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20 October - 'Reduta' Cultural Center

09:00 - 10:30

Opening Ceremony

- Anghel CHIRU - Congress Chairman
- Daniel M. HANCOCK - FISITA President
- Miron Tudor MITREA - Ministry of Transport, Constructions and Tourism
- Ion VISA – Rector - Transilvania University of Brasov
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- Eugen Mihail NEGRUS – SIAR President

10:30 - 11:00 Cofee Break & Exhibition Opening

11:00 – 14:00

Plenary Session

Chairman: **Chiru Anghel**

Hellmut Adler - Vice President Automotive Strategy
INA-Schaeffler KG
MODERN RELATIONSCHIPS BETWEEN SUPPLIERS AND THE AUTOMOTIVE INDUSTRY FOR DEVELOPING NEW PRODUCTS

Cornel Stan - Zwickau, West Saxon University
FUTURE PROPULSION SYSTEMS FOR AUTOMOTIVE APPLICATIONS

Joel HANEN - DIAD Manager, Dacia Groupe RENAULT
Jean Marie Hurtiger - Pitesti, Dacia Groupe RENAULT
THE RENAULT LOGAN DESIGN

14:00 – 15:30 Lunch

PAPER CODE	TITLE	SPEAKER	Institution
Session: A1 - **Advanced Powertrain / 20 October, 15:30 - 17:00 - Room: UI2** / Chairman: **Sierens, Roger**			
CONAT2004**1102**	SIMULATION STRATEGY BASED ON COUPLED MODELS FOR PROCESSES IN ADVANCED AUTOMOTIVE ENGINES	Stanciu, Andrei	Zwickau, West Saxon University
CONAT2004**1065**	NEW ASPECTS CONCERNING THE TRANSFER OF THE VIRTUES OF DIVIDED COMBUSTION CHAMBER TO DIRECT INJECTION IN THE CERAMIC CUP CHAMBER WITH CONTROLLED FLOW SPRAYS	Nicolae, Viorel	Pitesti, University
CONAT2004**1024**	RESEARCH REGARDING THE BUILDING OF A DIESEL MONOCYLINDER WITH DIRECT INJECTION BY MEDIUM SPEED	Chiru, Anghel	Brasov, Transilvania University
CONAT2004**2029**	HCCI - A POSSIBLE SOLUTION TO AVOID PARTICULATE/NOX TRADE-OFF FOR FUTURE COMPRESSION IGNITION ENGINES	Anca, Razvan	Karlsruhe, University
Session: A2 - **Advanced Powertrain / 20 October, 17:30 - 19:00 - Room: UI2** / Chairman: **Andreescu, Cristian**			
CONAT2004**1075**	CALCULATION OF STRATIFIED-CHARGE COMBUSTION IN LPG DIRECT INJECTION SPARK IGNITION ENGINE	Tran Van Nam,	Danang, University
CONAT2004**1050**	THE INFLUENCES OF THE MOIST AIR OVERCHARGE OVER THE GASES EVACUATED BY DIESEL ENGINE	Craciun, Ovidiu Mihai	Brasov, Transilvania University
CONAT2004**1021**	OPERATIONAL AND STRUCTURAL LIMITATIONS AND POSSIBILITIES OF THE ENGINE WITH VARIABLE COMPRESSION RATIO	Sachelarie, Adrian	Iasi, Technical University Gh. Asachi
CONAT2004**1032**	THE PREDICTION OF THE INTERACTION DROPLET/WALL FOR DIRECT INJECTION	Mardarescu, Vladimir	Brasov, Transilvania University

PAPER CODE	TITLE	SPEAKER	Institution
Session: A3 - **Advanced Powertrain / 21 October, 8:30 - 10:00 - Room: UI2** / Chairman: **Golovatai-Schmidt, Eduard**			
CONAT2004**1091**	RESEARCHES REGARDING MECHANICAL EFFICIENCY EVALUATION AT TURBOCHARGERS	Podevin, Pierre	Paris, Conservatoire National des Arts et Metiers
CONAT2004**1086**	PNEUMATIC HYBRIDATION FOR CYCLE TO CYCLE TORQUE CONTROL OF TURBOCHARGED SI ENGINES	Vasile, Iulian	Orléans, Ecole Polytechnique de l'Université
CONAT2004**1084**	STUDY UPON THE FUEL DROPS PROCESSES INTO THE INLET DUCTS OF A DIESEL ENGINE	Niculescu, Rodica	Pitesti, University
CONAT2004**1005**	TECHNOLOGIES FOR VARIABLE VALVE TRAINS; A CONTRIBUTION TO MODERN S.I. ENGINES	Golovatai-Schmidt, Eduard	Herzogenaurach, INA Schaeffler KG
Session: A4 - **Advanced Powertrain / 21 October, 10:30 - 12:00 - Room: UI2** / Chairman: **Grau, Ulrich**			
CONAT2004**1068**	A COMPARATIVE ANALYSIS REGARDING BALANCING OF THE 5 CYLINDERS ENGINES. IN-LINE 5 VS. VR5	Racota, Radu	Pitesti, University
CONAT2004**1047**	LONG-TERM ENGINE FOR VEHICLES	Martyniuk, Nickolay	Chisinau, The Academy of Transports, Informatics and Communications
CONAT2004**1058**	CONSIDERATIONS ON THE DOWNSIZING TECHNIQUE AT THE SPARK IGNITION ENGINE	Clenci, Adrian	Pitesti, University
CONAT2004**5025**	MANUFACTURING VALVES SHAFT OF ENGINE INTERNAL IGNITE THROUGH ULTRASONIC EDITING	Bebe, Tica	Craiova, University
Session: A5 - **Advanced Powertrain / 21 October, 12:30 - 14:00 - Room: UI2** / Chairman: **Gaiginschi, Radu**			
CONAT2004**1078**	THE NEW CONCEPT OF THE IC ENGINE FOR ALL FUELS	Pesic, Radivoje	Kragujevac, University
CONAT2004**1066**	ASPECTS CONCERNING INSTANT TORQUE EVALUATION WHEN ACCELERATING A TURBOCHARGED DIESEL ENGINE	Podevin, Pierre	Paris, Conservatoire National des Arts et Metiers
CONAT2004**1072**	THE STUDY OF SONIC PROPULSION SYSTEMS INTEGRATING DYNAMICAL WAVE GENERATION AND DYNAMICAL ENERGY RECOVERY	Abaitancei, Horia	Brasov, Transilvania University
CONAT2004**1074**	A PRELIMINARY STUDY OF HYDROSTATIC ENERGY RECOVERY IN VEHICLE SHOCK ABSORBERS	Radu, Gheorghe Al.	Brasov, Transilvania University
CONAT2004**2004**	ASPECTS ON RECOVERING THE BRAKING ENERGY AT URBAN BUSES	Hainarosie, Ioan	Bucharest, Politehnica University
Session: A6 - **Hybrid Vehicle / 21 October, 15:30 - 17:00 - Room: UI2** / Chairman: **Helerea, Elena**			
CONAT2004**2081**	FUEL CELL VEHICLE POWER TRAIN SIMULATION	Regep, Victor Cristian	Constanta, Ovidius University
CONAT2004**2094**	INTELLIGENT ROBUST CONTROL OF TORQUE AND SPEED FOR ELECTRIC VEHICLES PROPULSION	Georgescu, Marius	Brasov, Transilvania University
CONAT2004**2132**	ELECTRIC AND HYBRID VEHICLES IN ROMANIA	Danciu, Grigore	Bucharest, Politehnica University
CONAT2004**2064**	DYNAMIC MODELING AND COMPUTER SIMULATION OF A HYBRID AUTOMOBILE EQUIPPED WITH AUTOMATIC TRANSMISSION	Cruceru, Dragos	Pitesti, University
Session: A7 - **Hybrid Vehicle / 21 October, 17:30 - 19:00 - Room: UI2** / Chairman: **Cristea, Dumitru**			
CONAT2004**2032**	SERIES HYBRID ELECTRIC VEHICLE WITH 2-STROKE INTERNAL COMBUSTION ENGINE	Marek, Wojciech	Cracow, University of Technology
CONAT2004**2071**	HIBRID DRIVE SOLUTION	Lefter, Emilian	Pitesti, University
CONAT2004**2065**	CREATING A HYBRID PROPULSION SYSTEM FOR MINI VEHICLE: CHOOSING THE POWERTRAIN LAYOUT	Cruceru, Dragos	Pitesti, University
CONAT2004**2048**	HYBRID ELECTRIC TRACTOR TRAILER FOR NORTH AMERICA	Cantemir, Codrin-Gruie	Columbus, The Ohio State University
CONAT2004**1081**	PROPULSION-GOVERNMENT FITTING ACTED BY ASYNCHRONOUS MOTOR IN NON-CONVENTIONAL CONSTRUCTION	Dobref, Vasile	Constanta, Naval Academy Mircea cel Batran
Session: A8 - **Advanced Powertrain / 22 October, 8:30 - 10:00 - Room: UI2** / Chairman: **Burnete, Nicolae**			
CONAT2004**1105**	THE INFLUENCE OF THE CONSTRUCTIONAL FACTORS ABOUT THE RUNNING OF THE CENTRIFUGAL REACTIVE FILTER	Stan, Marinica	Pitesti, University
CONAT2004**1036**	SPARK-IGNITED ENGINE MODEL FOR LAMBDA CONTROL	Floroian, Dan	Brasov, Transilvania University
CONAT2004**1077**	CONTRIBUTIONS TO THE DYNAMIC DEFINITION OF THE LIQUID FUEL INJECTION PROCESS AT THE INTERNAL COMBUSTION ENGINES	Benche, Victor	Brasov, Transilvania University
CONAT2004**1108**	THE CONTRIBUTION OF THE INTAKE SYSTEM TO THE EFFICIENCY OF THE DI DIESEL ENGINE THERMODYNAMIC CYCLE	Chiru, Anghel	Brasov, Transilvania University
CONAT2004**1092**	THE DEFINE OF THE MOVEMENT TIME OF THE PISTON AT THE HYDRAULIC COMMAND SYSTEM FOR ADAPTIVE ADMISSION AT HEAT ENGINES	Stan, Marinica	Pitesti, University

