

CONTENTS

INVITED PAPERS

1. **Vladimir ALSHITS, Dmitrii BESSONOV, Vasilii LYUBIMOV, Andrzej RADOWICZ** 13
CONVERSION EXCITATION OF INTENSE SOUND FIELDS
IN CRYSTALS
2. **Wojciech BATKO** 21
UNCERTAINTY IN VIBROACOUSTIC INVESTIGATIONS –
RESEARCH CHALLENGES
3. **Jeremiah RUSHCHITSKY** 33
NONLINEAR SURFACE ELASTIC WAVES IN MATERIALS

PAPERS

4. **Andrzej CHUDZIKIEWICZ, Andrzej MYŚLIŃSKI** 41
THERMOELASTIC WHEEL-RAIL CONTACT PROBLEM
FOR A MULTI-LAYER STRUCTURE
5. **Marian Witalis DOBRY, Tomasz HERMANN** 49
A COMPARISON OF HUMAN PHYSICAL MODELS
USED IN THE ISO 10068:2012 STANDARD BASED ON POWER
DISTRIBUTION PART 1
6. **Marian Witalis DOBRY, Tomasz HERMANN** 57
A COMPARISON OF HUMAN PHYSICAL MODELS
USED IN THE ISO 10068:2012 STANDARD BASED ON POWER
DISTRIBUTION PART 2
7. **Marian DOLIPSKI, Piotr CHELUSZKA, Piotr SOBOTA** 65
NUMERICAL TESTS OF ROADHEADER'S BOOM VIBRATIONS
8. **Łukasz DOMAGALSKI, Jarosław JĘDRYSIAK** 73
NONLINEAR VIBRATIONS OF PERIODIC BEAMS
9. **Jakub Krzysztof GRABSKI, Sylwia KAZIMIERCZUK, Tomasz WALCZAK** 79
ANALYSIS OF THE ELECTROMYOGRAPHIC SIGNAL DURING
REHABILITATION EXERCISES OF THE KNEE JOINT

10. Rafał HEIN	87
THE MODELLING METHOD OF DISCRETE-CONTINUOUS SYSTEMS	
11. Jarosław JEDRYSIAK, Ewelina PAZERA	93
FREE VIBRATIONS OF THIN MICROSTRUCTURED PLATES	
12. Magda KAŻMIERCZAK-SOBIŃSKA, Jarosław JEDRYSIAK ...	99
VIBRATIONS OF THIN FUNCTIONALLY GRADED PLATES WITH TOLERANCE-PERIODIC MICROSTRUCTURE	
13. Lidiya KHARCHENKO, Yevhen KHARCHENKO	105
FLUCTUATIONS OF MULTI-SECTION ABOVEGROUND PIPELINE REGION UNDER THE INFLUENCE OF MOVING DIAGNOSTIC PISTON	
14. Artur KROWIAK	113
FREE VIBRATION OF STRUCTURES BY RADIAL BASIS FUNCTION – PSEUDOSPECTRAL METHOD	
15. Wojciech ŁAPKA	121
TRANSMISSION LOSS AND PRESSURE DROP OF SELECTED RANGE OF HELICOIDAL RESONATORS METHOD	
16. Magdalena ŁASECKA-PLURA, Roman LEWANDOWSKI	129
DESIGN SENSITIVITY ANALYSIS OF FREQUENCY RESPONSE FUNCTIONS AND STEADY-STATE RESPONSE FOR STRUCTURES WITH VISCOELASTIC DAMPERS	
17. Waldemar ŁATAS	137
DISTRIBUTED DYNAMIC VIBRATION ABSORBER IN BEAM	
18. Waldemar ŁATAS	145
MULTIPLE TUNED TUNABLE TRANSLATIONAL-ROTATIONAL VIBRATION ABSORBERS IN BEAM	
19. Mykhailo MARCHUK, Taras GORIACHKO, Vira PAKOSH	153
GEOMETRICALLY NONLINEAR FREE TRANSVERSAL VIBRATIONS OF THIN-WALLED ELONGATED PANELS WITH ARBITRARY GENERATRIX	
20. Jakub MARCZAK, Jarosław JEDRYSIAK	161
ANALYSIS OF VIBRATIONS OF PLATE STRIP WITH CONCENTRATED MASSES USING TOLERANCE AVERAGING TECHNIQUE	

