

RANM 2019 Technical Programme

Monday, 6th May 2019

18:30 – 22:00

Welcome Reception (Lobby of 'Fabryka Inzynierow' Building A18)

Tuesday, 7th May 2019

08:00 – 18:30

RANM 2019 Day 1 ('Zatoka Sportu' Building B28)

08:00 – 09:00	Registration (Lobby)
09:00 – 09:30	Opening Ceremony (Room 1): RANM 2019 Chairs, TUL ME Dean, TUL Principal)
09:30 – 10:20	Music Interlude (Room 1)
10:20 – 11:20	Opening Lecture: Michael D Gilchrist (University College Dublin, Ireland): Forensic biomechanics: Constitutive data for accident reconstruction simulations Chair: Przemyslaw Perlikowski (Lodz University of Technology, Poland)
11:20 – 11:40	Coffee Break
11:40 – 13:00	Dynamics Symposium: Part 1 (Room 1) Chair: Jerzy Warminski (Lublin University of Technology, Poland)
11:40 – 12:00	Piotr Przybyłowicz (Warsaw University of Technology, Warsaw, Poland): Stability and bifurcation analysis of a rigid rotor with electromagnetic actuators
12:00 – 12:20	Pawel Baranowski (Military University of Technology, Warsaw, Poland): Rock blasting and fragmentation: modelling, simulation and experimental testing
12:20 – 12:40	Krzysztof Kecik (Lublin University of Technology, Poland): Energy recovery from a pendulum vibration absorber using two harvesting sources
12:40 – 13:00	Janos Lelkes (Budapest University of Technology and Economics, Budapest, Hungary): Bifurcation analysis of aeroelastic system with a linear tuned vibration absorber
13:00 – 14:00	Lunch Break
14:00 – 14:50	Plenary Lecture: Giuseppe Rega (University of Rome 'La Sapienza', Italy): Modelling and nonlinear dynamics of thermomechanical composite plates Chair: Marian Wiercigroch (University of Aberdeen, UK)
14:50 – 16:30	Dynamics Symposium: Part 2 (Room 1) <i>Parallel to Dynamics and Nonlinear Physics Session</i> Chair: Jerzy Wojewoda (TU Lodz, Poland)
14:50 – 15:10	Silvio de Souza (Federal University of Sao Joao del-Rei, Divinopolis, Brazil): Evaluation of controlling chaos performance in bi-parameter space scenario
15:10 – 15:30	Rafal Rusinek (Lublin University of Technology, Lublin, Poland): Effect of transducer fixation in the human ear
15:30 – 15:50	Ferenc Hegedűs (Budapest University of Technology and Economics, Budapest, Hungary): Solving large number of independent ODE systems on GPUs
15:50 – 16:10	Zofia Szmit (Lublin University of Technology): Dynamics of rotating hub with composite beams - numerical and experimental approach
16:10 – 16:30	Zhi Zhang (University of Exeter): Lyapunov exponents of an impact oscillator with delayed feedback control