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Session: A9 - **Advanced Powertrain / 22 October, 10:30 - 12:00 - Room: UI2** / Chairman: **Negrea, Virgiliu-Dan**			
CONAT2004**2107**	HEAT EXCHANGE BETWEEN CYLINDER HEAD, PISTON, CYLINDER BLOCK AND EXTERNAL ATMOSPHERE IN THE CASE OF A COMPRESSION IGNITION ENGINE	Coldea, Cristian	Cluj-Napoca, Technical University
CONAT2004**4052**	NEW ASPECTS CONCERNING THE STUDY OF RADIATORS COMPOSED BY SERIES AND PARALLEL COUPLING UNITS	Muresan, Maria	Brasov, Transilvania University
CONAT2004**1003**	TRENDS OF MORE COMPACT COOLING SYSTEMS FOR VEHICLES AND SELF DRIVEN CARS EQUIPPED WITH DIESEL ENGINES	Ilies, Paul	Bistrita, RAAL
CONAT2004**2012**	METHOD FOR THERMAL LOSSES BY COOLING SYSTEM RADIATOR MEASUREMENT AT AUTOMOTIVE VEHICLES	Sachelarie, Adrian	Iasi, Technical University Gh. Asachi
CONAT2004**4089**	REGARDING THE ENSURING OF THE THERMAL COMFORT IN MODERN AIR-CONDITIONING SYSTEMS	Pana, Gabriela Monica	Craiova, University
CONAT2004**4020**	CONSIDERATIONS IN OPTIMAL ADJUSTMENT OF AIRCONDITIONING RESOURCES EQUIPMENT WITH VEHICLE CATEGORY	Sacuiu, Florin	Brasov, Cambric Consulting
Session: B1 - **Vehicle Systems / 20 October, 15:30 - 17:00 - Room: UI3** / Chairman: **Oprean, Mircea**			
CONAT2004**1087**	DYNAMIC OF THE NONHOLONOMIC AUTOMOTIVE TRANSMISSIONS AS VARIABLE SPEED DRIVES	Zlokolica, Miodrag	Novi-Sad, University
CONAT2004**1053**	SOME ASPECTS CONCERNING THE SIMULATION OF A CVT VEHICLE DESIGN PERFORMANCES	Isac, Victor	Bucharest, Romanian Road Authority
CONAT2004**1085**	RESEARCHES CONCERNING THE UTILIZATION OF TWO PARALLELS FLUX POWER TRANSMISSIONS, MECHANICAL AND HYDROSTATIC, AT VEHICLES	Nastasoiu, Stelian	Brasov, Transilvania University
CONAT2004**1046**	BELT-TYPE CVT FOR THE AUTOMOTIVE PROPULSION	Scafaru, Catalin	Brasov, Transilvania Univ.
CONAT2004**1103**	UPON MODELING, SIMULATION AND DYNAMIC ANALYSIS OF THE VEHICLE EXHAUST SYSTEM	Lache, Simona	Brasov, Transilvania University
Session: B2 - **Vehicle Systems / 20 October, 17:30 - 19:00 - Room: UI3** / Chairman: **Macarie, Tiberiu**			
CONAT2004**1073**	MODELING AND SIMULATION OF FRICTION DISC CLUTCH OPERATION IN AUTOMATIC TRANSMISSION	Sustersic, Vanja	Kragujevac, University
CONAT2004**1071**	THE USE OF THE STRUCTURAL SYMMETRIES IN THE VIBRATION ANALYSIS OF THE TRANSMISSION	Vlase, Sorin	Brasov, Transilvania University
CONAT2004**1062**	ABOUT CROSS-COUNTRY CAR TRANSMISSION STRAINS	Ciolan, Gheorghe	Brasov, Transilvania University
CONAT2004**1106**	THEORETICAL AND EXPERIMENTAL STUDY ON MECHANICAL STRESSES WITHIN CARS' TRANSMISSIONS WHILE ROLLING ON DIFFERENT ROAD TYPES	Câmpian, Ovidiu	Brasov, Transilvania University
Session: B3 - **Advanced Testing Methods / 21 October, 8:30 - 10:00 - Room: UI3** / Chairman: **Vlase, Sorin**			
CONAT2004**4060**	ANALYSIS OF BRAKE PAD FRICTION CHARACTERISTIC OBTAINED BY POLYGON TESTING OF VEHICLE	Glisovic, Jasna	Kragujevac, University
CONAT2004**2006**	CONSIDERATIONS REGARDING METHODS AND TECHNIQUES OF DIAGNOSTICATION OF VEHICLES BY MEANS OF VIBRATIONS	Calota, Stanica	Pitesti, Tank and Driving Training School
CONAT2004**2118**	EXPERIMENTAL RESEARCHES OVER THE POSSIBILITIES TO DIAGNOSE THE MECHANICAL TRANSMISSIONS BY FREQUENCY ANALYSIS OF VIBRATION	Nicolae, Viorel	Pitesti, University
CONAT2004**4078**	MODAL ANALYSIS IN ROTATING MACHINERY	Nicoara, Dumitru D.	Brasov, Transilvania University
CONAT2004**2086**	MEASURING THE WAYS OF TRANSMISSION OF VIBRATIONS COMING FROM THE FORCE GROUP	Vasilovici, Nicolae	Brasov, INAR
Session: B4 - **Advanced Testing Methods / 21 October, 10:30 - 12:00 - Room: UI3** / Chairman: **Tuica, Alexandru**			
CONAT2004**2084**	SOOT FORMATION ANALYSIS IN TURBULENT DIFFUSION FLAMES BY VISIOSCOPE	Bui Van Ga,	Danang, University
CONAT2004**1030**	METHOD FOR TESTING BEARINGS AT LIMIT SPEEDS	Bolfa, Traian E.	Brasov, Transilvania University
CONAT2004**2082**	THE MAIN BEARING ZONE ELASTICAL PROPERTIES ANALYSIS BY HOLOGRAPHIC INTERFEROMETRY AND FEM	Szava, Ioan	Brasov, Transilvania University
CONAT2004**2091**	EXPERIMENTAL DATA PROCESSING ON AN INERTIA DYNAMOMETER TEST-BAND FOR BRAKE LINING ASSEMBLY	Fedoreanu, Marilena	Brasov, INAR
Session: B5 - **Advanced Testing Methods / 21 October, 12:30 - 14:00 - Room: UI3** / Chairman: **Alexandru, Petre**			
CONAT2004**2085**	TEMPERATURE DISTRIBUTION AND SOOT FORMATION ANALYSIS IN PRE-CHAMBER OF MAZDA WL ENGINE BY AVL VISIOSCOPE	Pham Xuan Mai,	Ho Chi Minh, University
CONAT2004**1041**	EXPERIMENTAL TEST CONCERNING THE FRAMEWORK AND THE SEAT-BACK HINGE OF A CAR CHAIR	Alexandru, Petre	Brasov, Transilvania University

