Welcome to Belgrade

Maintaining the tradition, JUMV is organizing the 26th International Automotive Conference SCIENCE AND MOTOR VEHICLES in Belgrade, on 19-20 April 2017 under the motto AUTOMOTIVE ENGINEERING FOR IMPROVED SAFETY with the special emphasis to mark 50 years since in 1967 the first forerunner event was held from which Automotive Conference "Science and Motor Vehicles" was generated having become an important international forum of Automotive Engineers in Serbia, Balkans and Central-Eastern Europe. It promotes the exchange of engineering and scientific knowledge and experience at the highest quality level between experts from different countries.

The 2017 conference will demonstrates continuity, tradition, and quality of 24 previously held conferences. It is an opportunity for participants to assess the development, applied automotive engineering expert scientific and engineering results with particular emphasis to improved safety. This two day Conference will be held in English language consisting of the following sessions:

- AutoSim 2017 – Special Session on Simulation in Automotive Engineering
- Safety (Vehicle & Traffic Safety, Vehicle Safety Performance, Road Accident Reconstruction and Analyses, Vehicle Safety Regulations)
- Advanced Engineering Technologies & Tools

Organization & Patronage Information

26th JUMV International Automotive Conference SCIENCE AND MOTOR VEHICLES 2017 is organized by the JUMV – The Society of Automotive Engineers in Serbia. This event is organized under the Patronage of FISITA* - International Federation of Automotive Engineers Societies.

* FISITA is the international federation linking the national automotive engineering societies in 37 countries. FISITA was founded in 1948 as a neutral forum for the exchange of technical knowledge on every aspect of vehicle design, development and manufacture. FISITA is a non-profit organisation committed to helping create efficient, affordable, safe and sustainable automotive transportation. For further information on FISITA, including the full list of events organised or supported by the organisation please visit www.fisita.com.

International Programme Committee

Prof. Dr. Jovan Todorović, (ret.) University of Belgrade & JUMV, Serbia
Prof. Dr.-Ing. Egon-Christian von Glasner, EVU, Germany
Dr. Matyas Matolcsy, GTE, Hungary
Dr. Branislav Basara, AVL List GmbH, Austria
Dr. Marko Tirović, Cranfield University, UK
Dr. Stojan Vuču, Rheinmetall Automotive Germany
Prof. Gabriele Virzi Mariotti, University of Palermo, Italy
Prof. Gianfranco Rizzo, University of Palermo, Italy
Prof. Dr. Ferdinand Trenc, University of Ljubljana, Slovenia
Prof. Dr. Jan Lešinsky, Technical University of Bratislava, Slovakia
Prof. Dr. Konstantinos Spentzas, (ret.) National TU of Athens, Greece
Prof. Dr. Aleksandar Subić, RMIT University, Melbourne, Australia
Prof. Dr. Dušan Gruden, Germany
Mr. Alexander Berg, Dekra Automobile GmbH, Germany
Prof. Dr.-Ing. Sigmar Micke, Germany
Prof. Dr. Slavko Muždeka, Military Academy, Belgrade, Serbia
Mr. Aleksandar Gkić, Military Academy, Belgrade, Serbia
Prof. Dr. Čedomir Duboka, JUMV, Belgrade, Serbia

Who should attend?

Automotive engineers and scientists, Road traffic safety engineers, Accident reconstruction experts, Managers from automotive and supply industry, Academia associates, Governmental officers, Students and young engineers in automotive engineering and other related engineering sciences are invited to present results of their research, development and engineering work, and to take part at the Conference. This Conference provides unique opportunities for participants to establish new professional and personal contacts, to exchange with other participants the results of their engineering activities, experience and expertise, and to learn more about automotive and supply industry in Serbia in order to open new business opportunities for their companies. Serbia is nowadays a country of challenges and opportunities for all those willing to extend their business to this part of Europe. This Conference is also an opportunity for foreign participants to learn more about Serbia, and to enjoy the traditional hospitality of this part of Europe.