14:50 – 16:30	Dynamics and Nonlinear Physics Symposium: Part 1 (Room 2) <i>Parallel to Dynamics Session 2</i> Chair: Gil Ariel (Bar-Ilan University, Israel)
14:50 – 15:10	Yuri V. Mikhlin (National Technical University Kharkov, Ukraine): Resonance behavior of the systems with Limited power supply having nonlinear absorbers
15:10– 15:30	Magdalena Gregorczyk (Lublin University of Technology): Bifurcation vs recurrences in the Rossler system
15:30– 15:50	Robert Zalewski (Warsaw University of Technology, Warsaw, Poland): Preliminary research of the symmetrical controllable granular damper prototype
15:50– 16:10	Takumi Tokami (Tokyo University of Science, Tokyo, Japan): Spatiotemporal behaviour of a flow velocity field during a buoyancy-driven turbulent fire
16:10 – 16:30	Shuya Kandani (Tokyo University of Science, Tokyo, Japan): Dynamic behavior of H ₂ /O ₂ coaxial jet in a rocket model combustor analyzed by statistical complex-based approach
16:30 – 16:50	Coffee Break
16:50 – 19:10	Dynamics Symposium: Part 3 (Room 1) <i>Parallel to Solid Mechanics Symposium</i> Chair: Stefano Lenci (Polytechnic University of Marche, Ancona, Italy)
16:50 – 17:10	Jerzy Warminski (Lublin University of Technology, Poland): Nonlinear vibrations of the extensible rotating beam
17:10 – 17:30	Krzysztof Marynowski (Lodz University of Technology, Lodz, Poland) Identification of dynamic properties of an aluminum alloy based on tests of components in the temperature domain
17:30 – 17:50	Ferenc Hegedűs (Budapest University of Technology and Economics, Budapest, Hungary): Direct selection between attractors of subharmonic resonances via a non-feedback technique to control multistability
17:50 – 18:10	Yi Ji (Beihang University, Beijing, China): Application of composite time integration method in nonlinear dynamics
18:10 – 18:30	Aasifa Rounak (IIT Madras, India): On the phase responses and isochrons of a bilinear impact oscillator
18:30 – 18:50	Masahito Watanabe (Waseda University, Tokyo, Japan): Chaotic mixing in two-dimensional Rayleigh-Bernard convection with periodic perturbations
18:50 – 19:10	Rami Faraj (Institute of Fundamental Technological Research, Polish Academy of Sciences, Warsaw, Poland): Ball-screw inerter for optimal impact mitigation
16:50 – 18:50	Solid Mechanics Symposium: Part 1 (Room 2) <i>Parallel to Dynamics Symposium</i> Chair: Tomasz Kubiak (Lodz University of Technology, Poland)
16:50 – 17:10	Maria Kotelko (Lodz University of Technology, Poland): Application of the yield line theory in load-capacity estimation for thin-walled members subject to combined load
17:10 – 17:30	Sung Yi (Portland University of Technology, USA): Nonlinear time dependent mechanical behaviors of polyimide films
17:30 – 17:50	Marek Klimczak (Cracow University of Technology, Cracow, Poland): Viscoelastic analysis of asphalt concrete by multiscale FEM
17:50 – 18:10	Dominik Banat (Lodz University of Technology, Poland): Multiple-criteria failure analysis of thin-walled FML profiles subjected to compression
18:10 – 18:30	Paweł Wawrzyniak (Warsaw University of Technology, Warsaw, Poland): Experimental and FEM analysis of the SBM process
18:30 – 18:50	Radosław Ciepielewski (Military University of Technology, Warsaw, Poland): Experimental investigation on hexagonal, aluminum honeycomb out-of-plane crushing under various velocities impact loading

Wednesday, 8th May 2019

RANM 2019 Day 2 ('Zatoka Sportu' Building B28)