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CONAT2004**2078**	CONTROL STRATEGIES IN AFTERTREATMENT OF LEAN BURN ENGINES	Drosescu, Radu	Iasi, Technical University Gh. Asachi
CONAT2004**2033**	LASER-INDUCED INCANDESCENCE TO STUDY THE SOOT PARTICLES FORMATION	Boiarciuc, Andrei	Orleans, Ecole Polytechnique de l'Universite
CONAT2004**2136**	THE BOURDON TUBE - ELASTIC TYPE PRESSURE TRANSDUCER	Comanescu, Ioana Sonia	Brasov, Transilvania University
Session: B6 - **Vehicle Systems / 21 October, 15:30 - 17:00 - Room: UI3** / Chairman: **Fratila, Gheorghe**			
CONAT2004**4080**	COMPUTER PROGRAMME FOR STUDY THE IN COMMON WORKING CONDITIONS OF INTERNAL COMBUSTION ENGINE AND HYDRAULIC CONVERTER IN CASE OF CONTINUOUSLY VARIABLE TRANSMISSION	Burciu, Salvadore-Mugurel	Galati, Dunarea de Jos University
CONAT2004**1052**	THE SELECTION OF AN APPROPRIATE GEAR RATIO IN AN AUTOMATIC CITY-BUS TRANSMISSION	Dragne, Florin Daniel	Bucharest, Politehnica University
CONAT2004**1051**	SIMULATION OF GEAR SELECTION IN AN AUTOMATIC TRANSMISSION	Cancel, Laurentiu	Bucharest, Politehnica University
CONAT2004**2129**	A MEASURING SYSTEM FOR REMOTE LOAD MONITORING OF THE INTERNAL-COMBUSTION ENGINE IN AGRICULTURAL TRACTORS	Czechlowski, Miroslaw	Poznan, Institute of Agricultural Engineering
Session: B7 - **Vehicle Systems / 21 October, 17:30 - 19:00 - Room: UI3** / Chairman: **Popescu, Simion**			
CONAT2004**3019**	RESEARCHES CONCERNING THE STABILITY OF THE OPTIMUM TIME PERIOD FOR THE EXPLOITATION OF THE TECHNICAL TRANSPORTATION SYSTEMS FROM AGRICULTURE	Bratucu, Gheorghe	Brasov, Transilvania University
CONAT2004**1082**	THE THEORY OF PLANE-PARALLEL MOTION OF THE SELF -PROPELLED ROOTS HARVESTIING MACHINE	Bulgakov, Volodymyr M.	Kiev, National Agricultural University of Ukraine
CONAT2004**1097**	ASPECTS REGARDING THE DYNAMIC STABILITY OF FORK LIFT TRUCKS	Popescu, Simion	Brasov, Transilvania University
CONAT2004**1088**	CONTRIBUTIONS TO THE STUDY OF OSCILLATIONS OF THE TRACTOR-FRONT LOADER SYSTEM	Popescu, Simion	Brasov, Transilvania University
CONAT2004**1107**	ASPECTS CONCERNING THE PLANE SIEVE GRANULAR MATERIAL LOADING LEVEL INCREASING	Gaceu, Liviu	Brasov, Transilvania University
Session: B8 - **Advanced Testing Methods / 22 October, 8:30 - 10:00 - Room: UI3** / Chairman: **Salajan, Cornel**			
CONAT2004**2005**	ASPECTS CONCERNING THE USE OF THE STATISTICAL METHODS IN THE EXPERIMENTAL DATA PROCESSING	Calota, Stanica	Pitesti, Tank and Driving Training School
CONAT2004**1100**	TEST BENCH FOR BICYCLE COMPONENTS	Thomas, Stefan	Konstanz, University of Applied Sciences
CONAT2004**2007**	ASPECTS CONCERNING THE USE OF THE SPECIALIZED SOFTWARE IN THE INTERPRETATION OF THE EXPERIMENTAL DATA	Ionescu, Cornel	Pitesti, Tank and Driving Training School
CONAT2004**2134**	MEASUREMENT METHOD FOR CAR-BODY DEFORMATION MOMENT	Neagoe, Dumitru	Craiova, University
Session: B9 - **Advanced Transport Systems / 22 October, 10:30 - 12:00 - Room: UI3** / Chairman: **Zamfira, Sorin**			
CONAT2004**4053**	ASPECTS REGARDING THE INFLUENCE OF THE PUBLIC ILLUMINATION ON THE ROAD EVENTS	Zamfira, Sorin	Brasov, Transilvania University
CONAT2004**4062**	THE EVOLUTION OF AUTOMOTIVE LIGHTING SYSTEM AND TRAFFIC SAFETY	Enache, Valeriu	Brasov, Transilvania University
CONAT2004**2135**	THE PROCESSING OF DATA RESULTED BY EXPERIMENTAL WAY	Hainarosie, Ioan	Bucharest, Politehnica University
Session: C1 - **Emissions / 20 October, 15:30 - 17:00 - Room: UI6** / Chairman: **Cofaru, Corneliu**			
CONAT2004**2079**	EXHAUST EMISSIONS OF REGULATED AND UNREGULATED POLLUTANTS OF PASSENGER CARS	Joumard, Robert	Bron, INRETS
CONAT2004**2106**	RESEARCH CONCERNING THE POLLUTION PRODUCED BY THE DIESEL ENGINES RUNNING ON MIXTURE OF DIESEL AND BIOFUELS	Costea, Adrian	Cluj-Napoca, Technical University
CONAT2004**2100**	SYNTHESIS OF SOME RESEARCHES CONCERNING THERMAL PREPARATION OF THE AIR ASPIRATED IN A DIRECT INJECTION DIESEL ENGINE FOR REDUCING OF THE SMOKE DEGREE	Iorga, Danila	Timisoara, Politehnica University
CONAT2004**2028**	THE MATHEMATICAL MODEL FOR ROAD SERVICE IN THE JAMMED INTERSECTIONS IN THE CENTRAL AREA OF CRAIOVA CITY	Dumitru, Ilie	Craiova, University
Session: C2 - **Emissions / 20 October, 17:30 - 19:00 - Room: UI6** / Chairman: **Abaitancei, Dan**			
CONAT2004**2067**	CONTRIBUTIONS REGARDING THE ANALYSIS OF THE INLET MANIFOLD GEOMETRY INFLUENCE UPON THE EXHAUST EMISSIONS AT A ROTARY VALVES D.I. DIESEL ENGINE USING THE FINITE ELEMENT METHOD	Zichil, Valentin	Bacau, University
CONAT2004**2050**	THE MODERN PASSENGER CARS FUEL ECONOMY POTENTIAL	Bataus, Marius	Bucharest, Politehnica Univ.
CONAT2004**1090**	THE INFLUENCE OF EURO2 UNLEADED GASOLINE TO EURO3 ENGINE	Tuica, Alexandru	Craiova, Daewoo Automobile Romania

PAPER CODE	TITLE	SPEAKER	Institution
CONAT2004**2027**	CONSIDEARTIONS REGARDING THE ANALYSIS AND THE PROGNOSIS WITH STATISTICAL METHODS OF THE ENVIRONEMENT POLLUTION LEVEL DUE TO THE URBANE VEHICLES TRAFFIC	Ungureanu, Cezar Alin	Craiova, University
CONAT2004**2102**	THE INFLUENCE OF THE CORRECT DIAGNOSIS OF THE ENGINE TO THE EMISSIONS	Cojocaru, Aurelian	Brasov, Transilvania University
Session: C3 - **Advanced Transport Systems / 21 October, 8:30 - 10:00 - Room: UI6** / Chairman: **Neagu, Elena**			
CONAT2004**3007**	ANALYSIS OF SEATS DESIGN CONCEPTS ON MIDDLE CLASS PASSANGER CAR	Snezana, Vrekic	Kragujevac, Zastava Cars, R.D. Institute
CONAT2004**3011**	A CONTRIBUTION TO SEAT INVESTIGATION METHOD DEVELOPMENT FROM THE ASPECT OF RIDE COMFORT	Demic, Miroslav	Kragujevac, University
CONAT2004**3001**	RESEARCH ON THE EVOLUTION OF AUTOMOTIVE INTERIOR AS A LIVING SPACE: DRIVE-BY-WIRE TECHNOLOGY AND NEW SPATIAL SOLUTIONS	Liamadis, George	Thessaloniki, Aristotle University
CONAT2004**3017**	LEARNING FROM NATURE	Gui, Oana	Cluj-Napoca, Technical University
Session: C4 - **Advanced Transport Systems / 21 October, 10:30 - 12:00 - Room: UI6** / Chairman: **Florea, Daniela**			
CONAT2004**3008**	WAVES FLOW TRAFFIC ANALYSIS	Neagu, Elena	Pitesti, University
CONAT2004**3006**	CAPACITY AND SAFETY OF THE SIGNALIZED INTERSECTION	Florea, Daniela	Brasov, Transilvania University
CONAT2004**3010**	DESIGN AND DEVELOPMENT OF VELOCITY ESTIMATION IN AUTOMOTIVE CONTROL SYSTEMS	Georgescu, Marius	Brasov, Transilvania University
CONAT2004**3015**	ELECTRONIC DEVICE FOR VISUALIZATING THE MOVEMENT SPEED OF A VEHICLE, ON THE SEGMENTS OF ROAD WITH SPEED LIMIT	Tero, Mircea	Targu-Mures, Petru Maior University
Session: C5 - **Advanced Transport Systems / 21 October, 12:30 - 14:00 - Room: UI6** / Chairman: **Florea, Daniela**			
CONAT2004**2013**	FUEL EFFICIENCY FOR AUTOMOBILES IN JAMMED TRAFFIC	Georgescu, Liviu	Bucharest, Politehnica University
CONAT2004**3020**	THE ITS ARCHITECTURE ONE OF THE MOST IMPORTANT COMPONENT FOR PLANNING AND DEVELOPING OF THE INTELLIGENT TRANSPORTATION SYSTEMS AND A NEW APPROACH OF THE INFORMATION AND COMMUNICATION SYSTEMS IN TRANSPORT FIELD	Nemtanu, Florin-Codrut	Bucharest, Politehnica University
CONAT2004**2125**	PREVENTION MEASURES FOR RED-LIGHT RUNNING AT SIGNALIZED INTERSECTIONS	Florea, Daniela	Brasov, Transilvania University
CONAT2004**3021**	METHODOLOGY FOR INVESTIGATION THE CALLS FLOW IN THE EMERGENCY AID CENTRE	Evtimova, Vesselina	Rousse, "Angel Kanchev" University
Session: C6 - **Emissions / 21 October, 15:30 - 17:00 - Room: UI6** / Chairman: **Apostolescu, Nicolae**			
CONAT2004**2051**	THE AUTOMOBILE AND THE ENVIRONMENT	Panait, Traian	Bucharest, Ministry of Transports, Constructions and Turism
CONAT2004**2089**	OPTIMIZATION METHODS OF THE CITY TRAFFIC FOR ENVIRONMENT POLLUTION DIMINISH	Tarulescu, Stelian	Brasov, Transilvania University
CONAT2004**2014**	SUSTAINABLE TRANSPORT AND EU ENLARGEMENT	Stratulat, Sergiu	Chisinau, The Academy of Transports, Informatics and Communications
CONAT2004**2097**	PURIFICATION OF THE SEWAGE RESULTED FROM THE NEW CARS WASHING STATION	Duicu, Simona Sofia	Brasov, Transilvania University
Session: C7 - **Aerodynamics / 21 October, 17:30 - 19:00 - Room: UI6** / Chairman: **Benche, Victor**			
CONAT2004**1009**	THEORETICAL EVALUATION OF THE UNDER-BODY DRAG OF ROAD VEHICLE	Benche, Victor	Brasov, Transilvania University
CONAT2004**1010**	ABOUT GOUND EFFECT AND MODELING OF THIS IN A VIRTUAL ENVIRONMENT	Chiru, Anghel	Brasov, Transilvania University
CONAT2004**1011**	CFD STUDY REGARDING THE INFLUENCE OF THE UNDERBODY GEOMETRY ON TOTAL DRAG FOR A VEHICLE	Huminic, Angel	Brasov, Transilvania University
CONAT2004**1031**	THEORETICAL AND APPLIED METHODS IN OPTIMIZATION OF MAXIMUM DRAG AIRFOILS	Postelnicu, Adrian	Brasov, Transilvania University
Session: C8 - **Integrated Safety / 22 October, 8:30 - 10:00 - Room: UI6** / Chairman: **Rus, Florean**			
CONAT2004**4067**	DETERMINING THE RIGIDITY COEFFICIENT OF VEHICLES DEFORMED STRUCTURE IN CASE OF FRONTAL COLLISION AND OFFSET	Soica, Adrian	Brasov, Transilvania University
CONAT2004**4043**	ELASTIC SYSTEM OF SHOCK- PROOF PROTECTION	Rusnac, Iulian	Chisinau, The Academy of Transports, Informatics and Communications

