



**9th International Congress
Motor Vehicles & Motors 2022
Kragujevac, Serbia
October 13th-14th, 2022**



**9th International Congress "MVM 2022"
13-14 October 2022
Kragujevac, Serbia**

Plenary Session

Thursday, October 13th, 2022

10:00 pm to 12:30 pm

Join Zoom Meeting

<https://zoom.us/j/97490324626?pwd=NkVvRTNjaVVSQ2tRZVJDekFaTFQxUT09>

Meeting ID: 974 9032 4626

Passcode: 352422

Opening Ceremony

Prof. Jovanka Lukić, President of the Scientific board of the Congress

Prof. Slobodan Savić, Dean of the Faculty of engineering of the University of
Kragujevac

Prof. Nenad Filipović, Rector of the University of Kragujevac

INTRODUCTORY LECTURES

Giovanni Belingardi, Alessandro Scattina

**INTEGRATED UNDERBODY AND BATTERY PACK FOR BATTERY ELECTRIC
VEHICLES: CHALLENGES AND SOLUTIONS IN THE DESIGN**

Ralph Pütz

**EUROPEAN POLICY ON FUTURE ROAD MOBILITY - TECHNOLOGY NEUTRALITY
RIGHT OF WAY OR HEADED IN THE WRONG DIRECTION?**

Section A - Power Train Technology

Chairman: assoc. prof. A. Davinić

Thursday, October 13th, 2022

2:00 pm to 4:00 pm

Join Zoom Meeting

<https://zoom.us/j/95399104324?pwd=bVdiNzdVM3dLdkVOSTVmOENYaDdlZz09>

Meeting ID: 953 9910 4324

Passcode: 005591

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|--------------|---|
| MVM2022-002 | Blaga Vasile, Mihai Blaga: THE STUDY OF THE PROCESSES THAT TAKE PLACE IN GASOLINE INJECTION ENGINES |
| MVM2022-003 | Blaga Vasile, Mihai Blaga: THE INDICATED DIAGRAMS IN P-V COORDINATES CALCULATED AND MEASURED ON THE ENGINE STAND |
| MVM2022-005 | Miroslav Demić, Aleksandar Đurić, Aleksandar Grkić, Momir Drakulic, Slavko Muzdeka: A CONTRIBUTION TO INVESTIGATION OF OSCILLATORY LOADS OF DRIVING AXLES IN ORDER TO CREATE CONDITIONS FOR LABORATORY TESTS OF TRUCKS |
| MVM2022-0012 | Nikola Manev, Nikola Manev, Igor Jovchevski, Dame Dimitrovski: IMPLICATIONS FOR THE ENVIRONMENTAL-ENGINEERING COMPROMISE AS A RESULT OF POWER AND CLIMATE-FRIENDLY TUNING OF A DIESEL IC ENGINE |
| MVM2022-0016 | Luka Ponorac, Ivan Blagojevic, Aleksandar Grkić: TURNING PROCESS WORKLOAD ANALYSES OF A HIGH-SPEED TRACKED VEHICLE POWERTRAIN OF A HIGH-SPEED TRACKED VEHICLE |
| MVM2022-0021 | Predrag Mrdja, Marko Kitanovic, Nenad Miljić, Slobodan Popovic: INTERNAL COMBUSTION ENGINE TEST PLAN EXECUTION ORDER OPTIMIZATION USING TRAVELLING SALESMAN PROBLEM HEURISTICS APPROACH |
| MVM2022-0022 | Nebojša Nikolić, Nikola Crnogorac, Jovan Doric, Dalibor Feher, Stjepan Galamboš: A COMPARISON OF TWO-CYLINDER V- AND BOXER MOTORCYCLE ENGINES' MAIN JOURNAL/BEARING LOADS |
| MVM2022-0047 | Marko Kitanovic, Predrag Mrdja, Slobodan Popovic, Nenad Miljić: THE INFLUENCE OF NARX CONTROL PARAMETERS ON THE FUEL EFFICIENCY IMPROVEMENT OF A HYDRAULIC HYBRID POWERTRAIN SYSTEM |