08:30 – 13:00

08:30 – 09:25	Plenary Lecture: Lukasz Jankowski (Polish Academy of Sciences, Poland): Controllable transmission of moments for semi-active damping of structural vibrations Chair: Zuzanna Dmitrovova (Nova University of Lisbon and Instituto Superior Tecnico, Universidade de Lisboa, Lisbon, Portugal):
09:25 – 11:05	Dynamics Symposium: Part 4 (Room 1) Chair: Jerzy Warminski (Lublin University of Technology, Poland)
09:25 – 09:45	Stefano Lenci (Polytechnic University of Marche, Ancona, Italy): Nonlinear oscillations of a beam with an inclined roller
09:45 – 10:05	Lukasz Kloda (Polytechnic University of Marche, Ancona, Italy): Hardening vs softening dichotomy of a hinged-simply supported beam with one end axial linear spring: an experimental study
10:05 – 10:25	Arkadiusz Syta (Lublin University of Technology): Numerical investigations of nonlinear systems with insensitive and sensitive friction models by the 0-1 method
10:25 – 10:45	Olga Pogorelova (Kyiv National University, Ukraine): Observing intermittent transition to chaos in vibro-impact system with wavelet transform
10:45 – 11:05	Charlelie Bertrand (Universite de Lyon / ENTPE, France): Nonlinear dynamics of a translating cable
11:05 – 11:20	Coffee Break
11:20 – 13:00	Nonlinear Physics Symposium: Part 1 (Room 2) <i>Parallel to Dynamics Symposium 5</i> Chair: Hong Ling (Xian Jiaotong University, Xian, China)
11:20 – 11:40	Norbert Marwan (Potsdam Institute for Climate Research, Potsdam, Germany): Entropies from recurrence plots
11:40 – 12:00	Andrzej Rysak (Lublin University of Technology, Lublin, Poland): Recurrence in chaotic dynamics - a rough estimate or a sensitive measure?
12:00 – 12:20	Miroslav Kures (Brno University of Technology, Czechia): Rossby wave resonant triads: Graphs with vertices on quartics
12:20 – 12:40	Vladimir Maksimenko (Innopolis University, Innopolis, Tatarstan 420500, Russia): Biomechanical EEG+EMG Data Analysis During Voluntary Movements
12:40 – 13:00	Estelle Temgoua (University of the Western Cape, Bellville, South Africa): Robustness of rogue waves to nonlinear effects in non-paraxial and chiral media
11:20 – 13:00	Dynamics Symposium: Part 5 (Room 1) <i>Parallel to Nonlinear Physics Symposium 2</i> Chair: Vahid Vaziri (University of Aberdeen, UK)
11:20 – 11:40	Marcin Kapitaniak (University of Aberdeen, UK): Helical buckling of rods: FE modelling
11:40 – 12:00	Anna Mackojc (Warsaw University of Technology, Warsaw, Poland): 3-DOF model of offshore lifting dynamics
12:00 – 12:20	Krzysztof Siczek (Lodz University of Technology, Lodz, Poland): Dynamics of the cam-tappet-piston assembly in compressor of cooling aggregate
12:20 – 12:40	Yang Liu (University of Exeter, Exeter, UK): Experimental study of a vibro-impact capsule system with two-sided constraints
12:40 – 13:00	Zuzanna Dimitrovova (Nova University of Lisbon and Instituto Superior Tecnico, Universidade de Lisboa, Lisbon, Portugal): Instability of proximate oscillators traversing a beam on an Elastic continuum with partial shear resistance
13:00 – 13:30	Lunch Break then Excursion to Lowicz and Maurzyce (field workshops)

Thursday, 9th May 2019

08:30 – 18:00

RANM 2019 Day 3 ('Zatoka Sportu' Building B28)

