

**GENERAL CONFERENCE PROGRAMME**

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**GENERAL CONFERENCE PROGRAMME**

**Wednesday 13<sup>th</sup> September 2017**

**GLIWICE**

**Registration of the Conference Participants**

**10<sup>00</sup> ÷ 10<sup>45</sup>**

**10<sup>45</sup> ÷ 11<sup>00</sup> Opening Ceremony**

Plenary session

**11<sup>00</sup> ÷ 12<sup>25</sup>**

Lunch break

**12<sup>30</sup> ÷ 13<sup>30</sup>**

Sightseeing of the Faculty of Mechanical Engineering  
and of the EMT Systems

**13<sup>30</sup> ÷ 15<sup>30</sup>**

Bus transfer from Gliwice to Wisła – Jawornik **16<sup>00</sup>**

Social evening **19<sup>30</sup>**

**Hotel „Stok”**

**GENERAL CONFERENCE PROGRAMME**

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**Thursday 14<sup>th</sup> September 2017**

**WISŁA - JAWORNIK**

Session of Industrial Mechatronics - A1

**9<sup>00</sup> ÷ 12<sup>00</sup>**

Poster session I

**12<sup>00</sup> ÷ 13<sup>00</sup>**

Lunch break

**13<sup>00</sup> ÷ 14<sup>00</sup>**

Session B

**14<sup>30</sup> ÷ 15<sup>40</sup>**

Session C

**14<sup>30</sup> ÷ 15<sup>40</sup>**

Coffee break

**15<sup>40</sup> ÷ 16<sup>00</sup>**

Session of Industrial Mechatronics - A2

**16<sup>00</sup> ÷ 18<sup>30</sup>**

Social evening 19<sup>00</sup>

**Hotel „Stok”**

**GENERAL CONFERENCE PROGRAMME**

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**Friday 15<sup>th</sup> September 2017**

**WISŁA - JAWORNIK**

Poster session II

**9<sup>00</sup> ÷ 10<sup>00</sup>**

Session A

**10<sup>00</sup> ÷ 11<sup>20</sup>**

Session B

**10<sup>00</sup> ÷ 11<sup>20</sup>**

Closing Ceremony

**11<sup>30</sup> ÷ 12<sup>00</sup>**

Lunch break

**12<sup>30</sup> ÷ 13<sup>30</sup>**

## CONFERENCE PROGRAMME

### Wednesday 13.09.2017

**10<sup>00</sup>** Registration of the Conference Participants

**10<sup>45</sup>** Opening Ceremony of the 4<sup>th</sup> International Conference

**"Mechatronics: Ideas for Industrial Applications"**

*Congress and Education Center, Silesian University of Technology, Gliwice*

**Welcome of the Guests and Participants by the Chairman  
of the Organising Committee**

***Speeches of the:***

**Rector of the Silesian University of Technology,  
*prof. Arkadiusz Mężyk***

**Chairman of the Construction Machinery Committee of the Polish  
Academy of Sciences, *prof. Janusz Kowal***

**Chairman of the Mechatronics Section PAN of the Construction  
Machinery Committee of the Polish Academy of Sciences,  
*prof. Mirosław Pajor***

**Dean of the Faculty of Mechanical Engineering of the Silesian  
University of Technology, *prof. Anna Timofiejczuk***

**Chairman of the Scientific - Programme Council, *prof. Jerzy Świder***

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**Wednesday 13.09.2017**

**Plenary session**

**Chairman:** **Janusz Kowal**  
**Sławomir Kciuk**

**11<sup>00</sup> – 11<sup>25</sup>** **J. Awrejcewicz, B. Kudra**, Department of Automatics, Biomechanics and Mechatronics, Lodz University of Technology: ***Opened problems of rigid body dynamics lying on a movable/non-movable plane***

**11<sup>30</sup> – 11<sup>55</sup>** **W. Morawski**, Festo Sp. z o.o.: ***Industry 4.0 – qualification for the factory of the future***

**12<sup>00</sup> – 12<sup>25</sup>** **A. Timofiejczuk, J. Świder**, Faculty of Mechanical Engineering, Silesian University of Technology: ***Mechatronics in education and research at the Faculty of Mechanical Engineering***

