

Editor in chief

K. Ragulskis Lithuanian Academy of Sciences, (Lithuania) k.ragulskis@jve.lt,
kazimieras3@yahoo.com

Editorial Board

V. Babitsky Loughborough University, (UK) v.i.babitsky@lboro.ac.uk
N. Bachschmid Politecnico di Milano, (Italy) nicolo.bachschmid@polimi.it
R. Bansevicius Kaunas University of Technology, (Lithuania) ramutis.bansevicus@ktu.lt
R. Barauskas Kaunas University of Technology, (Lithuania) rimantas.barauskas@ktu.lt
I. Blekhan Mekhanobr – Tekhnika Corporation, (Russia) blekhan@vibro.ipme.ru
M. Bogdevičius Vilnius Gediminas Technical University, (Lithuania) marius@ti.vgtu.lt
M. Brennan University of Southampton, (UK) mjb@isvr.soton.ac.uk
A. Bubulis Kaunas University of Technology, (Lithuania) algimantas.bubulis@ktu.lt
R. Daukševičius Kaunas University of Technology, (Lithuania) rolanasd@centras.lt
Y. Davydov Institute of Mechanics and Ecology, (Russia) lpresidium@bk.ru
M. Dimentberg Worcester Polytechnic Institute, (USA) diment@wpi.edu
J. Duhovnik University of Ljubljana, (Slovenia) joze.duhovnik@lecad.uni-lj.si
A. Fedaravičius Kaunas University of Technology, (Lithuania) algimantas.fedaravicius@ktu.lt
R. Ganiev Scientific Center of Nonlinear Wave Mechanics and
Technology, (Russia) rganiev@nwmtc.ac.ru
L. Gik Kaliningrad State Technical University, (Russia) gik@klgtu.ru
A. Gupta Northern Illinois University, (USA) gupta@ceet.niu.edu
D. Gužas Šiauliai University, (Lithuania) danielius.guzas@fondai.com
R. Kasuba Northern Illinois University, (USA) kasuba@ceet.niu.edu
R. Kazys Kaunas University of Technology, (Lithuania) rymantas.kazys@ktu.lt
C. G. Koh National University of Singapore, (Singapore) cgkoh@nus.edu.sg
G. Kulvietis Vilnius Gediminas Technical University, (Lithuania) gk@fm.vgtu.lt
V. Lyalin Izhevsk State Technical University, (Russia) velyalin@mail.ru
M. Mariūnas Vilnius Gediminas Technical University, (Lithuania) mariunas@me.vgtu.lt
R. Maskeliūnas Vilnius Gediminas Technical University, (Lithuania) rimas@fondai.com
V. Ostaševičius Kaunas University of Technology, (Lithuania) vytautas.ostasevicus@ktu.lt
A. Palevičius Kaunas University of Technology, (Lithuania) arvydas.palevicus@ktu.lt
G. Panovko Blagonravov Mechanical Engineering Research
Institute, (Russia) gpanovko@yandex.ru
N. Perkins University of Michigan, (USA) ncp@umich.edu
A. Pesterev Institute of Control Sciences, (Russia) a.pesterev@javad.com
M. Ragulskis Kaunas University of Technology, (Lithuania) minvydas.ragulskis@ktu.lt
V. Rozman Khmelnytsky National University, (Ukraine) rozman@mailhub.tup.km.ua
M. A. F. Sanjuan University Rey Juan Carlos, (Spain) miguel.sanjuan@urjc.es
G. Tomlinson University of Sheffield, (UK) g.tomlinson@sheffield.ac.uk
R. Vaicaitis Columbia University, (USA) rimas@civil.columbia.edu
A.-V. Valiulis Vilnius Gediminas Technical University, (Lithuania) algirdas.valiulis@adm.vgtu.lt
P. Vasiljev Vilnius Pedagogical University, (Lithuania) vasiljev@vpu.lt
J. Viba Riga Technical University, (Latvia) janis.viba@rtu.lv
V. Volkovas Kaunas University of Technology, (Lithuania) vitalijus.volkovas@ktu.lt
J. Wallaschek Leibniz University Hannover, (Germany) wallaschek@ids.uni-hannover.de
M. Zakrzhevsky Riga Technical University, (Latvia) mzakr@latnet.lv
J. H. Zhang Xi'an Jiaotong University, (China) zhangjh@mail.xjtu.edu.cn

