

FISITA is an independent world body representing over 169,000 automotive engineers belonging to national automotive societies in 35 countries. FISITA was founded in 1948 to provide a global forum for the exchange of technical knowledge on every aspect of vehicle design and manufacture. FISITA brings together engineers and decision-makers from industry, academia and government to work towards the improvement of transportation systems, the conservation of energy and the protection of the environment.



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Al Davila Theater, Pitesti



THE INTERNATIONAL AUTOMOTIVE CONGRESS

CAR2011 **THE INTERNATIONAL AUTOMOTIVE CONGRESS** ***AUTOMOTIVE ENGINEERING AND ENVIRONMENT*** **2 – 4 November 2011,** **Pitesti, ROMANIA**

The CAR International Congress is a traditional scientific event initiated by University of Pitesti in 1978.

This year, it's an anniversary edition, CAR being at its 10th edition.

CAR History

- ❑ The 1st edition: 1978, June 6 – 8,
- ❑ The 2nd edition: 1982, October 14 – 16,
- ❑ The 3rd edition: 1985, October 17 – 19,
- ❑ The 4th edition: 1989, October 26 – 28,
- ❑ The 5th edition: 1992, November 5 – 7,
- ❑ The 6th edition: 1994, November 3 – 5,
- ❑ The 7th edition: 1997, November 6 - 8,
- ❑ The 8th edition: 2000, October 26 – 28,
- ❑ The 9th edition: 2005, November 02 – 04.

Starting with 1997, the CAR Conference was organized under the high patronage of FISITA.

Generally speaking, the CAR Congress is an opportunity for delegates to:

- update skills and knowledge by attending focused technical sessions
- gain insights into the automotive industry
- network with potential new partners, clients and suppliers
- view the latest technology products and services in the commercial exhibition

THE INTERNATIONAL AUTOMOTIVE CONGRESS

The Congress

The Congress Honorary Committee

J.E. ROBERTSON – FISITA President

Gunter HOHL – EAEC President and vice-president of FISITA

Eugen Mihail NEGRUS – SIAR President

Jerome OLIVE – General Manager, DACIA – groupe RENAULT

Sorin BUSE – General Manager Renault Technologie Roumanie

Eric Riou – Le Moteur Moderne – France, member of AVL group

Constantin STROE – ACAROM President

Gheorghe DAVIDESCU – Prefect of Arges County

Tudor PENDIUC – Mayor of Pitesti City

Gheorghe BARBU – Rector of the University of Pitesti

The Scientific and Technical Committee

President of the Scientific and Technical Committee: Professor Nicolae PANDREA, University of Pitesti, member of the Romanian Technical Sciences Academy

Rodica BARANESCU	Society of Automotive Engineers, Former President, Truck and Engine Corporation, Chief Engineer U.S.A.
Felix PFISTER	AVL Graz Austria Dr. eng.
Felice E. CORCIONE	Istituto Motori—CNR ITALY Research Manager Dr. eng.
Dinu TARAZA	Wayne State University – U.S.A. Professor
Michel FEIDT	Institut National Polytechnique de Lorraine et Université Henri Poincaré Laboratoire d'énergétique et de Mécanique théorique et appliquée – France Professor
Roger SIERENS	Ghent University, Department of Flow, Heat and Combustion Mechanics – Belgium, Professor
Emil MARINOV	University of Russe – Bulgaria Professor, Dean of the Faculty of Transports
Georges DESCOMBES	Conservatoire National des Arts et Métiers de Paris – France Director of Laboratoire de Génie des Procédés pour l'Environnement, l'Energie et la Santé (LGP2ES), Equipe d'Accueil 21 (Ea21)
Pierre PODEVIN	Conservatoire National des Arts et Métiers – France Chaire de Turbomachines et Moteurs à Combustion Interne – France Ingénieur de Recherche
Alain DELACROIX	Conservatoire National des Arts et Métiers de Paris – France Professor
Cedomir DUBOKA	Yugoslav Society of Automotive Engineers, President Professor
Giovanni BELINGARDI	Politecnico di Torino - Italy Professor, Department of Mechanics
Ettore PENNESTRI	University of Rome - Italy Professor
Berthold GRUNWALD	Technical University of Darmstadt - Germany Professor
Velizara PENCHEVA	University of Ruse "Angel Kanchev" - Bulgaria Professor
Abdelatif MIRAOU	University of Ghent- Belgium Professor
Reinhart VERSCHOORE	University of Ghent- Belgium Professor

Hristo STANCHEV	University of Russe – Bulgaria Professor, Head of the Internal Combustion Engine Department
Velizara PENCHEVA	University of Russe, Department of Transport - Bulgaria Professor
Miroslav DEMIC	University of Kragujevac - Serbia and Montenegro Professor, Member of Engineering Academy of Serbia and Montenegro
Luis Le MOYNE	Universite de Bourgogne, Professor Directeur de l'Institut Supérieur de l'Automobile et des Transports, Nevers, France
Ettore PENNESTRI	University of Rome Tor Vergata, Italy
Jose Luis BENTO COELHO	Instituto Superior Tecnico, Lisboa - Portugal
Alexandre HERLEA	Université de Technologie de Belfort-Montbéliard - France Professor, Directeur Relations Internationales,
Ion VISA	"Transilvania" University of Brasov - Romania Professor, Rector
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Cristian ANDREESCU	University "Politehnica" of Bucharest - Romania Professor, Head of the Automotive Department
Mircea OPREAN	University "Politehnica" of Bucharest, Automotive Department - Romania Professor
Nicolae APOSTOLESCU	Chief Editor of SIAR's Journal "Automotive Engineering" / Revista Ingineria Automobilului
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Radu GAIGINSKI	University "Politehnica" of Bucharest - Romania Professor
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Victor OTAT	University of Craiova - Romania Professor
Dumitru CRISTEA	University of Pitesti, Automotive Department - Romania Professor
Florian IVAN	University of Pitesti, Automotive Department - Romania Professor
Dan MARINESCU	University of Pitesti, Automotive Department - Romania Assoc. professor
Alexandru BOROIU	University of Pitesti, Automotive Department - Romania Professor
Stefan TABACU	University of Pitesti, Automotive Department - Romania Assoc. Professor
Adrian CLENCI	University of Pitesti, Automotive Department - Romania Assoc. Professor Associated Researcher at CNAM Paris, FRANCE Laboratoire de Génie des Procédés pour l'Environnement, l'Energie et la Santé (LGP2ES), Equipe d'Accueil 21 (Ea21)

The Organizing Committee

EXECUTIVE ORGANIZING BOARD

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Vice Rector - University of Pitesti

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SIAR Executive Officer

Dr. Eng. Armand VLADU

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Eng. Elena DIACONESCU

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Vice-presidents

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Prof. Dr. Eng. Laurentiu MANEA
Prof. Dr. Eng. Liviu MIHON
Prof. Dr. Eng. Adrian SACHELARIE

programme-synthesis Congress

programme-synthesis

2 – 4 November, 2011

TUESDAY, 1st of November

17h00 – Welcoming Cocktail

WEDNESDAY, 2nd of November

09h00 – 10h20: Opening at the *RAMADA Hotel, Pitești*

Opening speech:

☐ Organizers:

- FISITA Vice President – Brigadier ret. Prof. Günter Hohl
- SIAR President – Professor Eugen NEGRUȘ
- Rector of the University of Pitesti – Professor Gheorghe BARBU
- General Manager of DACIA – groupe RENAULT - Mr. Jerome OLIVE
- ACAROM President – Dr. Constantin STROE
- RAR General Director – Sotir STANCU
- Professor DHC Berthold GRUNWALD

☐ Local authorities:

- Prefect of the Arges County – Mr. Gogu DAVIDESCU
- Mayor of the Pitesti City – Mr. Tudor PENDIUC

10h20 – 10h30: Coffee break

10h30-12h45: Plenary Section:

- Mr. Eric RIOU, Key Account Manager, Le Moteur Moderne – France, member of AVL group, *Automated Calibration for Transmission*
- Mr. Sorin BUSE, Director Renault Technologie Roumanie *Future Mobility – a general approach*

Coffee break (15 min)

- Dr. Giovanni CIPOLA, Technical Director GM Powertrain Europe
The Automobile Scenario in a Zero CO2 Future Environment
- Mr. Frank KOCINSKI- dSPACE, Mr. Daniel DRAGNE- Renault Technologie Roumanie - *Hardware In the Loop in the Automotive Industry*

13h15-15h00: Lunch

15h30-18h30: Faculty of Mechanics and Technology
(1, Tg. din Vale street, T Building, Pitesti)

- Simultaneous activities: Oral presentations on sections

19h30: Congress Dinner

08h30 – 13h00: Pitesti – Mioveni: the trip to DACIA – groupe RENAULT plant –

12h00 – 13h00: Lunch (at Dacia-Mioveni)

09h00 – 12h00: Technical Exhibition (for those persons staying in Pitesti, i.e. not being at Dacia)
Faculty of Mechanics and Technology (Building T) –
University of Pitesti

12h00 – 13h00: Lunch (at Pitesti)

13h00 – 13h30: Return to Pitesti city

14h00 – 18h15: *Faculty of Mechanics and Technology*
(1, Tg. din Vale street, T Building, Pitesti)
- Simultaneous activities: Oral presentations on sections

18h15 – 19h00: Meeting of the SIAR General Convention

19h30: Congress Gala Dinner

FRIDAY, 4th of November

09h00 – 11h00

Effective Tripartite Collaboration - The Automotive Industry, Governments and Academia working towards a better Educational Experience

Chairman Professor: John FIELDHOUSE, University of Huddersfield, UK

Keynote speakers:

Radu Mavrodin, Head of Human Ressources, Renault Romania

Viorel NICOLAE, Dean of Faculty of Mechanics and Technology

Adrian CLENCI, Head of Automotive and Transportation Department

09h00 – 11h00

Forum on *Future of automotive propulsion systems*

Chairman: Professor Dan MARINESCU, University of Pitesti

Keynote speaker:

Cristian Liviu POPESCU, Technical Synthesis Engineer, Renault Romania

09h00 – 11h00

Forum on *Road injuries and car safety*

Chairman: Mrs. Livia NICOLAE - Head of Passive Security Department,
Renault Romania

Keynote speaker: Mr. Cristian NEVZOREANU - Corporate Affairs Director for
Renault Technologie Roumanie, Road Safety domain pilot for Renault Romania

09h00 – 11h00

Forum on *Advantages of using modeling and numerical simulation in the design of the process by cold plastic deformation volume*

Chairman: Eduard NIȚU, Head of Manufacturing and Industrial Management Department, University of Pitesti, Romania

09h00 – 11h00

Forum on *Virtual factory - interface between university and industry*

Chairman: Lecturer Daniel-Constantin Anghel, University of Pitesti, Romania

Keynote speakers: Valentin STAN, Sales Representative, Magic Engineering SRL
Marius IVASCU, Head of Industrial Logistics,
Automobile Dacia

09h00 – 11h00

Student forum

Chairman: Professor Alexandru BOROIU, University of Pitesti, Romania

12h00 – 12h30: Closing Ceremony**SOCIAL & TOURISTIC PROGRAMME****08h30 – 16h00:**

Tourist visit: Pitesti – Curtea de Arges – Vidraru Lake - Casa Argeseana Log
– Boat Travel on Vidraru Lake - Cumpana Log

programme
Wednesday, 2 November

Road Vehicle - A11

15.00-16.25- Room T302

Chairman : **Daniel IOSZA and Victor OȚĂT**

CAR2011_1109 **DEFINITION OF EVALUATION CRITERIA FOR MOTOR VEHICLE'S
 DRUM BRAKES CHARACTERISTICS**

Glišovic, Jasna, Demic, Miroslav, Miloradovic, Danijela

CAR2011_1229 **USING MOBILE DEVICES FOR ESTIMATING LONGITUDINAL
 TYRES – ROAD FRICTION COEFFICIENT**

ISPAS Nicolae, SOICA Adrian

CAR2011_1293 **STUDIES ON CAR BRAKES**

Nicolae Vlad Burnete, Ioan Rus, Andrei Kiraly

CAR2011_1150 **DEVELOPMENT OF A SIMULATOR TO ALLOW THE HANDLING OF
 A VEHICLE BY PUSHING A JOYSTICK**

Netto Arthur Vieira, Kassab Fuad, Contim Thiago Ragozo

CAR2011_1124 **ANALYSIS OF A CYLINDRICAL MAGNETORHEOLOGICAL FLUID
 BRAKE**

Poznić Aleksandar, Časnji Ferenc, Stojić Boris

Wednesday, 2 November

Road Vehicle - A12

15.35-18.00- Room T302

Chairman : **Ion PREDA and Tiberiu MACARIE**

CAR2011_1197 **NUMERICAL SIMULATIONS OF THE MECHANICAL VIBRATIONS
 FOR A CAR SUSPENSION ASSEMBLY**

Bogdan Mihaela-Liana, Otat Victor, Bolcu Dumitru

CAR2011_1192 **VEHICLE RIDE COMFORT ASSESSMENT METHODS**

Demić Miroslav, Lukić Jovanka, Glišović Jasna

CAR2011_1269 **STABILITY OF A QUARTER AUTOMOTIVE WITH NONLINEAR
 QUADRATIC SUSPENSION**

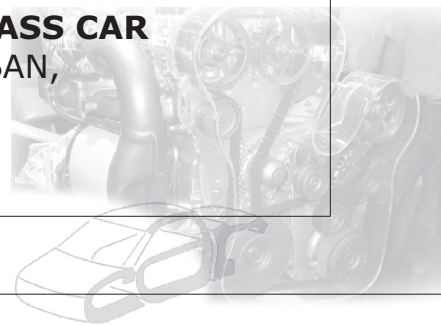
Stănescu Nicolae-Doru, Vieru Ionel

CAR2011_1156 **TEST-CALCULATION CORRELATION OF AN ENGINE IN THE
 AUTOMOTIVE INDUSTRY**

Gabriel-Petru Anton, Ioana Petcu, Fabien Sorel

CAR2011_1307 **ON THE STABILITY PROPERTIES OF A MID CLASS CAR**

Bogdan NICOLESCU, Tiberiu MACARIE, Florin SERBAN,
 Tudor PETRESCU



Thursday, 3 November**Road Vehicle – A21**

14.00-15.15- Room T302

Chairman : Ticușor CIOBOTARU and Ion TABACU**CAR2011_1198 INNOVATIVE SOLUTIONS REGARDING VEHICLE STEERING SYSTEMS – FOUR WHEEL STEERING**

Marinescu Gabriel, Cătălin, Oțăt, Oana Victoria, Oțăt, Victor

CAR2011_1117 CONSIDERATIONS ON POWER FLOW CIRCULATION WHEN MOVING WITH A 4X4 VEHICLE THAT RECORDS DIFFERENCES IN THE WHEELS' ROLLING RADII

Truță Marian, Costache Dragoș, Marinescu Marin, Vînturiș Valentin, Mitrea Minu

CAR2011_1120 ISSUES OF SELF GENERATED TORQUE WITHIN THE 4WD DRIVETRAIN

MARINESCU Marin, VILĂU Radu

CAR2011_1228 SEMI-RIGID REAR AXLE WITH H-SHAPE PULLED BEAM: MODERN CONSTRUCTIONS, TECHNOLOGIES, MODELING

Mateescu Viorel, Iozsa Daniel, Chira Stefan

CAR2011_1199 MODELLING AND SIMULATION OF STEERING TIE RODS

Marinescu Gabriel Cătălin, Oțăt Oana Victoria, Oțăt Victor

Wednesday, 2 November**Road Vehicle - A21**

15.30-16.45- Room T302

Chairman : Miroslav DEMIC and Cristian ANDREESCU**CAR2011_1213 FLOW SIMULATION AROUND A GENERIC VEHICLE BODY ON WHEELS***Huminic Angel, Huminic Gabriela***CAR2011_1237 STUDY CONCERNING THE INFLUENCE OVER AERODYNAMICS PARAMETERS**