**Discussion**

**12<sup>30</sup> – 13<sup>30</sup>** **Lunch break**

**13<sup>30</sup> – 15<sup>30</sup>** **Sightseeing of the Mechatronic Laboratories of the Faculty of Mechanical Engineering and of the EMT Systems**

**16<sup>00</sup>** **Bus transfer from Gliwice to Wisła - Jawornik**

**Social evening 19<sup>30</sup>**

**Hotel „Stok”**

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**Thursday 14.09.2017**

**Session of Industrial Mechatronics – A1**

**Chairman:** **Jerzy Świder**  
**Tomasz Trawiński**

- 9<sup>00</sup> – 9<sup>40</sup>** **Orłowski K., SEW-EURODRIVE Polska Sp. z o.o.:** *Even best ideas – are nothing, if performance is wrong. Zakłócenia EMC w środowisku przemysłowym, ich pomiary oraz eliminacja*
- 9<sup>40</sup> – 10<sup>00</sup>** **Banakiewicz G., Balluff Sp. z o.o.:** *Inteligenta fabryka - rozwiązania wpierające ideę Przemysłu 4.0*
- 10<sup>00</sup> – 10<sup>15</sup>** **Szyling M., Rockwell Automation, Inc.:** *Industrial control – evolution in logix platform: CompactLogix 5480*
- 10<sup>15</sup> – 10<sup>30</sup>** **Paradowska M., Rockwell Automation, Inc.:** *Rockwell Automation – technical support services*
- 10<sup>30</sup> – 10<sup>45</sup>** **Rabenda W., Rockwell Automation, Inc.:** *Connected Enterprise*
- 10<sup>45</sup> – 11<sup>05</sup>** **Zajączkowski M., Biuro Inżynierskie Maciej Zajączkowski:** *Tensometryczne systemy pomiarowe jako źródło sygnału sterującego w zastosowaniach przemysłowych i laboratoryjnych*
- 11<sup>05</sup> – 11<sup>25</sup>** **Jaworski J., HYDAC Sp. z o.o.:** *HYDAC KineSys- The smart platform of motion control systems*
- 11<sup>25</sup> – 11<sup>45</sup>** **Petz M., Przemysłowy Instytut Automatyki i Pomiarów PIAP:** *Robotyzacja procesów – studium przypadków*
- 11<sup>45</sup> – 12<sup>05</sup>** **Drewniak M., AIUT Ltd.:** *Polymorphic production and cognitive maintenance in Industry 4.0*
- 12<sup>05</sup> – 12<sup>20</sup>** **Discussion**

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**Thursday 14.09.2017**

**Poster session I**

**12<sup>00</sup> - 13<sup>00</sup>**

**Chairman:** **Agnieszka Sękała**  
**Krzysztof Kawlewski**

1. **Macek W., Faszynka S., Deptuła A.:** *Fatigue fracture surface analysis of the EN AW-2017A specimens with rectangular section*
2. **Herbuś K., Ociepka P., Świder J.:** *Integration of the virtual model of the robotised production cell with the virtual control system*
3. **Herbuś K., Ociepka P., Świder J.:** *Virtual commissioning of the mechatronic system using the integration of the CAD system and the PLC controller*
4. **Jasiulek D.:** *A concept of sensor for mining machines powered by pressure changes*
5. **Ciofu C., Carausu C., Nedelcu D.:** *The design and manufacturing of an automatic gear shift system*
6. **Sławski S., Szymiczek M., Domin J.:** *Puncture resistance researches of epoxy - aramid composite with use of pneumatic launcher*
7. **Melecki A., Michalski P.:** *Oversize of the safety system in terms of machine safety*
8. **Michalski P.:** *Advantages of using industrial sensor interfaces at the machine design stage*
9. **Michalski P., Melecki A.:** *Legal aspects of safety evaluation of machinery in Poland*
10. **Banaś W., Nalepa B.:** *Recognition of text commands and control of the mobile robot starter Kit 2.0*
11. **Banaś W., Lysek K.:** *Modeling of the industrial robot Fanuc Arc Mate 100ib in the Labview Environment*
12. **Konopelska A., Chochla M.:** *Use of surface electromyographic signals to control of electric rotor*
13. **Foit K.:** *The modular approach to the planning of the robot's tasks in the context of holons and graph based methods*
14. **Jendrysik S., Kost G.:** *Control of bucket conveyor's output*
15. **Bartoszek S., Kost G.:** *System for positioning the roadheader in roadways of hard coal mines*
16. **Tarnapowicz D., German-Galkin S.:** *The power quality in the "Shore to Ship" system – the improvement of the unbalanced voltage factor*
17. **Płaczek M.:** *Applications of composite piezoelectric transducers in innovative mechatronic systems*
18. **Wodarski P., Chrzan M., Bieniek A., Gzik M., et al.:** *An interactive controller aiding the process of upper limb rehabilitation*
19. **Malaka J.:** *Autonomous robot control system for automation of manipulations*
20. **Duda S., Gembalczyk G.:** *Concept of coupling the rehabilitation treadmill with foot pressure sensors*
21. **Kasprowiak M., Parus A.:** *Obróbka przedmiotów o dużej podatności z zastosowaniem aktywnego narzędzia*
22. **Ławniczek R., Duda S.:** *Control system of traction torque in electric locomotive*

