

**UNIVERSITY OF CRAIOVA  
FACULTY OF MECHANICS**



*The 30<sup>th</sup> SIAR International Congress of  
Automotive and Transport Engineering*

*Craiova, Romania, October 23-25, 2019*

**SCIENCE AND MANAGEMENT OF  
AUTOMOTIVE AND TRANSPORTATION  
ENGINEERING**

**S.M.A.T. 2019**

**Program**

**CRAIOVA, October 23-25, 2019**

## **”SCIENCE AND MANAGEMENT OF AUTOMOTIVE AND TRANSPORT” S.M.A.T. 2019**

This Congress represents, through the collaboration within SIAR (Society of Automotive Engineers of Romania), the combination of the academic world and of the researchers’ efforts from the main Romanian university centers (Bucharest, Brasov, Craiova, Cluj-Napoca, Pitesti and Timișoara), being in fact the XXX th edition in the Society of Automotive Engineers of Romania sphere. At the level of the Ministry of National Education, which also ensures the patronage of this event (reaching its 4th edition in Craiova), it is associated as an internationally renowned scientific event.

The structure of the scientific events was built on a specific topic whose thematic area was distributed as follows: advanced engineering methods, advanced powertrain and propulsion, road vehicles and environment, modern transport systems and road traffic, special vehicles, materials and technologies, targeting scientific aspects of particular mechanical engineering interest in general and of automotive and transport engineering in particular.

The 2001 SIAR Congress was hosted for the first time in the University of Craiova, by the Faculty of Mechanics. At the SMAT 2001 edition 289 authors participated, with a total of 234 papers (with 359 authors), published in three volumes at the Universitaria Publishing House.

At the next edition held in Craiova – SMAT 2008 – 284 authors represented over 20 universities. Thus, a number of 172 scientific papers were published in two volumes (924 pages) at the Universitaria Publishing House.

At the 2014 SMAT Congress edition, a number of 134 scientific papers were selected for publication and 7 invited scientific papers, the result of the activity of about 240 authors was edited electronically in the Congress CD. A total of 69 papers (approx. 50%) presented during the congress were specifically reviewed for publication in Applied Mechanics and Materials - Automotive and Transportation Engineering, published by Trans Tech Publication Ltd, Switzerland, in print version and electronically available at <http://www.scientific.net>.

At the SMAT 2019 Congress, about 200 specialists from the country and abroad, respectively about 70 students. The most representative papers were selected and published in the Springer publishing house proceeding volume, respectively in a proceeding in the Universitaria Publishing House in Craiova.

The economic environment is well represented at this edition too, Craiova being an important center in automotive and assisted design (we note FORD Romania, Renault Technologie Roumanie, INAS, CadWorks, CaeLynx Europe, AVL, NextRom, etc.).

## SIAR



SIAR is the professional organization of the Romanian automotive engineers, a corporate body, an independent and non-profit association, active member of FISITA (Federation Internationale des Societes d'Ingenieurs des Techniques de l'Automobile) and EAEC (European Automobile Engineers Cooperation). The main

objectives of SIAR are related to: the development of the automobile industry, transport technologies and services.

## UNIVERSITY OF CRAIOVA

The University of Craiova was founded within the university center system in Romania in the second half of the 20th century, being, chronologically, the fifth university in the country, following the ones in Iasi, Bucharest, Cluj-Napoca, and Timisoara. The academic community of our university met a growing evolution during its six decades of existence,



offering the young generation training conditions for 131 fields, among which 62 were university studies, 49 master fields, and 20 doctoral studies, covering a wide range. Continuing the system of higher education in the commercial vehicles field, founded from 1948, the Faculty of Mechanics and the Department of Automotive, Transport and Industrial Engineering take great pleasure in inviting you for the 4th Edition of Science and Management of Automotive and Transportation Engineering, Congress SMAT 2019, which will be held in Craiova city, Romania.

## FACULTY OF MECHANICS



Founded 40 years ago, the Faculty of Mechanics, with a current enrollment of 2000 students, trains and engineers in leading areas of technology and science, providing a solid theoretical and applicative framework established in compliance with modern curricula to meet the

contemporary technological and economic challenges and requirements. The faculty facilities have been refurbished and upgraded, state-of-the art laboratories equipped with computer networks, modern stands and high-performance appliances. The Faculty of Mechanics offers various programs (including English-thought programs) granting a tailored-cut academic development within an integrated system that encompasses bachelor - master - PhD studies. The teaching activity is designed and developed by an actively involved teaching staff, recognized nationally and internationally, with internships at prestigious universities abroad, like: John S Hopkins University in USA, University of Luton - England, Delft University of Technology - Netherlands, Ecole Normal Superieure de Cachan - France, Essen Duisburg University - Germany, etc.

**Dear participants and guests of the  
SMAT 2019 Science and Management of  
Automotive and Transportation  
Engineering!**



It is a distinct pleasure and honor to welcome you on this 30th International Congress of SIAR, in Craiova!

The Automotive Engineering is no longer a garage development matter, it changed to a strongly evolutionary system of sciences and techniques with powerful interdisciplinary skills.

The Advanced Automotive Engineering is truly a smart science of our time, a science with own attributes.

Every two seconds in the world are produced five automobiles. This rhythm would lead to a doubling of the cars crowd in the next 30 years. On the other hand, most of the 7.7 billion habitants of the world live in urban areas, and the number of megacities is rapidly increasing.

