using Particle Swarm Optimization based on power flow balance criteria</i>	352
Constantin Ruchkin <i>Detection of chaotic behavior of the dynamical system using methods of deformable active contours</i>	353
Anna Rudak <i>The algorithm solution of the problem of optimal control in a dynamic one-sector economic model with a discrete time based on dynamic programming method</i>	354
Rafał Rusinek, Krzysztof Kecik, Andrzej Mitura <i>Effect of electromechanical coupling in the middle ear with implantable hearing device</i>	355
Andrzej Rysak, Magdalena Gregorczyk <i>Study of the Duffing van der Pol system dynamics using RQA measures</i>	356
Adnan S. Saeed, Mohammad AL-Shudeifat <i>A comparison of the common types of nonlinear energy sinks</i>	357
Adnan S. Saeed, Mohammad AL-Shudeifat <i>A study on the coefficient of restitution effect on single-sided vibro-impact nonlinear energy sink</i>	358
Filip Sarbinowski, Roman Starosta <i>Geometry optimization of aeroelastic energy harvester</i>	359
Alireza Ture Savadkoobi, Claude Henri Lamarque, Celien Goosaert <i>Control of tremors of human's arm by a passive nonlinear absorber</i>	360
Philipp Schorr, Valter Böhm, Lena Zentner, Klaus Zimmermann <i>Investigation of a tensegrity structure with multiple equilibrium configurations as jumping motion system</i>	361
Yury Selyutskiy <i>Alternation of stability character in systems with positional non-conservative forces</i>	362

Maxim V. Shamolin	
<i>Integrable dissipative dynamical systems: backgrounds, methods, and applications</i>	363
Renan Siqueira, Osman Altun, Paul Gembarski, Roland Lachmayer	
<i>A delta-robot-based test bench for validation of smart products</i>	364
Anna Šmeringaiová, Zuzana Murčíňková	
<i>Digital prototype of test station for gears and belts dynamic analysis</i>	365
Anna Šmeringaiová, Imrich Vojtko	
<i>Experimental assessment of the test station support structure rigidity by the vibration diagnostics method</i>	366
Luboš Smolík, Pavel Polach, Michal Hajžman	
<i>Dynamics of a turbocharger rotor supported on floating ring journal bearings with shallow axial grooves of uncertain dimensions</i>	367
Krzysztof Sokół	
<i>Instability and vibration control by means of piezoceramic element</i>	368
Josef Soukup, Mllan Žmindák, Pavol Novák, František Klimenda,	
Michal Kaco, Lenka Rychlikova	
<i>Dynamic analysis and damage of composite layered plates reinforced by unidirectional fibers subjected low velocity impact</i>	369
Josef Soukup, František Klimenda, Blanka Skočilasová,	
Lenka Rychlíková, Jan Skočilas	
<i>Experimental determination of natural frequencies and response stiffness elastically supported body</i>	370
Bartosz Stańczyk, Dariusz Grzelczyk, Olga Jarzyna, Jan Awrejcewicz	
<i>Mechanical design of an exoskeleton for rehabilitation of lower limbs</i>	371
Katic R. (Stevanovic) Hedrih	
<i>Rolling heavy ball over the surface with arbitrary shape in real Rn3 spave</i>	372
Rabih Sultan, Huria Ibrahim, Dalia Ezzeddine	
<i>Complex patterned precipitation dynamics in toroidal reactors with two diffusion sources</i>	373
Grażyna Sypniewska-Kamińska, Jan Awrejcewicz, Henryk Kamiński,	
Robert Salamon	
<i>Resonance study of spring pendulum based on MSM solutions with polynomial approximation</i>	374
Olga Szlachetka, Jacek Jaworski, Marek Chalecki	
<i>Free vibration frequencies of simply supported bars with variable cross section</i>	375
Joseph D. Taylor, Kamal Abu-Hassan, Joanne van Bavel,	
Marc Vos, Alain Nogaret	
<i>Robust design of inhibitory neuronal networks displaying rhythmic activity</i>	376

