



The 17th European Automotive Congress



SIAR

UP
Universitatea
Politehnica
Timișoara

EAEC MVT-2022

The International Congress of Motor, Vehicles and Transportations



Timișoara, Romania
October 26-28, 2022
Politehnica University

*Together for a better and safer mobility
Motor Vehicles and Road Transportation*

Organizers of the EAEC – MVT 2022 Congress

SIAR - Society of Automotive Engineers of Romania

UPT - Politehnica University Timișoara

CONGRESS MANAGEMENT Congress Chairman

*Professor Liviu MIHON
Politehnica University Timisoara*

President of Scientific & Technical Committee

*Professor Cornel STAN
West Saxon University of Zwickau, Germany*

President of Society of Automotive Engineers of Romania

*Professor Nicolae BURNETE
Technical University of Cluj-Napoca, Romania*

SIAR General Secretary

Professor Minu MITREA

Website Coordinator

*Dinu COVACIU
Transilvania University of Brașov, Romania*

Organizing committee (UPT)

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Adrian CIOABLĂ
Luisa Izabel DUNGAN
Eugen GHITA
Ioana IONEL
Imre KISS
Dorin LELEA
Nicolae LONTIȘ
Liviu MIHON
Daniel OSTOIA
Sorin RAȚIU
Virgil STOICA
Ion VETREȘ

Exhibition

*Adrian CIOABLA
Luisa DUNGAN
Politehnica University Timisoara*

Student Contests

*Dorin LELEA
Andrei BORBOREAN
Liviu MIHON*

Honorary committee

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Mihai BOLDIJAR – Bosch România

Nicolae BURNETE – SIAR President

Radu DINESCU – IRU President, UNTRR

Florin DRĂGAN – Rector UPT

Günther HOHL – Interim President of European Automobile Engineers Cooperation

Stefan KANYA – AVL Austria

Alina NIȚĂ – Romanian Automotive Registry

Josephine PAYNE – Ford Romania

Corina SANDU – President of ISTVS

Sever SCRIDON – ZF Romania

Alexander SIMIONESCU – Renault Technologie Roumanie

Scientific and technical Committee

Horia BELEȘ – Oradea University, Romania

Anghel CHIRU - Transilvania University of Brașov, Romania

Adrian CLENCI - University of Pitești, Romania

Radu DROSESCU - „Gheorghe Asachi” Technical University of Iasi, Romania

Ilie DUMITRU - University of Craiova, Romania

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Ioana IONEL - Politehnica University Timișoara, Romania

Mihail Daniel IOSZA – Politehnica University, București

Nicolae ISPAS - Transilvania University of Brașov, Romania

Dorin LELEA – Politehnica University Timișoara, Romania

Nicolae MUNTEAN - Politehnica University Timișoara, Romania

Ion PREDA - Transilvania University of Brașov, Romania

Corina SANDU – Virginia Tech, USA

Cornel STAN - Professor, West Saxon University of Zwickau, Germany

Bogdan VARGA – Technical University Cluj-Napoca, Romania

Radu VILĂU - „Ferdinand I” Military Technical Academy of Bucharest, Romania

Stefan TABACU - University of Pitești, Romania

Máté ZÖLDY - Budapest University of Technology and Economics, Hungary

Congress Sections

1. Advanced Powertrain and Propulsion

Electric, Hybrid and Fuel Cells Propulsion Systems
Internal Combustion Engines
Alternative Fuels
Emission Test Procedures
Pollution and Noise Reduction

2. Automotive Design and Testing

Chassis Systems and Vehicle Body Design
Vehicle Dynamics
Advanced Transmission Systems
Advanced Driver Assistance System
Comfort and Ergonomics

3. Terrain Vehicles

Terramechanics
Off-Road Vehicle Dynamics and Mobility
Tires, Wheels, and Tracks Modeling
Soil and Terrain Characterization
Operation on Snow and Ice
Autonomous Off-Road Vehicles Challenges
Agricultural and Construction Machinery
Mining, Forestry, Earthmoving Machinery
Planetary Rovers and Mobile Off-Road robotics
Education in terramechanics