The traffic achieved in such areas an extremely high density, which imposes a new consideration of local emission of substances, especially of pollutants, of noise, but also of active and passive safety and of vehicle dynamics.

Furthermore, an advanced automobile must meet requirements regarding autonomous driving, connectivity, climate control and comfort.

A universal car does not appear as realistic, because of the various natural, economic, technical and social conditions in the world. From urban electric car, pickup, sedan, coupe and station wagon to cabriolet, sport utility vehicle and upper class, there will be a strong diversity, but with a noticeable modular base consisting on propulsion units or systems, vehicle body parts and materials, electronic control, sensors and actuators, lighting system, climate, safety system components, steering, carriage, suspension.

Therefore, you all, engineers, professors, doctors and students in this exciting domain, the Automotive Engineering, will have a lot to do!

I wish you a successful and fruitful congress!

**Professor Cornel Stan  
Fellow of SAE International, President of the Scientific  
Committee SMAT 2019, Craiova**

## **SMAT 2019, University of Craiova: the 30th SIAR International Congress of Automotive and Transport engineering**



The Society of Automotive Engineers of Romania (SIAR) is a professional organization founded in 1990 which took over the work of the Romanian Association of Automotive Engineers (AIAR), created in 1988. In my opinion, its existence shows the fact that the Romanian automotive sector is organized in order to create proper conditions for a dialogue whose main actors are the specialized structures of the state, the automotive industry, and the educational system. To serve this purpose, amongst other enterprises, SIAR annually organizes an international congress, which is an opportunity for participants (professionals and students, as well) to:

- exchange information in specific areas of the automotive and transport industries by hearing various scientific papers,
- update technical and scientific information on automotive industry dynamics thanks to technical site visits,
- establish new contacts in order to develop/strengthen scientific relationships with partners from the academic and industrial environments from Romania and abroad.

This year's SIAR international congress is organized by the SIAR's branch from University of Craiova. Undoubtedly, the automotive and transport engineering is the engine of economic development and is one of the fundamental aspects of social cohesion because it allows everyone the freedom of movement, along with the inherent advantages: easy access to various jobs, to public services, vacations/leisure etc. This is the reason for which this year's SIAR congress is dealing with the Science and Management of Automotive and Transportation Engineering (SMAT).

The SMAT Congress, reaching its 4th edition this year, is part of a round of similar scientific events organized by SIAR and held successively by various universities in the country with interests in Automotive and Transport Engineering (University of Craiova – SMAT, Technical University of Cluj-Napoca – AMMA, University of Pitesti – CAR, Transilvania University of Brasov – CONAT, “Politehnica” University of Bucharest – ESFA, Polytechnical University of Timisoara - MVT).

This very prominent scientific event is very special to us all, as it is, in fact, the 30th edition of SIAR's International Congress of Automotive and Transport Engineering. This long-standing tradition of SIAR is the result of the SIAR's motto application: Knowledge and development through cooperation. Equally, it's a consequence of SIAR's belief that we are all connected and by each of our actions we birth our future.

Like all the other editions of the SIAR conferences, the SMAT congress will not be only a festive event. I am sure that it will also serve as a true workshop, characterized by a high-quality scientific dialogue.

Finally, I would like to thank all the people who were engaged in the organization of this event, hosted by the University of Craiova. I consider it to be the scientific event of this very special year for SIAR in the field of Automotive and Transport Engineering. Also, I congratulate the participants on the fact that they chose to get involved! I hope that the constructive debates during our congress will contribute to enriching their experience!

**Prof. Adrian CLENCI, SIAR President**

Within the University of Craiova, this prestigious scientific event has reached its fourth edition and represents both a responsibility and an honour of the academic community in the related field, to organize, along with colleagues from the prestigious institutions in the main universities of profile, the XXX th International Congress of Automotive and Transport Engineering from Romania, to which we must also note the involvement as a co-organizer of the international SAE organism.



In the same context with the things mentioned above, the congress aims to set up as a scientific forum that will bring together specialists in the related field, to present, disseminate and promote the results of scientific research; knowledge of achievements and innovations in the thematic areas; integrating and increasing the international visibility of the Romanian research as well as to stimulate innovation and to transfer to the society both the scientific results and the technological development.

Last but not least, the attention given to our main partners - the students, who are involved as well as in specific activities of such a large-scale event, but also in the competitions within the two sections international student contest for the motor engineering.

We want that this remarkable event to bring our institution as many researchers and brand specialists in the related field as possible.

#### **Prof. Cezar SPINU, Rector of University of Craiova.**

The SMAT 2019 international congress aims to bring together academics, researchers, engineers and other specialists within the field of automotive engineering and road transport to foster some of their latest achievements and generate opportunities for further collaboration. Both plenary sessions and scientific sections will focus on the high quality of the submitted papers. Presentations will be mediated by leading moderators. We are glad receive academics, researchers, engineers and other specialists within automotive engineering and road transport, students and anyone interested to attend our congress.



The congress topics focus on novel, most challenging issues on automotive and transportation, providing both field-related engineers and researchers within the industry and/or the academic environment the possibility to track down topical issues disseminated via the congress papers. Public presentation of papers enables the attendants to initiate and active participate in cross-fertilizing dialogs that can lead to new interdisciplinary projects and cooperation partnerships.