THURSDAY, OCTOBER 21, 08:30 – 12:00

Systems for the Management of the Road Safety in Romania FORUM

Mr. Eng. Peter M.W. ELSENAAR - GRSP Senior Advisor, Forum Chairman.

10:30 - 11:00 Cofee Break

FRIDAY, OCTOBER 22, 08:30 – 12:00

Development of the Motor Vehicle Parts & Components Industry, a National Priority FORUM

Dr. Eng. Constantin STROE - ACAROM President, Forum Chairman

International Congress Center

PAPER CODE	TITLE	SPEAKER	Institution
CONAT2004**4030**	ANALYTICAL AND NUMERICAL MODELS USED TO EVALUATE THE ENERGY CONSUMED BY THE VEHICLE STRUCTURE DURING THE FRONTAL IMPACT	Tabacu, Stefan	Pitesti, University
CONAT2004**4039**	CRASH BEHAVIOR STUDY FOR BODIES STRUCTURES OF AUTOMOBILES	Iozsa, Daniel	Bucharest, Politehnica University
Session: D1 - **Design Development / 20 October, 15:30 - 17:00 - Room: UII2** / Chairman: **Szava, Ioan**			
CONAT2004**4077**	RESEARCHES CONCERNING DIRECT INJECTION SYSTEM MODELATION OF A DIESEL ENGINE FOR BURNING EVALUATION ON THE BASIS OF DROPLETS CLOUD EVOLUTION	Negrea, Virgiliu Dan	Timisoara, Politehnica University
CONAT2004**4063**	CRITERIONS FOR THE GEOMETRY OPTIMIZATION AT THE HEAD OF THE PISTON ROD AT D.I. DIESEL ENGINES USING FINITE ELEMENT METHOD	Zichil, Valentin	Bacau, University
CONAT2004**4029**	STEADY-STATE ANALYSIS OF THE DISPLACEMENTS FIELD FOR A FOUR-STROKE ENGINE ASSEMBLY	Obogeanu, Claudiu	Craiova, University
CONAT2004**4031**	A STUDY REGARDING THE WINDSHIELD DEFROSTING PROCESSS	Ivanescu, Mariana	Pitesti, University
Session: D2 - **Design Development / 20 October, 17:30 - 19:00 - Room: UII2** / Chairman: **Mateescu, Viorel**			
CONAT2004**1026**	INVESTIGATION OF INFLUENCE ON THE CAR BODY CONSTRUCTION DEFINING	Milovanovic, Milan	Kragujevac, Zastava Cars, R.D. Institute
CONAT2004**4032**	SPECTRAL ANALYSIS OF THE NOISE INSIDE THE PASSENGERS COMPARTMENT	Ivanescu, Mariana	Pitesti, University
CONAT2004**4017**	OPTIMAL DESIGNING OF A SMALL TRICYCLE VEHICLE USING CAD RESOURCES: SOLIDWORKS RELEASE 2003	Mesaros, Mihai	Brasov, Cambric Consulting
CONAT2004**4038**	DESIGN AND CONSTRUCTION OF A ROAD-SNOW-WATER VEHICLE	Scafaru, Catalin	Brasov, Transilvania University
Session: D3 - **Design Development / 21 October, 8:30 - 10:00 - Room: UII2** / Chairman: **Irimia, Cristinel**			
CONAT2004**4081**	CHOOSING THE SAFETY COEFFICIENT FOR THE VEHICLE MECHANISMS IN CONSIDERATION OF THE ECONOMIC CRITERIUM	Mateescu, Viorel	Bucharest, Politehnica University
CONAT2004**4072**	TRANSFER CASES	Todor, Ion	Brasov, Transilvania Univ.
CONAT2004**4016**	IMPROVEMENT OF A MOTOR GRADER FRONT AXLE CARRYING STRUCTURE ACCORDING TO LOW MANUFACTURE AND COSTS	Balazs, Tiberiu	Brasov, Cambric Consulting

PAPER CODE	TITLE	SPEAKER	Institution
CONAT20044087	RESEARCHES REGARDING THE COMPUTER SIMULATION POSSIBILITY OF THE TESTS FOR TRACTORS CABINS AND OF THE RESISTANCE AND PROTECTION PARTS OF OTHER FARM MACHINERY	Cârdei, Petru	Bucharest, INMA
Session: D4 - **Design Development / 21 October, 10:30 - 12:00 - Room: UII2** / Chairman: **Grovu, Mihai**			
CONAT20044070	THE KINEMATICAL OPTIMIZATION OF A PLANAR SUSPENSION MECHANISM FOR AN IMPOSED ROLL CENTER HEIGHT	Alexandru, Petre	Brasov, Transilvania University
CONAT20044036	METHODS TO MODIFY THE DAMPING CHARACTERISTICS FOR A TYRE-SUSPENSION ENSEMBLE	Bolcu, Dumitru	Craiova, University
CONAT20041098	RESEARCHES OVER A NEW SELF-ADJUSTABLE SHOCK ABSORBER (VZN)	Niculescu, Adrian	Pitesti, Dacia Groupe Renault
CONAT20041035	CONSIDEARTIONS REGARDING THE COMPUTATIONAL ANALYSIS FOR THE REVERSING PLAN BARS MECHANISMS	Ungureanu, Cezar Alin	Craiova, University
Session: D5 - **Design Development / 21 October, 12:30 - 14:00 - Room: UII2** / Chairman: **Câmpian, Ovidiu**			
CONAT20044086	A HUMAN FEM MODEL PRESENTATION	Barbu, Daniela Mariana	Brasov, Transilvania University
CONAT20044024	OPTIMIZING OF DESIGN SOLUTION FOR ENGINE MOUNTED AIR CLEANER	Predica, Dan	Brasov, Cambric Consulting
CONAT20044079	PERFORMANCES OF THE HEAT EXCHANGES WITH FIELD TUBES	Nagi, Mihai	Timisoara, Politehnica University
CONAT20044026	INVESTIGATION ABOUT OPTIMIZING AN ENGINE COOLING SYSTEM WITH CYLINDRICAL VALVE AND BYPASS	Fejer, Simon Istvan	Brasov, Cambric Consulting
Session: D6 - **Design Development / 21 October, 15:30 - 17:00 - Room: UII2** / Chairman: **Nagi, Mihai**			
CONAT20044075	DESIGN INFLUENCE IN E-ENGINEERING	Vogt, Horst	Neu-Isenburg, ICEM GmbH
CONAT20041083	CONSTRUCTION AND KINEMATICS OF AUTOMOTIVE SECONDARY LATCH MECHANISMS	Udriste, Daniel Ion	Michigan, Keykert USA, Inc.
CONAT20044027	USAGE OF DIGITAL MOCK-UP AND VIRTUAL PROTOTYPING TOOLS IN DYNAMIC SIMULATION OF THE GUIDING SYSTEMS OF THE MOTOR VEHICLES	Alexandru, Catalin	Brasov, Transilvania University
CONAT20044091	THE INFLUENCE OF NON - STATIONARY THERMAL REGIME OVER THE BEHAVIOUR OF DISKS IN ROTATING MOTION	Radu, Gheorghe N.	Brasov, Transilvania University
Session: D7 - **Advanced Electronics / 21 October, 17:30 - 19:00 - Room: UII2** / Chairman: **Moldoveanu, Florin**			
CONAT20041104	SPECIFIC FEATURES IN THE DESIGN AND MANUFACTURING OF MICROSYSTEMS INVOLVED IN AUTOMOBILE SAFETY AND CONTROL SYSTEM	Lache, Simona	Brasov, Transilvania University
CONAT20041015	USE OF BUS SYSTEMS IN AUTOMOTIVE DRIVES	Dumitriu, Adrian	Brasov, Transilvania University
Session: D8 - **Vehicle Systems / 22 October, 8:30 - 10:00 - Room: UII2** / Chairman: **Manea, Laurentiu**			
CONAT20041033	SOME ASPECTS REGARDING AUTOMOTIVE ELECTRICAL SUPPLY SYSTEM PERFORMANCE IMPROVEMENT	Mailat, Adrian	Brasov, Transilvania University
CONAT20041012	DESIGN CONSIDERATION FOR VOLTAGE REGULATOR MODULES USED IN AUTOMOTIVE CONTROL	Bizon, Nicu	Pitesti, University
CONAT20042018	METHOD FOR ESTIMATION THE ON BOARD ELECTRICAL ENERGY BALANCE,IN TYPICAL AUTOMOTIVE VEHICLE DRIVING CYCLE	Novac, Adrian	Brasov, INAR
CONAT20041045	POWER MANAGEMENT NAVAL SYSTEMS	Oae, Alexandru	Constanta, Naval Academy Mircea cel Batran
Session: D9 - **Advanced Electronics / 22 October, 10:30 - 12:00 - Room: UII2** / Chairman: **Moldoveanu, Florin**			
CONAT20044012	HYBRID SOLUTION FOR AN INTEGRATED STRATER-GENERATOR IN AUTOMOTIVE APPLICATIONS	Simion, Alecsandru	Iasi, Technical University Gh. Asachi
CONAT20043004	CAR MONITORING SYSTEM USING GPS AND GPRS	Iliescu, Iulian	Brasov, Genials SRL
CONAT20041016	SOLUTIONS FOR DC MOTORS CONTROL IN AUTOMOTIVE DRIVES	Dumitriu, Adrian	Brasov, Transilvania University
Session: E1 - **Manufacturing and Logistics / 20 October, 15:30 - 17:00 - Room: UII3** / Chairman: **Kuchar, Peter**			
CONAT20045035	STATISTICAL PROCESS CONTROL-BASE FOR CONTINUOUS IMPROVEMENT OF MANUFACTURING PROCESSES	Popescu, Mihaela	Brasov, Transilvania University
CONAT20045022	CUSTOMIZABLE SOLUTION FOR MULTI-LEVEL BILL OF MATERIALS	Muresan, Horatiu	Brasov, Prism Enterprise Solutions RDC
CONAT20045007	WORKFLOW IN THE VIRTUAL AUTOMOTIVE ENTERPRISE	Cocosila, Mihail	Hamilton, McMaster University
CONAT20045003	SOME ASPECTS CONCERNING LOW VELOCITY IMPACT RESISTANCE OF CFRP MATERIALS	Dogaru, Florin	Brasov, Transilvania University