Eugeniy Ternovsky, Alexander V. Glushkov, Olga Khetselius,	
Alexander Belodonov	
<i>Chaos, bifurcations and strange attractors in environmental radioactivity dynamics of some geosystems</i>	377
Valentin Ternovsky, Alexander V. Glushkov, Eugeny Ternovsky,	
Andrey Tsudik	
<i>Dynamics of non-linear processes in backward-wave tubes chain: chaos and strange attractors</i>	378
Valentin Ternovsky, Alexander V. Glushkov, Andrey Tsudik,	
Oleksii Mykhailov	
<i>Deterministic chaos, bifurcations and strange attractors in nonlinear dynamics of relativistic backward-wave tube</i>	379
Biljana Tojtvoska	
<i>General decay stability analysis of coupled systems of stochastic neural networks</i>	380
Hans True	
<i>Railway vehicle dynamics, bifurcations and transitions</i>	381
Nguyễn Thái Minh Tuấn, 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>	382
Pavel Udalov, Ivan Popov, Alexey Lukin	
<i>Nonlinear dynamics of the sensory element of the atomic force microscopy</i>	383
Sebastian Uzny, Łukasz Kutrowski, Michał Osadnik	
<i>Nonlinear vibrations of simply supported column loaded by the mass element</i>	384
Nikita Vakhtanov, Petr Shnurkov	
<i>On the solution of the optimal control problem of inventory of a discrete product in stochastic model of regeneration</i>	385
Ryszard Walentyński, Damian Słota, Marcin Szczygieł	
<i>Vibration Busters – an interdisciplinary approach to education of dynamical systems</i>	386
Paweł Wątroba, Mariusz Pawlak, Damian Gąsiorek	
<i>Optimisation of energy absorbers in driver's cab Impuls I rail vehicle</i>	387
Piotr Weber	
<i>Dynamics of chains as a tool to study thermomechanical properties of proteins</i>	388
Krzysztof Witkowski, Grzegorz Kudra, Sergii Skurativskiy,	
Grzegorz Wasilewski, Jan Awrejcewicz	
<i>Nonlinear forced oscillations of the coupled masses between repelling magnets</i>	389

Mateusz Wojna, Grzegorz Wasilewski, Jan Awrejcewicz	
<i>The pair of oscillators coupled by the electromagnetic field</i>	390
Ryszard Wojnar, Włodzimierz Bielski	
<i>Gravity waves in channels with corrugated bottom: an asymptotic approach</i>	391
Łukasz Woliński, Paweł Malczyk, Marek Wojtyra	
<i>Parameter identification of the Hamiltonian dynamic model of a robot</i>	392
Tatyana V. Yakovleva, Jan Awrejcewicz, Svetlana A. Mitskevich,	
Irina V. Papkova, Vadim A. Krysko	
<i>Contact interaction of NEMS elements composed of a plate/beam, taking into account the Casimir and Van der Waals forces and under additive white noise</i>	393
Kiyotaka Yamashita, Naoto Nishiyama, Kohsuke Katsura,	
Hiroshi Yabuno	
<i>Nonlinear stability of a spring-supported pipe conveying fluid</i>	394
Nikolai Yaroshevich, Olha Yaroshevych, Mykola Yevsiuk	
<i>Dynamics of vibrating machines with inertia excitation considering drive elasticity</i>	395
Azhar Ali Zafar, Jan Awrejcewicz	
<i>On the dynamics of blood through the circular tube along with magnetic properties</i>	396
Mariusz Zamojski, Paul Sumerauer, Christoph Bacher, Fadi Dohnal	
<i>Towards online transient simulation of a real heat pump</i>	397
Yan Zhang, Jan Awrejcewicz	
<i>A dynamic finite element analysis of metatarsal stress during forefoot and rearfoot strike</i>	398
Maxim V. Zhigalov, Jan Awrejcewicz, Sergey P. Pavlov, Vadim A. Krysko	
<i>Investigation of influence of various parameters on nonlinear dynamics of contact interaction of Bernoulli-Euler nanobeams</i>	399
Maxim V. Zhigalov, Sergey P. Pavlov, Anton V. Krysko, Olga A. Saltykova,	
Irina V. Papkova, Tatyana Y. Yaroshenko, E.Yu. Krylova, Ilya E. Kutepov,	
Nikolai P. Erofeev, Jan Awrejcewicz, Vadim A. Krysko	
<i>Study of EEG signals in a wide range of frequencies in schizophrenia</i>	400
Ádám János Zsiros, János Lelkes, Tamás Kalmár-Nagy,	
Bendegúz Dezső Bak	
<i>Energy pumping into mechanistic chain oscillator model</i>	402
INDEX OF AUTHORS	403