The target audience will benefit from the most innovative solutions put forward by the submitted papers, within the field of automotive and transport, and further collaboration and professional networking opportunities that reside in this congress.

#### **Prof. Nicolae DUMITRU, Dean of Faculty of Mechanics**

## HONORARY COMMITTEE

<b>Daniela BURGHILA</b> General Director	General Directorate of Higher Education Ministry of National Education
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<b>Anghel CHIRU</b>	Professor at Transilvania University of Brasov
<b>Adrian CLENCI</b>	Professor at University of Pitesti President of Society of Automotive Engineers of Romania
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<b>Attila PAPP</b>	Executive Director of Magic Engineering Brasov
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<b>Gheorghe-Alexandru RADU</b>	Professor, Member of Academy of Technical Sciences of Romania
<b>Gabriel SICOE</b>	President of Romanian Automobile Manufacturers Association
<b>Alexander SIMIONESCU</b>	General Director of Renault Technologie Roumanie
<b>Cezar Ionuț SPÎNU</b>	Rector of the University of Craiova
<b>Cornel STAN</b>	Professor at West Saxon University of Zwickau, Germany

## SCIENTIFIC AND TECHNICAL COMMITTEE

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Prof. Dr.-Eng. Cornel STAN  
West Saxon University of Zwickau, Germany

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## PRELIMINARY PROGRAM SMAT 2019

### TUESDAY, 22 OCTOBER

18:00-20:00 WELCOME RECEPTION - EUROPECA Hotel <sup>1</sup>

### WEDNESDAY 23 OCTOBER

8:30 – 10:30 Registration of Participants: University of Craiova –" Regele Mihai I al României" Hall <sup>2</sup>

10:30–11:15 Opening Ceremony: University of Craiova –" Regele Mihai I al României" Hall <sup>2</sup>

11:15 –11:30 Refreshment Break

11:30-13:00 Plenary Session: University of Craiova –" Regele Mihai I al României" Hall <sup>2</sup>

13:00-14:30 Lunch Break

14:30-16:00 SIAR meeting: University of Craiova – Faculty of Mechanics <sup>3</sup>

16:00 -17:45 Workshop 1 - University of Craiova – Faculty of Mechanics <sup>3</sup>

16:00 -17:45 Papers on Specific Sections - University of Craiova – Faculty of Mechanics <sup>3</sup>

17:45 – 18:00 Refreshment Break

18:00 – 19:00 Papers on Specific Sections - University of Craiova – Faculty of Mechanics <sup>3</sup>

19:30 – 21:30 Dinner

### THURSDAY, 24 OCTOBER

8:45-9:45 Papers on Specific Sections - University of Craiova – Faculty of Mechanics <sup>3</sup>

10:00-11:00 Technical Presentation - University of Craiova – Faculty of Mechanics <sup>3</sup> – Part 1

11:00-11:15 Refreshment Break

11:15- 12:30 Technical Presentation - University of Craiova – Faculty of Mechanics <sup>3</sup> – Part 2

9:30-13:00 SIAR National Student Contests - Vehicle Dynamics - Automotive Computer Aided Design - University of Craiova – Faculty of Mechanics <sup>3</sup>

12:30-13:30 Lunch Break

13:30 -16:00 Technical visit

16:00 – 18:00 Workshop 2- University of Craiova – Faculty of Mechanics <sup>3</sup>

16:00 -17:30 Papers on Specific Sections - University of Craiova – Faculty of Mechanics <sup>3</sup>

17:30 – 17:45 Refreshment Break

17:45 – 19:00 Papers on Specific Sections - University of Craiova – Faculty of Mechanics <sup>3</sup>

19:30 – 22:00 Gala Dinner

### FRIDAY, 25 OCTOBER

9:00 – 9:30 Closing Ceremony - University of Craiova – Faculty of Mechanics <sup>3</sup>

10:00-13:00 Technical Activities - Round table for results dissemination – Part 1

13:00-15:00 Lunch

15:00-17:00 Technical Activities - Round table for results dissemination – Part 2

<sup>1</sup> - EUROPECA Hotel: Pietatii Street, 9-11-13

(44° 19' 31.21" N, 23° 48' 5.03" E);

<sup>2</sup> - University of Craiova –" Regele Mihai I al României" Hall: A. I.Cuza 13

(44° 19' 5.40" N, 23° 48' 1.19" E)

<sup>3</sup> - Faculty of Mechanics: Calea București Street, 107

(44° 18' 58.65"N, 23° 49' 18.48" E)

