The 8th International Congress on Technical Diagnostics

ICTD 2026

23–25 September 2026, Gdańsk, Poland



Congress Programme

Institute of Fluid-Flow Machinery PAS

Polish Naval Academy

Polish Association of Technical Diagnostics

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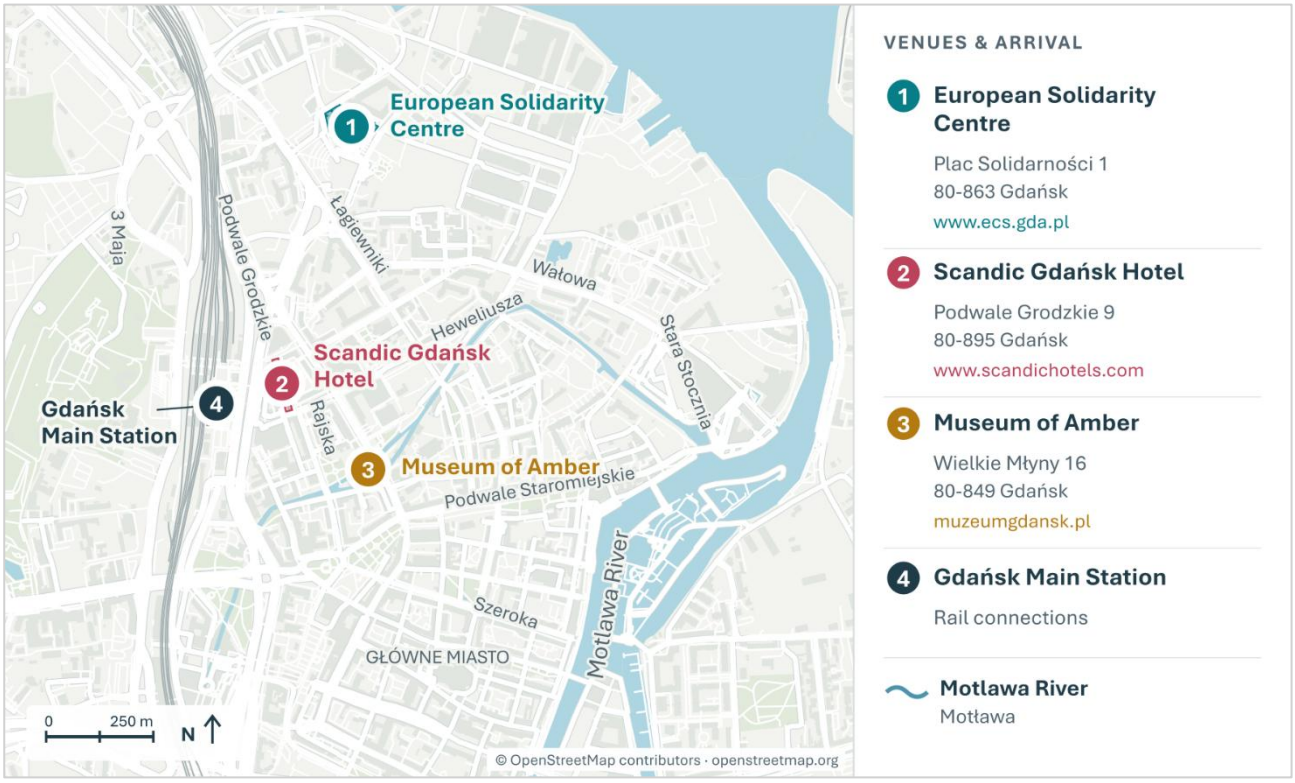
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General programme

Wednesday, 23 September		Thursday, 24 September		Friday, 25 September	
11:00 – 11:30	Opening ceremony	09:00 – 10:30	Plenary session	09:00 – 10:30	Plenary session
11:30 – 13:00	Plenary session	10:30 – 11:00	Coffee break	10:30 – 11:00	Coffee break
13:00 – 14:00	Lunch	11:00 – 12:30	Technical sessions	11:00 – 12:15	Technical sessions
14:00 – 15:30	Technical sessions	13:00 – 14:00	Lunch	12:30 – 13:00	Closing ceremony
15:30 – 16:00	Coffee break	14:00 – 15:30	Poster sessions	13:30 – 14:30	Lunch
16:00 – 17:30	Technical sessions	16:00 – 17:30	Visits/Guided tour	15:30 –17:00	Cruise
19:30 – 23:00	Gala dinner				