JVE Journal of Vibroengineering

Aims and Scope

Original papers containing developments in vibroengineering of dynamical systems (including mechanical, mechatronic, MEMS, nanotechnology, biomechanics and etc. systems).

The following subjects are principal topics:

- Vibration and wave processes;
- Vibration and wave technologies;
- Nonlinear vibrations;
- Generation of vibrations and waves;
- Vibrostabilization and motion control;
- Transformation of motion by vibrations and waves;
- Dynamics of intelligent mechanical systems;
- Vibration measurements, parameter identification and monitoring.

All published papers are peer reviewed.

General Requirements

The authors must ensure that the paper presents an original unpublished work which is not under consideration for publication elsewhere.

The following structure of the manuscript is recommended: abstract, keywords, nomenclature, introduction, main text, results, conclusions and references. Manuscript should be single-spaced, one column 175 x 248 mm format, using MS Word. Margins: top 13 mm, bottom 17 mm, left 26 mm, right 13 mm, header 8 mm, footer 13 mm.

Font: Times New Roman. Title of the article 16 pt Bold, authors name 10 pt Bold, title of the institution 9 pt Normal, headings of the tables 9 pt Normal, formulas and text 10 pt Normal, indexes 5 pt Normal, all symbols Italic, vectors Bold, numbers Normal. Figures, tables and equations should fit into one column.

The authors are recommended to see the recent issue of the journal and prepare the manuscript in the due style. The authors are responsible for the correctness of the English language.

The manuscripts can be submitted to any member of the Editorial Board who will organise the review process and will give recommendations.

The authors are expected to cover partial costs of publication in JVE by paying 30,- EUR per printed page.

JVE annual subscription fees: 200,- EUR (individual); 400,- EUR (institutional).

The journal material is referred:

THOMSON SCIENTIFIC: Science Citation Index Expanded (SciSearch[®]);
Journal Citation Reports/Science Edition.

SCOPUS: ELSEVIER Bibliographic Database.

EBSCO: Academic Search Complete;
Computers & Applied Sciences Complete;
Current Abstracts;
TOC Premier.

INSPEC: OCLC. The Database for Physics, Electronics and Computing.

VINITI. All-Russian Institute of Scientific and Technical Information.

Internet: <http://www.jve.lt>

E-mail: Kazimieras Ragulskis – k.ragulskis@jve.lt kazimieras3@yahoo.com
Rimas Maskeliūnas – rimas@fondai.com

Address: Kazimieras Ragulskis, Gėlių ratas 15A, LT-50282, Kaunas, Lithuania

Journal of Vibroengineering (JVE) (Quarterly) is published by the company Vibromechanika and is supported by the Lithuanian Academy of Sciences, Kaunas University of Technology, Vilnius Gediminas Technical University and Riga Technical University.

© Vibromechanika. ISSN 1392-8716.