PAPER CODE	TITLE	SPEAKER	Institution
Session: E2 - **Manufacturing and Logistics / 20 October, 17:30 - 19:00 - Room: UII3** / Chairman: **Mihon, Liviu**			
CONAT2004**5034**	MANUFACTURING TRENDS IN TRANSMISSION GEARS BASED ON THE ELECTRON BEAM WELDING	Soaita, Dumitru	Targu-Mures, Petru Maior University
CONAT2004**5012**	INDUSTRIAL PROJECT QUALITY MANAGEMENT	Simon, Adela Eliza	Brasov, Transilvania University
CONAT2004**5009**	REQUIREMENTS FOR THE INFORMATION QUALITY MANAGEMENT SYSTEM TO IMPLEMENT ISO/TS 16949 IN AUTOMOTIVE INDUSTRY	Bârsan-Pipu, Nicolae	Brasov, Dimitrie Cantemir Christian University
Session: E3 - **Life Cycle Analysis / 21 October, 8:30 - 10:00 - Room: UII3** / Chairman: **Nagy, Tiberiu**			
CONAT2004**2133**	EVALUATING THE FUNCTIONAL RELIABILITY OF A COMPLEX DEVICE BY DIAGNOSIS	Andreescu, Cristian	Bucharest, Politehnica University
CONAT2004**2121**	CONTRIBUTIONS TO RESOLVING DESTRUCTION CAUSES RECORDED IN THE SOME VEHICLES ENGINES AFFECTED BY CAVITATION DUE TO THE STRUCTURE OF THE MATERIAL THE CYLINDER IS MADE OF AND TO THE CONSTRUCTION OF THE CYLINDER-HEAD GASKET	Manea, Adriana	Constanta, Ovidius University
CONAT2004**2096**	SEARCHES ON THE FATIGUE BEHAVIOR OF THE CHAIN TRACK RECOIL CYLINDERS PURPOSING A BEST DESIGN SOLUTION	Grovu, Mihail	Brasov, Cambric Consulting
CONAT2004**4082**	TEST STAND DESIGNED FOR THE AUTOMOBILE BODYWORK RELIABILITY EVALUATION	Filip, Nicolae	Cluj-Napoca, Technical University
Session: E4 - **Life Cycle Analysis / 21 October, 10:30 - 12:00 - Room: UII3** / Chairman: **Gümpel, Paul**			
CONAT2004**2122**	SIMULATION OF CORROSION BEHAVIOR OF STAINLESS STEELS IN PASSENGER EXHAUST SYSTEMS	Hoffmann, Cristina	Konstanz, Fachhochschule
CONAT2004**1007**	THE BALL SHIFTING BEARINGS CHANNELS PROFILE INFLUENCE OVER THE FRICTION COEFFICIENT	Cozma, Rodica	Brasov, Transilvania University
CONAT2004**2120**	CONTRIBUTIONS TO THE CAUSES OF DESTRUCTIONS RECORDED IN VEHICLES' ENGINES REGARDING THE COMPLEX ANALYSIS OF INTERACTION COOLING LIQUIDS-CYLINDER JACKET	Manea, Adriana	Constanta, Ovidius University
Session: E5 - **Life Cycle Analysis / 21 October, 12:30 - 14:00 - Room: UII3** / Chairman: **Nagy, Tiberiu**			
CONAT2004**2119**	CONTRIBUTIONS TO THE CAUSES THAT LED TO DESTRUCTIONS IN VEHICLES ENGINES WITH REFERENCE TO CYLINDER BLOCK CONSTRUCTION AND ITS INTERACTION WITH THE COOLING LIQUID USED	Manea, Laurentiu	Constanta, Ovidius University
CONAT2004**2111**	PROGRAMME COMPUTE FOR THE WEIBULL DISTRIBUTION EVALUATION, DESCRIBED BY TWO VARIABLE PARAMETERS	Munteanu, Vlad	Cluj-Napoca, Technical University
CONAT2004**2103**	BRAKING STUDY ON CARS WITH GROSS WEIGHT LESS THAN 700 KG	Dima, Dragos	Brasov, Transilvania Univ.
Session: E6 - **Manufacturing and Logistics / 21 October, 15:30 - 17:00 - Room: UII3** / Chairman: **Bobescu, Gheorghe**			
CONAT2004**4088**	NEW DEVELOPMENTS IN MATERIALS FOR CAR BODY APPLICATIONS	Gümpel, Paul	Konstanz, Fachhochschule
CONAT2004**5031**	ASPECTS REGARDING WINDSHIELD BONDING TECHNOLOGY DEVELOPED BY SIKA	Vieru, Radu	Brasov, Sika Romania SRL
CONAT2004**5027**	EXPERIMENTS CONCERNING THE ECOLOGICAL ALLOYS WITH A SN-SB BASE USED FOR THE MANUFACTURING OF BEARINGS	Hutiu, Gheorghe	Arad, Aurel Vlaicu University
CONAT2004**5030**	MODELLING AND MATHEMATICAL SIMULATION USED FOR THE TESTING OF SPECIFIC PARAMETERS OF PARTS RECONDITIONED VIA BUILD-UP SURFACING	Halaciuga, Ioan	Arad, Aurel Vlaicu University
Session: E7 - **Manufacturing and Logistics / 21 October, 17:30 - 19:00 - Room: UII3** / Chairman: **Turea, Nicolae**			
CONAT2004**5028**	EXPERIMENTS CONCERNING THE ELIMINATION OF CD AND AS THROUGH VACUUM EVAPORATION FROM ANTIFRICTION ALLOYS WITH A SN-SB BASE USE DFOR THE MANUFACTURING OF BEARINGS	Hutiu, Gheorghe	Arad, Aurel Vlaicu University
CONAT2004**5029**	EXPERIMENTS CONCERNING THE IMPORVEMENT OF THE QUALITY OF PARTS RECONDITIONED BY BUILD-UP SURFACING WITH METALLIC MATERIAL	Halaciuga, Ioan	Arad, Aurel Vlaicu University
CONAT2004**5019**	THE USE OF HIGH PERFORMANCE COATINGS AT COMPONENTS OF INTERNAL COMBUSTION ENGINES	Radu, Ioan-Serban	Konstanz, University Of Applied Sciences
CONAT2004**5006**	TEMPERATURE DEPENDENCE OF A FEW MATERIAL PROPERTIES ANALYSIS IN CASE OF METALLIC MATRIX COMPOSITE MATERIALS USED IN THE BRAKE MANUFACTURING PROCESS	Luca Motoc, Dana	Brasov, Transilvania University
Session: E8 - **Manufacturing and Logistics / 22 October, 8:30 - 10:00 - Room: UII3** / Chairman: **Bratucu, Gheorghe**			
CONAT2004**5036**	RESEARCHES CONCERNING THE RECOVERING OF THE PARTS FROM THE INSPECTION EQUIPMENT THROUGH LAYERS OF PLASMA MEDIUM	Bratucu, Gheorghe	Brasov, Transilvania University
CONAT2004**5040**	HO MACH PROCESSING IN AUTOMOTIVE MANUFACTURING	Grama, Lucian	Târgu Mures, Petru Maior University
CONAT2004**5037**	MANUFACTURING PROCESS OF FLAT AND CONICAL SURFACES OF GEARS BY SUPERFINISH	Lepadatescu, Badea Dan	Brasov, Transilvania University

