23 - 24 April 2013, Belgrade, Serbia

Medjunarodni naučno-stručni skup VVIVNAUKA I MOTORNA VOZILA VVIV SCIENCE AND MOTOR VEHICI ES2013

national Automotive

L PROGRAMME



JUMV

Automotive Engineering for Improved Safety





Expected of being supported by Republic of Serbla Ministry of Education, Science and Technological Development



Welcome to Belgrade	Who should attend?		
Maintaining the tradition, JUMV is organizing the 24 th International Automotive Conference SCIENCE AND MOTOR VEHICLES in Belgrade, on 23-24 April 2013 under the motto AUTOMOTIVE ENGINEERING FOR IMPROVED SAFETY. The Automotive Conference "Science and Motor Vehicles" was established in 1967 and has since 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 2013 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 at the Faculty of Mechanical Engineering of the University of Belgrade. The Conference consists of the following special & technical sessions:	Automotive engineers and scientists, Road traffic safety engineers, Acciden 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.		
 AutoSim 2011 – Special Session on Simulation in Automotive Engineering 		Schedule of Se	ssions
 Safety (Vehicle & Traffic Safety, Vehicle Safety Performance, Road Accident Reconstruction and Analyses, Vehicle Safety Regulations) 5E - Engines, Emission, Ecology, Environment & Energy Advanced Engineering Technologies & Tools Automotive Logistics, including Vehicle Maintenance & After-Sales Support 	Monday, 22 April 2 To be held on Mor Engineering, Kral	2013 - Registration of participant day, 22 April 2013 starting at 1 jice Marije 16. Room "CESiL – Veliki	s with Welcome Drink 8h00 at the Faculty of Mechanical Seminar".
Organization and Patronage Information	International Co	nforence – Tuesday 23 April an	d Wednesday, 24 April 2013
24 th JUMV International Automotive Conference SCIENCE AND MOTOR VEHICLES 2013 is organized by the JUMV – The Society of Automotive Engineers in Serbia, and co- organized both by the Faculty of Mechanical Engineering of the University of Belgrade, and its Innovation Center. Patronage to the Conference was granted by:	The Conference will be held at the Faculty of Mechanical Engineering , Kraljice Marije 16. The Conference Schedule is as follows: Schedule of Sessions		
FISITA* - International Federation of Automotive Engineers Societies	Session Start	Tuesday 23 April 2013	Wednesday 24 April 2013
SANU - Serbian Academy of Science and Art	09h00	Safety (1)	Engines, Emissions, Ecology
AINS - Academy of Engineering Sciences of Serbia EVIL - European Association for Accident Reconstruction and Analyses (thc)	11h00	AutoSim	HEV
Ministry of Education, Science and Technological Development of Serbia is expected to	12h30	Safety (2)	
grant the financial support.	13h00		Lunch
FISITA is the international rederation 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	14h00	Lunch	AutoEngTech&Tools
vehicle design, development and manufacture. FISITA is a non-profit organisation committed to helping create	15h00	VIP / Invited presentations	AutoLogistics
International Programme Committee	16h00		Conference Close & Farewell Drink
Prof. Dr. Jovan Todorović, (ret.) University of Belgrade & JUMV, Serbia Prof. Dr. Jog. habil. Egon-Christian von Glasner, EVIL. Germany	20h00	Conference Dinner	
Prof. DrIng. Sigmar Micke, Germany			
Prof. Gabriele Virzi Mariotti, University of Palermo, Italy Prof. Gianfranco Rizzo, University of Palermo, Italy	Language		
Prof. Dr. Ferdinand Trenc, University of Ljubljana, Slovenia Prof. Dr. Jan Lešinsky, Technical University of Bratislava, Slovakia	English is the official Conference language.		
Prof. Dr. Aleksandar Subić, RMIT University, Melbourne, Australia	Important Dates		
Prof. Dr. Dusan Gruden, Germany Dr. Stojan Ćućuz, Visteon, Germany Dr. Branislav Basara, AVL List GmbH, Austria Dr. Marko Tirović, Reader, Cranfield University, UK Dr. Matyas Matolcsy, GTE, Hungary Mr. Alexander Berg, Dekra Automobile GmbH, Germany Prof. Dr. Čedomir Duboka, University of Belgrade & JUMV, Serbia	15 March 2013- Registration Fee payment for Authors - Final Programme Issuing10 April 2013- Registration Fee payment for Attendees22 April 2013 @ 18h00- Registration of participants and Welcome Drink23 April 2013 @ 09h00- Opening of the Conference		