4. Advanced Engineering Methods

Modelling and Simulation
Structural Optimization, CFD and FEM Analysis
Simulation and Testing for Vehicle and Components
Virtual Reality in the Automotive Industry

5. Materials, Automotive Technology and Maintenance

Advanced Manufacturing Technologies
Prototyping and Innovative Materials
Quality, Reliability and Maintenance
Maintenance Systems and Technologies
Automotive Recycling

6. Road Safety

Analysis and Reconstruction of Road Accidents
Active and Passive Safety
Road Infrastructure and Traffic Safety
Human Factors

7. Mobility of Things

Autonomous Vehicles
Advanced Logistics and Intelligent Transport Systems
Multimodal Transport
Cooperative Systems
Legislation in Transportation
Economics and Management in Transportation

Congress Activities and Locations



All of the sections, roundtables and debates will take place in the
Politehnica University Conferences Center,
Vasile Pârvan Blvd., nr.2B

Student Congress and the International Student Contest "Professor eng. Constantin Ghiulai"

The EAEC MVT – 2022 Congress is the meeting place for the young students (SIAR junior's members) in their International Congress (see on the web site the details in Student Congress section) and Professional Contest on Automotive Engineering "Professor eng. Constantin Ghiulai" on the following sections:

Vehicle Dynamics - the 8th edition;
Automotive CAD -CATIA - the 5th edition.

Technical session, presented by companies, will take place in the Faculty of Mechanical Engineering, Mihai Viteazu Blvd., nr.1 (see detailed program)

During Congress will be organized a small exposition with cars and related automotive companies and also will be presented the **UPT Racing Team – Formula Student** car

Keynote Speakers

AUTOMOTIVE DEVELOPMENT WAYS: MORE THAN ELECTRIC, DIGITAL AND AUTONOMOUS



Prof. Dr.-Ing. habil. Prof. E. h. Dr. h. c. mult. Cornel STAN teaches Advanced Automotive Development, Alternative Propulsion Systems and Technical Thermodynamics at the Universities of Paris (F), Pisa (I), Perugia (I), Brasov (Ro), Constanta (Ro), Berkeley (USA) and at the West Saxon University of Zwickau (D), where he also serves as Honorary Chairman of the Board of the FTZ Research and Technology Association, which was founded in 1994 with his major contribution. The research areas of

Professor Stan, who studied aeronautical engineering, obtained a doctorate in the field of internal combustion engines and habilitation in automotive engineering, include automotive propulsion systems, direct injection processes, simulation of thermodynamic processes, combustion processes, alternative fuels and energy management in motor vehicles. He is the author or co-author of numerous books, articles and patents. Professor Stan is Doctor Honoris Causa of the Universities of Brasov, Constanta and Craiova. He is also Fellow of the Society of Automotive Engineers - SAE International.

CHALLENGING TERRAINS MOBILITY STUDIES



Dr. Corina SANDU is Robert E. Hord Jr. Professor of Mechanical Engineering Department at Virginia Tech, Associate Department Head for Graduate Studies, and Director of the Terramechanics, Multibody, and Vehicle Systems Lab. Dr. Sandu's research expertise lies in vehicle dynamics (suspension, handling, ride), terramechanics (vehicle-terrain interaction, tire/track modeling, soil/terrain modeling) and multibody dynamics (modeling, uncertainty quantification, parameter estimation, sensitivity analysis, design optimization). Dr. Sandu is an ASME

Fellow, SAE Fellow, and Marie Skłodowska-Curie Fellow. She published 91 journal papers, 125 proceedings papers, 11 book chapters, and over 350 other papers (Google Scholar: 2,936 citations, H-index 26, i-10 index 86); served as PI/co-PI for funded research projects of over \$13 million; graduated 18 Ph.D. and 23 M.S. students and advises 8 PhD and 4 MS students. She is Editor-in-Chief of Mechanics Based Design of Structures and Machines and of SAE International Journal of Commercial Vehicles. Dr. Sandu is the President of the International Society for Terrain Vehicle Systems (ISTVS), past Chair of the SAE Chassis Design and Vehicle Dynamics committee and past Chair of the ASME Design Engineering Division. Awards include: SAE Ralph R. Teetor Educational Award (2007), SAE EMB Outstanding Oral Presentation Award (2007), SAE Forest R. McFarland Award (2013 and 2019), Rodica Baranescu Award for Technical and Leadership Excellence in Commercial Vehicles Engineering (2013), SAE Top Contributor Class of 2022, Dean's Award for Excellence in Service (2012 and 2020).