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CONAT20045039	USING THE COMPOSITE MATERIALS AS FUNCTIONAL PIECES FOR REAR AXLE SUSPENSION	Pana, Gabriela Monica	Craiova, University
Session: E9 - **Manufacturing and Logistics / 22 October, 10:30 - 12:00 - Room: UII3** / Chairman: **Bratucu, Gheorghe**			
CONAT20045005	THEORETICAL APPROACHES ON NOVEL UNI- AND MULTILAYERS ARCHITECTURES OF PARTICLE REINFORCED COMPOSITE MATERIALS	Luca Motoc, Dana	Brasov, Transilvania University
CONAT20045011	PROJECT MANAGEMENT IN INDUSTRIAL PROJECTS - A WAY TO INCREASE THE PERFORMANCE	Dumitrascu, Dorin	Brasov, Transilvania University
Session: F1 - **Mechatronics / 20 October, 15:30 - 17:00 - Room: UII6** / Chairman: **Dumitriu, Adrian**			
CONAT20041019	DEVELOPMENT OF BALL SCREW DRIVES FOR AUTOMOTIVE APPLICATION	Grau, Ulrich	Herzogenaurach, INA Schaeffler KG
CONAT20044074	TWIN CLUTCH AND ACTUATING MECHANISM AS A SYSTEM	Homm, Manfred	Buhl, LuK GmbH and Co
CONAT20044013	QUICK CHANGING ACTUATORS FOR SAFETY SYSTEMS IN AUTOMOBILES	Kilpert, Heinrich	Konstanz, Fachhochschule
Session: F2 - **Mechatronics / 20 October, 17:30 - 19:00 - Room: UII6** / Chairman: **Dumitriu, Adrian**			
CONAT20041059	DEMONSTRATOR ELECTRO-PNEUMATIC SYSTEM FOR CAR CLUTCH AND GEARBOX ACTUATION	Dogariu, Mihai	Brasov, Transilvania University
CONAT20041018	ACTIVE AND SEMI-ACTIVE SUSPENSION DESIGN	Moldoveanu, Florin	Brasov, Transilvania Univ.
CONAT20043003	THE DETERMINATION OF THE PERFORMANCE MAP FOR A NATURALLY ASPIRATED DIESEL ENGINE IN ORDER TO CREATE THE SOFT FOR THE ON BOARD INFORMATION SYSTEM	Dumitru, Ilie	Craiova, University
Session: F3 - **Biofuels / 21 October, 8:30 - 10:00 - Room: UII6** / Chairman: **Pana, Constantin**			
CONAT20042039	ETHANOL ENRICHED BIODIESEL AS A FUEL FOR COMPRESSION IGNITION ENGINES	Polák, Martin	Praga, Czech University of Agriculture
CONAT20042001	ABOUT THE COMPARATIVE TESTING OF SOME VEGETABLE OILS WITH DIESEL OIL AS FUEL FOR RUNNING THE SMALL DIESEL ENGINES	Prateepchaikul, Gumpon	Hat Yai, Prince of Songkla University
CONAT20042104	EVALUATION OF THE PERFORMANCE AND FUEL CONSUMPTION PARAMETERS OF THE D-118 ENGINE THAT USES AS FUEL USED OIL FROM FOOD INDUSTRY	Burnete, Nicolae	Cluj-Napoca, Technical University
Session: F4 - **Biofuels / 21 October, 10:30 - 12:00 - Room: UII6** / Chairman: **Postelnicu, Adrian**			
CONAT20042015	EXPERIMENTAL AND SIMULATION STUDY OF EXHAUST EMISSION IN DIRECT INJECTION BIOFUEL DIESEL ENGINE	Mitianiec, Wladyslaw	Cracow, University of Technology
CONAT20042114	MIXES OF THE DIESEL FUEL WITH VEGETAL OIL – ALTERNATIVE FUELS FOR THE DIESEL ENGINES	Burnete, Nicolae	Cluj-Napoca, Technical University
CONAT20042130	STUDIES AND RESEARCHES CONCERNING THE WORKING OF THE DIESEL ENGINES WITH FUEL-ALCOHOL MIXTURES	Mihon, Liviu	Timisoara, Politehnica University
CONAT20042070	EFFECTS OF USING A DIESEL FUEL BLENDED WITH VEGETABLE OIL ON DI DIESEL ENGINES EMISSIONS	Cofaru, Corneliu	Brasov, Transilvania University
Session: F5 - **Biofuels / 21 October, 12:30 - 14:00 - Room: UII6** / Chairman: **Ispas, Nicolae**			
CONAT20042068	EFFECTS OF DIESEL FUEL BLENDED WITH RAPESEED OIL ON AIR-FUEL MIXING AND COMBUSTION PROCESSES OF A TURBOCHARGED DI DIESEL ENGINE	Ispas, Nicolae Cofaru, Corneliu	Brasov, Transilvania University Brasov, Transilvania University
CONAT20042037	RESEARCH REGARDING ENERGETICAL AND ECOLOGICAL PERFORMANCES ON 392-L4-DT D.I. DIESEL ENGINE USING BIODIESEL DERIVED FROM RAPESEED OIL AND DIESEL FUEL BLENDED	Dumitrascu, Dorin	Brasov, Transilvania University
CONAT20041093	THE MULTIDIMENSIONAL MODELATION OF THE BIOFUELS SPRAY	Barabás, István	Cluj-Napoca, Technical Univ.
Session: F6 - **Alternative Fuels / 21 October, 15:30 - 17:00 - Room: UII6** / Chairman: **Sandu, Venetia**			
CONAT20042095	DEVELOPMENT OF A SINGLE CYLINDER IC ENGINE FOR HYDROGEN	Sierens, Roger	Ghent, University
CONAT20042080	THE INFLUENCE OF ALTERNATIVE FUELS ON TWO STROKE ENGINE PERFORMANCES AND POSSIBILITIES OF ENERGETIC OUTPUT COMPENSATION USING THE "WAVE" SOFTWARE	Abaitancei, Dan	Brasov, Transilvania University
CONAT20042115	LIQUID PETROLEUM GAS USED IN DIESEL ENGINE	Cristea, Dumitru	Pitesti, University
CONAT20042049	PRIORITIES IN TUNE WITH THE FUTURE OF BI-FUELED LPG/GASOLINE VEHICLES	Ivascu, Aurica	Craiova, Daewoo Automobile Romania
CONAT20042057	LIFE CYCLE ANALYSIS OF BIODIESEL VEHICLES	Frunze, Oleg	Chisinau, The Academy of Transports, Informatics and Communications
Session: F7 - **Alternative Fuels / 21 October, 17:30 - 19:00 - Room: UII6** / Chairman: **Radu, Gheorghe Alexandru**			
CONAT20042131	DIMETHYL ETHER - ECOLOGICAL FUEL FOR DIESEL ENGINES	Pana, Constantin	Bucharest, Politehnica University
CONAT20042126	THE PROCESSING OF AUTOGAS AT SISTEMGAS TIMISOARA	Alexandru, Dan	Timisoara, Sistemgas

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CONAT2004**2036**	A STUDY OF LPG COMBUSTION IN A SPARK IGNITION ENGINE	Chiriac, Radu	Bucharest, Politehnica University
CONAT2004**2059**	RESEARCHES REGARDING THE LPG FUELLING OF THE DACIA 1.6 L ENGINE	Marinescu, Danut Gabriel	Pitesti, University
Session: F8 - **Noise Reduction / 22 October, 8:30 - 10:00 - Room: UII6** / Chairman: **Filip, Nicolae**			
CONAT2004**2092**	ABOUT THE ISOLATION OF NOISES WITH THE HELP OF RUBBER PIECES ON AN INTERNAL COMBUSTION ENGINE	Alexandrescu, Luciu	Brasov, Transilvania University
CONAT2004**2002**	EXPERIMENTAL DETERMINATION OF NOISE LEVEL AT THE DRIVING AXLE IN ORDER TO REDUCE THE EXTERIOR NOISE OF THE ROMAN VEHICLES	Marcu, Mihail-Tudor	Brasov, ROMAN
CONAT2004**1096**	RESEARCH CONCERNING AN ACOUSTIC EQUIPMENT DESIGN FOR IMPROVE THE INTAKE AIR PARAMETERS FOR DIESEL ENGINE	Filip, Nicolae	Cluj-Napoca, Technical University
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ANALYSIS OF BRAKE PAD FRICTION CHARACTERISTIC OBTAINED BY POLYGON TESTING OF VEHICLE

Glišović Jasna*, Radonjić Rajko, Miloradović Danijela
Faculty of Mechanical Engineering, Kragujevac, Serbia and Montenegro