**Wednesday, 23<sup>rd</sup> October, 2019**

**Advanced Powertrain and Propulsion**

**BL-16 Hall  
16<sup>00</sup> – 17<sup>45</sup>**

Chairmen: **Anghel Chiru  
Tudor Mitran**

- 1\_02 **An Engine Mechanism Dynamic Analysis by Considering the Kinematic Elements as Deformable Ones**  
Nicolae Dumitru, Cristian Copilusi, Adrian Calangiu and Ionut Geonea
- 1\_06 **Researches regarding the CNG use at an automotive diesel engine**  
**Silviu Rotaru, Constantin Pană, Nicolae Negurescu, Gheorghe Lazaroiu,** Alexandru Cernat, Dinu Fuioreescu, Cristian Nikolaos Nutu
- 1\_09 **Mathematical Model for Stability Analysis of Vehicle-Driver System**  
Mario Trotea, Robert Emil Simniceanu, Augustin Constantinescu and Stefanita Ciunel
- 1\_10 **The Influence of the Hybridization Factor on the Energetic Performance in Test Cycles**  
Cristian Rențea, Marius Bățăuș, Sorin Maican, Mircea Oprean, Gheorghe Frățilă
- 1\_14 **Aspects Regarding Fuel Consumption and the Pollutant Products of Internal Combustion Engines for Commercial Vehicles**  
Marius S.D. Capătă, Madalin Florin Popa and Nicolae Burnete
- 1\_25 **Considerations Regarding on Automotive Stability**  
Thierheimer Alexandru, Alexandru Cătălin, Oțăt Oana Victoria, Crauciu Daniel and Thierheimer Walter Wilhelm

**Wednesday, 23<sup>rd</sup> October, 2019**

**Advanced Powertrain and Propulsion**

**BL-16 Hall**  
**17<sup>45</sup> – 19<sup>00</sup>**

Chairmen: **Nicolae Burnete**  
**Rodica Niculescu**

- 1\_01 **The Calculus of the Pressures in the Characteristic Points of the Engine's Cycle for a GDI Engine**  
Vasile Blaga, Tudor Mitran, Sorin Moca and Catalin Chioreanu
- 1\_03 **Experimental Stand to Evaluate Engine Mass Air Flow (MAF) Sensor**  
Dragos Tutunea, Ilie Dumitru, Laurentiu Racila, Oana Otat, Ionut Geonea, Lucian Matei and Cristina Rotea
- 1\_04 **Aspects Relating to Operation of Transmission Provided with Torque Converter**  
Ion Lespezeanu, Daniela Voicu, Andrei Indreş, Marin Nicolae, Ion Copae
- 1\_05 **Experimental study on the functioning of the traction batteries for hybrid vehicles**  
Şugar Ioan Radu, Chiver Olivian
- 1\_07 **Analysis of the Injector for Common Rail System, Including of the Electrical Command Signal**  
Cristian-Ioan Leahu

**Wednesday, 23<sup>rd</sup> October, 2019**  
**Road Vehicle and Environment**

**BL - 47 Hall**  
**16<sup>00</sup> – 17<sup>45</sup>**

Chairmen: **Mircea Oprean**  
**Adrian Todoruț**

- 2\_02 **Technical Solutions for the Use of Internal Combustion Engine Combustion Gases**  
Rareș Lucian Chiriac, Anghel Chiru and Ovidiu Andrei Condrea
- 2\_03 **Evaluation of Tire Traction Performance on Dry Surface Based on Tire- Road Contact Stress**  
Chen Liang, Liu Ji, Hoda Mousavi and Corina Sandu
- 2\_04 **Performance, Combustion and Emissions Study of a DI Diesel Engine Running on Several Types of Diesel Fuels**  
Nicolae Vlad Burnete, Richard János Balint, Corneliu Adrian Măgherusan and Dan Moldovanu
- 2\_05 **Study of Vehicles Energy Efficiency**  
Ion Lespezeanu, Laszlo Barothi, Leonard-Iulian Cucu, Cătălin-Dumitru Darie, Iulian Constantin Coropetchi and Ion Copae
- 2\_12 **On-board Measurement of Emissions from Spark Ignition Engine Vehicle for Urban Routes**  
Stelian Țârulescu, Radu Țârulescu and Cristian Ioan Leahu
- 2\_13 **Experimental stand to investigate the acoustic performance of IC Engine**  
Ilie Dumitru, Dragos Tutunea, Gigel Paraschiv, Daniela Burghila, Alexandru Oprica

**Wednesday, 23<sup>rd</sup> October, 2019**

**Road Vehicle and Environment**

**BL - 47 Hall  
17<sup>45</sup> – 19<sup>00</sup>**

**Chairmen: Nicolae Vlad Burnete  
Corina Sandu**

- 2\_06 **Comparative Study Regarding the Operation of a Car's Internal Combustion Engine in Urban and Extra-Urban Environment**  
Ion Lespezeanu, Ramona Monica Stoica, Radu Vilău, Daniel Sava and Ion Copae
- 2\_07 **Marine Ship Equipped with Air Turbine – Electric Generator Aggregate**  
Radu Tarulescu, Stelian Tarulescu, Cristian-Ioan Leahu and Dana Luca-Motoc
- 2\_08 **Influence of the Dynamic Vehicle Load on the Power Losses Required to Overcoming the Rolling Resistance**  
Nicolae Cordoș, Adrian Todoruț, Călin Iclodean and István Barabás
- 2\_09 **Mathematical Model for Study of Behavior of the Bodywork at Impact** Ana Maria Manea, Daniel Iozsa, Cornelia Stan, Claudiu Teodorescu and Gheorghe Frățilă
- 2\_10 **Aspects Regarding the Identification of Optimum Driver Comfort Level by Virtual Analysis of the Vertical Oscillations Generated by Road**  
Marian Florin Mitroi and Anghel Chiru