AUTOMOTIVE ELECTRIC PROPULSION SYSTEMS: RECENT PROGRESS



Prof. Dr.-Ing. Ion BOLDEA, from Politehnica University Timișoara (UPT) is member of Romanian Academy and IEEE Life Fellow. He studied and published extensively on “rotary and liners electric machines, drives and MAGLEVs design, control and testing for energy saving and increased productivity in various industries: from renewable energy, through e-transport, robotics, industrial drives, home appliances and info-gadgets” since 1976 (ISI H-index 41 (4173 citations), Scopus H-index 49 (8202 citations), Google Academic H-index 61 (6246 citations); he wrote more than 20 Monographs and textbooks in USA and U.K on the wide spectrum subjects above (6000 citations in World.cat), held IEEE DLs since 2008, intensive Courses in USA, EU, S.Korea, Brasil, tutorials at IEEE Conferences,

Technical Consulting annual contracts, hosted IEEE Trans. special issues and spent more than 5 years in many visits since 1973 as visiting scholar in USA. He received “IEEE 2015 Nikola Tesla Award” and 2021 EPE-ECCE “Outstanding Achievement Award”. He also cochaired IEEE tech sponsored biannual International Conference OPTIM (now OPTIM-ACEMP) since 1994 and is the founding (since the year 2000) and current Editor in Chief of www.jee.ro, one of the first Internet-only technical Journals. His interests span from Philosophy, Ethics to Gardening.

INTELLIGENT ENERGY MANAGEMENT SYSTEMS FOR THE VEHICLES OF THE FUTURE



Dr.-Ing. Alexander SIMIONESCU is the general manager of Renault Technologie Roumanie (2018 – present) to ensure the global engineering responsibility for the Global Access range. With a strong background and a PhD thesis on semiconductor electronics, his career starts with the Hicom 300 telephony system for large enterprises and computers. Build up a R&D department at Sysdata Budapest, a subsidiary of the PSE (Program and System Engineering) group of Siemens Austria, consisted of 40 engineers working on public switching and enterprise communications, followed by the Romanian Siemens PSE SRL with over 400 employees. Continuously encourage and support the cooperation between universities and business companies, for a solid development of the society.

FUTURE PERSPECTIVES OF ICE IN THE GLOBAL POWERTRAIN SPECTRUM



Stefan KANYA- AVL List GmbH Austria

Director Business Development CEE, Israel
ITS / FD Affiliate Group Management
Instrumentation and Test Systems

With our comprehensive technological know-how in all vehicle systems and functions, and our many years of experience in the implementation and use of virtual development methods, we can help you manage complexity and find certainty in challenging times.

POWER ELECTRONICS TRENDS AND SIC IN PARTICULAR



Günther HORSACK, ZF

He was the head of R&D Electronics on transmissions in commercial cars (Continuously Variable Transmission). He then headed the Electric Drives and Hardware Electronics (TE-D) department at ZF Friedrichshafen AG. He currently works in the E-Mobility division within ZF, being responsible for new technologies and innovations in the field of power electronics.

THE PATH TO EMISSIONS-FREE MOBILITY MUST BE TECHNOLOGY-NEUTRAL



Florin COTOFAN, Robert Bosch Romania

After several years of experience in the academia and industry, Florin Cotofan joined Bosch in 2012. Today he is responsible for leading software development and testing activities for Powertrain Solutions in the Bosch Engineering Center Cluj-Napoca. His main motivation is the industrialization of cutting-edge technologies, with a strong impact on people's lives, making possible the transformation of state-of-the-art research findings into innovative automotive products.

