7th International Congress on Technical Diagnostics

Congress Program

The final program is available on the website:
https://ictd2022.uniwersytetradom.pl/agenda/

The Congress take place at the:

- Campus II North - Chrobrego 31A, 26-600 Radom
  Day 1: Wednesday, 14 September
- Campus III South - Stasieckiego 54, 26-600 Radom Entrance from Dębowa Street
  Day 2 – Thursday, 15 September
  Day 3 – Friday, 16 September

Day 1, 14.09.2022, Wednesday, Chrobrego 31A street

Time	Event	Room
10:00-14:00	Registration	Main Hall
11:00-11:15	**Opening Ceremony** Sławomir Bukowski, Rector of the UTH Radom	**Main Hall**
11:15-13:30	**Keynote Lectures** **Chairman: Bogusław Łazarz**	**Main Hall**
11:15-12:00	Tomasz Krysiński: Advanced Diagnostics in Aviation	
12:00-12:45	Wiesław Jerzy Staszewski: In-direct Operational Data Analysis for Health and Condition Monitoring of Engineering Structures and Machines	
12:45-13:30	Artur Pollak: Prediction of energy consumption in the Industry 4.0 platform	
13:30-14:30	Lunch (Akademicka 5 street)	
14:30-15:30	**Plenary Lectures I** **Chairman: Tomasz Barszcz**	**Main Hall**
14:30-15:00	Zbigniew Dąbrowski, Jacek Dziurdź, Adam Piłka: Application of vibroacoustic diagnostic methods to nonlinear systems in medicine	
15:00-15:30	Wojciech Batko: Uncertainty of control assessments in machine diagnostic monitoring processes	
15:30-16:00	Coffee Break	
16:00-17:00	**Plenary Lectures II** **Chairman: Andrzej Niewczas**	**Main Hall**
16:00-16:30	Stanisław Radkowski, Jędrzej Mączak: Detection of damage early stages development in dynamical systems	
16:30-17:00	Grzegorz Żywica: Microturbines: diagnostic issues and challenges	
19:00-23:00	Gala Dinner bus >Gala Dinner	Hotel Aviator