Iozsa Daniel, Stan Cornelia, Nastase Alexandru

CAR2011_1111 THE DEVELOPMENT OF THE SIMULATION METHOD THAT CAN PREDICT THE VIBRATION AS SOURCE OF INTERIOR NOISE FROM THE PARKING SYSTEM OF AUTOMATIC TRANSMISSION

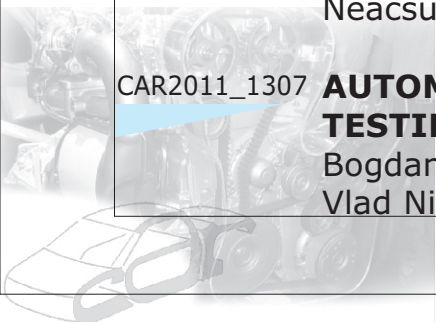
Kwon Byunghee, Changhyun Kim, Hyungsoo Hur, Eunho Kim, Kobayashi Tadao, Shinmyou Masahiro

CAR2011_1297 THE EVALUATION OF THE AIR VELOCITY FROM THE VENTS EXIT INSIDE THE AUTOMOTIVE

Neacsu Catalin, Ivanescu Mariana, Tabacu Ion

CAR2011_1307 AUTOMATIC GEARBOX TESTBED DESIGNED FOR OPTIMIZATION TESTING AND DEVELOPMENT

Bogdan Varga, Nicolae Burnete, Karamousantas Dimitrios, Nour Crisan, Vlad Nicolae, Dan Moldovanu

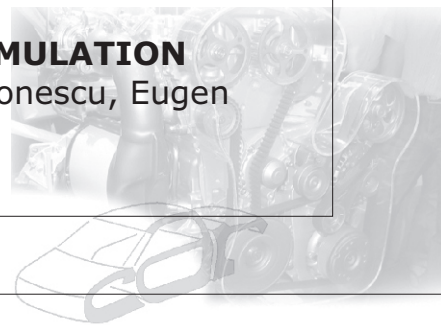


Chairman : **Elena NEAGU and Nicolae ISPAS**

- CAR2011_1131 **STUDY REGARDING THE STATISTICAL MODELLING OF THE URBAN TRAFFIC FLOWS**
Timar Janos, Stanciu Mariana, Cofaru Corneliu, Florea Daniela, Chiru Anghel, Covaciu Dinu
- CAR2011_1159 **TRAFFIC COUNTS METHODOLOGIES FOR VARIOUS TYPE OF ROAD TRAFFIC APPLICATIONS**
Florea Daniela, Covaciu Dinu, Preda Ion, Timar Janos
- CAR2011_1186 **ECOLOGICAL TRANSPORTATION TECHNOLOGIES**
Benea Bogdan Cornel, Chircan Eliza
- CAR2011_1276 **EVALUATION OF THE PASSENGER TRANSPORT DEMAND IN THE AREA PITEȘTI – VEDEA BY USING GRAVITATIONAL MODEL**
Boroiu Alexandru, Nicolae Viorel, Ilie Sorin, Mitran Gabriela, Ghiold Ion, Boroiu Alexandru Andrei
- CAR2011_1240 **MOBILITY STUDY TO INCREASE THE EFFICIENCY OF THE TRANSPORT OF PERSONS IN DOLJ COUNTY**
Constantinescu Augustin, Trotea Mario, Simniceanu Loreta, Ilie Sorin

Chairman : **Anghel CHIRU and Gheorghe CIOLAN**

- CAR2011_1114 **SIMPLIFIED MODEL FOR EPICYCLIC GEAR INERTIAL CHARACTERISTICS**
Ciobotaru Ticusor, Feraru Octavian, Caravan Alexandru
- CAR2011_1154 **ASPECTS OF 3D MODELING AND MODAL ANALYSIS FOR A WIRE ROPE ISOLATOR**
Buzea Daniel, Soimaru Cristian, Atanasiu Catalin, Iakab-Peter Marton
- CAR2011_1115 **TORQUE CONVERTER MODELLING FOR ACCELERATION SIMULATION**
Ciobotaru Ticusor, Vînturis Valentin, Caravan Alexandru
- CAR2011_1116 **THE MODELLING AND SIMULATION OF THE MILITARY TRACKED VEHICLES CROSSING OBSTACLES CAPABILITY**
Vînturis Valentin, Ciobotaru, Ticusor Grigore, Lucian Fieraru, Octavian
- CAR2011_1236 **DYNAMIC MODEL FOR THE PULL-BELT CVT SIMULATION**
Preda Ion, Ciolan Gheorghe, Cristea Dumitru, Diaconescu, Eugen



Wednesday, 2 November**Valve Actuation Mechanisms – Va1223**

16.35-18.00 Room T303

Chairman : Gheorghe Alexandru RADU and Mircea OPREAN

CAR2011_1130 **THE IMPACT OF THE VALVE VARIABLE TIMING UPON THE PUMPING WORK IN THE INTERNAL COMBUSTION ENGINE**
Sandu Gabriel, Cofaru Corneliu, Cosgarea Radu, Jelenschi Liviu, Aleonte Mihai

CAR2011_1123 **THE NECESSITY FOR ROTATIONAL MOVEMENT OF VALVE AND TAPPET IN INTERNAL COMBUSTION ENGINES**
Jelenschi Liviu, Cofaru Corneliu, Sandu Gabriel, Radu Ioan-Serban, Aleonte Mihai, Cosgarea Radu

CAR2011_1207 **A KINEMATIC STUDY OF A MECHANICAL VARIABLE VALVE TIMING MECHANISM WITH CONTINUOUS VALVE LIFT**
Mihalcea Stelian, Dumitrescu Vasile, Pandrea Nicolae

CAR2011_1141 **DESIGNING EXPERIMENT FOR ELECTRO-HYDRAULIC VALVES**
Șoimar Cristin, Buzea Daniel, Coldea Mihaela, Atanasiu Catalin

CAR2011_1272 **THE INFLUENCE OF CAMS EXTERNAL GROOVE IN CAM-FOLLOWER MECHANISM FUNCTIONING**
Popa Dinel

Thursday, 3 November**Passive Safety – Ps21**

14.00-15.00 Room T303

Chairman : Giovanni BELINGARDI and Ștefan TABACU

CAR2011_1189 **THE SIMULATION OF THE MAIN MOVEMENTS OF THE HUMAN NECK USED FOR VIRTUAL IMPACT TESTING STUDIES**
Ciunel Stefanita, Popa Dragos, Campian Vasile

CAR2011_1104 **NUMERICAL AND EXPERIMENTAL RESULTS ON PEDESTRIAN HEAD IMPACT TESTS ON AN ALUMINIUM BONNET**
Avalle Massimiliano, Bianciotto Katia, Belingardi Giovanni, Casu Antonio, Chiandussi Giorgio, Scattina Alessandro

CAR2011_1211 **WAYS TO DETERMINE THE VELOCITY OF TWO VEHICLES THAT ARE IN COLLISION, BASED ON RESTITUTION COEFFICIENT**
Bodor Lucian Anton Bodor, Lucian Anton, Gaiginschi Radu

CAR2011_1210 **RESEARCH ABOUT INFLUENCE OF VEHICLE'S BUMPER POSITION UPON ADULT PEDESTRIAN HEAD INJURIES**
Soica Adrian, Ispas Nicolae

CAR2011_1108 **RESEARCH ON THE OCCUPANT'S BEHAVIOUR DURING THE PRE-CRASH PHASE**
Virgil Popa, Horia Beles

Thursday, 3 November

INTERNAL COMBUSTION ENGINES – M22

15.30-16.45- Room T303

Chairman : **Radu GAIGINSKI and Niculae NEGURESCU**

CAR2011_1291 **A NEW CONCEPT OF THE MIXTURE FORMATION AND COMBUSTION FOR OTTO ENGINE. THE COMBUSTION CHAMBER WITH STRATIFIED MIXTURE BY COMBINING THE OPPOSED SWIRLS MOVEMENT WITH THE MIXTURE TUMBLE MOVEMENT**
Grünwald B., Ueberschär D., Ivan Fl.