Congress Schedule

Opening Ceremony

Wednesday, October 26, UPT Conference Center, Auditorium,
09:30 – 10:00

Liviu MIHON	Chairman EAEC-MVT 2022
Florin DRĂGAN	Rector of the UPT
Nicolae BURNETE	President of SIAR
Günter HOHL	EAEC Interim President
Corina SANDU	President of ISTVS
Virgil RADU	Romanian Automotive Registry

Plenary Session

Wednesday, October 26, Auditorium, UPT Conference Center,
10:00 – 13:30

Ion BOLDEA, UPT

Automotive electric propulsion systems: recent progress

Stefan KANYA, AVL List

Future perspectives of ICE in the global powertrain spectrum

Florin COTOFAN, Robert Bosch Romania

The path to emissions-free mobility must be technology-neutral

Coffee Break

Alexander SIMIONESCU, RTR

Intelligent energy management systems for the vehicles of the future

Günther HORSACK, ZF

Power electronics trends and SiC in particular

Corina SANDU, Virginia Tech & ISTVS

Challenging Terrains Mobility Studies

Cornel STAN, West Saxon University

Automotive development ways: more than electric, digital and autonomous

Timetable

Wednesday, October 26, Mechanical Engineering Faculty,
room N110,
16:00 – 18:00

Tiberiu MELENCU (*RAR*)
Mobile Testing Platform PEMS

Wednesday, October 26, UPT Conference Center,
16:00 – 17:30

Section 2 *Automotive Design and Testing*
Room Amphitheatre 1
Section 7 *Mobility of Thinks*
Room Amphitheatre 2
SIAR Council, Room Multimedia 2

Thursday, October 27, Mechanical Engineering Faculty,
room N210 (VD), room SPM 225 (CAD),
09:00 – 14:00

International Student Contest (VD + CAD)

Thursday, October 27, Mechanical Engineering Faculty,
room N110
10:00 – 12:00

Technovolt SRL
Electric and hybrid didactic equipment

Thursday, October 27, UPT Conference Center,
09:30 – 11:30

Section 1 *Advanced powertrain and propulsion*
Auditorium
Section 6 *Road Safety*
Room Amphitheatre 1
Section 3 *Terrain Vehicles*
Room Amphitheatre 2

Coffee Break

Thursday, October 27, UPT Conference Center,
12:00 – 13:30

Section 1 *Advanced powertrain and propulsion*

Auditorium

Section 6 *Road Safety*

Room Amphitheatre 1

Section 4 *Advanced Engineering Methods*

Room Amphitheatre 2

Thursday, October 27, UPT Conference Center,
16:00 – 17:00

Section 1 *Advanced powertrain and propulsion*

Auditorium

Section 5 *Materials, Automotive Technology and Maintenance*

Room Amphitheatre 1

Section 4 *Advanced Engineering Methods*

Room Amphitheatre 2

Thursday, October 27, UPT Conference Center, Auditorium,
17:15 – 18:00

EAEC-MVT 2022 Closing Ceremony

Student Awards Ceremony

Friday, October 28

Technical Visit - Contitech Timișoara (10:00 – 12:00)
Social Activity - Historical Train Travel Oravița – Anina
(8:00 – 17:00) (extra fee)

General Information

Registration of Participants

Congress participants can register on the 26 th of October at the Politehnica University Timișoara, UPT Conference Center, Vasile Pârvan Blvd., nr. 2B from **8:30 to 10:30**.

Language

The official language of the Congress is English.

Lunches and Dinners

Lunches and dinners will be served at the Casa Politehnicii 2 restaurant, Mihai Eminescu, nr. 11, between 14:00 – 15:30, and 18:00 – 19:00.

Gala Dinner

The Gala Dinner will be organized at the Casa Politehnicii 2 restaurant, Mihai Eminescu, nr. 11, Wednesday 27, starting with 19:00.

Currency

The Romanian currency is Leu (also called as RON). If you need to exchange money you can easily do that in the exchange offices that are available at the airport, banks, foreign exchanges or you can withdraw money from ATMs (cash machines) available at bank offices, on the street or in the big shopping centers.

Taxes

The VAT in Romania is 19% and is included in prices, with some lower rates for special categories. If you travel by car you must have a valid vignette for using Romanian roads. A vignette for a 7 days validity costs 3 Euro and it can be bought at shops and fueling stations next to Romanian border or online (<https://www.e-rovinieta.ro/en/>).