08:30 – 09:25	Plenary Lecture: Wojciech Sumelka (Poznan University of Technology, Poznan, Poland): Fractional continuum mechanical models Chair: Przemyslaw Perlikowski (Lodz University of Technology, Poland)
09:25 – 11:00	Nonlinear Physics Symposium: Part 2 (Room 1) <i>Parallel to Dynamics Symposium 6</i> Chair: Jurgen Kurths (Humboldt University, Berlin, Germany)
09:25 – 09:45	Frank Hellman (Potsdam Institute for Climate Research, Potsdam, Germany): Sampling based methods for studying networked dynamical systems
09:45 – 10:05	Sten Ponsioen (Institute for Mechanical Systems, ETH, Zurich, Switzerland): Isolated Forced Response Curves from Non-Autonomous Spectral Submanifolds
10:05 – 10:25	Paul Schultz (Potsdam Institute for Climate Research, Potsdam, Germany): Solitary states in power systems
10:25 – 10:45	Thomas Lilienkamp (Max Planck Institute for Dynamics and Self-Organization, Gottingen, Germany): The final phase of transient chimera states
10:45 – 11:05	Mateusz Ozimek (Warsaw University of Technology): Dependence of ventricle repolarization on heart rate variability information flow and symbolic dynamics
09:25 – 11:00	Dynamics Symposium: Part 6 (Room 2) <i>Parallel to Nonlinear Physics Symposium 2</i> Chair: Mike Jeffrey (University of Bristol, UK)
09:25 – 09:45	Mate Antali (Budapest University of Technology and Economics, Budapest, Hungary): Role of the limit directions in the nonsmooth dynamics of towed wheels
09:45 – 10:05	Lucio Demeio (Polytechnic University of Marche, Ancona, Italy): Periodic orbits of a bouncing mass on a flexible hinged-hinged beam
10:05 – 10:25	Eduardo A.R. Ribeiro (University of Sao Paulo, Sao Paulo, Brazil): A piezoelectric vibration controller in a parametrically-excited system with modal localisation
10:25 – 10:45	Piotr Koziol (Cracow University of Technology, Krakow, Poland): Dynamics of nonlinear double-beam system subjected to random moving load
10:45 – 11:05	Guilherme Jorge Vernizzi (University of Sao Paulo, Brazil): A comparison between reduced-order models for a vertical riser undergoing parametric excitation
11:05 – 11:20	Coffee Break
11:20 – 13:00	Solid Mechanics Symposium: Part 2 (Room 2) <i>Parallel to Dynamics Symposium 4</i> Chair: Maria Kotelko (Lodz University of Technology, Poland)
11:40 – 12:00	Tomasz Sadowski (Lublin University of Technology, Poland): Description of continuous damage of thin-walled box beams under 3-point bending
12:00 – 12:20	Holger Sparr (Brandenburg University of Technology Cottbus-Senftenberg, Germany): Energy balance considerations in thermomechanical systems
12:20 – 12:40	Paweł Czapski (Lodz University of Technology, Lodz, Poland): Evaluation of residual stresses in GFRP laminates and its influence on buckling
12:40 – 13:00	Paweł Dybcio (Military University of Technology, Warsaw, Poland): Experimental validation of hard sphere impact on mild plate using SPH method
11:20 – 13:00	Dynamics Symposium Part 7 (Room 1) <i>Parallel to Solid Mechanics Session</i> Chair: Marcin Kapitaniak (University of Aberdeen, UK)
11:40 – 12:00	Anna Jablonka (West Pomeranian University of Technology, Szczecin, Poland): Moment equations and quasi-moment neglect closure approximations for non-linear systems under Erlang renewal impulse process excitations

12:00 – 12:20	Marcin Gołąbaczak (Lodz University of Technology): Asymptotic tolerance model of dynamic thermoelasticity problems for thin micro-periodic cylindrical shells
12:20 – 12:40	Pedro Ribeiro (Porto University, Portugal): Transition to chaos in nonlinear flutter of variable stiffness composite laminates
12:40 – 13:00	Cezary Graczykowski (Polish Academy of Sciences, Warsaw, Poland): Model identification adaptive control of fluid based shock absorbers for impact mitigation
13:00 – 14:00	Lunch Break
14:00 – 14:50	Plenary Lecture: Awadhesh Prasad (University of Delhi, Delhi, India): An introduction to perpetual points in nonlinear dynamical systems and its applications Chair: Ulrike Feudel (ICBM Carl von Ossietzky University Oldenburg, Germany)
14:50 – 16:30	Dynamics Symposium Part 8 (Room 1) <i>Parallel to Dynamics Session 8</i> Chair: Radosław Iwankiewicz (HHTU, Germany)
14:50 – 15:10	Victoria Kurushina (University of Aberdeen, UK): Calibrating wake oscillators for VIVs of rigid structures
15:10 – 15:30	Hanna Weber (West Pomeranian University of Technology, Szczecin, Poland): Nonlinear dynamic response of a cable system with a tuned mass damper to stochastic base excitation via equivalent linearization technique
15:30– 15:50	Marian Wiercigroch (University of Aberdeen, UK): Wake oscillator model for VIV of flexible structures
15:50– 16:10	Emil Manoach (Bulgarian Academy of Sciences, Bulgaria): Couette gas microflow with an elastic obstacle
16:10– 16:30	Lijun Pei (Zhengzhou University, Zhengzhou, China): Complex dynamics of the delayed feedback control system of the gut microbiota
14:50 – 16:30	Nonlinear Physics Symposium: Part 3 (Room 2) <i>Parallel to Dynamics Session 7</i> Chair: Norbert Marwan (Potsdam Institute for Climate Research, Potsdam, Germany)
14:50 – 15:10	Viet-Thanh Pham (Thanh Tay University, Hanoi, Vietnam): On dynamics and control of the fractional form of Henon-Lozi type map
15:10 – 15:30	Syamal Dana (Jadavpur University, India): Intermittent transition to large amplitude oscillations in dynamical systems: Routes to extreme events
15:30– 15:50	Vahid Vaziri (University of Aberdeen, UK): Drill-string stick-slip vibration in presence of the delay
15:50– 16:10	Leo Kingston (Technical University of Lodz, Lodz, Poland): Bursting oscillations and mixed-mode oscillations in driven Lienard system
16:10– 16:30	Arindam Mishra (Jadavpur University, India): Extreme events in coupled Josephson junction
16:30 – 17:00	Coffee Break
17:00 – 18:00	Nonlinear Physics Symposium: Part 4 (Room 1) Chair: Yuri Maistrenko (National Academy of Sciences, Ukraine)
17:00 – 17:20	Karol Życzkowski (Jagiellonian University, Kraków, Poland): Matrix logistic equation and chaos
17:20 – 17:40	Nikolay V. Kuznetsov (St-Petersburg State University, Russia): Hidden and self-excited attractors: localization, dimension characteristics and embedded unstable periodic orbits
17:40 – 18:00	Ulrich Parlitz (Max Planck Institute for Dynamics and Self-Organization, Gottingen, Germany): Cross estimation and prediction of spatio-temporal time series
19:00 – 22:00	Conference Dinner (Buses to La Vende Restaurant)