ABSTRACT- Friction material of brake pad is one of the most important, but also the most delicate elements of the brake because it has great influence on performance of basic tasks of braking system in different operation conditions. The development and formulation of such friction materials is a balance of functional, physical-chemical and abstract properties, constantly fraught with contradiction. However, the following friction material properties are generally desirable: high static and dynamic coefficient of friction under all permissible environmental circumstances, stable and predictable dynamic friction coefficient within the requisite range of operating conditions (flash-surface rather than bulk temperature), minimum wear characteristics combined with frictional properties that inhibit counter surface wear, i.e. kind to the rotating counter member, adequate shear strength to resist rupture or catastrophic failure, adequate corrosion resistance to retain the preferred property spectrum in the presence of water, salt, sand and mud, sufficient thermal insulation to avoid brake fluid overheating and vapor-lock, conformance to the counter surface to facilitate uniform heat generation, zero judder generation or excitation characteristics, acceptable costs of raw materials, processing and manufacturing technologies. Final selection of brake pad friction material for particular brake, i.e. for certain vehicle, is based on numerous analysis, mostly on experimental research, and from the aspect of all important requests. Testing of material friction characteristics demands delicate procedure, because their features can not be estimated based on their chemical structure, configuration or on other data used for estimation of metals and alloys, but exclusively based on experimental methods. There is a large number of testing methodologies, while some procedures are subjects to international and national standards. The most significant tests include determination of material properties regarding friction and wear. There are two basic ways for testing of friction properties: within the brake itself or on samples, i.e. friction materials test tubes. Frequently, laboratory tests of friction characteristics are not enough, but it is necessary to test the brake plates and pads in real operation conditions. Measuring equipment necessary for polygon tests of passenger and heavy vehicles includes calibrated transducers for speed, deceleration, pressure in hydraulic brake installation and noise, as well as thermo-couples for monitoring of plate and pad temperatures. Analysis of brake pad friction characteristic obtained by the polygon testing of vehicle is presented in this paper. The influence of variations of pressure in brake cylinder and vehicle speed on friction coefficient during tests is analyzed based on acquired signals of pressure in brake cylinder, vehicle speed, brake torque and angular velocity of wheels. Also, variation of friction coefficient during braking (real time) is monitored, starting with the assumption of cosine distribution of surface pressure along the brake pad. Obtained results confirm the importance of testing the friction characteristics of brake pad materials on vehicle in real operation conditions.

KEYWORDS- friction material, brake pad, friction characteristics, polygon testing

1. INTRODUCTION

Vehicle brakes are just one of the solutions which contact elements slide one over another

with high slide speeds and high friction coefficients. This sets extreme demands before friction materials. They have to provide stabile friction at various temperatures, loads, environmental conditions and wear states. Besides, a large scope of wear and microscopic fractures must be avoided. Energy developed during vehicle braking will be observed on the example of middle class vehicle, weighing 1500 kg. When driven at speed of 28 m/s (100km/h), kinetic energy of the vehicle amounts to 600 kJ. The shortest possible stopping distance is around 40 m. Assuming that deceleration is constant (justified because deceleration force is controlled by the friction between the tyre and the road), the stopping lasts 2.9 s. As a result, mean power developed during braking process will be 206 kW and maximal braking power at the beginning of stopping will be 412 kW. Approximately 80 % of this power is absorbed in front brakes that have two brake plates each. Maximal power absorbed by each plate is 82 kW and that is the value similar to maximal engine power. The whole power is developed at the surface a little smaller than a palm of the hand. The real contact area is even smaller. Although it is very hard to calculate it, it may be estimated to be 20% of nominal surface. Knowing that the deformation layer between the plate and the disc is approximately 1 μm thick, the total deformation volume is 0.8 mm^3 = $0.8*10^{-6}$ dm^3 . The power developed at the deformation layer is now 100 GW/dm^3. For comparison, a nuclear reactor develops the power of around 1 GW.

2. TESTING OF BRAKE PAD FRICTION CHARACTERISTICS

Testing of material friction characteristics demands delicate procedure, because their features can not be estimated based on their chemical structure, configuration or on other data used for estimation of metals and alloys, but exclusively based on experimental methods. Friction properties of brake pads depend on several parameters of operating conditions, first of all on temperature, surface pressure and sliding speed at friction surfaces.

Data required for the accurate characterization of friction materials is acquired under controlled conditions in the laboratory and on the vehicle. In order to effectively interpret the acquired data, engineers must be familiar with both the procedures and equipment utilized. Many variables, such as timing, cost, sample availability, and data obtained from a particular test, are considered when selecting a testing methodology appropriate to the engineer's scope of work.

Vehicle brake simulations are conducted on an inertial dynamometer (figure 1). To simulate the kinetic energy of the vehicle mass moving, the dynamometer utilizes mechanical mass fixed in increments to a rotating shaft. An electric motor is responsible for bringing the rotating mass up to a speed set point. Once the set point is reached, the motor releases control, and the braking system is responsible for bringing the rotating mass to a stop. The energy dissipated during braking can be equated to the energy dissipated during braking in a vehicle. To accommodate multiple vehicle platforms, dynamometers utilize a stepped shaft that accepts fixed increments of inertia. To prepare a vehicle for testing, the following equipment is required: transducers (torque, pressure, temperature, speed, acceleration, noise, etc), signal conditioning (equipment that scales and/or linearizes the output of the transducers i.e. 0 to 3000 PSI is scaled to a 0 to 10 volt signal for input into the data acquisition equipment), data acquisition (software and hardware that "acquires" the data from the various transducers at a specified sample rate; the data acquisition software stores the data in a format that is convenient for data reduction).

Inertial dynamometers are used for testing of: friction characteristics, durability, influence of friction pads on metal element's life time, dimensional stability, behavior in conditions of extreme heat and cold, noise (including the sounds inaudible to human ear).

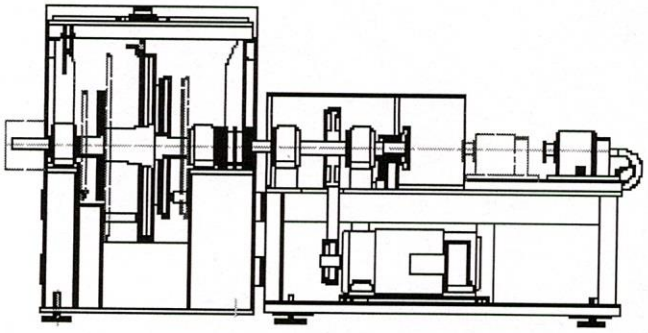


Figure 1: Brake inertial dynamometer

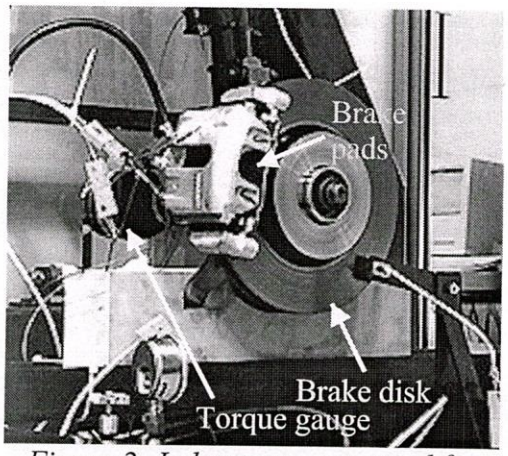


Figure 2: Laboratory test stand for testing of disc brake friction characteristics[2]

A slightly different laboratory test based on the use of real vehicle disc brake is presented in figure 2. Electric engine, directly connected to the brake disc through gear box, controls deceleration independently from braking force. This technique is more convenient for noise tests (squealing), but it is limited to low speeds. Described equipment presents a compromise between the flexibility of simplified laboratory testing and relevance of the polygon tests. Brake installation pressure, brake torque and disc temperature are measured during tests. A transducer mounted on drive shaft measures brake torque. The friction coefficient can be calculated if disc radius is known.

Vehicle testing procedures vary as widely as dynamometer procedures. Examples of vehicle procedure test objectives include: certification testing, durability testing, and product development. Performing vehicle testing is more complicated and expensive than dynamometer testing. In order to prepare for a vehicle test, the following must be considered:

- Timing–vehicle testing typically takes longer than dynamometer testing (the dynamometer can be run unattended, the vehicle cannot)
- Staffing–scheduling test drivers with appropriate skill levels in a manner that maximizes efficiency in vehicle run-time is difficult
- Facilities–facilities for the installation of test hardware, installation of transducers, signal conditioning and data acquisition are extremely specialized and require the coordination of multiple disciplines
- Inspection–inspections typically occur at mileage intervals and frequently must be performed outside of "normally" scheduled shifts to maximize vehicle run-time.

A direct correlation between dynamometer and vehicle test data is not something that just "occurs" without a considerable amount of planning. In most situations, successful vehicle testing is moved to the laboratory to decrease cost and increase testing efficiency. To develop a dynamometer procedure that correlates with acquired vehicle data, the following must be considered:

- What exactly is being correlated (wear, noise, performance)

- Which brake applies or sequences from the vehicle test are candidates for inclusion in a dynamometer control program
- What is the acceptance criteria for correlation
- How will correlation be reported (correlation coefficient, Iso-Plot, etc.)
- Will each test on the dynamometer be compared to a baseline set of vehicle data, or will relative comparisons be made between the dynamometer data sets.

Common properties successfully correlated between vehicle and dynamometer tests include: noise, wear, performance, judder, torque variation.