CAR2011_1274 **IN-CYLINDER FLOW ANALYSIS OF DIFFERENT VALVE LIFT USING CFD**
Iorga-Simăn Victor, Clenci Adrian, Podevin Pierre, Delacroix Alain, Tabacu Ion

CAR2011_1296 **STUDIES REGARDING MODEL BUILDING FOR ENGINE PROCESS SIMULATION IN AVL FIRE**
Dan Moldovanu, Nicolae Burnete, Sanda Bodea

CAR2011_1241 **THE FINITE ELEMENT MODELING OF A PISTON HEAD OF A SPARK IGNITION ENGINE**
Tutunea Dragoș, Neagoe Dumitru, Trotea Mario, Constantinescu Augustin

CAR2011_1171 **DIESEL COMBUSTION MODELLING WITH OPENFOAM**
Adorean Ervin, Radu Gheorghe-Alexandru

Thursday, 3 November

INTERNAL COMBUSTION ENGINES – M23bis

17.00-18.15- Room T303

Chairman : **Georges DESCOMBES and Cyril COUDERC**

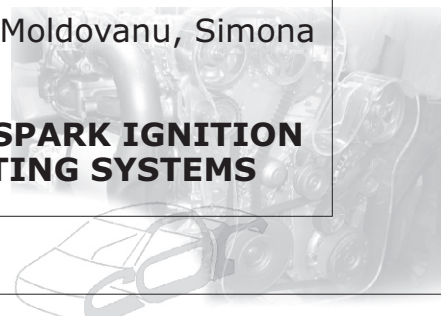
CAR2011_1107 **DIAGNOSTICS OF SEQUENTIAL SYSTEMS FOR GAS ON MOTOR VEHICLES**
Milovanović Milan, Demić Miroslav, Jovanović Saša, Popović Milka

CAR2011_1118 **HEAT RECOVERY SYSTEMS FOR PASSENGERS VEHICLES**
Yulia GLAVATSKAYA, Gérard OLIVIER, Osoko Fredy SHONDA, Pierre PODEVIN

CAR2011_1275 **FLOW SIMULATION IN ENGINE CYLINDER WHEN A COMBUSTIBLE SUBSTANCE (DEE) IS INJECTED INTO A DIESEL ENGINE INTAKE, METHOD TO IMPROVE COLD STARTING**
Sergiu STROE, Rodica NICULESCU, Adrian CLENCI

CAR2011_1303 **CONSIDERATIONS ABOUT THE PERFORMANCE OF SI ENGINES FUELED WITH ULTRASONIC CONDITIONED BIOETHANOL-GASOLINE BLENDS**
Florin Mariasiu, Bogdan Varga, Doru Baldean, Dan Moldovanu, Simona Florea, Calin Iclodean

CAR2011_1203 **CALCULATION MODEL FOR OPTIMIZING THE SPARK IGNITION ENGINE COLLABORATION WITH THE EPOLLUTING SYSTEMS**
Liță Daniel, Ivan Florian, Tabacu Ion, Busoi Andrei



Chairman : **Constantin PANĂ and Adrian SACHELARIE**

CAR2011_1105 **LOGISTICS OF APPLICATION NATURAL GAS ON BUSES**

Milojević Saša, Pešić Radivoje

CAR2011_1110 **BIO-BASED ADDITIVE EFFECT ON PERFORMANCE AND EMISSION CHARACTERISTICS OF A DIESEL ENGINE FUELED WITH PALM OIL METHYL ESTER**

Ozcanli Mustafa, Serin Hasan, Ozgur Tayfun, Saribiyik Oguz, Yunus Kadir Aydin

CAR2011_1142 **THE USE OF HYDROGEN AS AN ALTERNATIVE FUEL IN SI ENGINES**

Pantile Victor, Pana Constantin, Negurescu Niculae, Cernat Alexandru, Radu Alexandru, Rusu Eugen

CAR2011_1169 **STUDY OF INCREASE PERFORMANCE MAS DAEWOO ENGINE BOOST WITH THE VARIABLE GEOMETRY TURBOCHARGER AND SUPPLY ETHANOL**

Dragomir Costin

CAR2011_1143 **ANALYSIS OF ENERGETICALLY AND EMISSIONS PERFORMANCE ON A SI ENGINE FUELED WITH HYDROGEN IN ADDITION**

Rusu Eugen, Pana Constantin, Negurescu Niculae, Cernat Alexandru, Pantile Victor, Radu Alexandru

Chairman : **Pierre PODEVIN and Radivoje PESIC**

CAR2011_1144 **EXPERIMENTAL INVESTIGATIONS OF ETHANOL COMBUSTION IN S.I. ENGINE**

Radu Alexandru, Pana Constantin, Negurescu Niculae, Cernat Alexandru, Rusu Eugen, Pantile Victor

CAR2011_1175 **CASTOR OIL BIODIESEL AND ITS BLENDS AS AN ALTERNATIVE DIESEL FUEL**

Serin Hasan, Ozcanli Mustafa

CAR2011_1187 **THE FUTURE OF ENERGY: BIOFUELS**

Benea Bogdan Cornel Chircan, Eliza

CAR2011_1183 **INFLUENCE OF THE BURNED MASS FRACTION CENTER POINT ON ENGINE EMISSIONS USING FISCHER-TROPSCH BIOFUEL BLENDS**

Săcăreanu Sorin, Chiru Anghel, Rauch Reinhard, Hofbauer Hermann, Teiner Philipp, Hofmann Peter

CAR2011_1295 **EFFECT OF BIODIESEL BASED ON RAPESEED OIL ON TRACTOR ENGINES PERFORMANCE**

Nicolae N. Cordoș, Nicolae Burnete, Orban Magdalena

Wednesday, 2 November

INTERNAL COMBUSTION ENGINES – M11

15.00-16.25- Room T301

Chairman : **Karl KOCK and Andreas LOECKER**

**CAR2011_1129 ASPECTS REGARDING SIMULATION AND TESTING
TURBOCHARGER SHAFTS**

Boricean, Cosmin C-tin, Rosca, Ioan Calin, Balcu, Ion

**CAR2011_1218 TURBOCHARGER CHARACTERISTICS AT LOW SPEED AND
EXPERIMENTAL MEASUREMENTS OF FRICTION LOSSES**

Pierre Podevin, Michael Deligant, Georges Descombes, Adrian Clenci

**CAR2011_1112 COMPARISON OF THE PREDICTION PERFORMANCES OF
DIFFERENT MODELS OF RADIAL TURBINE UNDER STEADY AND
UNSTEADY FLOW CONDITIONS**

Couderc Cyril, Chesse Pascal, Chalet David

**CAR2011_1299 IMPROVING TRANSIENT RESPONSE OF SI TURBOCHARGED
ENGINES**

Levente Kocsis, Kurt Prevedel, Nicolae Burnete, Lucia Ghioltean, Dan Moldovanu

**CAR2011_1177 SINGLE CYLINDER ENGINES – THE TEST ENVIRONMENT FOR
COMBUSTION R&D**

Hopfner Wolfgang, Loecker Andreas, Winklhofer Ernst

Wednesday, 2 November

INTERNAL COMBUSTION ENGINES – M12bis

16.30-18.00- Room T301

Chairman : **Adrian CLENCI and Michael DELIGANT**

CAR2011_1122 ONE APPROACH FOR MODELING MILLER CYCLE ENGINE

Dorić Jovan

**CAR2011_1146 ASSESSMENT OF THE FUEL SAVING ENABLED BY THE HEAT
RECOVERY OF EXHAUST GASES USING A THERMOELECTRIC
GENERATOR**