**Wednesday, 23<sup>rd</sup> October, 2019**

## **Modern Transport Systems and Road Traffic**

**BL- 23 Hall**  
**16<sup>00</sup> – 17<sup>45</sup>**

Chairmen: **Nicolae Viorel**  
**Nicolae Filip**

- Relationships between Accident Severity and Weather and Roadway Adherence Factors in Crashes Occurred in Different Type of Collisions**  
3\_01 Alin Drosu, Corneliu Cofaru and Mihaela Virginia Popescu
- Reconstruction of Rollover Collision using PC Crash 11.1 and 3D Scanner**  
3\_02 Laura Diana Grigorie, Dragos Sorin Dima, Alina Elena Romanescu and Mihnea Marin
- The influence of vehicle low impact velocity over the helmet airbag deployment and cyclist injuries**  
3\_03 Ovidiu Andrei Condrea, Anghel Chiru, George Toganel and Daniel Dragos Trusca
- Effects of Vehicle Impact Velocity on Cyclist Injuries and Kinematics for Rear Impacts**  
3\_04 Ovidiu Andrei Condrea, Anghel Chiru, George Toganel and Daniel Dragos Trusca
- Case Study Regarding the Reconstruction of a Real Vehicle-Bicycle Accident**  
3\_05 Ovidiu Andrei Condrea, Anghel Chiru, George Toganel, Daniel Dragos, Trusca and Rares Lucian Chiriac
- Methods of Analysis and Reconstruction of Traffic Events**  
3\_13 Mihai Cliniciu, Stefanita Ciunel and Bebe Tica



**Wednesday, 23<sup>rd</sup> October, 2019**

**Modern Transport Systems and Road Traffic**

**BL- 23 Hall**  
**17<sup>45</sup> – 19<sup>00</sup>**

Chairmen: **Dragos Sorin Dima**  
**Corneliu Cofaru**

- 3\_06 **Image Processing Applied in Road Traffic Using a Quadcopter**  
Carmen Gheorghe and Nicolae Filip
- 3\_07 **Road Traffic Studies for Urban Development**  
Georgiana Silvia Muresan, Carmen Gheorghe and Nicolae Filip
- 3\_08 **The reduction of the fuel consumption and of the pollution through the introduction of electric cars**  
Istrate Mihaela, Nicolae Viorel, Șuster Helene, Vilcan Adrian
- 3\_09 **The development of traffic data processing techniques**  
J. Kovács, N. Filip
- 3\_11 **Dynamic Considerations Regarding the Enrolling in the Curve with Small Radius of Railways, of the Locomotives**  
Iulian Turcanu and Marian Florin Mitroi

**Wednesday, 23<sup>rd</sup> October, 2019**

**Advanced Engineering Methods**

**BL-17 Hall**  
**16<sup>00</sup> – 17<sup>45</sup>**

Chairmen: **Dumitru Bolcu**  
**Ion Copae**

- 4\_07 **Design Optimization of the Towing Hook Used in Passenger Cars for Light Trailers**  
Mario Trotea, Augustin Constantinescu and Loreta Simniceanu
- 4\_08 **Modeling of Dynamic Behavior of a Spur Gear**  
Ionut Geonea, Laurentiu Racila, Ionica Valeriu and Cosmin Miritoiu
- 4\_13 **Solicitations in the Rear Axle Support of a Karting Frame**  
Laurentiu Racila, Ilie Dumitru, Lucian Matei, Mihaela Racila, Dragoş Tutunea and Ionut Geonea
- 4\_15 **Finite Element Analyses of the Influence of Tyre Functional Parameters on Contact Patch Stresses**  
Alexandra-Raluca Moisescu and Gabriel Anghelache
- 4\_16 **Construction of a Kart Chassis through 3D Reconstruction Methods – Part 1 – Scanning and Alignment**  
Lucian Matei, Ilie Dumitru, Laurentiu Racila, Mihaela Racila, Dragoş Tutunea and Oana Otat
- 4\_17 **Construction of a Kart Chassis through 3D Reconstruction Methods – Part 2 – Reverse Engineering**  
Lucian Matei, Ilie Dumitru, Laurentiu Racila, Mihaela Racila, Dragoş Tutunea and Oana Otat

**Wednesday, 23<sup>rd</sup> October, 2019**

**Advanced Engineering Methods**

**BL-17 Hall**  
**17<sup>45</sup>-19<sup>00</sup>**

Chairmen: **Gabriel Anghelache**  
**Alexandru Rus**

- 4\_01 **Modeling of a Standardized Testing Track with the Use of Specialized Software**  
Daniela Voicu, Ramona-Monica Stoica and Laszlo Barothi
- 4\_02 **Fuzzy Decision Algorithm for Driver Drowsiness Detection**  
Tiberiu Vesselenyi, Alexandru Rus, Tudor Mitran, Sorin Moca and Csokmai Lehel
- 4\_03 **Study of Vehicle Dynamics Using Tensor Analysis**  
Radu Vilău, Ion Lespezeanu, Constantin-Iulian Pântece, Alexandru Vasile and Ion Copae
- 4\_04 **Sensors Used for Human Gait Monitoring**  
Daniela Tarnita and Alin Teofil Oncescu
- 4\_26 **Vibrations Influence on Automotive Drive**  
Valeriu Ionica, Dan Bagnaru, Ionut Geonea and Leonard Ciurezu