Day 2, 15.09.2022, Thursday, Stasieckiego 54 street. Entrance from Dębowa street

Time	Event	Time	Event
9:00-9:30	**Plenary Lectures III – Room A1** **Chairman: Andrzej Puchalski**		
9:00-9:30	Tadeusz Uhl, Agata Kołodziejczyk: The diagnostics of structures vs. space technologies		
9:45-11:15	**Session I - Room A1** **Chairmen: Grzegorz Klekot** **Sławomir Wierzbicki**	**9:45-11:15**	**Session II - Room A2** **Chairmen: Wiesław Staszewski** **Jędrzej Mączak**
9:45-10:00	Burdzik R, Nowak B: Railway vehicle detection system based on vibration method	9:45-10:00	Mendrok K: The application of an adaptive modal filter and vision measurements for damage detection
10:00-10:15	Konieczny Ł, Filipczyk J: Analysis of the possibility of modifying the method of diagnosing the technical condition of the suspension system at Eusam's test stand	10:00-10:15	Pieczonka Ł, Spytek J, Dziedziech K, Ambroziński Ł: Damage detection in thin-walled structures with guided ultrasonic waves
10:10-10:30	Mamala J, Prażnowski K, Graba M, Konieczny Ł, Worwąg P: The use of vibroacoustic signals to assess the condition of a railway switch sleeper	10:10-10:30	Klepka A, Pieczonka Ł, Krzemiński M, Okoń M: Local Defect Resonance – method for damage detection and localization
10:30-10:45	Mamala J, Prażnowski K, Graba M, Bieniek A, Burdzik R: Energy consumption as a diagnostic parameter in a hybrid drive system of a passenger car	10:30-10:45	Machynia A, Sobczak M, Dworakowski Z, Roemer J: Laser spot thermography for defect detection in composite structure
10:45-11:00	Konieczny Ł, Wojnar G, Burdzik R, Filipowicz K, Wieczorek A.N, Kuczaj M: Application of the innovative flexible metal clutch for reduction of the vibroactivity of the mining scraper conveyor high power electric motor	10:45-11:00	Sobczak M, Machynia A, Roemer J, Dworakowski Z: Experimental setup for nondestructive testing of composite structures using laser spot thermography
11:00-11:15	Peruń G: Dynamic model for simulation of phenomena occurring in a planetary gear operating in a power transmission system	11:00-11:15	Dworakowski Z: SYPIN: A system for data processing and interpretation for Structural Health Monitoring
11:15-11:30 Coffee Break			
11:30-13:00	**Session III - Room A1** **Chairmen: Krzysztof Mendrok** **Rafał Burdzik**	11:30-13:00	**Session IV - Room A2** **Chairmen: Łukasz Konieczny** **Roman Barczewski**
11:30-11:45	Pająk M, Kluczyk M, Muślewski Ł, Lisjak D, Kolar D: Ship Diesel Engine Fault Diagnosis using Data Science and Machine Learning	11:30-11:45	Klekot G, Markuszewski D: Resonance vibrations of air inside the thin-walled composite structure for the diagnosis of the mast of the racing yacht
11:45-12:00	Monieta J: Diagnostic the development of damage to marine internal combustion engines by means of vibration signals	11:45-12:00	Siami M, Trybała P, Barszcz T, Zimroz R: A sensor fusion system with thermal infrared camera and lidar for automatic detection and localization of overheated idlers on conveyor systems
12:00-12:15	Kluczyk M, Grządziela A: Monitoring the technical condition of the marine turbine engines by analysis of rundown resonance parameters	12:00-12:15	Siami M, Barszcz T, Shiri H, Wodecki J, Wyłomańska A, Zimroz R: Unsupervised learning based data-driven anomaly detection for acoustic monitoring of idlers in conveyor systems
12:15-12:30	Markiewicz M, Muślewski Ł, Pająk M: Analysis of the level of the impact of selected fuel mixtures on the natural environment	12:15-12:30	Jabłoński A, Barszcz T: Modeling of synthetic REB vibration signals
12:30-12:45	Markiewicz M, Aleksandrowicz P, Muślewski Ł: Simulation of the movement of a car in three-dimensional space powered by mixtures of diesel fuel and biocomponent with predetermined changes in the software controlling the drive unit	12:30-12:45	Pyzik P, Ambroziński Ł: Coherent noise suppression through optimal baseline subtraction in laser ultrasonic imaging of tailored welded blanks joints
12:45-13:00	Hottinger Bruel & Kjaer Company Presentation	12:45-13:00	
13:00-14:00 Lunch			
14:00-15:30	**Session V - - Room A1** **Chairman: Andrzej Świderski** **Anna Borucka**	**14:00-15:30**	**Session VI - - Room A2** **Chairman: Tadeusz Uhl** **Anna Timofiejczuk**
14:00-14:15	Mączak J, Więcławski K, Szczurowski K, Matysiak R: Data exchange in vehicles in terms of cybersecurity	14:00-14:15	Hetmańczyk M, Walczak M: The performance of IIoT communication standards
14:15-14:30	Antkowiak M, Więcławski K: Identification of waveforms of electric actuators managed by vehicle controllers	14:15-14:30	Malaka J, Hetmańczyk M: Additive manufacturing as method of enhancement machine diagnosis capabilities in systems of Industry 4.0
14:30-14:45	Jasiński M, Miś P, Szulim P, Badurowicz P, Wiśniewski A, Woliński M, Bartkowiak T: Drive concept for a mobile test rig	14:30-14:45	Kost G, Hetmańczyk M, Barcik J: A control algorithm to follow the limitations of an electric vehicle motor using the TM4 Sumo drive as an example
14:45-15:00	Pawlik P, Kania K, Przysucha B: Fault diagnosis using artificial neural networks trained only on signals from an undamaged machine	14:45-15:00	Stankiewicz K, Jagoda J, Rogala-Rojek J, Hetmańczyk M: Algorithm of sensory network routing operating in explosion hazard zones
15:00-15:15	Dobaj K: Neural network-based road surface condition monitor concept	15:00-15:15	Korbiel T: Diagnostics of logistics processes using Pallet 4.0®
15:15-15:30	EC Test System Sp.z o.o. Company presentation	15:15-15:30	
15:30-16:00 Coffee Break			
18:00-21:00 Outdoor Party; bus > Museum of Radom Village			