Dong Yuxiang, El-Bakkali Amin, Feidt Michel, Descombes Georges, Périlhon Christelle

**CAR2011_1121 INJECTION TIMING ADJUSTMENT FOR A COMMON RAIL DIESEL
SYSTEM USING A 1-D SIMULATION TOOL**

Radu Ioan-Serban, Abaitancei Horia, Jelenschi Liviu

**CAR2011_1215 IMPACT OF STRICTER CO2 AND FUEL ECONOMY LEGISLATIONS
TO THE FUEL CONSUMPTION MEASUREMENT TECHNOLOGY**

Köck Karl

CAR2011_1235 THE THERMODYNAMIC MODELLING OF A SI ENGINE

Fântână Nicolae, Mitran Tudor, Rus Alexandru

Thursday, 3 November

INTERNAL COMBUSTION ENGINES – M21

14.00-15.15 Room T301

Chairman : **Piotr JAWORSKI and Beatrice LAY****CAR2011_1147 COMPUTER SIMULATION OF A MODEL OF AN INTERNAL COMBUSTION ENGINE**

Iliev Simeon, Stanchev Hristo, Hadjiev Kiril

CAR2011_1152 WASTE HEAT RECOVERY ON TRACTOR ENGINE: EXERGY ANALYSIS OF EXHAUST IN TRANSIENT CONDITIONS

Lacour Stephanie, Descloux Sylvain, Baldi Franscesco, Delacroix Alain, Podevin Pierre

CAR2011_1180 A NUMERICAL OPTIMISATION OF A STIRLING ENGINE

Bert Juliette, Chrenko Daniela, Sophy Tonino, Le Moyne Luis, Sirot Frédéric

CAR2011_1194 ANALYSIS AND SIMULATION OF INTERNAL FLOW IN MUFFLERS WITH COMPEX STRUCTURE

Tutunea Dragos, George Gherghina, Popa Dragos Laurentiu

CAR2011_1301 THE STUDY OF INFLUENCE FACTORS ON METANIC FERMENTATION AND THE POSSIBILITIES OF SLUDGE UTILIZATION IN AGRICULTURE

Ivan Ilarie, Deac Teodora, Adrian Florescu

Thursday, 3 November

INTERNAL COMBUSTION ENGINES – M22bis

15.30-16.45 Room T301

Chairman : **Nicolae BURNETE and Bogdan VARGA****CAR2011_1133 EXPERIMENTAL STUDIES AND NUMERICAL SIMULATION OF SI AND CAI COMBUSTION MODELS FOR BIOETHANOL-GASOLINE BLENDS IN SINGLE CYLINDER ENGINE**

Jaworski Piotr, Priesching Peter, Teodorczyk Andrzej, Bandel Wolfgang, Tatschl Reinhard

CAR2011_1224 CALCULATION MODEL TO SIMULATE FUNCTIONING OF THE DIESEL PARTICULATE FILTER USED ON VEHICLES

Busoi Andrei, Ivan Florian, Cristea Dumitru, Lita Daniel

CAR2011_1106 MULTI CHARGE IGNITION FOR MULTIPROCESSING OTTO/DIESEL ENGINE

Davinić Aleksandar, Pešić Radivoje, Taranović Dragan

CAR2011_1219 AN APPROACH FOR MODELLING THE HOMOGENEOUS CHARGE COMPRESSION IGNITION (HCCI) COMBUSTION USING THE VIBE FUNCTIONS

Cosgarea Radu, Cofaru Corneliu, Aleonte Mihai, Sandu Gabriel

CAR2011_1230 TESTING OF ENERGETICAL AND ECHOLOGICAL POTENTIALS OF THE BIODIESEL FUEL VERSUS ETHANOL FUEL

Ispas Nicolae, Aleonte Mihai

Thursday, 3 November

INTERNAL COMBUSTION ENGINES – M23

17.00-18.15- Room T301

Chairman : **Edward RAKOSI and Liviu MIHON**CAR2011_1307 **REAL LIFE TESTING**

Felix Pfister

CAR2011_1220 **RESEARCHES ON ADVANCED AIR-FUEL MIXTURE FORMATION SYSTEMS FOR A TWO STROKE SPARK IGNITION ENGINE**

Aleonte Mihai, Cofaru Corneliu, Cosgarea Radu, Jelenschi Liviu, Atanasiu Catalin, George

CAR2011_1233 **THERMIC ENGINES AS FOR RUNNING IN A SINGLE REGIME**

Chioreanu Nicolae, Chioreanu Serban, Fodor Dinu

CAR2011_1204 **EXPERIMENTAL RESEARCHES ON ENERGY PERFORMANCE OF A SPARK IGNITION ENGINE WITH GASOLINE INJECTION, IN CONDITIONS OF CHANGING FUEL'S CHARACTERISTICS**

Hiticaş Ioan, Iorga Dănilă, Mihon Liviu, Henţiu Radu

CAR2011_1300 **CONSIDERATIONS ABOUT FUEL QUALITY USED IN MOTOR VEHICLES**

Nicolae Burnete, Florin Mariasiu, Bogdan Varga, Dan Moldovanu, Tiberiu Budisan, Calin Iclodean, Martin Horea

Thursday, 3 November

MULTIDISCIPLINARY – MLT21

14.00-15.15- Room T308

Chairman : **Dumitru CRISTEA and Hristo STANCHEV**CAR2011_1232 **ELECTRIC vs CONVENTIONAL CAR**

Ivanov R., Evtimov I., Kadikjanov G.

CAR2011_1132 **PNEUMATIC ENERGY STORAGE FOR HYDRAULIC HYBRID VEHICLE PROPULSION**

Soare Ionuţ Tudor, Radu Gheorghe Alexandru, Abaitancei Horia, Radu Sebastian, Petric Aron-Adrian, Coldea Mihaela

CAR2011_1214 **MODELING AND ANALYSIS OF A FUEL CELL VEHICLE**

Glazer, Mircea Nicolae, Oprean, Ioan Mircea, Andreescu, Cristian Nicolae

CAR2011_1225 **LIGHT ELECTRIC VEHICLE TRANSPORTATION SYSTEM FOR "POLITEHNICA" UNIVERSITY CAMPUS**

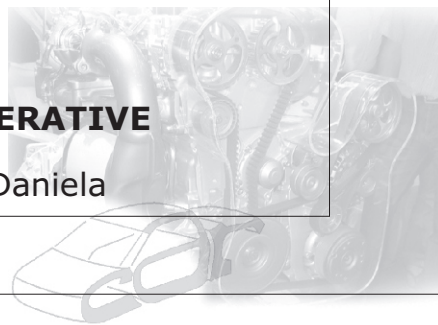
Danciu, Grigore, Racicovschi, Virgil, Chefneux, Mihaela, Kreindler, Liviu

CAR2011_1231 **ACTUAL TRENDS TOWARDS ELECTROMOBILITY IN THE SOUTH EASTERN EUROPE**

Haba Cristian Gyozo, Lucache Dumitru Dorin

CAR2011_1158 **DRIVING-DATA BASED STUDY ON THE RECUPERATIVE POTENTIAL OF HYBRID VEHICLES**

Preda Ion, Covaciu Dinu, Ciolan Gheorghe, Florea Daniela



p r o g r a m m e
Wednesday, 2 November
Road Traffic – T11

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15.00-16.25 Room T308

Chairman : **Alexandru BOROIU and Ionel VIERU**

CAR2011_1160 THE EFFECT OF CONVERTING A SIGNALIZED INTERSECTION INTO A ROUNDABOUT - A CASE STUDY

Covaciu Dinu, Florea Daniela, Preda Ion, Timar Janos

CAR2011_1185 A PREDICTION MODEL FOR URBAN AIR POLLUTION IN BRASOV CITY

Tarulescu Stelian, Tarulescu Radu

CAR2011_1263 METHODOLOGY FOR TRAFFIC IMPACT STUDIES FOR MAIN JUNCTIONS / INTERCHANGES

Neagu Elena, Nicolae Viorel, Vîlcan Adrian, Ilie Sorin, Vieru Ionel

CAR2011_1264 APPLICATION DATA COLLECTION, MODEL DEVELOPMENT AND APPLICATION TRAFFIC IMPACT STUDIES FOR PODUL VIILOR JUNCTION IN PITESTI