Map of the Congress venue



Congress website

https://ictd2026.imp.gda.pl/

Wednesday, 23 September (Scandic Gdańsk Hotel)		
10:00 – 11:00	**Registration**	
11:00 – 11:30	**Opening ceremony** (room Gdańsk) Chair: Grzegorz Żywica	
	Welcome by representatives of the ICTD 2026 Congress organisers	
	Welcome by the Chair of the ICTD 2026 Congress	
	Practical information on the ICTD 2026 Congress	
11:30 – 13:00	**Plenary session** (room Gdańsk) Chair: Andrzej Grządziela	
11:30 – 12:15	Technical diagnostics: yesterday, today, tomorrow *Jan Kiciński*	
12:15 – 13:00	PGZ Naval Shipyard in the era of naval force modernisation: opportunities and challenges *Marcin Ryngwelski*	
13:00 – 14:00	**Lunch**	
14:00 – 15:30	**Technical sessions**	
	AI and Digital Twins (room Gdańsk) Chairs: Rafał Burdzik, Iwona Komorska	**Damage detection** (room Amsterdam) Chairs: Magdalena Mieloszyk, Łukasz Pieczonka
14:00 – 14:15	Autonomous systems incidentally supported by a remote operator *Wojciech Moczulski*	Detection, classification and tracking system for underwater vehicles using hydrophones transferred by Unmanned Air Vehicles *Piotr Szymak, Paweł Piskur*
14:15 – 14:30	Different approaches for using unsupervised deep learning in fault diagnosis of rotating machinery operating under variable conditions *Konrad Kania, Paweł Pawlik, Bartosz Przysucha*	Failure analysis of a tilting pad thrust bearing in a small back-pressure steam turbine *Arkadiusz Koprowski, Leszek Kubitz, Romuald Rządkowski, Sara Chmielowiec, Maksymilian Werner, Krzysztof Feldzensztajn*
14:30 – 14:45	Testbed for technical diagnostics in industry 4.0: a framework for algorithm validation and data repository development *Anna Timofiejczuk, Damian Gąsiorek, Andrzej Loska, Artur Pollak*	Comparing time-series-to-image encodings for wind turbine fault detection: a magnitude-preserving raster embedding of SCADA signals *Krzysztof Kijanowski, Khanh T. P. Nguyen, Kamal Medjaher, Tomasz Barszcz, Phong B. Dao*
14:45 – 15:00	Brake pad wear estimator with application of two kinds of neural networks *Krzysztof Dobaj*	Hybrid and electric vehicles in vehicle technical inspections *Krzysztof Kler, Paweł Fabiś*
15:00 – 15:15	Application of digital twin technology for production scheduling optimization under limited availability of generating units *Tomasz Kowalczyk, Kacper Krupa, Sylwia Kruk-Gotzman*	Hydrogen-powered vehicles in vehicle technical inspections *Michał Bebko, Paweł Fabiś*
15:15 – 15:30	Presentation by StatSoft Practical aspects of predictive maintenance projects	Presentation by VIMS
15:30 – 16:00	**Coffee break**	