Friday, 10th May 2019

08:30 – 17:20

RANM 2019 Day 4 ('Zatoka Sportu' Building B28)

08:30 – 09:20	Plenary Lecture: Serhiy Yanchuk (Technische Universitat Berlin, Germany): Frequency clusters in adaptive networks of phase oscillators Chair: Yuri Maistrenko (National Academy of Sciences, Ukraine)
09:25 – 11:05	Nonlinear Physics Symposium: Part 5 (Room 1) <i>Parallel to Dynamics Symposium 9</i> Chair: Nikolay V. Kuznetsov (St-Petersburg State University, Russia):
09:25 – 09:45	Ulrike Feudel (ICBM Carl von Ossietzky University Oldenburg, Germany): Extreme events in coupled relaxation oscillators
09:45 – 10:05	Michael Schiek (Research Center Juelich, Germany): Variation of phase-lags in coupled metronomes experiments
10:05 – 10:25	Florian Stelzer (Technische Universitat Berlin, Germany): Clock-cycle-dependent effects in time-delay reservoir computing
10:25 – 10:45	Elbert Macau (National Institute for Space Research, Brazil): The discrete complex wavelet approach to phase assignment
10:45 – 11:05	Gil Ariel (Bar-Ilan University, Israel): Chaos and levy walks in swarming bacteria
09:25 – 11:05	Dynamics Symposium: Part 9 (Room 2) <i>Parallel to Nonlinear Physics Symposium 5</i> Chair: Silvio de Souza (Federal University of Sao Joao del-Rei, Divinopolis, Brazil)
09:25 – 09:45	Paulo Goncalves (Pontical Catholic University, Rio de Janeiro, Brazil): Nonlinear vibrations and instabilities of spherical hyperelastic membranes
09:45 – 10:05	Margarita A. Kovaleva (Semenov Institute of Chemical Physics, Moscow, Russia): Non-conventional synchronization in the system of coupled pendula with generators
10:05 – 10:25	Csanad Arpad Hubay (Budapest University of Technology and Economics, Hungary): Appearance of Poincare-Lyapunov constants in Carleman matrices
10:25 – 10:45	Patrycja Jaros (Lodz University of Technology, Lodz, Poland): Solitary states for coupled oscillators with inertia
10:45 – 11:05	Eligiusz Postek (Polish Academy of Sciences, Poland): Impact of Al ₂ O ₃ /ZrO ₂ composite, qualitative comparison of compositions
11:05 – 11:20	Coffee Break
11:20 – 13:00	Dynamics Symposium: Part 10 (Room 1) <i>Parallel to Nonlinear Physics Symposium 6</i> Chair: Piotr Koziol (Cracow University of Technology, Krakow, Poland):
11:20 – 11:40	Mike Jeffrey (Bristol University, UK): Local dynamic indeterminacy
11:40 – 12:00	Dominik Rodak (Warsaw University of Technology, Warsaw, Poland): The impact of using semi-active vibration eliminator on fatigue strength of drive systems
12:00 – 12:20	Jan Freundlich (Warsaw University of Technology, Warsaw, Poland): Analysis of dynamics of a coupled mechanical system contains a spherical pendulum with damping modelled by a fractional derivative
12:20 – 12:40	Marcin Kowalczyk (Lublin University of Technology, Poland): Dynamics and vibrations analysis of a cantilever active composite bimorph beam
12:40 – 13:00	Kaja Wójcik (AGH University of Science and Technology, Kraków, Poland): Modelling of the metal-elastomer joints in vibration machines suspensions