24 30	JAV International Automotive Conference Scienc	E AND MOTOR VEHICLES, Bergrade, 25-24 April 2015
	Visa & Letters of Invitation	Accommodation
Majority of p However. in http://www. regime for t Diplomatic N provide pers	articipants will be allowed to enter Republic of Serbia without visa. order to avoid any misunderstandings, participants are kindly requested to visit <u>mfa.gov.rs/Consularaffairs.htm</u> for an updated information concerning the visa those wishing to enter Serbia or to contact the nearest Consular Offices or Missions of the Republic of Serbia in their country. Upon request, JUMV will onal invitation letter to any participants after the registration fee was paid.	Accommodation is warmly recommended in the hotels within the walking distance from the Faculty of Mechanical Engineering, like Park Hotel Beograd , 3 star, Njegoševa 2, <u>http://www.hotelparkbeograd.rs</u> , <u>reception@hotelparkbeograd.rs</u> Excelsior Hotel Beograd , 3 star, Kneza Miloša 5, <u>www.hotelexcelsior.co.rs/</u> Zira Hotel Beograd , 4 star, Ruzveltova 35, <u>www.zirahotels.com/</u>
	Registration	reservations@zirahotels.com Hotel Slavija Lux 4 star. Svetog Save 1-9. www.slavijahotel.com/
Attendance I Conference E Author's Reg processing fe Registration f Local Bank h Early registra Walk-in to th Upon reques trusted partn To register, fill-in the enc Please make SWIFT	Registration Fee includes Conference CD Proceedings, admission to all Sessions, Dinner, Welcome Drink, Refreshment at Coffee Breaks and catered luncheons. gistration Fee includes Attendance fee + paper offer & manuscript handling & ee. fee will be € 425.00 for authors and € 400.00 for all other attendees (VAT included, andling cost not included). ation discount will apply for registration fee payment till the 15 January 2013. te conference will not be accepted. t, special registration fee rates will be offered to students, young engineers, JUMV hers, etc. please download and fill-in the Registration form from www.nmv2013.jumv.rs or closed Registration Form and mail/fax it to JUMV. <u>Money Transfer payment in EUR in line with the following instructions</u> Field description	Hotel Metropol Palace, 5 star, Bulevar K. Aleksandra 69, http://www.metropolpalace.com , For information concerning accommodation you may also contact the JUMV Tour operator TOMAS Tours, SRB-11120 Belgrade, Miročka 6 Contact person: Mr. Toma Stojić, General Manager, toma.s@eunet.rs, www.tomas.rs Phone: +381 11 3235-653, 3030-305, Fax: +381 11 3238-431 Conference Sponsors Big BBETA BBETA
56a :	Intermediary bank DEUTSCHE BANK AG FRANKFURTAM MAIN S.W.I.F.T. Code : DEUTDEFF	CAE Systems SA
57a :	Account with institution: SBERBANK SRBIJA AD BELGRADE, SERBIA S.W.I.F.T. Code : SABRRSBG	ECAP
59:	Beneficiary :INOVACIONI CENTAR MASINSKOG FAKULTETA U BEOGRADU DOOIBAN :RS35285002405557000171	EDUCATION CENTRE FOR AUTO PROFESSIONALS
Please mail	the copy of payment document (SWIFT) to +381-11-3228-079.	oorrono appronom
24 th JUMV Int	Conference Venues Conference 2013 is hosted by Belgrade, the Capital of Serbia. Conce venues will be the Faculty of Mechanical Engineering (Mačinski fakultet)	Brđanska 410 * 11232 Ripanj * Beograd * Srbija T: +381 11 8653 114 * +381 11 8653 113 F: +381 11 8652 603 E: office@ecap.co.rs * W: www.ecap.co.rs
SRB-11120	Belgrade, Kraljice Marije 16., www.mas.bg.ac.rs	Office Support
1		

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.nmv2013.jumv.rs or contact the JUMV by Phone, Fax or E-mail.