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23. **Danek W., Gąsiorek D.:** *Numerical simulation of car crash with lighting columns mounted in the ground*
24. **Kobiałka J., Zawiejski W.:** *Role of didactical stations in education process of coming Industrial automatics technical staff*
25. **Bienioszek G., Kciuk S.:** *Influence of the drop-tower testing stand configuration onto the accuracy of acceleration measurements*
26. **Jureczko M.:** Analysis of off-grid wind – solar hybrid power generation system
27. **Saków M., Parus A., Pajor M., Miądlicki K.:** Time constant and model-free signal prediction in communication channel of teleoperation system



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**Thursday 14.09.2017**

**Session B**

**Chairman:** **Bogdan Posiadała**  
**Szymon Gontarz**

- 14<sup>30</sup> – 14<sup>40</sup>** **Saków M., Parus A., Pajor M., Miądlicki K.:** A sensor-less bilateral teleoperation system based on nonlinear inverse modeling with signal prediction
- 14<sup>40</sup> – 14<sup>50</sup>** **Hendzel Z., Penar P.:** *Zero-sum differential game in wheeled mobile robot control*
- 14<sup>50</sup> – 15<sup>00</sup>** **Herbin P., Pajor M.:** *Position control system of joint with closed loop cable conduit system for bilateral teleoperation*
- 15<sup>00</sup> – 15<sup>10</sup>** **Zhang Yan, Awrejcewicz J.:** *The Influence of Electric Height Adjustable Desk on Energy Expenditure in Interrupting Sedentary Behavior*
- 15<sup>10</sup> - 15<sup>20</sup>** **Miądlicki K., Pajor M., Saków M.:** *The Vlp-16 scanner data segmentation methods used in the intelligent crane system*
- 15<sup>20</sup> – 15<sup>40</sup>** **Discussion**

**Session C**

**Chairman:** **Andrzej Buchacz**  
**Maciej Trojnacki**

- 14<sup>30</sup> – 14<sup>40</sup>** **Szkodny T.:** *The computer aided planning of adept Six-300 robot trajectories*
- 14<sup>40</sup> – 14<sup>50</sup>** **Wolski M., Piatkowski T., Osowski P.:** *Model of trough-beam laser sensor for determining the real position and real response time*
- 14<sup>50</sup> – 15<sup>00</sup>** **Kozak M.:** *Voltage source inverter synchronization with use of FFT algorithm*
- 15<sup>00</sup> – 15<sup>10</sup>** **Warsza Z., Idźkowski A.:** *Accuracy analysis of RTD sensor circuits for the 2D temperature difference and average measurements*
- 15<sup>10</sup> - 15<sup>20</sup>** **Mikhal O., Warsza Z.:** *Bi-Sectional method for control the integral nonlinearity of high precision thermometric bridges*
- 15<sup>20</sup> – 15<sup>40</sup>** **Discussion**

