



Faculty of Automotive  
and Construction  
Machinery Engineering  
Warsaw University of Technology



University of Žilina



Armed Forces Academy  
of general M. R. Štefánik  
in Liptovský Mikuláš



Faculty of Mechanical  
Engineering  
Lublin University of Technology

# XIII International Technical Systems Degradation Conference



Liptovský Mikuláš, 23 - 26 April 2014



SDS Slovenská  
dopravná spoločnosť  
pri Slov. akadémii vied,  
Žilina



Polish Society  
of Tribology



The Maintenance  
Fundamentals  
Section of the Committee  
on Machine Building  
of the Polish Academy  
of Sciences



Polish Society  
of Technical  
Diagnostics



Automotive  
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Polish  
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Industrial Institute  
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Engineering

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## CONFERENCE PROGRAMME of 13<sup>th</sup> ITSDC

### 23.04.2014 (Wednesday)

13<sup>00</sup>-14<sup>30</sup> – Registration (Armed Forces Academy of General M. R. Štefáňik)

14<sup>30</sup>-14<sup>35</sup> – Opening ceremony of XIII ITSDC

14<sup>35</sup>-16<sup>15</sup> – Plenary session – VEHICLES – S1

16<sup>15</sup>-16<sup>30</sup> – Coffee Break

16<sup>30</sup>-18<sup>10</sup> – Plenary session – PRECISION AGRICULTURE – S2

### 24.04.2014 (Thursday)

14<sup>30</sup>-15<sup>30</sup> – Plenary session – NUMERICAL METHODS – S3

15<sup>30</sup>-15<sup>50</sup> – Coffee Break

15<sup>50</sup>-17<sup>10</sup> – Plenary session – STUDENT SOCIETIES – S4

17<sup>10</sup>-18<sup>30</sup> – Poster session of „*IN STATU NASCENDI*” works

20<sup>00</sup>-23<sup>00</sup> – Gala dinner (“Jánošík” hotel)

### 25.04.2014 (Friday)

14<sup>30</sup>-15<sup>50</sup> – Plenary session – FATIGUE – S5

15<sup>50</sup>-16<sup>10</sup> – Coffee Break

16<sup>10</sup>-17<sup>50</sup> – Plenary session – COGENERATION – S6

### 26.04.2014 (Saturday)

9<sup>00</sup>-12<sup>00</sup> – Summarizing session and closing of the Conference



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## **SESSION 1 - VEHICLES (S1)**

**(Chairmen: Brig. gen. doc. B. Ďurkech/ prof. S. Radkowski)**

14:35 **Marko M., Štiavnický M.**

TUNING AND ITS EFFECT ON MOTOR OIL

14:55 **Jaśkiewicz M., Jurecki R., Liščák Š.**

THE ANALYSIS OF ACCIDENT INDICATORS IN POLAND AND NORWAY  
IN YEARS 2000 – 2012

15:15 **Kalna P., Droppa P., Pavlov Š.**

VIBRATION ANALYSIS OF MOBILE TECHNICS

15:35 **Filípek S., Droppa P.**

THERMO VISION PROTECTION OF MILITARY MOBILE TECHNICS

15:55 **Zielonka K.**

RESEARCH AND TESTING OPPORTUNITIES OF THE AUTOMOTIVE  
INDUSTRY INSTITUTE WITHIN THE AREA OF CAR TECHNOLOGY AND  
SAFE TRAFFIC



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## **SESSION 2 - PRECISION AGRICULTURE (S2)**

**(Chairmen: prof. J. Szczepaniak / prof. P. Droppa)**

**16:30 Szczepaniak J., Rogacki R., Szulc T., Szczepaniak M.**

MODEL AND STRENGTH ANALYSIS OF TILLING AND SOWING SET  
EQUIPPED WITH MECHATRONIC CONTROL SYSTEM

**16:50 Szczepaniak J., Szulc T., Talarczyk W.**

LOCALIZED FERTILIZER APPLICATION OF LARGE GRANULS WITH  
TECHNOLOGY OF STRIP CROPPING DURING THE SOWING OF MAIZE

**17:10 Wojciechowski T., Czechlowski M., Adamski M.**

THE REMOTE-CONTROLLED WHITE STANDARD REFERENCE FOR THE  
VIS-NIR SPECTROMETER SOIL PROBE DESIGNED TO EVALUATE  
PARAMETERS OF THE TOPSOIL

**17:30 Jasiński M., Gumiński R.**

MODAL ANALYSIS OF SEED DRILL TANK FEM MODEL

**17:50 Jasiński M., Mączak J.**

CONCEPT OF THE MEASUREMENT SYSTEM FOR SEED DRILL



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## **SESSION 3 - NUMERICAL METHODS (S3)**

**(Chairmen: prof. W. Bella/ prof. M. Wiśniewski )**

14:30 **Mączak J.**

METHODS OF LOCAL FAULT DIAGNOSIS IN HELICAL GEARS

14:50 **Barczewski R., Jakubek B.**

SOME PROBLEMS OF ELECTRIC OVEN VIBROACOUSTIC TESTING

15:10 **EC Test Systems**

EC TEST SYSTEMS COMPANY PRESENTATION



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## **SESSION 4 - STUDENT SOCIETIES (S4)**