FRIMEKS

LAFI

Laboratory for automotive braking systems & friction mechanisms

Laboratory for Automotive Forensic Engineering

Faculty of Mechanical Engineering, SRB-11120 Belgrade 35, POB 34. K.Marije 16, Serbia www.frimeks.com / www.frimeks/lafi.com

Conference Contact Information JUMV c/o Faculty of Mechanical Engineering * SRB-11120 Belgrade 35, POB 34. Kraljice Marije 16, Serbia Phone: (+381-11) 3370-358, 3302-288, 3302-390, 3340-762 * Fax: (+381-11) 3302-288, 3370-364, 3228-079, or E-mail: cduboka@eunet.rs, cduboka@mas.bg.ac.rs * http://www.nmv2013.iumv.rs

24th JUMV International Automotive Conference 2013, Belgrade, 23 – 24 April 2013

VIP / Invited Presentations Session Organized by

Prof. Dr. Čedomir Duboka, University of Belgrade, Faculty of Mechanical Engineering, SRB and **Prof. Dr.-Ing. Egon-Christian von Glasner**, EVU & Daimler AG, ret., GER

NMV13VIP01 - Presentation dedicated to Prof. Dr. Jovan Todorović, JUMV Founder

DOES THE NEW EU-TYRE LABEL ACCORDING TO ECE R117 SOLVE THE PROBLEMS WE HAVE TODAY WITH TYRES IN EUROPE

J. Ahlgrimm, DEKRA, S. Micke, Bosch USA ret., GER, L. Palkovics, Knorr Bremse AG, HUN, E.-C. von Glasner, EVU & Daimler AG, ret., GER

NMV13VIP02

BACKGROUND TO THE STATISTICAL ANALYSIS OF BUS ROLLOVER ACCIDENTS

M.Matolcsy, Scientific Society of Mechanical Engineers GTE Budapest, HUN

NMV13VIP03

ADVANCES IN CHARGE AIR COOLING FOR IMPROVED PERFORMANCE, FUEL ECONOMY AND EMISSIONS

S. Cucuz, J. Shah, Halla Visteon Climate Control, Ch. Whelan, WDL Ltd, GER NMV13VIP04

CHALLENGES IN STRUCTURAL OPTIMISATION AND IP PROTECTION OF DISC BRAKE CALIPERS

M. Tirovic, I. Hartwell, Cranfield University, UK

NMV13VIP05

COMMERCIAL VEHICLE PLATOONING - THEORY AND REALIZATION

J. Bokor, Knorr Bremse AG, HUN, E.-C. von Glasner, EVU & Daimler AG, ret., L. Palkovics, Knorr Bremse AG, HU NMV13VIP06

OCCUPANT LOADS FOR DIFFERENT ACCIDENT TYPES

Hermann Steffan, Technical University Graz, AUT

NMV13VIP07 – Special presentation ROAD SAFETY IN THE EU – SAVING THOUSANDS OF LIVES

Oliver Deiters, DEKRA e.V. Representation to the EU, Brussels, BEG

AutoSim 2013 - Special Session on SIMULATION IN AUTOMOTIVE TECHNOLOGY

Chaired by Dr.Sergei Sazhin, Sir Harry Ricardo Laboratories, School of Computing, Engineering and Mathematics, University of Brighton, UK

NMV13AutoSim01

NEW APPROACHED TO MODELLING OF AUTOMOTIVE FUEL DROPLETS HEATING AND EVAPORATION S. Sazhin, Sir Harry Ricardo Laboratories, School of Computing, Engineering and Mathematics, University of Brighton, UK