**Wednesday, 23<sup>rd</sup> October, 2019**

**Materials and Technologies**

**BL-33 Hall**  
**16<sup>00</sup>-17<sup>45</sup>**

**Chairmen: Raluca Negrea**  
**Bebe Tică**

- 5\_01 **Aspects about Deployment of Lean Principles for Improving the Production Process Quality in Automotive Industry**  
Pascu Cristina Ileana, Gheorghe Stefan, Didu Anca, Ciocoi Dragos
- 5\_02 **Generating Loci through the Theory of Mechanisms**  
Iulian Popescu, Alina Elena Romanescu and Ludmila Sass
- 5\_03 **Stereometric Analysis of Pt Schottky Contacts on Quaternary n-Al<sub>0.08</sub>In<sub>0.08</sub>Ga<sub>0.84</sub>N Thin Film**  
Ştefan Țălu, Mihai Țălu, Daniela Vintilă, Laura Grigorie, Alina Romanescu
- 5\_06 **Study about the Roughness Surface Quality for a Duralumin Alloy after Cutting Process**  
Ileana Cristina Pascu and Iulian Popescu
- 5\_09 **Virtual Modeling and Numerical Simulations of the Latitide Prosthesis- Human Elbow Assembly**  
Daniela Tarnita, C. Boborelu, D. Popa, R. Malciu and D.-N. Tarnita
- 5\_12 **Performance analysis of foam materials used as add on safety structures**  
Negrea Raluca, Predoiu Paul, Tabacu Stefan, Ducu Catalin, Negrea Denis

**Wednesday, 23<sup>rd</sup> October, 2019**

**Materials and Technologies**

**BL-33 Hall  
17<sup>45</sup>-19<sup>00</sup>**

Chairmen: **Daniela Tarnita  
Ileana Pascu**

- 5\_04 **Complex Characterization of the Material**  
Ionela Alina Sandu, Constantin Onescu, Ștefan Tabacu, Cătălin Ducu
- 5\_05 **Behavior of expanded polypropylene foam to multiple tests at different loading rates**  
M-L. Beșliu-Gherghescu, R. Negrea, P. Predoiu, A. Drăghici, S. Tabacu, N-D. Stănescu
- 5\_07 **Valves Processing of Internal Power Engines by Ultrasonic Vibro-Cutting**  
Bebe Tică and C. Klement
- 5\_08 **Experimental Testing of Energy Absorbing Foams used as Safety Structure within Automobile's Cockpit Module**  
Raluca Negrea, Paul Predoiu, Stefan Tabacu, Catalin Ducu, Denis Negrea
- 5\_10 **Analyzing surface roughness of an auto-truck cylinder after several running hours**  
Daniela Voicu, Ramona-Monica Stoica, Radu Vilau, Roxana Nedelcu, Laszlo Barothi
- 5\_11 **Surface Roughness and Temperature in Dry Milling of an Austenitic Stainless Steel**  
Nicolae Craciunoiu, Daniela Tarata, Adrian Sorin Rosca and Ionut Geonea

**Thursday, 24<sup>rd</sup> October, 2019**

**Advanced Powertrain and Propulsion**

**BL-16 Hall**  
**8<sup>45</sup> – 9<sup>45</sup>**

Chairmen: **Gheorghe Ciolan**  
**Alexandru Cătălin**

- 1\_08 **Influence of Tires Parameters on the Braking Process in Automobiles**  
Robert Emil Simniceanu and Loreta Simniceanu
- 1\_11 **Diesel Smoke and PM Measurements and Simulation**  
Dan Mihai Dogariu, Anghel Chiru, Cristian Ioan Leahu, Marius Lazăr,  
Adrian Constantin Buta
- 1\_12 **3D Aerodynamic Simulation of the Heavy Duty Commercial Vehicle**  
Nadica Stojanovic, Oday I. Abdullah, Josef Schlattmann, Ivan Grujic and  
Danijela Miloradovic
- 1\_13 **Some Considerations on Optimal Placement of the Arm Hydraulic  
Cylinder to an Excavator**  
Cristian-Ioan Leahu, Mircea Năstăsoiu and Radu Tarulescu

**Thursday, 24<sup>rd</sup> October, 2019**

**Advanced Powertrain and Propulsion**

**BL-16 Hall**

**16<sup>00</sup> – 17<sup>45</sup>**

Chairmen: **Walter Thierheimer**  
**Mircea Nastasoiu**

- 1\_15 **Research of Intelligent Control of Injection Systems for Subaru Competition Car**  
Ioan-Aurel Cherecheș, Doru-Laurean Băldean and Adela-Ioana Borzan
- 1\_16 **The Pneumatic Propulsion System of a Road Vehicle**  
Catalin Chioreanu, Tudor Mitran, Sorin Pater and Marius Pele
- 1\_17 **Engine Diagnosis and Control Using Intelligent Vehicle Embedded Sensors**  
Marius Singureanu, Ion Copae
- 1\_18 **Researching the K9K-792 Engine with Diesel Standard and Bio Diesel Fuels**  
Borza, Emilian-Vasile, Borzan Adela-Ioana, Băldean Doru-Laurean
- 1\_19 **Energy efficiency modelling and optimal regime assessment for a small electric vehicle**  
Băldean Doru-Laurean
- 1\_20 **Evaluation criteria and motionless phenomena that accompany cyclic dispersion in the case of laser ignition**  
Bogdan George Done, Ion Copae