**(Chairmen: prof. A. Wilk / prof. M. Tabaszewski)**

15:50 **Trojgo M., Walczak D., Zieliński Ł.**

CONTROL OF THE INTERNAL COMBUSTION ENGINE USING A STAND-ALONE CONTROLLER FOR THE MINIMUM FUEL CONSUMPTION IN ULTRALIGHT VEHICLE

16:10 **Bąk W., Niewiński M., Bąkowski H.**

THE ECONOMIC AND ECOLOGICAL ASPECTS OF THE MOBILE ELECTRIC VEHICLE IN RELATION TO THE MEANS OF TRANSPORT

16:30 **Skarka W., Jezierska-Krupa K., Krysiak M.**

COMPARISON OF TWO VERSIONS OF BLIND SPOT INFORMATION SYSTEMS IN BYTEL AND MUSHHELLKA TWO RACE VEHICLES

16:50 **Kurkus Ł., Radkowski S., Seńko J., Wnukowski M.**

COMPRESSED AIR AS AN ALTERNATIVE SOURCE OF ENERGY



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## POSTER SESSION

### „*IN STATU NASCENDI*” works

(Chairmen: **prof. R. Zimroz / prof. S. Radkowski**)

1. **Barczewski R., Jakubek B., Barczewski M., Szostak M.**  
VIBROACOUSTIC QUALITY CONTROL OF THIN-WALLED POLYPROPYLENE CAR DOOR PANELS
2. **Błażej R.**  
A HIGH-RESOLUTION SYSTEM FOR AUTOMATIC DIAGNOSING THE CONDITION OF THE CORE OF CONVEYOR BELTS WITH STEEL CORDS
3. **Chmielewski A., Lubikowski K., Gumiński R., Radkowski S., Szulim P.**  
RESEARCH AND SIMULATION OPERATING PARAMETERS OF COGENERATION SYSTEM WITH STIRLING ENGINE
4. **Chmielewski A., Lubikowski K., Rokicki K., Szczurowski K.**  
RESEARCH OF MODERN SEMICONDUCTOR MATERIALS IN THERMAL CONDUCTIVITY TASK
5. **Chmielewski A., Malecki A., Mydlowski T., Radkowski S.**  
RESEARCH AND SIMULATION MODEL OF COGENERATION SYSTEM WITH MULTIFUEL SI ENGINE AND STIRLING ENGINE
6. **Droppa P., Kopecký I., Lipták P.**  
MODERNIZATION VEHICLE IFV-2
7. **Duda P., Służalek G., Wróbel Z.**  
THE USE OF MODELING AND 3D PRINTING TO ADAPT EQUIPMENT FOR THE PERSONS DYSFUNCTIONAL
8. **Figlus T., Wilk A., Liščák Š.**  
MONITORING OF VALVE CLEARANCE OF THE COMBUSTION ENGINE IN THE STATIONARY AND NON-STATIONARY OPERATING CONDITIONS
9. **Gałęzia A., Gumiński R., Mączak J., Radkowski S.**  
USE OF MODAL ANALYSIS FOR IMPROVEMENT OF VIBRATION BEHAVIOR OF HOUSEHOLD EQUIPMENT





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**10. Gumiński R., Lubikowski K., Pawlak E., Radkowski S.**

COMPARISON OF THE VOLTAGE CHARACTERISTICS OF TEG OF TWO DIFFERENT MANUFACTURERS IN ENERGY HARVESTING TASK

**11. Jurecki R., Jaśkiewicz M., Zuska A., Basa A.**

RESEARCHES THE DEPENDENCE OF THE WAY OF TAKING A MEASUREMENT ON THE EFFECTIVENESS OF BRAKING ON A DIAGNOSTIC LINE

**12. Kardasz P.**

THE ANALYSIS PARAMETERS FUELS FOR COMBUSTION ENGINE

**13. Karpiuk M., Kurkus Ł., Radkowski S., Walczak D.**

THE PROTOTYPE OF BLDC MOTOR CONTROLLER TO THE SOC STAND

**14. Karpiuk M., Kurkus Ł., Radkowski S., Walczak D.**

STATE OF CHARGE TEST STAND

**15. Knap L., Makowski M., Grzesikiewicz G.**

EXPERIMENTAL INVESTIGATION OF COMPONENTS OF A ELECTRO-HYDROSTATIC DRIVE

**16. Lorencki J., Gumiński R.**

SWITCHED RELUCTANCE MOTOR MECHANICAL FAULTS DIAGNOSTICS METHODS

**17. Mączak J., Rokicki K., Szczurowski K.**

CAN SNIFFER & OBD-II PROTOCOL ANALYSER

**18. Mączak J., Rokicki K., Szczurowski K., Zieliński Ł.**

DETERMINATION OF REQUIREMENTS AND SELECTION OF DEVICES WITH THE POSSIBILITY OF PROCESS DATA VERIFICATION IN VEHICLES

**19. Mikulski M., Wierzbicki S., Pięta A.**

THE MULTI-PHASE, ZERO-DIMENSIONAL, COMPUTATIONAL MODEL OF A MULTI-FUEL CI ENGINE FUELED WITH GASEOUS FUEL WITH DIVIDED INJECTION OF LIQUID FUEL. PART I – INTRODUCTION OF THE MODEL