Contents

469. DAMAGE DETECTION IN LAMINATED COMPOSITE BEAM BY USING VIBRATION DATA	363
S. RUCEVSKIS, M. WESOLOWSKI, A. CHATE	
470. DEVELOPMENT OF PIEZOELECTRIC ACTUATORS WITH ROTATIONAL AND TRANSLATIONAL MOTIONS (TR MOTOR)	374
SHIGEKI TOYAMA, SHOTA KURE, AKIFUMI YOSHIDA	
471. ON MODEL UPDATING OF TURBO-GENERATOR SETS	379
N. BACHSCHMID, P. PENNACCHI, S. CHATTERTON, R. RICCI	
472. SOME PROBLEMS OF THE DIFFERENTIATED VIBRATION MEASUREMENT OF ROTORS SYSTEMS	392
V. M. SOKOL	
473. OPTIMAL AND SKYHOOK – CONTROLLED SUSPENSION FOR A 4-AXLE HEAVY OFF-ROAD VEHICLE	400
P. KRONELD, T. LIEDES, K. NEVALA	
474. IMPLEMENTATION OF COMPUTER-GENERATED HOLOGRAMS USING 3D ELECTRON BEAM LITHOGRAPHY	407
A. PALEVIČIUS, G. JANUŠAS, B. NARIJAUSKAITĖ, M. MIKOLAJŪNAS, D. VIRŽONIS	
475. OSCILLATIONS OF SHAFT ON VIBRATING FOUNDATION	415
L. BANAKH, G. PANOVKO	
476. RESEARCH OF ACTIVELY CONTROLLED AIR–SUSPENDED SEAT FOR VEHICLES	421
J. BARBORA, J. BUCHTA, B. JANEČEK, A. LUFINKA, M. MAREK, J. ŠKLÍBA, M. APETAUR, L. KUPKA	
477. ROLE OF STRUCTURE NOISE FOR NEW AIRPLANE GENERATION	434
V. BAKLANOV	
478. ON MAGNETIC SHAPE MEMORY ALLOY ACTUATOR CHARACTERISTICS	443
JARI AHOLA, TONI LIEDES, PETTER KRONELD, KALERVO NEVALA	
479. APPLICATION OF THE PLANAR HISTOGRAM AND A SET OF TWO SINGLE-DIMENSION HISTOGRAMS FOR HUMAN POSTURE DISORDER CLASSIFICATION PROBLEM	450
R. JASINEVIČIUS, R. KRUSINSKIENĖ, D. SATKUNSKIENĖ, V. PETRAUSKAS	
480. WAVE TECHNOLOGY FOR DISPERSING GAS IN A LIQUID	460
R. F. GANIEV, A. S. KORNEEV, L. E. UKRAINSKY, D. A. ZHEBYNEV	
481. NONLINEAR EFFECTS RELATED TO VIBRATIONS OF LONG ELASTIC WAVEGUIDES: APPLICATION OF PERTURBATION METHODS	466
V. MINCHENYA, D. STEPANENKO, A. BUBULIS	
482. CHARACTERISTICS MATCHING BETWEEN STATOR AND ROTOR IN TRAVELING WAVE TYPE PIEZOMOTORS	475
L. PATAŠIENE	