16:00 – 17:30	**Technical sessions**	
	Rotating machinery (room Gdańsk) Chairs: Richard Markert, Romuald Rządkowski	**Signal processing** (room Amsterdam) Chairs: Bogusław Łazarz, Łukasz Konieczny
16:00 – 16:15	Analysis of large datasets as a pre-requisite for reliable condition monitoring of rotating machines *Akarsh Seetharamaiah, Adam Jabłoński, Kajetan Dziedziech*	Blade fault diagnosis in wind turbines using a hybrid energy distance and permutation test method for vibration dataset analysis *Debela A. Teklemariyem, Nasir H.R. Syed, Wieslaw J. Staszewski, Phong B. Dao*
16:15 – 16:30	Monitoring, diagnosing and identification of various rotor-shaft imperfections by means of the multi-fault model based vibratory inverse problem solution *Tomasz Szolc, Robert Konowrocki*	Application of spatial-time-frequency analysis to estimate the direction of movement and position of an object *Piotr Miś, Jędrzej Mączak, Przemysław Szulim*
16:30 – 16:45	Frequency-domain cointegration analysis for misalignment detection in rotating machinery *Sylwester Szewczyk, Wiesław Staszewski, Roman Barczewski, Phong Dao, Marcin Szlosek, Khanh T.P. Nguyen*	Integration of fast- and slow-varying phenomena in multiscale diagnostic models of technical systems *Anna Timofiejczuk, Damian Gąsiorek, Wojciech Moczulski*
16:45 – 17:00	The condition monitoring system for rotating machinery with training under industrial conditions *Paweł Pawlik*	From signal processing to decision support: multiscale diagnostics for predictive and prescriptive maintenance *Anna Timofiejczuk, Adrian Małek*
17:00 – 17:15	Operational problems and rotor dynamic response of a 300 kW ORC turbogenerator supported on tilting pad bearings lubricated with a low-boiling working fluid *Paweł Bagiński, Łukasz Antczak*	Chatter onset detection in high-speed micromilling by recurrences *Suraj Kumar, Ramesh K. Singh, Joanna Iwaniec, Grzegorz Litak*
17:15 – 17:30	Presentation by Energomechanika	Presentation by EC TEST Systems
19:30 – 23:00	**Gala dinner** (room Gdańsk)	

Thursday, 24 September (Scandic Gdańsk Hotel)		
08:30 – 09:00	**Registration**	
09:00 – 10:30	**Plenary session** (room Gdańsk) Chair: Andrzej Puchalski	
09:00 – 09:45	Information and time as determinants of quality in technical diagnostics *Zbigniew Dąbrowski, Rafał Burdzik*	
09:45 – 10:30	Nonlinear dynamics, design, and control for future rotating machinery *Athanasios Chasalevris*	
10:30 – 11:00	**Coffee break**	
11:00 – 12:30	**Technical sessions**	
	Materials and structures (room Gdańsk) Chairs: Anna Timofiejczuk, Jan Warczek	**Bearings** (room Amsterdam) Chairs: Paweł Pawlik, Tomasz Szolc
11:00 – 11:15	Metamaterial topology design with CLIP based Learning *Sourava Prasad Mishra, Paweł Kudela*	A stochastic signal model for distributed faults in rolling bearings *Bogumił Chazy, Paweł Pawlik*
11:15 – 11:30	Condition assessment of power line conductors based on acoustic emission and thermal imaging *Bartosz Hyla, Joanna Koszyk, Marek Florkowski, Paweł Mikrut, Łukasz Pieczonka, Łukasz Ambroziński*	Comparative experimental identification of stiffness and damping in an active gas foil bearing using impulse and harmonic excitation *Łukasz Breńkacz, Bartosz Puchalski, Paweł Bagiński*
11:30 – 11:45	Hybrid active–passive inspection framework for intelligent structural health monitoring of wind turbine blades *Badis Boulhouchet, Wojciech Moczulski*	Properties enhancement for gas foil bearings via application of smart materials *Adam Martowicz, Jakub Roemer, Grzegorz Żywica, Paweł Bagiński*
11:45 – 12:00	On the application of bionic principles to the development of a start-up and power control pattern for a small-power turbine *Jerzy Głuch, Romuald Rządkowski*	Comparative analysis of entropy-based methods for diagnostics of water-lubricated plain bearings *Jędrzej Blaut*
12:00 – 12:15	Methods of changing thermal conductivity in phase change materials (PCM) used in heat storage *Tomasz Przybyliński, Marcin Lackowski, Paulina Rolka*	Fluid bearing supply conditions in the context of rotor dynamic stability of a 300 kW ORC turbogenerator supported on tilting pad bearings *Artur Andrearczyk, Łukasz Antczak*
12:15 – 12:30	Presentation by DEWESoft	Presentation by Marani
13:00 – 14:00	**Lunch**	
14:00 – 15:30	**Poster sessions**	
	Room Gdańsk Chairs: Rafał Burdzik, Zbigniew Dąbrowski	Room Amsterdam Chairs: Wojciech Batko, Adam Jabłoński
	A unified device description format for modbus RTU/RS485 sensors in machine condition monitoring systems *Marek Fidali*	Acoustic deep learning for automated detection of structural defects in aluminium wheel rims *Arkadiusz Rychlik*
	Application of rice's frequency for the analysis of acoustic signals of the welding process *Marek Fidali*	Explainable graph-based deep learning in fault diagnosis of complex mechatronic systems *Iwona Komorska, Andrzej Puchalski*
	Fatigue life prediction for naval polymeric shock absorbers *Andrzej Grządziela, Marcin Kluczyk*	Reconstruction of local transient regions in transport signals using neural operators *Andrzej Puchalski, Iwona Komorska*
	Diagnostics of a shipboard electric power system *Grzegorz Grzeczka*	A methodology for assessing wear of a fleet of semi-trailer axles using sensory data *Piotr Kowalski, Wojciech Moczulski*