NMV13AutoSim02

A SIMULATION STUDY OF FUEL ECONOMY IMPROVEMENT POTENTIALS OF A TRANSIT BUS M. Kitanovic, P. Mrdja, V. Petrovic, N. Miljic, S.J. Popovic, M. Tomic, Faculty of Mechanical Engineering, University of Belgrade, SRB

NMV13AutoSim03

COMPARISON OF ELASTIC STRUCTURAL BEHAVIOR BETWEEN TRADITIONAL CAR STEEL DOOR AND COMPOSITE DOOR BY FEM SIMULATIONS J. Ji, G. Belingardi, *Politecnico di Torino, ITA*

NMV13AutoSim04

RECENT ADVANCEMENTS IN PRE & POST-PROCESSING FOR CRASH & SAFETY SIMULATION Y. Kolokythas, S. Saltiel, *BETA CAE Systems SA, Thessaloniki, GR*

24th JUMV International Automotive Conference 2013, Belgrade, 23 – 24 April 2013

SAFETY 2013

Chaired by Dr. Marko Tirović, Cranfiled University, UK

NMV13SAF01

TIREPRINT KINEMATICS IN THE CONTACT PATCH H. Marzbani, R. N. Jazar, M. Fard, School of Aerospace, Mechanical, and Manufacturing Engineering, RMIT University, Melbourne, AUS

NMV13SAF02

SMART FLAT RIDE TUNING

H. Marzbani, R. N. Jazar, M. Fard, School of Aerospace, Mechanical, and Manufacturing Engineering, RMIT University, Melbourne, AUS

NMV13SAF03

VEHICLE DYNAMIC METHODS AND VIEWPOINTS TO THE ECE-REGULATIONS AND EVALUATION METHOD OF A VEHICLE STABILITY M. Haataja, University of Oulu, Department of Mechanical Engineering, FIN

ladiaja, Oniversity of Oulu, Depa

NMV13SAF04

RECONSTRUCTION OF A MOTORCYCLE HEAD-ON COLLISION - CZECH REPUBLIC CASE STUDY N. Khatib, M. Semela, A. Vemola, Institute of Forensic Engineering, Brno University of Technology, CZE

NMV13SAF05

PREDICTION OF DISC BRAKE CONTACT SURFACE TEMPERATURE A. Grkić, D. Mikluc, S. Perić, Military Academy, Č. Duboka, University of Belgrade, Faculty of Mechanical Engineering, Belgrade SRB

NMV13SAF06

ESTIMATION OF BRAKE LINING FRICTION UNDER EXTREMELY HIGH TEMPERATURES A. Grkić, M. Krsmanović, S. Muždeka, Military Academy, Ž. Arsenić, University of Belgrade, Faculty of Mechanical Engineering, Belgrade SRB

NMV13SAF07

EVALUATION METHODOLOGY OF DESIGN PARAMETERS INFLUENCE TO THE BRAKING PROCESS OF PASSENGER CAR–TRAILER COMBINATION D. Danev, M. Kjosevski, I. Gjurkov, V. Jordanoska, University "St. Kiril and Metodij" in Skopje, Faculty of Mechanical

Engineering, MKD

NMV13SAF08

MONITORING AND REGULATION OF VEHICLE BRAKE TESTER M. Božić, A. Vučetić, P. Ilinčić, Z. Lulić, Faculty of Mechanical and Naval Engineering, Zagreb, CRO

NMV13SAF09

IMPROVING ROAD SAFETY THROUGH THE SYSTEM OF TECHNICAL INSPECTION OF VEHICLES G. Zovak, E. Bazijanac, Ž. Šarić, Faculty of transport and traffic sciences, Zagreb, CRO

NMV13SAF10

THE INFLUENCE OF INSPECTION OF VEHICLE CONDITION ON ROAD SAFETY M. Gordić, AMSS-CMV, Belgrade, SRB

NMV13SAF11

ZER[0] – AN ULTRA-LIGHT, ELECTRIC FOAM VEHICLE FOR CITIES, WITH HIGH PASSIVE SAFETY - OK V. A Kefalas, G. Katsaris, G. Damaskos National TU of Athens, GRE