21. Jędrzej MAĆZAK	169
MODEL BASED LOCAL FAULT DETECTION IN HELICAL GEARS	
22. Waldemar MORZUCH	177
DYNAMICS OF CELLULAR ROTOR OF ASYNCHRONOUS MOTOR WITH DEFORMABLE STATOR	
23. Waldemar MORZUCH	183
INFLUENCE OF THE DAMPING IN THE SANDWICH BAR ON THE DYNAMIC STABILITY	
24. Marek MORZYŃSKI, Michał NOWAK, Witold STANKIEWICZ	189
NOVEL METHOD OF PHYSICAL MODES GENERATION FOR REDUCED ORDER FLOW CONTROL-ORIENTED MODELS	
25. Michał NIEŁACZNY, Juliusz GRABSKI Jarosław STRZAŁKO	195
3D DYNAMIC MODEL OF THE UNICYCLE – UNICYCLIST SYSTEM	
26. Maria NIENARTOWICZ, Tomasz STREK	203
FINITE ELEMENT ANALYSIS OF DYNAMIC PROPERTIES OF THERMALLY OPTIMAL TWO-PHASE COMPOSITE STRUCTURE	
27. Stanisław NOGA	211
TRANSVERSE VIBRATION ANALYSIS OF A COMPOUND PLATE WITH USING CYCLIC SYMMETRY MODELING	
28. Stanisław NOGA, Tadeusz MARKOWSKI	217
VIBRATION ANALYSIS OF A THICK RING INTERACTING WITH THE DISK TREATED AS AN ELASTIC FOUNDATION	
29. Michał NOWAK, Witold STANKIEWICZ, Marek MORZYŃSKI	223
MODAL ANALYSIS OF VISCOUS FLOW AND REDUCED ORDER MODELS	
30. Oleksii PAVLOVSKYI, Nadiia BOURAOU	229
ON-BOARD VIBRATION DIAGNOSTICS OF SHAFT DAMAGE OF THE AVIATION ENGINE	
31. Stanisław RADKOWSKI, Adam GAŁĘZIA	235
SIGNALS REPRESENTATION ON ENERGETIC PLANE BASED ON TEAGER-KAISER ENERGY OPERATOR	

32. Igor SELEZOV	243
EXTENDED MODELS OF SEDIMENTATION IN COASTAL ZONE	
33. Wojciech SOCHACKI, Marta BOLD	251
DAMPED VIBRATION OF A NON-PRISMATIC BEAM WITH A ROTATIONAL SPRING	
34. Wojciech SOCHACKI, Piotr ROSIKOŃ, Sandra TOPCZEWSKA	257
THE INFLUENCE OF INTERNAL AND CONSTRUCTIONAL SUPPORTS DAMPING ON THE Γ -TYPE FRAME VIBRATIONS	
35. Roman STAROSTA, Grażyna SYPNIEWSKA-KAMIŃSKA	265
NONLINEAR VIBRATIONS OF ROTATING SYSTEM NEAR RESONANCE	
36. Stanisław STRZELECKI, Zdzisław SOCHA, Zygmunt TOWAREK, Sergiusz ZAKRZEWSKI	273
EFFECT OF PAD OFFSET ON THE STABILITY OF JEFFCOTT ROTOR OPERATING IN TILTING 4-PAD JOURNAL BEARINGS	
37. Anna SYGULSKA	281
ACOUSTIC INVESTIGATIONS OF THE CONTEMPORARY CHURCHES IN POZNAŃ	
38. Janusz SZMIDLA, Iłona CIEŚLIŃSKA-GAŚIOR	289
IMPACT OF PRE-STRESS ON STABILITY AND VIBRATION OF GEOMETRIC NONLINEAR COLUMN AT A LOAD FORCE DIRECTED TO THE POSITIVE POLE	
39. Janusz SZMIDLA, Justyna WIKTOROWICZ	297
THE VIBRATIONS AND THE STABILITY OF A FLAT FRAME TYPE Γ REALIZING THE EULER'S LOAD TAKING INTO ACCOUNT THE VULNERABILITY OF THE STRUCTURAL NODE CONNECTING THE POLE AND THE BOLT OF THE SYSTEM	
40. Tomasz SZOLC, Zbigniew L. KOWALEWSKI	305
AN APPLICATION OF LONGITUDINAL ELASTIC WAVES FOR INVESTIGATION OF MATERIALS UNDER HIGH STRAIN RATES USING THE HOPKINSON BAR	
41. Sebastian UZNY	311
FREE VIBRATIONS OF COLUMN BUILT OUT PIPE AND ROD WITH TWO-PARAMETRIC ELASTIC CONNECTOR	

42. Sebastian UZNY, Krzysztof SOKÓŁ	319
FREE VIBRATIONS OF COLUMN SUBJECTED TO EULER'S LOAD WITH CONSIDERATION OF TIMOSHENKO'S THEORY	
43. Malgorzata WOJSZNIS, Jacek SZULCZYK	327
INFRASOUND AND LOW FREQUENCY NOISE OF A WIND TURBINE	
44. Alexandr E. ZAKRZHEVSKY	335
DEPLOYMENT OF LONG-MEASURED FLEXIBLE STRUCTURE IN ORBIT	
45. Roman ZINKO	342
RESEARCH OF WORK OF A ROTOR CRUSH MACHINE ON ELASTIC FOUNDATION WITH THE USE OF GRAPHS	