Day 3, 16.09.2022, Friday, Stasieckiego 54 street. Entrance from Dębowa street

9:00-11:00	**Session VII - Room A1** **Chairmen: Piotr Folęga** **Andrzej Grządziela**	**9:00-11:00**	**Session VIII - Room A2** **Chairmen: Zbigniew Kozanecki** **Stanisław Radkowski**
9:00-9:15	Mokrzan D, Nowakowski T, Szymański G: The use of a short-time cepstrum for vibroacoustic signal analysis in the aspect of fault detection of vehicle drive components	9:00-9:15	Timofiejczuk A, Pollak A, Loska A, Gąsiorek D, Sadzik A, Walczak M, Temich S: An example of technological Living Lab
9:15-9:30	Waszczuk-Młyńska A, Radkowski S: Statistical analysis of electrical signals of executive components	9:15-9:30	Pedot M, Timofiejczuk A: Thermal signature of weld defects inside high strength steel butt-welded joint pipes
9:30-9:45	Mączak J, Makowski M: Test bench for liquid flow resistance assessment through a special low temperature filter	9:30-9:45	Król A, Timofiejczuk A, Łukasik T: Diagnostics methods supporting Digital Twins
9:45-10:00	Połaniecki A, Szczurowski K, Więcławski K, Mączak J: Fault-tolerant control of the injection system	9:45-10:00	Kaczor M, Timofiejczuk A, Januszka M: Production line load balancing for producing of semitrailers chassis
10:00-10:15	Kozłowski S, Szost K, Szczurowski K, Chiliński B: Double-regulated Active Cruise Control for a car model with nonlinear powertrain design	10:00-10:15	Kalisch M, Timofiejczuk A, Przystałka P: Methodology of context-based fault detection in technical diagnostic - A case study
10:15-10:30	Szczurowski K, Mączak J, Jasiński M, Pacek D, Badurowicz P, Sidelnik P, Połaniecki A: Analysis of the energy consumption of materials during the interception of soft-point projectiles	10:15-10:30	Gajdzik M, Timofiejczuk A, Gnacy-Gajdzik A, Przystałka P: Detection of cyberattacks in electric vehicles using a deep neural network
10:30-10:45	Miś P, Szczurowski K, Więcławski K, Mączak J: Analysis of the download method and structure of information stored in the electronic modules of vehicles	10:30-10:45	Macura T, Timofiejczuk A: Diagnostics of team performance in project realisation using Follow The Sun method in automotive design
10:45-11:00	Lorencki J, Radkowski S: Methods of switched reluctance motor diagnostics methods	10:45-11:00	Kurpiel B, Timofiejczuk A, Kłopot W: Optimal solution of pressure control in the hydraulic system of the test stand for high-temperature tests
11:00-11:15	Future Industry Platform Foundation presentation	11:00-11:15	
11:00-11:30 Coffee Break			
11:30-13:30	**Session IX – Room A1** **Chairmen: Zbigniew Dąbrowski** **Grzegorz Żywica**	**11:30-13:30**	**Session X – Room A2** **Chairmen: Wojciech Batko** **Piotr Aleksandrowicz**
11:30-11:45	Kozanecki Z, Tkacz E, Łagodziński J: Dynamic stability of a vertical pump rotating system under API standards	11:30-11:45	Barczewski R, Jakubek B: Parametrization of micro-shocks in the structure resonance bands as a tool for post-production classification of rolling bearings
11:45-12:00	Łagodziński J, Tkacz E, Kozanecki Z: Measurements of micro turbojet engine performance	11:45-12:00	Barczewski R, Wróbel M: The influence of asynchronous electric motor mounting on vibration of its body during acceptance testing
12:00-12:15	Deuszkiewicz P, Tadzik P: Acoustic comfort study in the oxygen therapy helmet for COVID-19 patients	12:00-12:15	Roczek K, Fidali M: Method of fault detection of drive systems using features of Park's vector hodograph
12:15-12:30	Breńkacz Ł, Blaut J: Fractal dimension in the diagnosis of rotating machinery — based on numerical analysis	12:15-12:30	Fidali M: Method of welding process diagnosing based on acoustic signals
12:30-12:45	Rukat W: Identification of operating mode of a petrol chainsaw based on synchronous measurement of rotational speed of engine shaft and chain sprocket	12:30-12:45	Augustyn D, Fidali M: Application of torque signal analysis of servomotors to assess of support system condition of industrial machining centre
12:45-13:00	Chaja P: A new look at diagnostics and enterprise security in terms of partial independence from external energy costs	12:45-13:00	Augustyn D, Fidali M: Fuzzy condition indicator of spindle of machining centre based on vibration parameters
13:00-13:15	Warczek J, Brol S: Application of the two-dimensional wavelet transform to the analysis of magnetic signatures of composite structures	13:00-13:15	Żymełka S: Procedure of internal characteristics identification of the semi-active automotive shock absorber using mathematical modeling
13:15-13:30	Ziętek B, Śliwiński P: Possibilities of monitoring basic parameters of electromechanical devices in a mining section on the basis of current measurement at the electrical switchboard	13:15-13:30	Sternal K: Diagnostics of worst-case execution time calculations for automotive embedded systems
13:30-14:30 Lunch			
14:30-15:30	**Session XI – Room A1** **Chairman: Michał Pająk**	**14:00-15:30**	**Session XII – Room A2** **Chairman: Iwona Komorska**
14:30-14:45	Olejarczyk K, Wikło M, Żurowski W: A geometrical surface texture study of sliding sleeves and pins after bench tests	14:30-14:45	Krot P, Korennoi V, Zimroz R, Szrek J: Angular Backlashes Monitoring in the Drivelines of Heavy Industrial Machines
14:45-15:00	Komorska I, Puchalski A, Motyl P, Drabik B: Intelligent monitoring of the combustion process parameters in a domestic boiler	14:45-15:00	Caso E, García-Fernández P, Fernández-del-Rincón A, De-Juan-De-Luna A, Díez-Ibarbia A, Sánchez-Espiga J: Acoustic emission monitoring of wire drawing process
15:00-15:15	Wikło M, Komorska I, Olejarczyk K, Wołczyński Z: Virtual torque sensor for cycloidal gearbox	15:00-15:15	Nowak B, Rozmus J, Simiński D: Identification of rail vehicles at railway crossings
15:15-15:30	Byczuk B, Skrzek K, Wikło M: Strength estimation of the 3D printed parts	15:15-15:30	Łatas W, Kot A: Determination of energy dissipated in CVT rubber belt based on high-speed camera vibration measurements
15:30-15:45	Król R: Cycloidal gearbox model for transient analysis implemented in Fortran with constant time step 2nd order integrator	15:30-15:45	
15:45-16:00 Coffee Break			
16:00 Closing Ceremony – Room A1			