Nicolae Viorel, Neagu Elena, Vîlcan Adrian Mitran, Gabriela Vieru, Ionel

CAR2011_1285 THE ESTIMATION OF TRAVEL DEMAND – THE FIRST STEP TO REORGANIZE A COUNTY ROAD PUBLIC TRANSPORT

Ilie Sorin, Mitran Gabriela, BoroIU Alexandru, Nicolae Viorel

Wednesday, 2 November
Road Traffic – T12

16.35-18.00 Room T308

Chairman : **Florea DANIELA and Cornel COFARU**

CAR2011_1184 PEDESTRIAN EXPOSURE TO AIR POLLUTION ALONG A MAJOR ROAD IN BRASOV CITY CENTER

Tarulescu Stelian, Tarulescu Radu

CAR2011_1277 ASSESSING THE OPPORTUNITY OF ENERGY RECOVERY CONSUMED BY BRAKING ON THE DOWN SLOPES ON THE ROUTE PITEȘTI – VEDEA AND ON THE LOCAL TRANSPORT ROUTES IN PITEȘTI

BoroIU Alexandru, Ilie Sorin, Lefter Emilian, Neagu Elena, BoroIU Alexandru Andrei

CAR2011_1278 A STUDY OF THE ROAD TRAFFIC EVOLUTION AS A RESULT OF THE REAL ESTATE DEVELOPMENT AND ROAD NETWORK EXPANSION WITHIN AN AREA OF BUCHAREST

Vîlcan Adrian, Ionescu Eugen, Dragomir George, Beles Horia, Nicolae Viorel

CAR2011_1287 COMPARATIVE ANALYSIS OF SOME INVENTORY MANAGEMENT MODELS

Ghiold Ion, Vieru Ionel, Nicolae Viorel, Neagu Elena

CAR2011_1286 A MODEL FOR DETERMINING THE AVERAGE SPEED OF LIGHT DUTY VEHICLES IN URBAN TRAFFIC IN TERMS OF MINIMUM POLLUTION AND FUEL CONSUMPTION

Mitran Gabriela, Tabacu Ion, Ivan Florian, Ilie Sorin, Nicolae Viorel, BoroIU Alexandru

Chairman : **Marioara ABRUDEANU and Jacques-Alain PETIT**

CAR2011_1182 **INNOVATIVE MATERIALS FOR THE PRODUCTION OF
AUTOMOBILE'S DOOR SEALING SYSTEMS**

Astalosch, Christian, Săcăreanu, Sorin, Chiru, Anghel

CAR2011_1200 **THE INFLUENCE OF THE THERMAL CYCLING ON GRAINS SIZE
AT THE NICKEL –BASED ALLOYS**

S C Vulpe, M Abrudeanu, D Ohai, D Benga, G Plaiasu

CAR2011_1201 **THE EVOLUTION OF THE MICROSTRUCTURE AND MECHANICAL
PROPERTIES ON THE AA2024 ALLOYS AS A FUNCTION OF THE
ARTIFICIAL AGEING TEMPERATURE**

Răduțoiu Nicoleta, Abrudeanu Marioara, Petit Jacques-Alain, Alexis
Joël, Lacroix Loïc, Rizea Vasile, Plăiașu Gabriela-Adriana

CAR2011_1252 **THE INFLUENCE OF THE WORKING CONDITION OVER THE
CUTTING FORCES IN THE PROCESSING OF SOME CERAMICS**

Alin RIZEA, Adriana-Gabriela PLĂIAȘU, Daniel -Constantin ANGHEL

CAR2011_1253 **ASPECTS CONCERNING THE INFLUENCE EXERTED BY THE
PROPERTIES OF CERAMIC MATERIALS ON THE CUTTING
MECHANISM AND THE SURFACE QUALITY**

Alin RIZEA, Nadia BELU, Daniel - Constantin ANGHEL

Wednesday, 2 November

Applied Mechanics – MEC11

15.00-16.25- Room T309

Chairman : **Dinel POPA and Doru STĂNESCU**

CAR2011_1288 **EVALUATION OF THE STRUCTURAL PERFORMANCES OF THE
THERMOPLASTIC MANUFACTURED PARTS USING RESULTS
FROM MOLDING ANALYSIS**

Tabacu Stefan, Tomuș Cosmin, Baba Viorel

CAR2011_1248 **About the bending vibrations with random excitations of the
straight bars**

Monica BALDEA

CAR2011_1249 **Program for the numerical calculus of the bending vibrations
with random excitations of the straight bars**

Monica BALDEA

CAR2011_1250 **THE GENERAL FORM OF THE EQUATION OF MOTION FOR
PLANAR MECHANICAL SYSTEMS THAT ARE COMPOSED WITH
JOINTS WITH AND WITHOUT CLEARANCE**

Grigore Jan-Cristian, Pandrea Nicolae

CAR2011_1251 **ISSUES REGARDING THE DETERMINATION OF SOME POINTS
SITUATED OUTSIDE THE EPURE**

Mircea LAZĂR

CAR2011_1306 **ABOUT TRIBOLOGY'S ROLE IN IMPROVING PERFORMANCES
AND RELIABILITY OF CAR 'S MECHANICAL ELEMENTS**

Nicolae
Popa, Constantin Onescu

Thursday, 3 November

Product and Process Development – PPD22

15.30-16.45 Room T309

Chairman : **Sofiene DELLAGI and Eduard NIȚU****CAR2011_1181 CONFLICT MANAGEMENT IN TECHNICAL PROJECTS IN THE AUTOMOTIVE INDUSTRY**

Soare, Ionuț Tudor, Astalosch, Christian, Timar, Janos

CAR2011_1242 USING THE ECO-DESIGN APPROACHING TO REALIZE THE FRIENDLY PRODUCTS FOR THE AUTOMOTIVE INDUSTRY

Daniel -Constantin ANGHEL, Adriana-Gabriela PLĂIAȘU, Alin RIZEA

CAR2011_1244 COMPARATIVE ANALYSIS OF EMPLOYMENT - ROMANIA AND E.U., FOCUSED ON THE AUTOMOTIVE SECTOR

BONDOC Maria-Daniela, Popescu Ramona-Florina, Belu, Nadia

CAR2011_1176 SIX SIGMA – QUALITY ASSURANCE PROGRAM USED IN GROWTH OF PROCESS EFFICIENCY AND CLIENT'S SATISFACTION LEVEL IN AUTOMOTIVE INDUSTRY

Astalosch Christian, Șoimaru Cristian, Coldea Mihaela

CAR2011_1247 QUALITY ASSURANCE MATRIX IN AUTOMOTIVE INDUSTRY

Stirbu Luminita, Belu Nadia, Bondoc Maria - Daniela

Wednesday, 2 November

Manufacturing Processes – Mp12

16.35-18.00 Room T308

Chairman : **Doina IACOMI and Alin RIZEA****CAR2011_1178 VARIABLE EXTRUSION – INNOVATIVE MANUFACTURING TECHNOLOGY FOR EPDM COMPONENTS OF SEALING SYSTEMS USED ON AUTOMOBILES**

Astalus Cristian, Șoimaru Cristian, Coldea Mihaela

CAR2011_1188 EXPERIMENTAL RESEARCH ON THE FORCES OF FORM TAPPING TRAPEZOIDAL PROFILES

Boicea Gina, Ungureanu Ion, Nițu Eduard, Iordache Monica, Iacomî Doina

CAR2011_1195 EVOLUTION OF THE CUTTING PROCESS PARAMETERS AS A FUNCTION OF THE CUTTING PARAMETERS OF THE TURNING OF REINFORCED POLYAMIDE