Information hotline during the Congress

Telephone: +40 728 123 289 (English/Romanian);
 +40 721 605 655 (English/Romanian);
 +40 745 608 622 (English/Romanian);

Detailed Congress Schedule

Wednesday, October 26, 2022, UPT Conference Center,

Multimedia 2

16:00 – 17:30

SIAR Council

Wednesday, October 26, 2022, UPT Conference Center

Amphitheatre 1

16:00 – 17:30

Section 2 *Automotive Testing and Design*

Chairman: Prof. dr. ing. István BARABÁS
Conf. dr. ing. Loreta SIMNICEANU

1. Mihai Vieru, Daniel Iozsa, Gheorghe Frăţilă - *The influence of warning lights on the truck cabins on aerodynamic performance.*
2. Vieru Ionel, Boroiu Andrei-Alexandru, Nicolae Viorel, Marinescu Danut-Gabriel - *Comparative dynamic analysis for a ventilated brake disk.*
3. Mihai Paraschiv, Gheorghe Frăţilă - *CAE approach in combustion simulation of a classic internal combustion engine, ignition timing and exhaust gas temperature modelling.*
4. U. Deryal, H. A. Dikmen, B. Uzuner - *Optimization of the handling behaviour of an electric car by adjusting the kinematic gains of suspension*

Wednesday, October 26, 2022, UPT Conference Center,

Amphitheatre 2

16:00 – 17:30

Section 7 *Mobility of Things*

Chairman: Conf. dr. ing. Virgil STOICA
Conf. dr. ing. Luisa Izabel DUNGAN

1. Simionaş Tiberiu, GÖNCZI Attila-Iuliu - *Some proposals of tramway prioritization in urban traffic.*
2. Adrian Vilcan, Viorel Nicolae, Ivana Martin, Eugen Ionescu, Mihaela Istrate - *Case study of optimisation of junction for the access to Iulius Mall Suceava.*
3. Aurel Mihail Țîțu, Gheorghe Neamțu, Alina Bianca Pop, Cătălin Bulgariu - *The Hydrogen Vehicle in the Context of the Sustainable Development of the Green Road Transport System.*
4. Sorin Rațiu, Nicolae Liviu Mihon, D.A. Armioni - *Overview on potential, opportunities and trends for internal combustion engines.*
5. Matei Lucian, Dumitru Ilie, Racila Laurentiu, Otat Oana, Oprica Alexandru Nicoleta Gencarau - *Traffic analysis of different geometries of a junction for optimization of vehicle capacity and traffic safety increase.*

Thursday, October 27, 2022, UPT Conference Center,

Auditorium

09:30 – 11:30

Section 1 *Advanced Powertrain and Propulsion*

Chairman **Prof. dr. ing. Constantin PANĂ**
Conf. dr. ing. Tudor MITRAN

1. Andrei Boborean, Virgil Stoica, Dorin Lelea - *The effects of water injection inside an internal combustion engine regarding NOx emissions.*
2. Izvorean Stefan, Virgil Stoica, Dorin Lelea - *Influence of dual fueling on the performance of a compression ignition engine.*
3. Cosmin Vasile Molnar, Stefan Izvorean, Andrei Boborean, Virgil Stoica - *The effects of gpl use over the performance of a diesel engine.*
4. Cosmin Constantin Suciu, Sorin Vlad Igreț, Ioana Ionel - *Experimental for depicting the influence upon gaseous emissions of an Otto engine by using hydrogen as fuel addition.*
5. Cosmin Constantin Suciu, Sorin Vlad Igreț, Ioana Ionel - *Experimental concerning the influence upon gaseous emissions by using HHO addition to an LPG powered Otto engine.*
6. Adrian Irimescu, Bianca Maria Vaglieco, Simona Silvia Merola, Vasco Zollo, Raffaele De Marinis - *Conversion of a small size passenger car to hydrogen fueling: simulation of full load performance.*
7. Cristian Claudiu Sandu, Constantin Pana, Nicolae Negurescu, Alexandru Cernat, Cristian Nuțu, Rares Georgescu - *The study on the engine pressure variation of utilizing n-butanol-gasoline blends at fuelling spark ignition engines.*