Section B - Vehicle Design and Manufacturing

Chairman: prof. J. Lukić

Thursday, October 13th, 2022

2:00 pm to 4:00 pm

Join Zoom Meeting

<https://zoom.us/j/98603254376?pwd=Zm5oZjNKdWNRc3VCZ21SSEJGL2hZZz09>

Meeting ID: 986 0325 4376

Passcode: 752873

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|--------------|---|
| MVM2022-006 | Ana Pavlovic, Cristiano Fragassa: IMPACT DAMAGE ANALYSIS OF COMPOSITE AUTOMOTIVE COMPONENT |
| MVM2022-0011 | Saša Jovanović, Zorica Đorđević, Sonja Kostić, Danijela Nikolić, Milan Đorđević: SELECTION OF SHAFT MATERIALS USING A MULTICRITERIA APPROACH |
| MVM2022-0032 | Stjepan Galamboš, Dalibor Feher, Jovan Dorić, Nebojša Nikolić, Nenad Poznanović: EXPERIMENTAL AND NUMERICAL STUDIES OF REDUCING OF DRAG FORCE A SEMI-TRAILER TRUCK MODEL USING THE CABIN SPOILER |
| MVM2022-0033 | Elena Angeleska, Vasko Changoski, Tashko Rizov, Sofija Sidorenko: MBSE APPROACH FOR FACILITATING THE APPLICATION OF STANDARDS IN THE VEHICLE DEVELOPMENT PROCESS |
| MVM2022-0040 | Clio Vossou, Andreas Nakos, Dimitrios Koulocheris: TOPOLOGY OPTIMIZATION OF A MACPHERSON CONTROL ARM |
| MVM2022-0043 | Gordana Tošić, Gordana Bogdanović, Dragan Čukanović, Aleksandar Radaković: FUNCTIONALLY GRADED MATERIALS IN TRANSPORT VEHICLES - OVERVIEW, FABRICATION, APPLICATION, MODELING |
| MVM2022-0053 | Isak Karabegović, Ermin Husak, Edina Karabegović, Mehmed Mahmić: HOW THE CORE TECHNOLOGIES OF INDUSTRY 4.0 ARE CHANGING THE AUTOMOTIVE INDUSTRY IN THE WORLD, WITH A FOCUS ON CHINA |
| MVM2022-0056 | Lyubov Sladkova, A Siuzev: ANTI-WHEEL SLIP DEVICES |

Section C - Vehicle Dynamics and Intelligent Control Systems

Chairman: prof. D. Miloradović

Thursday, October 13th, 2022

4:30 pm to 6:30 pm

Join Zoom Meeting

<https://zoom.us/j/93629666155?pwd=U1ZsYmJHbGtIN3VzVFo0ampsTUFMZz09>

Meeting ID: 936 2966 6155

Passcode: 366698

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| MVM2022-0010 | Dragan Ružić: THE ERGONOMIC ASPECTS OF A PASSENGER CAR CLIMATE CONTROL PANEL |
| MVM2022-0027 | Snezana Petković, Valentina Golubović-Bugarski, Gordana Globočki-Lakić, Željko Đurić: INVESTIGATION OF THE PERMITTED LEVEL OF DAMAGE OF VEHICLES SAFETY GLASSES |
| MVM2022-0028 | Slavica Macužić Saveljić, Danijela Miloradović: SIMULATION OF VEHICLE-TO-PEDESTRIAN ACCIDENT USING PC CRASH - COMPARISON WITH EXPERIMENT AND THEORY |
| MVM2022-0030 | Slavica Macužić Saveljić, Branko Arsić, Igor Saveljić, Jovanka Lukić: IN-VEHICLE COMFORT ASSESSMENT DURING FORE-AND-AFT RANDOM VIBRATIONS BASED ON ARTIFICIAL NEURAL NETWORKS (ANN) |
| MVM2022-0035 | Dalibor Feher, Dragan Ružić, Stjepan Galamboš, Nebojša Nikolić, Jovan Doric: OPTIMIZATION OF THE AIR DISTRIBUTION SYSTEM IN MOTOR VEHICLE CABIN USING COMPUTATIONAL FLUID DYNAMICS |
| MVM2022-0039 | Franci Pušavec, Janez Kopač, Krsto Mijanović: THE INFLUECE OF STEP SHAPED ROAD SURFACE ON SAFETY WHEN DRIVING IN A BEND ON THE ROAD |
| MVM2022-004 | Slobodan Mišanović, Dragan Taranović, Miloš Maljković, Branko Miličić: MEASUREMENT NOISE LEVEL OF E-BUS HIGER KLQ6125GEV3 ON THE POLYGON |
| MVM2022-0042 | Ioana-Alexandra Rosu, Ioana Diana Buzdugan, Laurentiu Carabulea, Csaba Antonya: SIMULATION OF A PEDESTRIAN COLLISION AVOIDANCE USING THE PEDESTRIAN PROTECTION SYSTEM |

