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Nota di bibliografia	Includes bibliographical references at the end of each chapters.
Nota di contenuto	Bifurcation and Stability at Finite and Infinite Degrees-of-Freedom (P. B. Bèda) -- Reduction of low frequency acoustical resonances inside bounded space using eigenvalue problem solutions and topology optimization (A. Baejewski) -- Analysis of the Macro Fiber Composite Characteristics for Energy Harvesting Efficiency (M. Borowiec, M. Bocheski, J. Gawryluk, M. Augustyniak) -- Research of modified mechanical sensor of atomic force microscope (V. Buinskas, A. Dzedzickis, N. Šešok, E. Šutinys and Igor Iljin) -- Nonlinear dynamics of the car driving system with a sequential manual transmission (R. Bulín, M. Hajžman, Š. Dyk, M, Byrtus) -- Random attractors for Von Karman plates subjected to multiplicative white noise loadings (H. Chen, D. Cao, J. Jiang) -- The use of Fuzzy Logic in the control of an inverted pendulum (A. Chmielewski, R. Gumiski, P. Macig and J. Mczak) -- Artificial neural network for stabilization of the flexible rope submerged in sea water (. Drg) -- Analysis of non-autonomous linear ODE systems in bifurcation problems via Lie group geometric

numerical integrators (P. Foti, A. Fraddosio, S. Marzano, M. D. Piccioni) -- Transient vibrations of a simply supported viscoelastic beam of a fractional derivative type under the transient motion of the supports (J. Freundlich) -- Analysis of reachability areas of a manoeuvring air target by a modified maritime missile-artillery system zu-23-2mre (D. Gapiski and Z. Koruba) -- Angular velocity and intensity change of basic vectors of position vector tangent space of a material system kinetic point – Four examples (Katica R. (Stevanovi) Hedrih) -- Dynamics of impacts and collisions of the rolling balls (K. R. (Stevanovi) Hedrih) -- Approximate analytical solutions to jerk equations (N. Herianu, V. Marinca) -- Chandler Wobble: Stochastic And Deterministic Dynamics (A. Jenkins) -- Impact of Varying Excitation Frequency on the Behaviour of 2-DoF Mechanical System with Stick-Slip Vibrations (W. Kunikowski, P. Olejnik, J. Awrejcewicz) -- An Analysis of the 1/2 Superharmonic Contact Resonance (R. Kostek) -- The oscillator with linear and cubic elastic restoring force and quadratic damping (V. Marincaa, N. Herianu) -- Wave-based control of a mass-restricted robotic arm for a planetary rover (D. J. McKeown, W.J. O'Connor) -- Soft Suppression of Travelling Localized Vibrations in Medium-Length Thin Sandwich-Like Cylindrical Shells Containing Magnetorheological Layers via Nonstationary Magnetic Field (G. Mikhasev, I. Mlechka, H. Altenbach) -- The method of modelling human skeleton's multi-body system (T. Miroslaw) -- Research on dynamics of shunting locomotive during movement on marshalling yard by using prototype of remote control unit (J. Myczak, R. Burdzik, I. Celiski) -- Durability tests acceleration performed on machine components using electromagnetic shakers (A. Niesony, A. Dziura and R. Owsiski) -- Identification of impulse force at electrodes' cleaning process in electrostatic precipitators (ESP) (A. Nowak, P. Nowak, S. Wojciech) -- Using Saturation Phenomenon to improve Energy Harvesting in a Portal Frame Platform with Passive Control by a Pendulum (R. T. Rocha, J. M. Balthazar, A. M. Tusset, V. Piccirillo, and J. L. P. Felix) -- Differential Drive Robot: Spline Based Design of Circular Path (A. Štefek, V. Kivánek, Y. T. Bergeon and J. Motsch) -- Multiple solutions and corresponding power output of nonlinear piezoelectric energy harvester (A. Syta, G. Litak, M.I. Friswell, M. Borowiec) -- On the dynamics of the rigid body lying on the vibrating table with the use of special approximations of the resulting friction forces (M. Szewc, G. Kudra, J. Awrejcewicz) -- Analysis of a constrained 2-body problem (W. Szumiski, T. Stachowiak) -- Analysis of the Forces Generated in the Shock Absorber for Conditions Similar to the Excitation Caused by Road Roughness (J. Warczek, R. Burdzik, . Konieczny) -- A pendulum driven by a crank–shaft-slider mechanism and a DC motor – mathematical modelling, parameter identification and experimental validation of bifurcational dynamics (G. Wasilewski, G. Kudra, J. Awrejcewicz, M. Kamierczak, M. Tyborowski, M. Kamierczak, <bio-inspired tactile="" sensors="" for="" contour="" detection="" using="" an="" fem="" based="" approach="" (c.="" will) -- Kinematics and dynamics of the drum cut-ting units (M. Zastempowski, A. Bocha).

Sommario/riassunto

The book is the second volume of a collection of contributions devoted to analytical, numerical and experimental techniques of dynamical systems, presented at the international conference "Dynamical Systems: Theory and Applications," held in ód, Poland on December 7-10, 2015. The studies give deep insight into new perspectives in analysis, simulation, and optimization of dynamical systems, emphasizing directions for future research. Broadly outlined topics covered include: bifurcation and chaos in dynamical systems, asymptotic methods in nonlinear dynamics, dynamics in life sciences and bioengineering,

original numerical methods of vibration analysis, control in dynamical systems, stability of dynamical systems, vibrations of lumped and continuous sytems, non-smooth systems, engineering systems and differential equations, mathematical approaches to dynamical systems, and mechatronics.