Thursday, October 27, 2022, UPT Conference Center,

Amphitheatre 1

09:30 – 11:30

Section 6 Road Safety

**Chairman Prof. dr. ing. Nicolae FILIP
Conf. dr. ing. Daniel OSTOIA**

1. Alin Gabriel Drosu, Cornel Cofaru, M. V. Popescu, C. Salf - *The influence of data aggregation levels on accident severity researches.*
2. Alin Gabriel Drosu, Cornel Cofaru, C. Salf - *Weather and road environment's influence on multi-vehicle crashes in Romania.*
3. Marius Gherheș, Nicolae Cordoș, Adrian Todoruț - *Geometrical optimization and evaluation of the bridge safety guardrail.*
4. B. C. Benea, D. D. Trușcă - *Analysis of the dynamics of the car's occupants in case of a frontal impact.*
5. T. D. Ioniță, N. Ispas, A. Chiru, M. Năstăsoiu, V. Pampa - *Virtual modeling of hybrid light duty commercial vehicles operating in overload conditions.*
6. Adrian Șoica, Adrian Budală - *Study of the forces in the pretensioned seat belt and their effects on the human body.*
7. Irina Duma, Nicolae Burnete, Adrian Todoruț, István Barabás, Marian-Daniel Dragoste - *Possibilities to evaluate the vehicle pre-collision travel velocity in the case of a frontal impact with a fixed object, through numerical modelling.*

Thursday, October 27, 2022, UPT Conference Center,

Amphitheatre 2

09:30 – 11:30

Section 3 *Terrain Vehicles*

**Chairman Prof. dr. ing. Corina SANDU
Prof. dr. ing. Liviu MIHON**

1. Ahmed Elawad Eltayeb Ahmed, Gyorgy Pillinger, Peter Kiss - *The connection of sandy loam soil moisture content to the load-bearing capacity.*
2. Ekansh Chaturvedi, Jyotirmoy Mukherjee, Corina Sandu - *Multibody Dynamics and Terramechanics-based modeling and simulation of Quarter-Car with Suspension.*
3. Varsha S. Swamy, Rashna Pandit, Alba Yerro, Corina Sandu, Bernardo Castellanos, Denise Rizzo, Katherine Sebeck - *Behavior of wet clay due to off-road traffic loading.*
4. Mohit Nitin Shenvi, Corina Sandu – *Comparative study on rolling resistance force in tire-ice interaction with a variation of tread rubber compound.*

11:30 – 12:00 COFFEE BREAK

Thursday, October 27, UPT Conference Center,

Auditorium

12:00 – 13:30

Section 1 *Advanced Powertrain and Propulsion*

Chairman Prof. dr. ing. Ilie DUMITRU
Prof. dr. ing. Bogdan VARGA

1. Cristian Claudiu Sandu, Constantin Pana, Nicolae Negurescu, Cristian Nuțu - *Study of the diesel fuel drop vaporization and combustion at a hydrogen-diesel fuel dual fuelled diesel engine.*
2. Mugurel Burciu - *Experimental determinations in order to establish the influence of the diesel quality and engine load on the smoke emissions of diesel cars.*
3. Rares Georgescu, Constantin Pana, Nicolae Negurescu, Alexandru Cernat, Cristian Nuțu, Cristian Claudiu Sandu - *A study on the influence of utilizing hydrogen at fuelling spark ignition engines.*
4. C. Antetomaso, Simona Silvia Merola, Adrian Irimescu, Bianca Maria Vaglieco, S. Di Micco, E. Jannelli, G. Scarpati, E. Simeoni - *CFD simulation of the interaction between water droplets on the GDL of a low temperature PEM FC in conditions of air cross-flow.*
5. Adrian Lexandru Ancuța, Stefan Voloacă, Gheorghe Frățilă, Grigore Danciu - *Simulation of the Parameters of a Lithium-ion Battery that Equips an Electric Vehicle.*
6. Dan Mustață, Raul Ionel, Ioana Ionel - *Research concerning air quality in the vicinity of a public transport stop.*
7. Bíró Norbert, Dr. Kiss Péter, Szöllösi Dániel - *The emission of off road vehicles and their reduction options.*