Schedule of Sessions

Tuesday, 18 April 2017 @ 18h00 - Registration of participants with Welcome Drink @ Crowne Plaza Belgrade Hotel

Wednesday, 19 April & Thursday, 20 April 2017 - International Conference @ Crowne Plaza Belgrade Hotel

The Conference Schedule will be as follows:

<table>
<thead>
<tr>
<th>Date &amp; Time</th>
<th>Wednesday</th>
<th>Thursday</th>
</tr>
</thead>
<tbody>
<tr>
<td>09h00</td>
<td>AutoSim 2017 (1)</td>
<td>Automotive Safety 2017 (1)</td>
</tr>
<tr>
<td>10h30</td>
<td>Coffee Break</td>
<td></td>
</tr>
<tr>
<td>11h00</td>
<td>AutoSim 2017 (2)</td>
<td>Automotive Safety 2017 (2)</td>
</tr>
<tr>
<td>12h30</td>
<td>Coffee Break</td>
<td></td>
</tr>
<tr>
<td>13h00</td>
<td>AutoSim 2017 (3)</td>
<td>Advanced Engineering Techniques &amp; Tools (1)</td>
</tr>
<tr>
<td>14h30</td>
<td>Conference Lunch</td>
<td></td>
</tr>
<tr>
<td>15h15</td>
<td>Free Time</td>
<td>Advanced Engineering Techniques &amp; Tools (2)</td>
</tr>
<tr>
<td>19h30</td>
<td>Conference Dinner</td>
<td></td>
</tr>
</tbody>
</table>

Language

English Language will be the official Conference language.

Final Conference Programme
Final LIST OF PAPERS

**AutoSim 2017 - SIMULATION IN AUTOMOTIVE TECHNOLOGY**

*Tuesday, 19 April 2017 at 09h00, Mediterranean Conference Room*

**Organized by Doz. Dr. Branislav Basara, AVL List GmbH, Graz, Austria**

**NMV17AutoSim-01**
RANS TURBULENCE MODELLING OF UNSTEADY FLOWS: HIDDEN POTENTIAL, SNARES AND RELATION TO LES
Hanjalić K., Delft University of Technology, HOL / Novosibirsk State University, RUSS, Mullyadzhanov R., Palkin E., Novosibirsk State University, RUSS, Hadžiabdić M., International University of Sarajevo, Bosnia and Herzegovina

**NMV17AutoSim-02**
NOVEL APPROACH FOR PREDICTING KNOCKING COMBUSTION IN GASOLINE ENGINES
Frolov S.M., Ivanov V.S., Basevich V.Ya., Department of Combustion and Explosion, Semenov Institute of Chemical Physics, Moscow, RUS, Basara B., Priesching P., Suffa M., Advanced Simulation Technologies, AVL List GmbH, Graz, Austria

**NMV17AutoSim-03**
COMPARATIVE ANALYSIS OF EFFICIENT SOLVER ALGORITHMS FOR THE HIGH FIDELITY SIMULATION OF TURBULENT INCOMPRESSIBLE FLOWS
Jemcov A., Aerospace and Mechanical Engineering Department, University of Notre Dame, Notre Dame, Indiana, USA

**NMV17AutoSim-04**
PREDICTION OF THE TURBULENT DISPERSION OF TRAFFIC-INDUCED REACTIVE SCALARS IN SIMPLIFIED- AND REAL-SCALE URBAN AREAS
Kenjereš S., Faculty of Applied Sciences, Delft University of Technology & J.M. Burgerscentrum for Fluid Mechanics, Delft, HOL

**NMV17AutoSim-05**
RECENT EXPERIENCES OF PANS PREDICTIONS IN VEHICLE AERODYNAMICS
Krajinović S., Minelli G., Rao A., Department of Applied Mechanics, Chalmers University of Technology, Göteborg, SWE

**NMV17AutoSim-06**
ON COMPUTATIONAL CAR AERODYNAMICS
Jakirlić, S., TU Darmstadt, GER

**NMV17AutoSim-07**
RECENT ADVANCES IN CFD MODELLING OF AUTOMOTIVE FLOWS
Basara B., Žunić Z., Šarić S., Pavlović Z., Roredoš A., Advanced Simulation Technologies, AVL List GmbH, Graz, AUT

**NMV17AutoSim-08**
TOWARDS PREDICTIVE CFD SIMULATIONS FOR VEHICLE THERMAL MANAGEMENT
Šarić S., Poredoš A., Basara B., Gomboc S., Advanced Simulation Technologies, AVL List GmbH, Graz, AUT

**NMV17AutoSim-09**
THERMAL-HYDRAULIC SIMULATIONS AS A SUPPORT TO THE DESIGN OF AUTOMOTIVE AIR CONDITIONING SYSTEM COMPONENTS
Stevanović V., University of Belgrade, Faculty of Mechanical Engineering, SRB, Ćučuz S., Rheinmetall Automotive Germany