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**Thursday 14.09.2017**

**Session of Industrial Mechatronics – A2**

**Chairman:** **Mirosław Pajor**  
**Damian Gąsiorek**

- 16<sup>00</sup> – 16<sup>20</sup>** **Benna M., VIX Automation Sp. z o.o.:** *Współpraca VIX Automation i Politechniki Śląskiej przy wdrażaniu rozwiązań wspierających Przemysł 4.0*
- 16<sup>20</sup> – 16<sup>40</sup>** **Wańkowicz M., EC Test Systems Sp. z o.o.:** *Zalety integracji mechatronicznych systemów symulacyjnych z CAE w kontekście optymalizacji wyrobu*
- 16<sup>40</sup> – 17<sup>00</sup>** **Podgórski P., EMT-Systems Sp. z o.o.:** *Mechatronika i techniki inżynierskie w specjalistycznych szkoleniach przemysłowych*
- 17<sup>00</sup> – 17<sup>20</sup>** **Koniczek S., Perfekt S.A.:** *Bezpieczeństwo w mechatronicznych układach wykonawczych*
- 17<sup>20</sup> – 17<sup>40</sup>** **Grzegorz Szczęśniak, SZCZĘŚNIAK Pojazdy Specjalne Sp z o.o.:** *Mechatronika w pojazdach pożarniczych*
- 17<sup>40</sup> – 18<sup>00</sup>** **AKE Robotics Sp. z o.o.**
- 18<sup>00</sup> – 18<sup>30</sup>** **Discussion**

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**Friday 15.09.2017**

**Poster session II**

**9<sup>00</sup> - 10<sup>00</sup>**

**Chairman:** **Mariola Jureczko**  
**Piotr Michalski**

1. **Czop P., Hetmańczyk M., Wszolek G., Stoniewski J.:** *A tunable model of a servo hydraulic tester for shock absorbers vibrational evaluation*
2. **Czop P., Hetmańczyk M., Wszolek G., Stoniewski J.:** *Modelling and system identification of a monotube shock absorber*
3. **Czop P., Hetmańczyk M., Wszolek G., et al.:** *Particle image velocimetry technique applied to flow evaluation through a shock absorber intake valve*
4. **Brodny J., Tutak M.:** *Application of industrial automatics systems for identifies operating parameters of mining machines*
5. **Felka D., Brodny J.:** *Forecasting of methane hazard state in the exploitation wall using neural-fuzzy system*
6. **Sklorz R., Zieliński A., Brodny J.:** *Analysis of the influence of selected factors on the modern Jet transport aircraft' specific range as a complex mechatronic system*
7. **Gordon R.:** *Detection and save of acoustic emission in discrete IGBT transistors*
8. **Jasiński M., Radkowski S., Mączak J., Szulim P.:** *Vision system for plant / weed classification*
9. **Brodny J., Pawlak M., Syty J.:** *Analysis of impact of the construction of security culverts on state of stress and deformation in isolated dams used in coal mine*
10. **Kawlewski K., Wątroba P.:** *Optimisation of controller parameters for inverted pendulum using heuristic algorithms*
11. **Świder J., Herbuś K., Szewerda K.:** *Control of selected operational parameters of the scraper conveyor, to improve its work conditions*
12. **Turek J., Daniszewski M., Wolnicki P., Machoczek T., Jureczko P.:** *Modelling of the anthropomorphic mechanical hand*
13. **Klein W., Kuś B.:** *Numerical simulation of automated guided vehicles system*
14. **Łabędzki P., Pawlikowski R., Radowicz A.:** *The theoretical analysis of piezoelectric transformers in different configurations*
15. **Jamroziak K., Bocian M., Pyka D., Kulisiewicz M.:** *Numerical analysis of the dynamic impact of a rifle barrel during a shot*
16. **Lesiuk G., Duda M., Szata M.:** *Fatigue crack growth damage monitoring in terms of energy dissipative processes*
17. **Matuszak Z.:** *Estimating the reliability of mechatronic devices and systems with fixed and variable working*
18. **Matuszak Z.:** *Specificity of education in the field of mechatronics in the Faculty of Mechanical Engineering at the Maritime Academy in Szczecin*
19. **Matuszak M., Powalka B.:** *Influence of process dynamics on surface topography generation in the micro-milling*

