

Table of Contents

Preface, Program Committee and Acknowledgment

Analysis of Possibility of Use Peltier Modules in Task of Energy Scavenging K. Lubikowski, S. Radkowski, K. Szczurowski and M. Wikary	1
Application of Artificial Neural Networks for Damage Indices Classification with the Use of Lamb Waves for the Aerospace Structures Z. Dworakowski, Ł. Ambroziński, P. Packo, K. Dragan, T. Stepinski and T. Uhl	12
Application of Vision Based Damage Detection for Real Civil Engineering Structure P. Kohut, K. Holak, T. Uhl, J. Mączak and P. Szulim	22
Comparative Study of Instantaneous Frequency Extraction in Nonlinear Acoustics Used for Structural Damage Detection D. Włodarska, A. Klepka, W.J. Staszewski and T. Uhl	33
Damage Detection in RAPTOR Telescope Systems Using Time-Frequency Analysis Methods I. Antoniadou, K. Worden, G. Manson, N. Dervilis, S.G. Taylor and C.R. Farrar	43
Damage Detection in Riveted Aircraft Elements Based on the Electromechanical Impedance Measurements M. Rosiek, K. Dragan, A. Martowicz and T. Uhl	54
Determination of the Penetration Depth of Eddy Currents in Defectoscopic Tests L. Dziękowski and S. Zolkiewski	64
Development Environment for Diagnostic Multimodal Statement Networks W. Cholewa, M. Amarowicz, P. Chrzanowski and T. Rogala	74
Development of the Strain Sensors Based on CNT/Epoxy Using Screen Printing K. Grabowski, P. Zbyrad and T. Uhl	84
Diagnostics and Transversal Vibrations Control of Rotating Beam by Means of Campbell Diagrams S. Zolkiewski	91
Diagnostics of the Mechatronic Rotating System M. Gizelska, D. Kozanecka and Z. Kozanecki	101
Empirical Mode Decomposition of Vibration Signal for Detection of Local Disturbances in Planetary Gearbox Used in Heavy Machinery System J. Dybała and R. Zimroz	109
Energy Diagnosis of the Structure of the Demolition Hammer with WoSSo Vibroisolation of a Biomechanical System M.W. Dobry	117
Example of Diagnostic Inference Based on Uncertain and Partly Inconsistent Data with Application of the Approximate Statement Network D. Skupnik	127
Identification of the Water-Cooled Fuel Injectors for Engines Z. Raunmiagi and P. Bielawski	134
Impact of Changing Temperature on Lamb Wave Propagation for Damage Detection R. Radecki, W.J. Staszewski and T. Uhl	140
Influence of the Indicator Channel and Indicator Valve on the Heat Release Characteristics of Medium Speed Marine Diesel Engines S. Polanowski, R. Pawletko and K. Witkowski	149
Local Interaction Simulation Approach vs. Finite Element Modelling for Fault Detection in Medical Ultrasonic Transducer Z. Hashemiyan, P. Packo, W. Kocharński, W.J. Staszewski, T. Uhl and P. Verma	157
Machine Learning Applications for a Wind Turbine Blade under Continuous Fatigue Loading N. Dervilis, M. Choi, I. Antoniadou, K.M. Farinholt, S.G. Taylor, R.J. Barthorpe, G. Park, C.R. Farrar and K. Worden	166
Modeling the Effects of Underwater Detonation Wave A. Grządziela	175
New Focus on Gearbox Condition Monitoring for Failure Prevention Technology W. Bartelmus	184

Nonlinear Acoustics in Non-Destructive Testing - From Theory to Experimental Application D. Broda, A. Klepka, W.J. Staszewski and F. Scarpa	192
Object-Relational Model of Experimental Studies of Impact of Climatic Conditions on the Work of a Bi-Fuel Engine W. Marowski and K. Rokicki	202
Online Fault Diagnosis of Automotive Powernets by Kalman Filtering A. Puchalski and I. Komorska	209
Parametric Time-Frequency Map and its Processing for Local Damage Detection in Rotating Machinery R. Makowski and R. Zimroz	214
Possibilities of Using Vibration Signals for the Identification of Pressure Level in Tires with Application of Neural Networks Classification R. Burdzik, G. Peruń and J. Warczek	223
Power Plant Remaining Life Evaluation H. Furtado, F. Santos, B. Cardoso, C.F. Matt and L.H. de Almeida	232
Recent Research on Thermal Fatigue of Composite Elements of Transport Means A. Katunin and W. Moczulski	243
Remote Monitoring of Fatigue Cracks Growth in the Aircraft Structure Based on Active Piezosensor Network during the Full Scale Fatigue Test K. Dragan, M. Dziendzikowski, T. Uhl and T. Stepinski	249
Simulation and Analysis of Vibration of Rolling Bearing R. Kostek	257
Simulation and Laboratory Studies on the Influence of Selected Engineering and Operational Parameters on Gear Transmission Vibroactivity G. Peruń, J. Warczek, R. Burdzik and B. Łazarz	266
The Ideal Final Result and Contradiction Matrix for Machine Condition Monitoring with TRIZ C. Cempel	276
The Method for Identification of Damping Coefficient of the Trucks Suspension J. Warczek, R. Burdzik and G. Peruń	281
The Rise and Fall of CBM (Condition Based Maintenance) J.S. Stecki, S. Rudov-Clark and C. Stecki	290
Theoretical and Experimental Investigations of Oil-Free Bearings and their Application in Diagnostics of High-Speed Turbomachinery Z. Kozanecki, E. Tkacz, J. Łagodziński and K. Miazga	302
Triple Correlation Technique for Damage Detection in Composite Materials M. Strączkiewicz, A. Klepka, W.J. Staszewski and F. Aymerich	310
Uncertainty Analysis in Structural Dynamics K. Worden	318
Use of Neural Networks in Diagnostics of Rolling-Element Bearing of the Induction Motor L. Swędrowski, K. Duzinkiewicz, M. Grochowski and T. Rutkowski	333
Wavelet-Based Variance Analysis for Condition Monitoring of Gears A. Ziąja, T. Barszcz and W.J. Staszewski	343
Wireless Passive RFID-Based Sensor for Crack Detection - Second Stage of Investigations M. Lisowski and T. Uhl	352