**NMV17AutoSim-10**
DYNAMIC SIMULATION OF MULTI-PLATE CLUTCHES FOR AUTOMOTIVE APPLICATIONS
Gradwohl Ch., Graz University of Technology, Belšak A., University of Maribor, SLO, Hirz M., Graz University of Technology, AUT

**NMV17AutoSim-11**
MODELLING OF VEHICLE STEERING SYSTEM USING MULTIBODY SIMULATION
Stojnić L., Military Tehnical Institute, Belgrade, Khettou N., Grlčić A., Muždeka S., University of Defense, Military Academy, Belgrade, SRB
<table>
<thead>
<tr>
<th>Paper ID</th>
<th>Title</th>
<th>Chaired By</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>NMV17SAF-01</td>
<td>AUTOMATED DRIVING - Tasks, Possibilities, Gaps and Difficulties</td>
<td>Matolcsy M., GTE, HUN</td>
<td>Mediterranean Conference Room</td>
</tr>
<tr>
<td>NMV17SAF-02</td>
<td>AN AHPTOPSIS METHOD FOR MEASUREMENT OF THE VEHICLE ROADWORTHINESS PERFORMANCE INDEX (VRWPI)</td>
<td>Jakimovska K., Ss Cyril and Methodius University of Skopje, Faculty of ME, MKD, Duboka Č., Ind. AFE Expert, Belgrade, SRB</td>
<td>Mediterranean Conference Room</td>
</tr>
<tr>
<td>NMV17SAF-03</td>
<td>FACTORS AFFECTING THE SAFETY OF MODERN VEHICLES</td>
<td>Uzi Raz, The Israel college for security and investigation, Petach-Tikva, ISR</td>
<td>Mediterranean Conference Room</td>
</tr>
<tr>
<td>NMV17SAF-04</td>
<td>HCT - VEHICLE DIMENSIONING METHODS FOR TRAFFIC SAFETY</td>
<td>Tuhuddirji M.-T., Haataja M., University of Oulu. Department of Mechanical Engineering, FIN</td>
<td>Mediterranean Conference Room</td>
</tr>
<tr>
<td>NMV17SAF-05</td>
<td>THE DEVELOPMENT OF ASSESSMENT TECHNOLOGIES FOR ADVANCED SAFETY VEHICLES IN KOREA</td>
<td>EunDok Lee, JaeKon Shin, Yun Seog Hong, KATRI - Korea Automobile Testing &amp; Research Institute, ROK</td>
<td>Mediterranean Conference Room</td>
</tr>
<tr>
<td>NMV17SAF-06</td>
<td>OPTIMAL DESIGN SOLUTION AMONG PARETO ALTERNATIVES FOR VEHICLE NONLINEAR SUSPENSION SYSTEM</td>
<td>Koulocheris V. D., Papaioannou D. G., Christodoulou D. A., Vehicles Laboratory, School of ME, NTA, Athens, GRE</td>
<td>Mediterranean Conference Room</td>
</tr>
<tr>
<td>NMV17SAF-07</td>
<td>EXPLORATION OF FIXED TANK VEHICLE ROLLER STABILITY</td>
<td>Koulocheris V. D., Papaioannou D. G., Vossou C.G., Vehicles Laboratory, School of ME, NTA, Athens, GRE</td>
<td>Mediterranean Conference Room</td>
</tr>
<tr>
<td>NMV17SAF-08</td>
<td>FINITE ELEMENT STRESS ANALYSIS VS CALCULATION METHOD FOR THE CONSTRUCTION OF A METALLIC TANK USED FOR DANGEROUS GOODS TRANSPORTATION</td>
<td>Koulocheris V. D., and Vossou C.G., Vehicles Laboratory, School of Mech.Engrg, National TU of Athens, GRE</td>
<td>Mediterranean Conference Room</td>
</tr>
<tr>
<td>NMV17SAF-09</td>
<td>IDENTIFICATION OF VEHICLE AND ROAD PARAMETERS TOWARDS TRAFFIC MODELLING IN NETWORK ENVIRONMENT</td>
<td>Jordancica V., Danac F., Kostilaja A., University &quot;Ss. Cyril and Methodius&quot;, Faculty of Mechanical Engineering, Skopje, MKD</td>
<td>Mediterranean Conference Room</td>
</tr>
<tr>
<td>NMV17SAF-10</td>
<td>STRUCTURAL OPTIMIZATION OF A COMPOSITE CRASH-BOX USING METAMODELING TECHNIQUES</td>
<td>Boris S., University of Caraminco, School of Sci. &amp; Tech., Obradovic J., Torino, Belingardi G., DIMEAS, Politec. di Torino, ITA</td>
<td>Mediterranean Conference Room</td>
</tr>
<tr>
<td>NMV17SAF-11</td>
<td>DEVELOPMENT OF A CROSS FLOW THERMAL RIG FOR MEASURING BRAKE DISC COOLING CHARACTERISTICS</td>