Thursday, October 27, 2022, UPT Conference Center,

Amphitheatre 1

12:00 – 13:30

Section 6 Road Safety

**Chairman Prof. dr. ing. Ștefan TABACU
Conf. dr. ing Horia BELEȘ**

1. Gheorghe Neamțu, Aurel Mihail Țițu, Alina Bianca Pop, Adrian Bogorin – Predescu - *Road Safety in The European Road Transport System and the Correlation with Sustainable Development.*
2. Oana Victoria Oțăt, Ilie Dumitru, Dragoș Tutunea, Lucian Matei, Gabriel Marinescu - *Theoretical and experimental considerations regarding the airbag system operation.*
3. Alexandru Ioan Radu - *Comparison study of pedestrian injury evaluation at different velocities in the case of pedestrian-vehicle collisions between a SUV and sport vehicle.*
4. Corneliu Ioan Dimitriu, Cosmin Robert Bujor – *The integrated methodology for assessing the safety of the road network infrastructure in Romania.*
5. Corneliu Ioan Dimitriu, Gheorghe Frățilă – *Top causes of road accidents in Romania.*

Thursday, October 27, 2022, UPT Conference Center,

Amphitheatre 2

12:00 – 13:30

Section 4 *Advanced Engineering Methods*

Chairman Prof. dr. ing. Dorin LELEA
Prof. dr. ing. Alexandru RUS

1. H. A. Dikmen, U. Deryal, G. Yağlı, Ş. Güneç - *Topology optimization with the redesigned suspension system of the internal combustion vehicle converted to an electrical vehicle.*
2. Alexander Kreis, Mario Hirz - *Artificial Intelligence Supporting Early Automotive Engineering Processes.*
3. Alexandra-Raluca Moisescu, Gabriel Anghelache - *Experimental and numerical analyses on the modal behaviour of an aluminium alloy sheet.*
4. Elias Burghilea, Andrei T. Borborean, Dorin Lelea - *The Design and CFD Study of a Formula SAE Front Wing.*
5. Corneliu Minzatu, Valentin Nişulescu, Gheorghe Bancă, Marius Toma, Cristian Reñea - *Research regarding the simulation of the autonomy for the electric vehicles in the case of the WLTC test cycle.*
6. D.M.Popa, D.Popa, Ştefan Tabacu - *Heavy-duty vehicles with solar panels as a regenerative power source.*
7. Jacob V´asquez, Sevastian Bocii, Edgardo Yescas, Jose Guerrero, Mario Espinosa, Marco Alonso - *Backstepping sensorless control for PMSM with unknown load torque.*

Thursday, October 27, UPT Conference Center,

Auditorium

16:00 – 17:30

Section 1 *Advanced Powertrain and Propulsion*

Chairman **Prof. dr. ing. Dinel POPA**
Conf. dr. ing. Sorin RAȚIU

1. Ovidiu Mihai Ivan, Andrei T. Borborean, Virgil Stoica, Sabina Violeta Nițu - *Design of a pyrolysis plant for energy recovery.*
2. Tudor Mitran, D. Craciun, A. Rus, G. Dragomir, D Chira - *A calculation algorithm for the heater of a Stirling engine.*
3. Dinel Popa, Irina – Virginia Tudor, Dragos-Mihai Popa, Claudia-Mari Popa - *Numerical and experimental results obtained from the study of the mechanical coupling systems of the power sources.*
4. Dinel Popa, Sebastian Parlac, Claudia-Mari Popa, Dragos-Mihai Popa - *Regenerative braking in the case of hybrid propulsion systems.*
5. Cornel Constantin, Cristian Rentea, Marius Bătăuș, Gheorghe Frățilă - *Study of energy consumption improvement for electric vehicles in platoon driving.*
6. O Chevir, Nicolae Burnete, I Radu Șugar, L. Neamț - *Study on the efficiency of Battery Electric Vehicle.*