NMV13SAF12 ADVANCED DEVELOPMENT OF CAR BODY IN ZASTAVA - HISTORICAL OVERVIEW M. Milovanović, Zastava vehicle Group, Kraqujevac, SRB

NMV13SAF13

ON THE WEIGHT DISPLACEMENT IN CURVE AND THE ROADABILITY OF A 4WS VEHICLE

G. Virzì Mariotti, S. Lo Guasto, Dipartimento di Ingegneria Chimica, Gestionale, Informatica, Meccanica, Università di Palermo, ITA, NMV13SAF13

ASSESSMENT OF THE IMPACT OF VEHICLE TECHNICAL CONDITION ON ROAD SAFETY BY MEANS OF MCDA K. JAKIMOVSKA, I. GJURKOV, *Ss. Cyril and Methodius University, Faculty of Mechanical Engineering, Skopje, MKD, Č. DUBOKA, University of Belgrade, Faculty of Mechanical Engineering, SRB

24th JUMV International Automotive Conference 2013, Belgrade, 23 – 24 April 2013

Hybrid Electric Vehicles 2013

Organized by Dr. Zlatomir Živanović, Institute of Nuclear Sciences "Vinča", Belgrade, SRB

NMV13HEV01 HYBRIDIZATION OF HYDROGEN FUEL CELL ELECTRIC VEHICLE - DOES START-STOP SAVE FUEL? M. Milačić, Research and Advanced Engineering, Ford Motor Company, Fuel Cell Center, Dearborn, USA

NMV13HEV02

DESIGN, FABRICATION AND EVALUATION OF A NON-CONTACT POWER SUPPLY SYSTEM USING BULK CONDUCTOR COILS

K. Kobayashi, K. Seki, H. Luo, Y. Kamiya, S. Takahashi, Y. Daisho, Waseda University, Tokyo, JPN

NMV13HEV03

ADVANCED VEHICLE INTEGRATION OF HYBRID AND ELECTRIC POWERTRAIN CONCEPTS B. Meek, J. Smolders, J. Anthonis, H. Van der Auweraer, LMS International, Leuven, BEL

NMV13HEV04

REQUIREMENTS ON CHASIS IN ELECTRIC VEHICLES R. Henze, B. Schönemann, F. Küçükay, Institute of Automotive Engineering, TU Braunschweig, GER

NMV13HEV05 ELECTRIC DRIVEN BI-DIRECTIONAL TUNNEL RESCUE VEHICLE G. Kukec, Faculty of Mechanical & Naval Engineering, Zagreb, CRO

NMV13HEV06

ENERGY CONVERSION EFFICIENCY AND WtW CO₂ EMISSIONS OF A MEDIUM DUTY TRUCK – COMPARISON OF PHEV AND ICEV POWERTRAIN TOPOLOGY – OK! T. Katrašnik, University of Ljubliana, Faculty of Mechanical Engineering, SLO

NMV13HEV07

HYBRIDIZATION OF CITY BUSES – A WAY TO REDUCE FUEL CONSUMPTION AND HARMFUL EMISSIONS Z. Živanović, Dj. Diligenski, Z. Jovanović, Ž. Šakota, Institute "Vinča", S. Mišanović, GSP, Belgrade, SRB

NMV13HEV08

A COMPARATIVE ANALYSIS OF DIFFERENT HYBRID BUS POWERTRAIN CONFIGURATIONS Z, Živanović, Di, Diligenski, Z, Jovanović, Ž, Šakota, Institute "Vinca", Belarade, SRB

5E - Engines, Emissions, Ecology, Environment, Energy

Chaired by Prof. Dr. Ferdinand Trenc, University of Ljubljana, SLO

NMV13*5E01

COMPARISON BETWEEN HYDRAULIC ENGINE MOUNTS AND PIECEWISE LINEAR VIBRATION ISOLATORS H. Marzbani, R. N. Jazar, M. Fard, School of Aerospace, Mechanical, and Manufacturing Engineering, RMIT University, Melbourne, AUS