**Thursday, 24<sup>th</sup> October, 2019**

**Advanced Powertrain and Propulsion**

**BL-16 Hall  
18<sup>00</sup> – 19<sup>00</sup>**

Chairmen: **Stefan Tabacu  
Bogdan Varga**

- 1\_21 **Theoretical and Experimental Research on the Polluting Emissions for an Middle Class Vehicle Equipped with Engine that Uses the Double Energy Source, Gasoline and LPG**  
Valentin Nişulescu, Florian Ivan, Daniel Iozsa, Gheorghe Bancă
- 1\_22 **Driveability Improvements Obtained Using a Mild-Hybrid Electrical System on a Vehicle Equipped with an Automated Manual Transmission**  
Ştefan Saragea, Mircea Oprean, Marius Băţăuş, Gheorghe Frăţilă
- 1\_23 **Performance analysis of a diesel engine using cooking vegetable oil**  
Micu Dan Alexandru, Sîrbu Radu-Cătălin and Nuţu Nikolaos Cristian
- 1\_24 **A Study on the Influence of the Miller Cycle upon the Engine's Internal Aerodynamics**  
Mihai Niculae, Adrian Clenci, Victor Iorga-Simăn and Rodica Niculescu



**Thursday, 24<sup>rd</sup> October, 2019**

**Road Vehicle and Environment**

**BL-01 Hall**  
**8<sup>45</sup> – 9<sup>45</sup>**

Chairmen: **Adrian Clenci**  
**Alexandru Boroiu**

- 2\_11 **Research on the Use of Rheological Systems to Decrease the Vertical Oscillations Perceived by the Driver**  
Marian Florin Mitroi and Camelia Cerbu
- 2\_14 **CFD Study on Wheel Aerodynamic Performance in Side Wind Conditions for a Hatchback Vehicle**  
Laurentiu Ilea, Daniel Iozsa, Cornelia Stan and Claudiu Teodorescu
- 2\_15 **Rese Research of Alternative Composite Solutions in Gas After-Treatment System for Diesel Cars**  
Bogdan-Manolin Jurchiş and Doru-Laurean Băldean
- 2\_16 **Research of an integrated application for data collection and real-time transfer capabilities regarding fuel tank level in a cluster data base type of communication network**  
Borzan Adela-Ioana, Popescu Daniela, and Băldean Doru-Laurean



**Thursday, 24<sup>rd</sup> October, 2019**

**Road Vehicle and Environment**

**BL-01 Hall**  
**16<sup>00</sup> – 17<sup>45</sup>**

Chairmen: **Adriana Manea**  
**Daniel Iozsa**

- 2\_17 **Research of Diesel Particle Filter Soot Impact and Regeneration Time Trend-Line**  
Emilian Vasile Borza, Doru Laurean Băldean and Bogdan Manolin Jurchiș
- 2\_18 **Comparative Analysis of Three Distinct Porsche Models Concerning N.V.H. Aspects**  
Doru Laurean Băldean
- 2\_19 **Dynamic analysis of physical-chemical properties of CI fuels**  
Ig. Beșleaga, P. Voleac, M. Gadibadi

**Thursday, 24<sup>rd</sup> October, 2019**

**Modern Transport Systems and Road Traffic**

**BL-23 Hall**  
**8<sup>45</sup> – 9<sup>45</sup>**

Chairmen: **Horia Beles**  
**Nicolae Ispas**

- 3\_10 **Analysis of Occupant Injury Level in the Case of High-Speed Vehicle Slide-Spinning Collision**  
Laurentiu Claudiu Manea, Adriana Manea, Alexandru Ionut Radu and Dragos Sorin Dima
- 3\_12 **The use of tests in real traffic conditions, in the assessment of urban traffic**  
Georgiana Muresan, Nicolae Filip
- 3\_14 **Behavior of the Cranio-Cervical Biofidelity Complex Compared to the Cranio-Cervical Area of Anthropometric Test Devices**  
Mihai Clinciu and Stefanita Ciunel
- 3\_15 **Study of the Possibilities to Improve the Service Level of Traffic Light Intersections by Road Traffic Micro-simulation**  
Andrei Alexandru BoroIU, Elena Neagu, Alexandru BoroIU and Sebastian Parlac

**Thursday, 24<sup>rd</sup> October, 2019**

**Modern Transport Systems and Road Traffic**

**BL-23 Hall**

**16<sup>00</sup> – 17<sup>45</sup>**

Chairmen: **Mircea Nastasoiu**  
**Attila Iuliu Göncki**

- The Influence of the Color of the Reflective Vest on the Visibility of the Cyclist at Night**  
3\_16 Bogdan Cornel Benea, Daniel Dragos Trusca, George Radu Toganel and Alexandru Ionut Radu
- Study of a Car-to-Pedestrian Collision in Case of Vehicle's Post-impact Braking**  
3\_17 Bogdan Adrian Tolea, Alexandru Ionut Radu, Horia Beles, George Dragomir and Sorin Moca
- Study Regarding the Impact Between a Vehicle and a Two-Wheel Vehicle**  
3\_18 Oana Oțăt, Ilie Dumitru, Victor Oțăt, Lucian Matei and Dragoș Tutunea
- Practical Use of Accelerometers in Road Traffic Studies**  
3\_19 Dinu Covaciu, Daniela Florea and Janos Timar
- Experimental Research on Brake Behavior for Different Types of Commercial Vehicles**  
3\_21 Mădălin Popa, Marius S.D. Capătă and Nicolae Burnete
- Considerations Concerning the Study of Dynamic Equilibrium for Engine Axle and Bogies for Locomotives**  
3\_22 Iulian Turcanu and Ioan Sebesan