483. APPLICATIONS OF DIFFERENT MEASUREMENT METHODS FOR ANALYSIS LAYERED PIEZOACTUATOR	478
L. PATAŠIENE, K. RAGULSKIS, A. FEDARAVIČIUS	
484. INVESTIGATION OF THE GEOMETRIC ROLLING RESISTANCE IN DEM SIMULATIONS OF PILING	482
D. MARKAUSKAS, R. KAČIANAUSKAS	
485. BESSEL FUNCTIONS, TIME AVERAGED FRINGES AND DYNAMICAL SYSTEMS	491
J. RAGULSKIENE, L. ZUBAVICIUS, A. ALEKSA	
486. PRELIMINARY STUDY OF THE AUTOMATIC SPEECH RECOGNITION FOR DEVICES SUPPORTING THE ILL AND DISABLED	497
Z. GOSIEWSKI, M. TARASIUK	
487. ACCELERATION BASED EVALUATION OF THE HUMAN WALKING AND RUNNING PARAMETERS	506
D. SATKUNSKIENĖ, V. GRIGAS, V. EIDUKYNAS, A. DOMEIKA	
488. EVALUATION OF THE STATIC POSTUROGRAPH PLATFORM ACCURACY	511
A. IDZKOWSKI, W. WALENDZIUK	
489. DATA BASE TO AID OF DIAGNOSIS OF OSTEOPOROTICAL CHANGES IN HUMAN PELVIC BONE	517
A. JOHN, P. WYSOTA	
490. MOTION CONTROL BASED ON THE COORDINATION METHOD OF HIERARCHICAL SYSTEMS	523
K. MIATLIUK, Y. H. KIM, K. KIM	
491. HUMAN FOOT INVERSION PRIOR TO TOE-OFF: AN ANALYSIS BY MEANS OF FUNCTIONAL MORPHOLOGY, AND COMPARATIVE ANATOMICAL OBSERVATION	530
NARAIN F. H. M., VAN ZWIETEN K. J., GERVOIS P., LIPPENS P. L., REYSKENS A., COLLA P., PALMERS Y., SCHMIDT K.P., VANDERSTEEN M., BIESMANS S., ROBEYNS I., OP'T EIJNDE B., ZINKOVSKY A. V., VARZIN S. A., LAMUR K. S.	
492. HEALTH-RELATED QUALITY OF LIFE IN CARDIAC REHABILITATION PATIENTS	536
M. STANIUTE, J. BROŽAITIENE, G. ZILIUKAS, G. VARONECKAS	
493. QUALITY OF EXERCISE TRAINING MEASURED BY HEART RATE VARIABILITY FROM THE PLOTS	542
J. BROŽAITIENĖ, J. JUŠKĖNAS	
494. QUANTITATIVE DESCRIPTION OF CANCELLOUS BONE BY IMAGE ANALYSIS TECHNIQUES	547
J. SIDUN, T. WEJRZANOWSKI, J. R. DĄBROWSKI, K. J. KURZYDŁOWSKI	
495. HEART RATE VARIABILITY AND HEMODYNAMICS CHANGES DURING REHABILITATION IN PATIENTS AFTER CORONARY ARTERY BYPASS GRAFTING	551
G. ŽILIUKAS, G. VARONECKAS, M. STANIUTĖ, A. PODLIPSKYTĖ, J. BROŽAITIENĖ	
496. EVALUATION OF HUMAN POSTURAL BALANCE IN QUIET STANDING BY DIRECT MEASUREMENT OF HUMAN BODY CENTER OF MASS ACCELERATION	556
J. GRIŠKEVIČIUS, E. JARMALIENĖ, A. ŠEŠOK, K. DAUNORAVIČIENĖ, N. KIZILOVA	
497. ARTHROSCOPY AS A DIAGNOSTIC AND SURGICAL METHOD IN KNEE PATHOLOGY OF CHILDREN AND ADOLESCENTS	562
M. ROGALSKI, S. OLSZEWSKI	
498. IDENTIFICATION OF MUSCLE FORCES ACTING IN LOWER LIMBS WITH THE USE OF PLANAR AND SPATIAL MATHEMATICAL MODEL	566
J. JURKOJĆ, R. MICHNIK, J. PAUK	
499. MECHANICAL AND STRUCTURAL ANISOTROPY OF HUMAN CANCELLOUS FEMUR BONE	571
A. NIKODEM, R. BĘDZIŃSKI, K. ŚCIGAŁA, S. DRAGAN	
500. PARAMETER ANALYSIS OF GEOMETRICAL STRUCTURE OF STEM SURFACES OF WELLER ENDOPROSTHESIS REMOVED ON ACCOUNT OF ASEPTIC LOOSENING OF POLYETHYLENE CUPS	577
J. CWANEK, A. A. CZAJKOWSKI	
501. SIMULATION OF NORMAL STRESSES ACTING ON A HEAD SURFACE OF HUMAN TEMPORO-MANDIBULAR JOINT	584
A. A. CZAJKOWSKI, P. S. FRĄCZAK, M. A. CZAJKOWSKA	
502. PORTABLE ACQUISITION SYSTEM FOR DOMICILIARY UROFLOWMETRY	592
W. WALENDZIUK, A. IDZKOWSKI	
503. OUTPUT SIGNAL ACCURACY CALIBRATION OF AUTOCOLLIMATORS	597
D. BRUČAS, V. GINIOTIS, H. INGENSAND	