Thursday, October 27, 2022, UPT Conference Center,

Amphitheatre 1

12:00 – 13:30

Section 5 *Materials, Automotive Technology and Maintenance*

**Chairman Prof. dr. ing. Ioana IONEL
Prof. dr. ing. Alexandru BOROIU**

1. D. M. Armioni, Ioana Ionel, Sorin Rațiu - *Study concerning methods for managing used engine oil. Analysis of a questionnaire-based survey.*
2. C. Birtok Baneasa, A. Budiul Berghian, M. Ardelean, R. Bucevschi - *Optimization of the intake system for the Setra NS 913 bus.*
3. Boroiu Andrei-Alexandru, Vieru Ionel, Udma Tiberiu-Aurelian, Boroiu Alexandru - *Bathtub curve and Allan-Plaît chart: two problematic graphs in reliability engineering.*
4. Andrei-Alexandru Boroiu, Alexandru Boroiu, Helene Suster-Badarau, Tiberiu-Aurelian Udma – *The Six sigma method and the 3.4 PPM concept: a critical analysis.*
5. Daniel Ostoia, Arina Speranța Negoiteșcu – *The influence of particle filters regeneration on oil consumption in Euro 5 Diesel engine.*
6. C. Zaharia, R. Niculescu, M. Năstase, A. Clenci – *Diagnosing the truck engine operation by evaluating engine oil wear and issuing maintenance recommendations*
7. I.A.Sandu, A.G.Badea, S.Tabacu - *Comparative analysis of the manufacturing processes for 316L material.*
8. M. Stirosu, A. Badea, A.I. Sandu, S. Tabacu - *Development of a coupled process - design numerical model for an automotive assembly.*

Thursday, October 27, 2022, UPT Conference Center,

Amphitheatre 2

16:00 – 17:30

Section 4 *Advanced Engineering Methods*

Chairman Conf. dr. ing. Adrian Sorin ROȘCA
Conf. dr. ing. Radu VILAU

1. I. L. Scurtu, D. Moldovanu - *Conceptual design of an electric vehicle chassis using topology optimization method.*
2. M. C. Balcau - *Aerodynamic evaluation of a commercial bus structure.*
3. V. Changoski, A. Vasileva, K. Jakimovska, D. Danev - *Implementing Model Predictive Control (MPC) in Steer-by-Wire Systems for Future Automated Vehicles.*
4. R. Vilau, D., Voicu, R. M. Stoica, L. Barothi - *Functional analysis of pneumatic systems for automatic control.*
5. Florin Visan, Valerian Croitorescu - *The electric transmission stress behaviour investigation while being used for a middle-class road vehicle.*
6. Bogdan Roman, Valerian Croitorescu - *Virtual Development of a Challenger type, single-seater vehicle for the World Solar Challenge Competition.*
7. Eugen Ghita, Ramon Balogh - *Calculation methodology for estimating the center of oscillation of a bogie.*

Thursday, October 27, UPT Conference Center,

Auditorium

17:45 – 18:30

**EAEC-MVT 2022 Closing Ceremony & Student Awards
Ceremony**

Friday, October 28

10:00 – 12:00

Technical Visit - Contitech Timișoara

Preregistration at Registration desk

8:00 – 17:00

**Social Activity – Historical Train Travel Oravița – Anina
(extra fee)**

Preregistration at Registration desk

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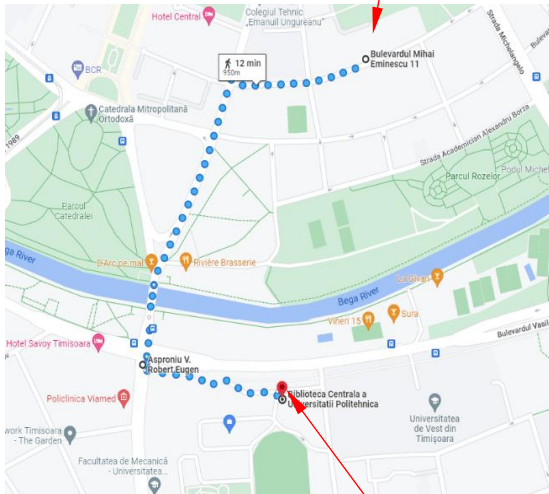
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Congress Venue orientation



Casa Politehnicii 2



**Congress Venue - UPT Conference Center / UPT Library
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