Section D - Driver/Vehicle Interface, Information and Assistance Systems

Section E - Transport Challenges in Emerging Economies

Chairman: prof. J. Glišović

Thursday, October 13th, 2022

4:30 pm to 6:30 pm

Join Zoom Meeting

<https://zoom.us/j/93540592789?pwd=RkZMVndNeEIZU1A1b1FveGxheDdkQT09>

Meeting ID: 935 4059 2789

Passcode: 466572

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| MVM2022-008 | Vase Jordanoska, Vasko Changoski, Darko Danev: COORDINATED CONTROL OF ESC WITH ACTIVE FRONT STEERING AND ACTIVE SUSPENSION NORMAL FORCE CONTROL FOR BETTER VEHICLE'S DYNAMIC RESPONSE |
| MVM2022-0048 | Vasko Changoski, Ile Mircheski, Darko Danev: IMPROVING RIDE COMFORT BY OPTIMISING SUSPENSION SYSTEM OF AN ELECTRIC STREET SWEEPER |
| MVM2022-0046 | Boris Stojic, Aleksandar Poznić: COMPUTATIONAL ASSESSMENT OF LIGHT EXPERIMENTAL HYBRID VEHICLE BRAKING EFFICIENCY |
| MVM2022-0041 | Clio Vossou, IOANNIS KATSAS, Dimitrios Koulocheris: EVALUATION OF THE ROLLOVER THRESHOLD OF TANK VEHICLES |
| MVM2022-0037 | Aleksandar Poznić, Boris Stojić: THE NUMERICAL SIMULATION OF AN ELECTROMECHANICAL BRAKE AND THE ASSOCIATED DIFFICULTIES |
| MVM2022-0031 | Vasko Changoski, Igor Gjurkov, Vase Jordanoska: IMPROVING VEHICLE DYNAMICS EMPLOYING INDIVIDUAL AND COORDINATED SLIDING MODE CONTROL IN VEHICLE STABILITY, ACTIVE FRONT WHEEL STEERING AND ACTIVE REAR WHEEL STEERING SYSTEMS IN CO-SIMULATION ENVIRONMENT |
| MVM2022-0013 | Ketan Kotecha, Aleksandar Jovanović, Katarina Kukić, Vaishali Dinesh Khairnar, Ana Uzelac, Rahee Walambe, Likhesh Kolhe: THE ECOLOGY-BASED OPTIMIZATION OF TRAFFIC SIGNAL TIMING ON SUPER STREET |
| MVM2022-0015 | Drosu Alin, Corneliu Cofaru, Mihaela Virginia Popescu: INVESTIGATION OF THE SINGLE VEHICLE ACCIDENTS SEVERITY BY USING A PROBABILISTIC APPROACH |