11:20 – 13:00	Nonlinear Physics Symposium: Part 6 (Room 2) <i>Parallel to Nonlinear Physics Symposium 9</i> Chair: Jan Żebrowski (Warsaw University of Technology, Warsaw, Poland)
11:20 – 11:40	Arun K. Manickavasagam (University of Canterbury, Christchurch, New Zealand): Numerical and experimental investigations of hydrodynamic coupling effects in a two-beam array vibrating in close proximity to a surface
11:40 – 12:00	Mateusz Żurawski (Warsaw University of Technology, Warsaw, Poland): Mass redistribution as a method for changing beam dynamics
12:00 – 12:20	Wiesław Urbaniak (Kazimierz Wielki University of Technology, Kraków, Poland): Absorption of nano-H-BN sheets into phospholipid vesicles: experimental...
12:20 – 12:40	Nadezhda Semenova (Saratov State University, Russia): Coherence resonance chimera: Impact of time delayed feedback
12:40 – 13:00	Vladimir V. Semenov (CNRS & University Bourgogne Franche-Comte, France): Dissipative solitons in a bistable delayed-feedback oscillator
13:00 – 14:00	Lunch Break

14:00 – 17:00	Dynamics Symposium Part 11 (Room 1) Chair: Marian Wiercigroch (University of Aberdeen, UK)
14:00 – 14:20	Ewa Tulińska-Sznitko (Poznan University of Technology, Poznan, Poland): The flow dynamics in the short Taylor-Couette configurations
14:20 – 14:40	Takahiro Ushioku (Waseda University, Tokyo, Japan): Experimental observations of single bubble dynamics and induced shock waves
14:40 – 15:00	Nina Yari (University of Aberdeen, UK): Experimental study on rock cutting with PDC tool
15:20 – 15:40	Yong Xu (Northwestern Polytechnical University, Xi'an, China): Primary resonance responses of a viscoelastic aerofoil model under a narrow-band excitation
15:40 – 16:00	Hong Ling (Xian Jiaotong University, Xian, China): Escape bifurcations of a forced triple-well potential Duffing oscillator with fuzzy uncertainty
16:00 – 16:20	Thomas Breunung (Institute for Mechanical Systems, ETH, Zurich, Switzerland): Existence of the steady-state response of periodically forced dissipative nonlinear mechanical systems
16:20 – 16:40	Coffee Break
16:40 – 17:40	Closing Lecture: Hiroshi Yabuno (University of Tsukuba, Tsukuba Science City, Japan): Applications of self-excited oscillation to ultrasensitive micro-sensors Chair: Marian Wiercigroch (University of Aberdeen, UK)
17:40 – 18:00	Closing Ceremony (RANM 2019 Chairs)