	Verification of the Johnson–Cook Model in Finite Element Analysis through 3D scanning of 316L specimens manufactured by WLMD *Radosław Kiciński, Michał Grylewicz, Bogdan Szturomski*	Dual-stream CNN with cross-modal attention for bearing fault diagnosis using Spectrogram and Cyclic Spectral Correlation maps *Aryan Raj, Sumika Chuahan, Govind Vashishtha, Radoslaw Zimroz*
	The use of synchronous analysis in the diagnostics of multi-stage gearboxes *Piotr Deuszkiewicz, Jacek Dziurdź*	Health Index design based on 2D vibration signal representation using machine learning *Anna Michalak, Jacek Wodecki, Radosław Zimroz*
	Bench tests of vibration damping effectiveness by various child car seat models *Piotr Deuszkiewicz, Dorota Górnicka*	SelGram: a hybrid informative frequency band detection procedure *Jacek Wodecki, Anna Michalak, Radosław Zimroz*
	Stages of maturity in condition-based maintenance: insights from urban rail, waste management and port logistics *Michał Kuziemski, Michał Wasilczuk, Jacek Czyżewicz*	Preliminary study on geometry-driven mechanical tailoring of multijet printed photopolymer components *Remigiusz Knitter, Grzegorz Żywica, Paweł Bagiński, Artur Andrearczyk*
	Hybrid game-theoretic decision models for non-probabilistic diagnostics of computational systems under uncertainty and incomplete information by irregular faults *Vadim Romanuke*	Vibration energy harvesting with a nonlinear piezomagnetic beam assisted by another elastic beam working as an amplifier *Sudipta Maity, Shaikh Faruque Ali, Jacek Caban, Grzegorz Litak*
	Infrared thermography for in-process TIG welding supervision using anomaly detection with a convolutional autoencoder *Wojciech Jamrozik, Bernard Wyględacz*	Assessment of the technical condition of steel bars based on the observation of the entropy of the external magnetic field *Jan Warczek, Sebastian Brol*
	Modular program for modelling dynamic phenomena occurring in selected types of toothed gearboxes *Grzegorz Peruń*	Analysis of changes in wheel alignment and chassis geometry of electric and hybrid vehicles during operation *Jarosław Gonera*
	Simulation-experimental identification of internal flow parameters of a Savonius turbine for predictive diagnostics purposes *Bartosz Moczulak, Wojciech Miąskowski*	Diagnostics of production plant operation through the use of an economic model *Paweł Wojtas, Arkadiusz Koprowski, Romuald Rządkowski*
	Proposal to modify the Eusama test stand to enable phase angle determination *Łukasz Konieczny*	Explainable deep learning in multi-label electrocardiogram classification *Arkadiusz Koprowski, Romuald Rządkowski*
	Multi-criteria analysis of an open-profile elevator frame with a screw drive *Maciej Zawisza, Piotr Żach , Piotr Tadzik, Łukasz Konieczny*	A synergistic method for diagnosing the condition of a tribosystem operating under fluid lubrication *Daria Skonieczna*
	Research and diagnostics of the sealing performance of an ORC cogeneration microsystem *Tomasz Z. Kaczmarczyk*	Spatiotemporal mapping of ultrasonic wave propagation for enhanced diagnostics of viscous media *Oleksandr Vrublevskyi, Daria Skonieczna*
	Trend identification in diagnostic time series using a hierarchical reasoning neural network model for machine condition monitoring *Damian Augustyn, Marek Fidali*	Nitrogen ion implantation effect on cavitation erosion resistance of Stellite 6 and Stellite 21 hardfacings *Mirosław Szala*
	The influence of using a flexible metal coupling on drive system vibrations occurring during operation under torque loading with various waveform *Andrzej Norbert Wieczorek, Grzegorz Wojnar, Łukasz Konieczny, Rafał Burdzik, Krzysztof Filipowicz, Mariusz Kuczaj*	Implementation of DSP algorithms in embedded RT systems *Jakub Banach, Michał Śmieja*
16:00 – 17:30	**Visit to the European Solidarity Centre / Museum of Amber / guided tour of Gdańsk**	
18:00 – 19:30	Meeting of the Board of the Polish Society of Technical Diagnostics (room Hamburg)	