<td>Topouris S., Cranfield University, Steward D., Jaguar Land Rover, Tirovic M., Cranfield University, UK</td>
<td>Mediterranean Conference Room</td>
</tr>
<tr>
<td>NMV17SAF-12</td>
<td>REAL-TIME MONITORING OF FRICTION SURFACE TEMPERATURE IN AUTOMOTIVE CRASH BRAKES</td>
<td>Grgic A., Muzdeka S., University of Defense, Military Academy, Duboka C., Independent AFE Expert, Belgrade, SRB</td>
<td>Mediterranean Conference Room</td>
</tr>
<tr>
<td>NMV17SAF-13</td>
<td>FORENSIC EVIDENCE IN ROAD ACCIDENTS CAUSED BY VEHICLE'S MECHANICAL FAILURES</td>
<td>Duboka C., Independent AFE Expert, Belgrade, SRB</td>
<td>Mediterranean Conference Room</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Paper ID</th>
<th>Title</th>
<th>Chaired By</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>NMV17AETT-01</td>
<td>STATISTICAL PROFILING OF VEHICLE OFF-TIMES AS APPLIES ON FUEL CELL VEHICLES AT VARIOUS LOCATIONS</td>
<td>Micalić V., Ford Motor Company, Detroit, USA.</td>
<td>Mediterranean Conference Room</td>
</tr>
<tr>
<td>NMV17AETT-02</td>
<td>VEHICLES AND TRAFFIC STRUCTURE AS CORE ASPECTS TOWARDS INTRODUCING ELECTRIC VEHICLES IN REPUBLIC OF MACEDONIA</td>
<td>Kosevski S., University &quot;Mother Teresa&quot;, Skopje, Kochov A. and Kostikj A., University &quot;Ss. Cyril and Methodius&quot;, Faculty of Mechanical Engineering, Skopje, MKD</td>
<td>Mediterranean Conference Room</td>
</tr>
<tr>
<td>NMV17AETT-03</td>
<td>APPLICATION OF THE LOGICAL-AND-PROBABILISTIC METHOD FOR THE PREDICTION OF VEHICLE OPERATION RELIABILITY</td>
<td>Makarova I., Mukhametdinov E., Shubenkova K., Mavrin V., Kazan Federal University, Naberezhnye Chelny, RUS</td>
<td>Mediterranean Conference Room</td>
</tr>
<tr>
<td>NMV17AETT-04</td>
<td>ALTERNATIVE FUEL BUSES SELECTION FOR PUBLIC TRANSPORT IN BELGRADE – A MCDM MODEL</td>
<td>Momčilović V., Dimitrijević B., Stokić M., University of Belgrade - Faculty of Transport &amp; Traffic Engrg., SRB</td>
<td>Mediterranean Conference Room</td>
</tr>
<tr>
<td>NMV17AETT-05</td>
<td>RESEARCH REGARDING ENGAGING CAPABILITY AND COUPLING CONDITIONS OF DOG CLUTCH USED IN A 9-SPEED AUTOMATIC TRANSMISSIONS</td>
<td>Neacsu E., PhD Student at Politechnica University of Bucharest, Bitica V., General Inspectorate of Romanian Border Police, Bucharest, and Banca Gh., Renault Technologie Roumanie, Tîtu, ROM</td>
<td>Mediterranean Conference Room</td>
</tr>
<tr>
<td>NMV17AETT-06</td>
<td>DYNAMIC LOAD OF VEHICLE’S POWER TRANSMISSION SYSTEM</td>
<td>Damjanovic M., Simovic S., University of Montenegro, Faculty of Mechanical Engineering, Podgorica, MNE</td>
<td>Mediterranean Conference Room</td>
</tr>
<tr>
<td>NMV17AETT-07</td>
<td>A ROLE OF INDUSTRIAL ROBOTS IN THE INCREASE OF PRODUCTIVITY IN THE AUTOMOTIVE INDUSTRY</td>
<td>Karabegovci I., University of Bihać, Technical Faculty, Bihać, BIH</td>
<td>Mediterranean Conference Room</td>
</tr>
<tr>
<td>NMV17AETT-08</td>
<td>SENSITIVITY BASED ADAPTIVE CONTROL AND MODEL BASED DESIGN OPTIMIZATION OF A DIRECT INJECTION FUEL SYSTEM</td>
<td>Kokotovic V.V., Modern Control MCI, Ford Research Innovation Center, Dearborn, MI, USA</td>
<td>Mediterranean Conference Room</td>
</tr>
<tr>
<td>NMV17AETT-09</td>
<td>DEVELOPMENT CONCEPT OF MILITARY ELECTRIC VEHICLE 8X8 WITH DYNAMIC CHARGING METHOD</td>
<td>Veljović M., Živić D., City Bus Company Belgrade, Belgrade, SRB</td>
<td>Mediterranean Conference Room</td>
</tr>
</tbody>
</table>
**Conference Venues**