A – Power train technology

E - Transport Challenges in Emerging Economies

Chairman: assist. prof. A. Jovanović

Friday, October 14th, 2022

10:00 am to 12:00 am

Join Zoom Meeting

<https://zoom.us/j/95546900067?pwd=Z0YwUFRLMkVIZmZpUVdtLzVjOG10QT09>

Meeting ID: 955 4690 0067

Passcode: 423511

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| MVM2022-0014 | Vanja Sustersic, Vladimir Vukašinović, Dušan Gordić, Mladen Josijević: 3D PRINTING OF HYDRODINAMIC COUPLING FOR SCHOOL EDUCATION |
| MVM2022-0019 | Ivan Grujic, Aleksandar Davinic, Nadica Stojanovic, Jovan Doric, Sunny Narayan: THE INFLUENCE OF THE FUEL STRATIFICATION ON THE IC ENGINE WORKING CYCLE WITH THE COMPRESSED NATURAL GAS |
| MVM2022-0045 | Saša Milojević, Slobodan Savić, Radoje Jovanović, Blaža Stojanović, Dušan Arsić, Božidar Krstić: APPLICATION OF LIQUEFIED NATURAL GAS IN MOBILE SYSTEMS |
| MVM2022-0055 | Boris Stojic, Aleksandar Poznić: NOVEL MODULAR POWERTRAIN PROPOSAL FOR E-BICYCLE |
| MVM2022-0018 | Bojana Bošković, Babić Saša, Milosavljević Branimir: USE OF ALTERNATIVE INTERSECTIONS IN ORDER TO IMPROVE TRAFFIC SAFETY |

Section B - Vehicle Design and Manufacturing

Section D - Driver/Vehicle Interface, Information and Assistance Systems

Chairman: prof. B. Krstić

Friday, October 14th, 2022

10:00 am to 12:00 am

Join Zoom Meeting

<https://zoom.us/j/98156649288?pwd=NS9vNEF6by9jVINVUTJpdWNscmNOQT09>

Meeting ID: 981 5664 9288

Passcode: 072394

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|--------------|---|
| MVM2022-0020 | Nina Busarac, Dragan Adamovic, Nenad Grujović, Fatima Živić: LIGHTWEIGHT MATERIALS FOR AUTOMOBILES |
| MVM2022-0026 | Sonja Kostić, Bogdan Živković, Aleksandra Ivanović, Dragan Džunić, Vladimir Kočović: DEVELOPMENT OF DEVICES FOR TESTING DYNAMIC DURABILITY OF MATERIALS |
| MVM2022-0034 | Slavica Miladinovic, Blaža Stojanović, Sandra Gajević: A REVIEW OF HYPEREUTECTIC ALUMINUM-SILICON PISTON MATERIALS |
| MVM2022-0038 | Sandra Gajević, Jovana Krstić, Slavica Miladinovic, Blaža Stojanović: POLYMER MATRIX NANOCOMPOSITES FROM THE ECOLOGICAL ASPECT IN THE AUTOMOTIVE INDUSTRY |
| MVM2022-0044 | Marko Delić, Vesna Mandić, Filip Pavlović: ANALYSIS OF THE IMPACT OF THE MACHINE ON THE FORGING PROCESS OF A CONNECTING ROD USING NUMERICAL SIMULATION |
| MVM2022-0050 | Miloš Pešić, Nikola Jović, Vladimir Milovanović, Miroslav Živković: FE MESH DENSITY INFLUENCE ON BLAST LOADING ANALYSIS |
| MVM2022-009 | Nadica Stojanovic, Ivan Grujic, Jasna Glišović, Oday I. Abdullah, Ali Belhocine: THE DETERMINATION OF THE DISC BRAKE THERMAL STRESSES FOR DIFFERENT VEHICLE SPEEDS |
| MVM2022-0024 | Saša Vasiljević, Branislav Aleksandrović, Jasna Glišović, Marko Maslač: REGENERATIVE BRAKING ON ELECTRIC VEHICLES: WORKING PRINCIPLES AND BENEFITS OF APPLICATION |

Friday, October 14th, 2022

12:00 pm

Join Zoom Meeting

<https://zoom.us/j/93901995707?pwd=SVJ0Z2NWc281TzY2ZkI2TVBiNmFDUT09>

Meeting ID: 939 0199 5707

Passcode: 584870

Closing of the Congress