NMV13*5E02

ACQUISITION AND ANALYSIS OF VEHICLE DATA VIA THE EOBD INTERFACE - DETERMINATION OF ENGINE CHARACTERISTICS

A. Vučetić, M. Božić, P. Ilinčić, Z. Lulić, Faculty of Mechanical and Naval Engineering, University of Zagreb, CRO

NMV13*5E03

THERMAL REGULATION OF THE DIESEL COMBUSTION CHAMBER WITH MULTILAYER SEMITRANSPARENT THERMAL BARRIER MATERIAL

V. Merzlikin, S. Cheranev, MAMI, V. Veselov, Plekhanov Russian University of Economics, Moscow, RUS, V. Prediger, Osnabruck University of Applied Science, GER, L. Gury, Haute Ecole Arc Ingenierie, Neuchatel, SUI

24th JUMV International Automotive Conference 2013, Belgrade, 23 – 24 April 2013

NMV13*5E04

ANALYSIS OF THE INPUT DATA TO ESTIMATE THE ROAD FREIGHT TRANSPORT RELATED CO2 EMISSIONS IN THE REPUBLIC OF SERBIA

J. Trifunović, A. Manojlović, V. Momčilović, O. Medar, University of Belgrade, Faculty of Transport and Traffic Engineering, SRB

NMV13*5E05

BIOFUELS AS THE CHANCE TO REDUCE POLLUTANT EMISSIONS AND SLOW DOWN THE EXPLOITATION OF MINERAL OIL R. Gligorijevic, J. Jevtic, Dj. Borak, *IMR-Institute, Belgrade, SRB*

NMV13*5E06

IMPROVING-EVALUATION OF A ROTATION COMBUSTION ENGINE WITH VARIABLE WORK SPACE – VWS M. Đudurović, ret., Universities of Banja Luka and East Sarajevo, M. Ajanović, Z. Nunić, Faculty of Transportation, Doboj, B. Vranješ, University of Banja Luka, RSR

ADVANCED ENGINEERING TECHNIQUES & TOOLS

Chaired by Dr. Stojan Ćućuz, Visteon Climate Engineering Services Deutschland GmbH, Kerpen, GER

NMV13AETT01

RESEARCH OF THERMAL AND HYDRAULIC PROCESSES IN THE STRUCTURED ROTARY REGENERATOR R. Alexeev, V. Merzlikin, A. Kostyukov, MAMI, V. Sutugin, ROSKOSMOS, Moscow, RUS

NMV13AETT02

INFLUENCE OF THE CLUTCH ENGAGEMENT/DISENGAGEMENT TO THE FRICTION LINING LIFETIME IN EXPLOITATION AND LABORATORY CONDITIONS D. Danev, M. Kjosevski, University of Skopje, S. Simeonov, University of Stip, MKD

NMV13AETT03

LOAD ANALYSIS OF A POWER TRANSMISSION HAVING CLEARANCE

M. Damjanović, S. Simović, R. Durković, University of Podgorica, MNE, Č. Duboka, University of Belgrade, SRB

AUTOMOTIVE LOGISTICS

Chaired by Prof. Dr. Jovan Todorović, University of Belgrade (ret.), SRB

NMV13AutoLog01

DETERMINATION OF TRAFFIC FLOW AND ITS STRUCTURE IN URBAN ENVIRONMENT AS ONE OF THE FUNDAMENTAL MACROSCOPIC TRAFFIC STREAM PARAMETERS

A. Kostikj, M. Kjosevski, Faculty of Mechanical, Engineering, Lj. Kočarev, Faculty of Computer Science and Engineering, University of Skopje, MKD

NMV13AutoLog02

INTEGRATED MANAGEMENT OF THE VEHICLE FLEET MAINTENANCE PROCESS D. Vujanović, V. Momčilović, N. Bojović, S. Bunčić, University of Belgrade, Faculty of Transport and Traffic Engineering, SRB

NMV13AutoLog03

INFLUENCE OF THE MARKET DEMAND DISPARITIES ON TIRE DISTRIBUTION COSTS M. Milović, GP Auto shop, A. Manojlović, M. Cvetković, J. Trifunović, University of Belgrade, Faculty of Transport and Traffic Engineering, SRB



Check