**20. Radkowski S., Szczurowski K., Walczak D., Więclawski K., Zieliński Ł.**

DETERMINATION OF THE TIME OF INJECTION LPG DUAL FUEL ENGINE



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**21. Pawłowski T., Szczepaniak J., Bieńczak A.**

STUDIES OF THE PHYSICO-MECHANICAL PROPERTIES OF INSULATED SEMITRAILER BODYWORK WALL ELEMENTS

**22. Popardovská E., Štiavnický M.**

EVALUATION OF MELTABILITY OF PARTICLES AS A METHODOLOGY FOR OPTIMIZATION OF WORKING PARAMETERS OF THE PLASMA SPRAYING PROCESS

**23. Służalek G., Duda P.**

SELECTED MODELS OF OXIDE LAYERS FOR TRIBOLOGY USING OF SOLIDWORKS

**24. Szczurowski K., Rokicki K., Walczak D., Zieliński Ł.**

PROPOSED METHOD OF CONTROLLING THE DUAL FUEL DIESEL ENGINE EQUIPPED WITH MODIFIED FUEL SYSTEM

**25. Szczurowski K., Więclawski K., Zieliński Ł.**

THE SIGNAL OF THE GLOW PLUG PRESSURE SENSOR AS THE DIAGNOSTIC PARAMETER OF THE DIESEL ENGINE

**26. Tabaszewski M.**

PREDICTION OF DIAGNOSTIC SYMPTOM VALUES USING A SET OF MODELS GM(1,1) AND A MOVING WINDOW METHOD

**27. Targosz M., Cichoński K., Kotysz R., Gleń M., Szymon A.**

AN EXPERIMENTAL INVESTIGATION OF THE ENERGY CONSUMPTION FOR LIGHTWEIGHT ELECTRIC VEHICLE

**28. Wąsik M.**

METHODOLOGY OF AERODYNAMIC ANALYSIS OF THE THE CARS PARTICIPATING IN THE RACE SHELL ECO-MARATHON BASED ON THE HYPERWORKS SOFTWARE

**29. Wilk A., Figlus T., Sadlik R.**

ANALYSIS OF RELIABILITY OF A SELECTED GROUP OF PASSENGER CARS

**30. Wylomańska A., Zimroz R.**

TEMPERATURE SIGNALS ANALYSIS FOR PROCESSES AND CONDITION MONITORING OF LHD MINING MACHINES



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## **SESSION 5 - FATIGUE (S5)**

**(Chairmen: prof. P. Drożdziel / prof. Š. Liščák)**

14:30 **Marchut-Mikolajczyk O.**

MICROORGANISMS AS DEGRADATION AGENTS- BENEFITS AND DRAWBACKS

14:50 **Wiśniewski M.**

OPTICAL MEASURING THE THICKNESS OF NONWOVENS

15:10 **Evin E., Kmec J.**

APPLICATION OF CAUSE AND EFFECT MATRIX AT THE SELECTION OF MATERIALS FOR THE BODY DEFORMATION ZONES

15:30 **Jasiński M.**

USE OF VOLTERRA SERIES IN THE CASE OF TOOTH CRACK PROPAGATION ANALYSIS



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## **SESSION 6 - COGENERATION (S6)**

**(Chairmen: dr. Š. Pavlov / prof. S. Radkowski)**

**16:10 Kalina T., Grobarčíková A.**

LNG FUEL OF FUTURE FOR INLAND WATER VESSEL

**16:30 Mączak J., Radkowski S., Szczurowski K., Walczak D., Zieliński Ł.**

IMPACT OF CONTROL PARAMETERS OF THE DUAL FUEL ENGINE ON THE OPERATION OF THE ENGINE, IN PARTICULAR SOUND AND VIBRATION

**16:50 Chmielewski A., Gumiński R., Radkowski S., Szulim P.**

RESEARCH COGENERATION SYSTEM WITH STIRLING ENGINE

**17:10 Dybala J., Malecki A., Mydlowski T., Walczak D.**

THE STUDY OF THE EFFECT OF CONTAMINATION OF FUELS WITH CO<sub>2</sub> AND H<sub>2</sub>O ON THE ENERGY EFFICIENCY OF THE MULTIFUEL SI ENGINE

**17:30 Lubikowski K., Radkowski S.**

RESEARCH OF THE SEMICONDUCTORS IN THE TASK OF INCREASE EFFICIENCY OF EXCHANGE ENERGY BY EXCHANGERS HEAT ON THE ENGINE COMBUSTION



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**SUMMARIZING SESSION  
AND CLOSING OF THE CONFERENCE**

**(Chairmen: prof. S. Radkowski / prof. Š. Liščák)**



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## PLACE OF THE CONFERENCE

Akadémia Ozbrojených Síľ generála M. R. Štefánika.

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