Friday, 25 September (Scandic Gdańsk Hotel)		
08:30 – 09:00	**Registration**	
09:00 – 10:30	**Plenary session** (room Gdańsk) Chair: Wojciech Moczulski	
09:00 – 09:45	Differences in the implementation of tasks of diagnostics of the state of acoustic hazards in the environment *Wojciech Batko, Adam Jabłoński*	
09:45 – 10:30	Theory of chaos in machine diagnostics *Minvydas Ragulskis*	
10:30 – 11:00	**Coffee break**	
11:00 – 12:15	**Technical sessions**	
	Modelling and analysis (room Gdańsk) Chairs: Adam Martowicz, Grzegorz Peruń	**Environment** (room Amsterdam) Chairs: Tomasz Korbiel, Grzegorz Wojnar
11:00 – 11:15	Numerical modelling of hygrothermal diffusion and tensile response in additively manufactured composite laminates with embedded fibre Bragg grating sensors *Suvam Bhadra, Magdalena Mieloszyk*	Diagnostics and control challenges in a large-scale forest CO_2 enrichment facility: technical upgrades from the BIFoR FACE experiment *Robert Grzesik, Thomas Downes, Kris Hart*
11:15 – 11:30	Diagnostic evaluation and numerical validation of interfacial adhesion in melt-impregnated continuous carbon fiber/PEI composites *Muhammad Abuzar Khan, Magdalena Mieloszyk, Marius Rimašauskas*	Horizon-dependent performance of seasonal autoregressive integrated moving average with eXogenous variables and gradient boosting in day-ahead district heating demand forecasting: evidence from multiple networks *Sylwia Kruk-Gotzman, Tomasz Kowalczyk, Michał Kowalczyk, Tomasz Ochrymiuk*
11:30 – 11:45	The application of simulation and artificial intelligence methods in the diagnostics of main propulsion marine combustion engines *Tomasz Cepowski, Radosław Frąckowiak, Jan Monieta*	A method of controlling the head of a longwall shearer using the acoustic effect generated during the mining of a coal seam *Piotr Kiljan, Krzysztof Kalinowski, Anna Kiljan, Wojciech Moczulski*
11:45 – 12:00	Model-based diagnostic of fuel injectors *Maja Antkowiak, Jędrzej Mączak, Krzysztof Więcławski, Krzysztof Szczurowski*	Context-aware diagnostic modeling in technical systems: toward reliable decision support in industrial environments *Anna Timofiejczuk*
12:00 – 12:15	Presentation by JPT VIBRO	
12:30 – 13:00	**Closing ceremony** (room Gdańsk) Chair: Grzegorz Żywica	
13:30 – 14:30	**Lunch**	
15:30 – 17:00	**Cruise on the Motława River**	