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20. **Wojna M., Awrejcewicz J., Wasilewski G.:** *Double physical pendulum with magnetic interaction*
21. **Kosobudzki M., Jamroziak K., Zając P., Smolnicki T.:** *The analysis of work condition of fork-lift truck driver because of a general vibrations*
22. **Tomas A., Trawiński T.:** *Mathematical modelling and selecting the parameters of magnetic circuit of disk torque converter*
23. **Czapla T., Szymczyk J.:** *Mechatronic solution of steering system for 8-wheeled high maneuverability vehicle*
24. **Krzyształa E., Kciuk S., Kawlewski K., Machoczek T., Bienioszek G.:** *Experimental research assessing threat of EOD technicians from explosive blast*
25. **Klarecki K., Rabsztyn D.:** *Experimental verification of the filtration phenomena in hydraulic systems*
26. **Świder J., Sękała A., Cholewa A.:** *Energy efficient motion planning of an industrial robot using the Multi Agent approach*

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**Friday 15.09.2017**

**Session A**

**Chairman:** **Stanisław Radkowski**  
**Sławomir Duda**

- 10<sup>00</sup> – 10<sup>10</sup>** **Buchacz A.:** *Collection of essential methods among the beams analysis as an introduction into the dynamic reverse task solution of bending vibration within mechatronic system*
- 10<sup>10</sup> – 10<sup>20</sup>** **Woś P., Dindorf R.:** *Application of the parametric identification while modeling the dynamics of the electro-hydraulic drive*
- 10<sup>20</sup> – 10<sup>30</sup>** **Jaskot A., Posiadała B.:** *Model of dynamics of the three wheeled mobile platform*
- 10<sup>30</sup> – 10<sup>40</sup>** **Mazur M., Kaliński K. J.:** *Hardware simulations of the milling process*
- 10<sup>40</sup> – 10<sup>50</sup>** **Ciofu C., Carausu C., Nedelcu D.:** *TUIASI Racing: single seat race car design and fabrication*
- 10<sup>50</sup> – 11<sup>00</sup>** **Jamrozik W.:** *Objective measure driven multi-focus image fusion of thermograms*
- 11<sup>00</sup> – 11<sup>20</sup>** **Discussion**

**Friday 15.09.2016**

**Session B**

**Chairman:** **Sławomir Kciuk**  
**Zbigniew Matuszak**

- 10<sup>00</sup> – 10<sup>10</sup>** **Jasiński M., Gumiński R., Radkowski S.:** *Model of mechatronic system as basis of fault diagnosis techniques*
- 10<sup>10</sup> – 10<sup>20</sup>** **Gontarz Sz., Więclawski K., Radkowski S., Szulim P.:** *Magnetic methods as the basis of a new methodology for research related to security and defence*
- 10<sup>20</sup> – 10<sup>30</sup>** **Szałatkiewicz J., Kalinowski M., Szewczyk R.:** *Investigation of newly developed microwave heated moisture analyzer measurements of ketchup and milk samples in climatic chamber*
- 10<sup>30</sup> – 10<sup>40</sup>** **Dąbek M., Trojnecki M., Jaroszek P., Zawieska K.:** *System concept, physical design and simulator of IRYS social robot*
- 10<sup>40</sup> – 10<sup>50</sup>** **Kohut P., Obuchowicz R.:** *Image-based Method for knee ligament injuries Detection*
- 10<sup>50</sup> – 11<sup>00</sup>** **Bieniek A., Szczygiół A., Chrzan M., et al:** *Biomechatronic simulator for fencing training using virtual reality technology*
- 11<sup>00</sup> – 11<sup>20</sup>** **Discussion**

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**Friday 15.09.2016**

**Session C**

**11<sup>30</sup> Closing Ceremony of the 4<sup>th</sup> International Conference  
"Mechatronics: Ideas for Industrial Applications"**

***Speeches of the:***

**Chairman of the Scientific - Programme Council, *prof. Jerzy Świder***

**Chairman of the Organising Committee, *prof. Sławomir Kciuk***