Moțoi Marin

CAR2011_1254 STUDIES ON THE SIMULATION FOR THE MILLING PROCESS OF PA 66 – GF 30

Vasile Gheorghe

CAR2011_1255 ANALYTICAL MODELLING OF THE RADIAL COLD ROLLING OF THE TRAPEZOIDAL PROFILES

Nițu Eduard, Ungureanu Ion, Iordache Monica, Iacomî Doina

CAR2011_1256 THE INFLUENCE OF PROCESS PARAMETERS ON THE DEFORMATION FORCE WHEN ROLLING TRAPEZOIDAL PROFILES WITH RACK TOOLS

Ion UNGUREANU, Mădălin TUDOR, Eduard NITU, Doina IACOMI, Monica IORDACHE

Chairman : **Viorel NICOLAE and Doina IACOMI**

CAR2011_1245 **PERFORMANCE ANALYSES OF HIBRIDE CONTROL PRODUCTION SYSTEMS USING SIMULATION**

Ana ROTARU

CAR2011_1165 **STOCKS MANAGEMENT MATHEMATICAL MODEL FOR COMPANY WITH LIMITED STORAGE AREA**

Ciolan Gheorghe, Kirstein Frank, Preda Ion

CAR2011_1257 **PRODUCTION AND MAINTENANCE POLICIES OPTIMIZATION UNDER A WITHDRAWAL RIGHT CONSTRAINT**

Zied HAJEJ , Sofiène DELLAGI , Nidhal REZG

CAR2011_1258 **OPTIMAL PRODUCTION AND MAINTENANCE PLANNING FOR RANDOM DEMAND WITH VARIABLE PRODUCTION RATE AND SUBCONTRACTING CONSTRAINTS**

Ayed Souheil, Dellagi Sofiene, Rezg Nidhal

CAR2011_1157 **MODELING OF A KANBAN CONTROLLED PRODUCTION SYSTEM WITH IDEFO**

GAVRILUȚĂ Constantin Alin ROTARU, Ana Cornelia



POSTERE

- CAR2011_1140 **STUDY OF AICRAFT SUPERIOR CLASS TIRE-PAVEMENT OF RUNWAY AND MOVEMENT SURFACE**
Dragomir, Costin, Lazanu, Florin, Sandu, Daniela, Zus, Radu, Ciobanu, Sorinel
- CAR2011_1161 **AN ASSESSMENT ON THE POSSIBILITY TO REDUCE CO2 EMISSION BY PARTIALLY FUELLING HEAT ENGINES WITH HYDROGEN**
- CAR2011_1243 **Birtas, Adrian, Voicu, Iulian, Niculae, Gheorghe Chiriac, Radu, Podevin, Pierre, Descombes, Georges**
Utilization of the innovative methods in the redesign process of a product
- CAR2011_1305 **ANGHEL Daniel - Constantin, Belu Nadia, Alin RIZEA**
THE CALCULUS OF GPL TOROIDAL FUEL TANK GRIP SCREWS
Constantin, Onescu, Nicolae, Popa
- CAR2011_1196 **STUDIES ON THE INFLUENCE OF TOOL GEOMETRY FOR PROCESSING CUTTING FORCE BY TURNING OF POLYAMIDE PA66 - GF30**
Moțoi, Marin
- CAR2011_1208 **CAM SYNTHESIS AND DESIGN OPTIMIZATION OF A MECHANICAL VARIABLE VALVE TIMING MECHANISM WITH CONTINUOUS VALVE LIFT**
Mihalcea Stelian
- CAR2011_1212 **MATHEMATICAL MODEL OF THE CRANIO-CERVICAL SYSTEM IN A FRONTAL IMPACT TESTING SYSTEM**
Ciunel, Stefanita, Tica, Bebe, Campian. Vasile, Campian, Ovidiu Vasile
- CAR2011_1226 **THEORETICAL STUDY AT KINEMATICO-DYNAMICAL OPTIMIZATION TO DRIVING CAPACITY AT AUTOMOTIVES**
Șuster-Bădărău Helene, Ion Tabacu
- CAR2011_1227 **DETERMINATION OF VIBRATION TRANSMISSIBILITY OF THE SUSPENSION MECHANISM IN THE STRUCTURE OF CAR AREA STABILITY**
Șuster-Bădărău Helene, Ion Tabacu
- CAR2011_1234 **THE GENERAL ASPECTS OF THE MODELLING GASOLINE INJECTION AT ENGINES WITH SPARK LIGHTING**
Blaga, Vasile, Vlad, Ioan, Vlad, Mariana, Vlad, Ioana Andra
- CAR2011_1239 **ASPECTS REGARDING MOTOR VEHICLES DETECTION SENSORS PLACEMENT IN INTERSECTION FOR REAL-TIME CIRCULATION CONTROL**
Oprica, Theodor, Dumitru, Ilie, Vîțătoru, Matei

- CAR2011_1262 **THE INFLUENCE OF THE AIR VENTS POSITIONING INSIDE THE PASSENGER COMPARTMENT FOR THE HUMAN THERMAL COMFORT**
Ivanescu, Mariana, Neacsu, Catalin, Tabacu, Ion
- CAR2011_1265 **CONSIDERATIONS ON THE ENDURANCE CALCULATION OF THE FRONT AXLE'S LOWER ARM**
Petrache, Gheorghe, Anghel, Chiru, Vieru, Ionel, Nicolae, Viorel
- CAR2011_1266 **MODAL ANALYSIS OF THE DISC BRAKE, THE FORK AND THE CALIPER OF THE FRONT BRAKE ASSEMBLY**
Vieru, Ionel, Petrache, Gheorghe, Nicolae, Viorel, Pârlac, Sebastian
- CAR2011_1267 **THE DYNAMIC ANALYSIS OF THE FRONT AXLE'S LOWER ARM**
Petrache, Gheorghe, Vieru, Ionel, Pârlac, Sebastian, Nicolae, Viorel
- CAR2011_1268 **SIMULATION ON THE MODEL OF ECONOMIC ORDER QUANTITY FOR DETERMINISTIC DEMAND**
Vieru, Ionel, Ghiold, Ion, Nicolae-Doru, Stănescu
- CAR2011_1271 **RECORDING IMAGES WITH THE SHADOWGRAPH METHOD FOR THE FLAME FRONT PROPAGATION STUDY**
Dejanu, Marcel, Popa, Dinel, Tabacu, Ion, Pârlac, Sebastian, Dascălu, Traian
- CAR2011_1273 **THE RUNNING SIMULATION OF A HYBRID CAR**
Popa, Dinel
- CAR2011_1279 **APPROXIMATE SOLUTION OF THE NON-LINEAR EQUATION FOR A SYSTEM UNDER A RANDOM VIBRATION**
Stan, Marinică, Stan, Petre
- CAR2011_1280 **THE METHOD OF EQUIVALENT LINEARIZATION FOR SYSTEMS SUBJECTED TO NON-STATIONARY RANDOM EXCITATION**
Stan, Marinică, Stan, Petre
- CAR2011_1281 **THE SPECTRAL RESPONSE FOR THE RANDOM EXCITATION OF THE ELASTIC PENDULUM**
Stan, Petre, Stan, Marinică
- CAR2011_1282 **AN EQUIVALENT NON-LINEARIZATION METHOD FOR ANALIZYNG RESPONSE OF NONLINEAR SYSTEMS TO RANDOM EXCITATION**
Stan, Petre, Stan, Marinică
- CAR2011_1284 **KINEMATIC ANALYSIS OF MULTICOUNTOUR MECHANISMS**
Popa, Claudia Mari, Popa, Dinel