**Thursday, 24<sup>rd</sup> October, 2019**

**Modern Transport Systems and Road Traffic**

**BL-23 Hall  
18<sup>00</sup> – 19<sup>00</sup>**

Chairmen: **Dinu Covaciu  
Daniela Florea**

- 3\_20 **A New Method to Improve Computing Time for TSP Little Algorithm**  
Adrian Cipleu, Werner Ștefănescu, Ionel Vandici and Attila Iuliu Göncki
- 3\_23 **Automotive Black Box and Development Platform Used for Traffic Risks  
Evaluation and Mitigation**  
Silviu Zamfir and Radu Drosescu
- 3\_24 **Experimental Studies of the Same Car Behavior in Different Pile-up Scenarios**  
Nicolae Ispas and Mircea Nastasoiu
- 3\_25 **Cross-Validation of Two Collision Modeling Software Based on the  
Reconstruction of a Real Collision - A Possible New Approach to Collision  
Reconstruction**  
Attila Iuliu Göncki and Adrian Cipleu
- 3\_26 **Studies on the Adaptation of an Electrical Solution to a Kart Type Competition  
Monopost**  
Oprica Alexandru, Florescu Bogdan, Edward Rakosi, Neagoie Dumitru, Oprica  
Theodor and Racila Laurentiu

**Thursday, 24<sup>th</sup> October, 2019**

**Advanced Engineering Methods**

**BL-17 Hall**  
**8<sup>45</sup> – 9<sup>45</sup>**

Chairmen: **Ion Preda**  
**Stelian Tarulescu**

- 4\_06 **New Approach for the integration of CAD/CAPP/CAM Systems for Bearings Manufacturing**  
Dan George Prutica and Gheorghe Brabie
- 4\_09 **Analysis Methodology of Experimental Results in Case of a Cockpit Module under Impact Load**  
Constantin Paul Predoiu, Raluca Florentina Negrea, Dinel Popa and Stefan Tabacu
- 4\_10 **Strain Analysis of a Steering Tie Rod**  
Ionela Alina Sandu, Ștefan Tabacu, Cătălin Ducu and Constantin Onescu
- 4\_11 **Comparison Study Between a Tubular Type Camshaft and a Classic Type Using Finite Element Method**  
Sorin Vlad Igreț and Radu Iulian Negrilă

**Thursday, 24<sup>rd</sup> October, 2019**

**Advanced Engineering Methods**

**BL-17 Hall  
16<sup>00</sup> – 17<sup>45</sup>**

**Chairmen: Dinel Popa  
Ion Tabacu**

- 4\_12 **Basic Subsystems Reliability Influence Study on the Main Characteristics of Automotive**  
Radu Iulian Negriila and Sorin Vlad Igręţ
- 4\_14 **Aspects Regarding the Stability Performances Calculation of the Wheeled Vehicles while Turning**  
Ion Preda, Gheorghe Ciolan and Dinu Covaciu
- 4\_18 **Contribution to Research the Applied Engineering Protocol to Implement a Fuzzy Regulator for Autonomous Driving of an Automotive Model Implemented in Virtual Reality**  
Florin Covaciu and Doru-Laurean Băldean
- 4\_19 **Aerodynamic Study of an Electric Vehicle Prototype**  
Liviu Scurtu, Ancuta Jurco, Emilian Borza, Florin Mariasiu, Nicolae Vlad and Silvan Morariu
- 4\_20 **Drag Coefficient Analysis for Side Mirrors of an Electric Vehicle Prototype**  
Liviu Scurtu, Adela Borzan, Florin Mariasiu, Nicolae Vlad, Bogdan Varga and Silvan Morariu
- 4\_21 **Design and CFD Simulation of an Automotive Air Heat Exchanger**  
Monica Balcau and Liviu Scurtu

**Thursday, 24<sup>th</sup> October, 2019**

**Advanced Engineering Methods**

**BL-17 Hall**  
**18<sup>00</sup> – 19<sup>00</sup>**

Chairmen: **Gabriel Anghelache**  
**Laurentiu Manea**

- 4\_05 **Conceptual Design of an Urban Electric Microcar**  
Mehmet Murat Topaç, Merve Karaca and Levent Bilal
- 4\_22 **Application Model in AUTOSAR Software Development for Control Systems Design through Fuzzy Methods**  
Cristian Spirleanu and Eugen Diaconescu
- 4\_23 **Applied digital research to the piston rings from the Ford Focus variant**  
Cherecheș Ioan - Aurel, Borzan Adela - Ioana, Băldean Doru-Laurean
- 4\_24 **Applied modelling and simulation to the specific mechanisms used in convertible Mercedes E-class automobiles**  
Borzan Adela – Ioana, Băldean Doru-Laurean
- 4\_25 **A Study of the Mechanical Behavior of a Car Part Realized from Epoxy Resin Reinforced with Cotton Woven**  
Alexandru Bolcu, Nicolae Dumitru, Dumitru Bolcu , Cosmin Mihai Mîrîtoiu and Marius Marinela Stanescu



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