26th JUMV International Automotive Conference 2017 is hosted by Belgrade, the Capital of Serbia. The Conference venues will be Belgrade Crowne Plaza Hotel, 11070 Belgrade, V. Popovića 10, Phone (+38111)/2204-121, Email nada.djukic@ihg.com, www.ihg.com/crowneplaza.

**Important Dates**

- **15 February 2017** - Submission of final manuscripts
- **15 March 2017** - Registration Fee payment for Authors (Dead line)
- **15 March 2017** - Final Programme Issuing
- **01 April 2017** - Registration Fee payment for other participants
- **18 April 2017 @ 18h00** - Registration of participants and Welcome Drink
- **19 April 2017 @ 09h00** - Opening of the Conference

**Visa & Letters of Invitation**

Majority of participants will be allowed to enter Republic of Serbia without visa. However, in order to avoid any misunderstandings, participants are kindly requested to visit [http://www.mfa.gov.rs/Consularaffairs.htm](http://www.mfa.gov.rs/Consularaffairs.htm) for an updated information concerning the visa regime for those wishing to enter Serbia or to contact the nearest Consular Offices or Diplomatic Missions of the Republic of Serbia in their country. Upon request, JUMV will provide personal invitation letter to any participants after the registration fee was paid.

**Registration**

Registration Fee includes Conference CD Proceedings, Admission to all Sessions, Conference Dinner, Welcome Drink, Refreshment at Coffee Breaks and Catered Luncheons. Standard Registration fee will be **€ 400.00** (VAT included, Bank handling cost not included).

**Advertising, Promotional & Sponsorship Opportunities**

All authors, the companies from where they come and other companies are invited to benefit the Advertising, Promotional & Sponsorship Opportunities of this Conference, which are tailored to fit their individual needs. For more information please visit [www.nmv2017.jumv.rs](http://www.nmv2017.jumv.rs) or contact the JUMV by Phone, E-mail or Fax.

**Accommodation**

Accommodation should be managed on the participants own. Please use any standard booking possibilities like booking.com, hotels.com or experid.com.

Crowne Plaza Belgrade Hotel offers special discount to the conference participants. While booking please make reference to JUMV Conference 2017!
**Final Conference Programme**

**Registration Form**

- **Name:**
- **First Name:**
- **Title:**
- **Organization:**
- **Department:**
- **Address:**
- **City:**
- **Zip:**
- **Phone:**
- **Fax:**
- **Country:**
- **Email:**

**Tick Category as appropriate:**
- Presenting author
- Partner
- Co-author & Delegate
- Student
- Conference Dinner at a price of 50 € per person

**Arrival date:**

**Departure date:**

**Payment method preference:**
- Bank transfer
- Western Union Money transfer
- Check

**Note:** JUMV will confirm your registration details and provide you with the invoice and payment instructions within 48 hours upon receiving this Registration Form.

I have read and understood the cancellation policy.

**Date & place,**

**Company stamp**

**Signature**

**Registration Conditions & Cancellation Policy**

- If you fail to provide payment within 48 hours of registration confirmation, your registration may be cancelled.
- Cancellation before 1st April 2017: Full refund.
- Cancellation after 1st April 2017: No refund.

JUMV reserves the right to cancel the conference for any reason, including insufficient registration or unforeseen circumstances.

**www.nmv2017.jums.rs**