- CAR2011_1302 **CORROSION BEHAVIOR OF STEEL AUTOMOTIVE ENGINE PARTS IN BIODIESEL OF DIFFERENT ORIGIN**
Sterpu, Anca Elena-Eliza, Dumitru, Anca Iuliana, Neagu, Anișoara Arleziana
- CAR2011_1311 **RESEARCHES ON THE IMPORTANCE OF CHOOSING DRIVING STYLE AND DRIVER BEHAVIOR EVALUATION METHODS**
Cătălin Victor Zaharia, Adrian Clenci
- CAR2011_1290 **RELIABILITY STUDY OF OXYGEN SENSOR BY INCOMPLETE TESTS**
Boroiu Alexandru, Nicolae Viorel, Ursu Claudiu, Popa Ovidiu, Bazga Marius, Sirbu Aurelian
- CAR2011_1308 **CONTRIBUTIONS TO THE ACHIEVEMENT OF A SOLAR ELECTRIC VEHICLE**
Serban Florin, Marinescu Danut Gabriel, Senocak Erol, Dan Florian
- CAR2011_1309 **GRAND HAMSTER -AN 4WD PLUG-IN HYBRID ELECTRIC VEHICLE**
Marinescu Danut Gabriel, Tabacu Ion, Serban Florin, Tabacu Stefan, Nicolae Viorel, Vieru Ionel, Boicea Nicolae
- CAR2011_1223 **INFLUENCE OF A HATCHBACK-RACK WITH TWO BICYCLES ON FUEL CONSUMPTION AND MAXIMUM SPEED ON AN AUTOMOBILE FUELED WITH LPG**
Georgescu Liviu, Dragomir George, Beles Horia
- CAR2011_1292 **FITTING BIODIESEL-DIESEL-BIOETHANOL BLENDS TO CI ENGINES**
István Barabás, Ioan-Adrian Todorut, Balcau Monica
- CAR2011_1294 **THE CURRENT STAGE OF ACOUSTIC ENERGY CONVERSION INTO ELECTRICAL ENERGY**
Candale Lucian, Filip Nicolae
- CAR2011_1298 **THE DYNAMIC LOADS' EVALUATION FROM THE CRANK MECHANISM OF THE DIESEL ENGINE FUELED WITH BIODIESEL OBTAINED FROM USED SUNFLOWER OIL**
Ioan-Adrian Todorut, István Barabás, Nicolae Vlad Burnete
- CAR2011_1125 **MODELING THE PNEUMATIC PART OF AN ASSISTED BRAKING SYSTEM BASED ON THE EXPERIMENTAL DATA**
Vilău Radu, Marinescu Marin, Vînturiș Valentin, Mocian Oana-Alexandra
- CAR2011_1179 **MECHANISM PLANETARY FOR TRANSFORMATION TRANSLATION MOVEMENT INTO ROTATION MOVEMENT AND REVERSE**
Bădiță Marian

- CAR2011_1246 **COMPARISON BETWEEN TWO PULL CONTROL SYSTEMS: KANBAN AND BASE STOCK**
Ana ROTARU
- CAR2011_1216 **EFFECT OF AUTOMOTIVE REAR SUSPENSION MECHANISM CONFIGURATIONS ON WHEEL PARAMETERS**
Dobre George, Mateescu Viorel, Tica Mihai, Mirica Radu-Florin
- CAR2011_1312 **THE CAR COLLISION SPEED DETERMINATION THROUGH THE DECOMPOSITION OF THE RETROSPECTIVE MOTION – PERSONAL METHOD**
Mircea Fierbințeanu
- CAR2011_1166 **STOCKS OPTIMIZATION FOR A RANDOM DISCRETE CONSUMPTION, WITH SEVERAL STOCHASTIC MODELS**
Ciolan Gheorghe, Kirstein Frank, Preda Ion
- CAR2011_1190 **THE COMPARATIVE ANALYSIS OF THE TWO TYPES OF FRAMES DEVICES FOR THE DUMMY NECK TESTING SYSTEM**
Ciunel , Stefanita, Popa, Dragos Popa, Campian,Ovidiu Vasile, Campian, Vasile
- CAR2011_1310 **A GENERALIZATION OF THE DEFORMATION COEFFICIENT MODEL TO DETERMINE THE VELOCITIES OF VEHICLES INVOLVED IN COLLISION**
Gaiginschi Lidia, Agape Iulian, Sachelarie Adrian, Gaiginschi Radu
- CAR2011_1270 **BEHAVIOR OF A QUARTER-CAR SUSPENSION WITH DAMPER AND QUADRATIC NONLINEARITY**
Stănescu Nicolae-Doru
- CAR2011_1313 **SOME ASPECTS REGARDING HYBRID ATV REBUILDING**
Diaconescu Eugen, Lefter Emilian, PREDA Ion, Cristea Dumitru
- CAR2011_1167 **CUSTOMER SATISFACTION AND ADDING VALUE IN CAR DEALERSHIPS**
Frank Kirstein, Gheorghe CIOLAN
- CAR2011_1166 **OPTIMIZATION OF PROCESSES WITH SMART REPAIR IN A BODYWORK AND PAINT SHOP**
Frank Kirstein, Gheorghe CIOLAN
- CAR2011_1170 **AN ANALYSIS CONCERNING THE MAIN FACTORS AFFECTING THE CAM-FOLLOWER CONTACT CONDITIONS**
Manolache Gheorghe, Rakosi Edward, Talif Sorinel, Popa Florin

MULTI CHARGE IGNITION FOR MULTIPROCESSING OTTO/DIESEL ENGINE

¹Davinić, Aleksandar, ¹Pešić, Radivoje*, ¹Taranović, Dragan

¹Faculty of Mechanical Engineering in Kragujevac, University of Kragujevac, Serbia

KEYWORDS - bio-fuels, multiprocessing engine, ignition system, spark plug, self-cleaning

ABSTRACT - Essence of multiprocessing operation principle of an engine is to achieve Otto and Diesel working process in the same cylinder, depending on operating regime and using two different types of fuels. Thus, this engine has two fuel supply systems and an ignition system. The main problem of the ignition system is reliability of a spark plug during longer operation of the engine in Diesel mode. Due to potential forming of electrically conductive deposit on a ceramic spark plug isolator, instead of using classical ignition system (one spark per cycle), multi-sparks producer type of the ignition system is used that is able to obtain continuous, arbitrary long electric discharge between the spark plug electrodes. Possible occurrence of electrically conductive deposit leads to establishing of surface electric arc and momentary burning, which enables self-cleaning of the spark plug. Description of proposed ignition system and comparison of its electric characteristics with standard BOSCH MP 3.1 ignition system in laboratory conditions are presented in the paper. Comparative results of engine tests of these two ignition systems also are given in the paper.

INTRODUCTION

One possibility to increase the economy of the IC engine and to influence row emissions is to introduce the multiprocessing operating principle. The essence of this principle is the ability to lead the operating process by OTTO, DIESEL, HCCI... cycle during engine operation, whereat the most favorable cycle is selected depending on the operating regime.

At the Faculty of Mechanical Engineering from Kragujevac, there is an ongoing effort to develop a multiprocessing Otto-Diesel engine that operates by Diesel cycle (mode) at lower loads and by Otto cycle during start and at larger loads (1,2,3). The basic engine (DMB 3DA450) is an air cooled diesel engine with single cylinder and direct injection, fig. 1a. In order to achieve multiprocessing features, the following was done:

- geometric compression ratio is reduced from 17.5 to 12.5 by increase of piston chamber volume, fig. 1b,
- electrically controlled throttle valve and fuel injector are added on intake system as elements of the system for external air-fuel mixture forming for operation at Otto mode,
- engine is equipped with ignition system,
- the existing diesel fuel injection system is added with actuator for switching-off,
- laboratory microcontroller system for engine operation control is developed.

In diesel mode, due to relatively low compression ratio, a highly inflammable biodiesel fuel (methyl ester of soybean oil) is used, while in Otto mode, due to relatively high compression ratio, bio ethanol is used as high-octane fuel (4, 5, 6).