Improving correlation between vehicle testing and dynamometer testing is possible, but requires much work. Steps needed are:

- Determine vehicle procedure to be correlated
- Scrutinize vehicle procedure and revise to account for "real world" actual practices
- Place an emphasis on developing a procedure that is repeatable and reproducible
- Perform study to determine correlation between vehicle tests executed using the same procedure (baseline correlation coefficient)
- Determine what quantities can reasonably be correlated on the dynamometer with consideration for variables that are exclusive to vehicle or dynamometer testing
- Develop dynamometer procedure that attempts to correlate specific quantities from the vehicle test
- Conduct dynamometer testing, review data and modify control program until desirable correlation coefficient is achieved.

While it is possible to improve correlation between data obtained on a test vehicle and data obtained on a dynamometer, it is extremely unlikely that dynamometer testing, or any other modeling or simulation testing, will ever fully replace vehicle testing.

Cold tests of brakes are performed during polygon tests. Variations of characteristic values during cold brake tests are shown in figure 3.

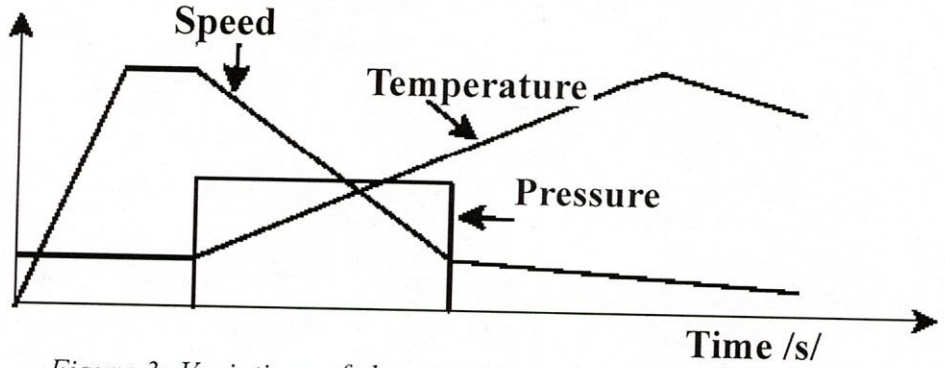


Figure 3: Variations of characteristic values during cold brake tests

A part of the applied measurement system for determination of drum brake's operation characteristic, shown in figure 3, includes: brake cylinder pressure transducer, brake torque transducer and angular velocity transducer. During braking, activating forces, F_s, move apart the brake pedals, which leaning on supports come into a contact with the drum. At the same time, reactive brake torque acts and transmits to brake pedals trying to rotate them in the direction of rotation. Reactive torque mentioned, identical by intensity to the brake torque, is transmitted through pedal supports and brake cylinders to pedal carrier made from sheet metal.

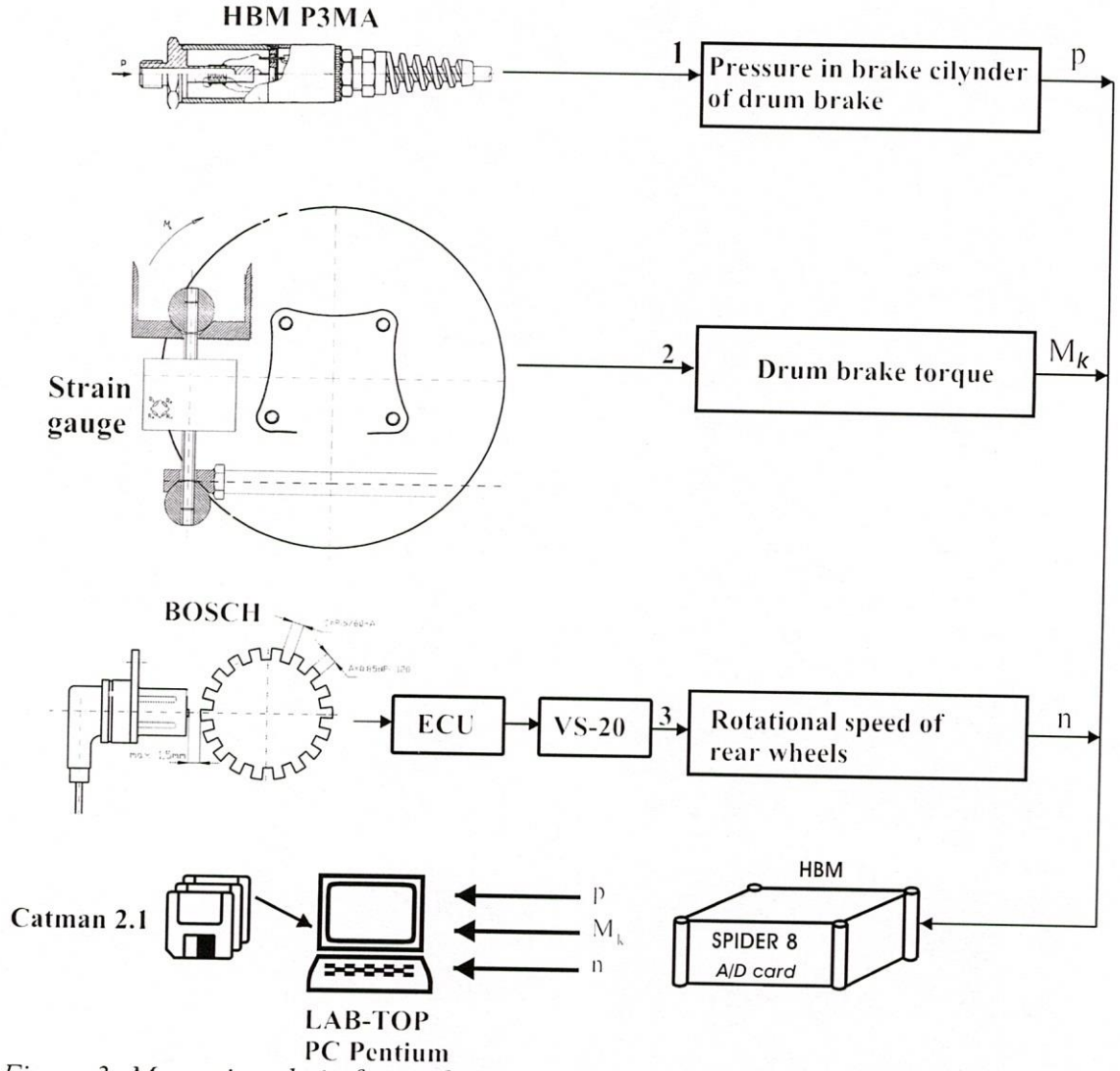
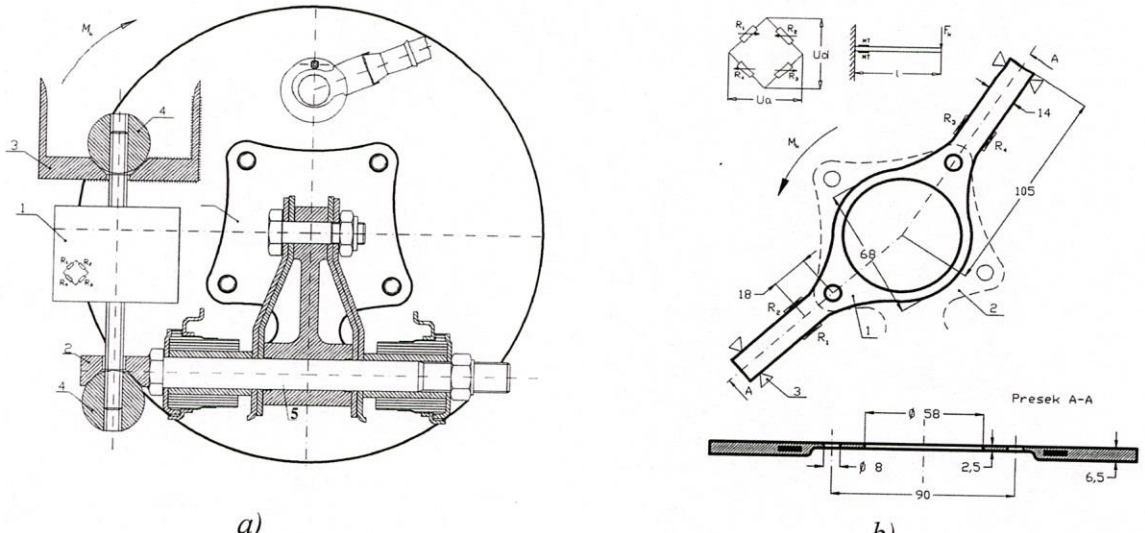


Figure 3: Measuring chain for analysis of drum brake friction coefficients in polygon conditions



a) *b)*

Figure 4: Design solutions of brake torque transducers: a) indirectly, through force transducer, b) with strain-gauges

Figures 6 and 7 present another way of analysis of friction coefficient variation with pressure for $v_0 \approx 40$ *[km/h]* and *80 [km/h]* and for unloaded and fully loaded vehicle. Measured brake torque is compared to analytically determined brake torque, with the assumption of cosine distribution of pressure along brake pad, for different values of friction coefficients (from *0.1* to *0.5*). It is obvious, especially for the case of fully loaded vehicle, which values of friction coefficient at pressures above *20* [*bar*] are in good agreement with analytically obtained curves.

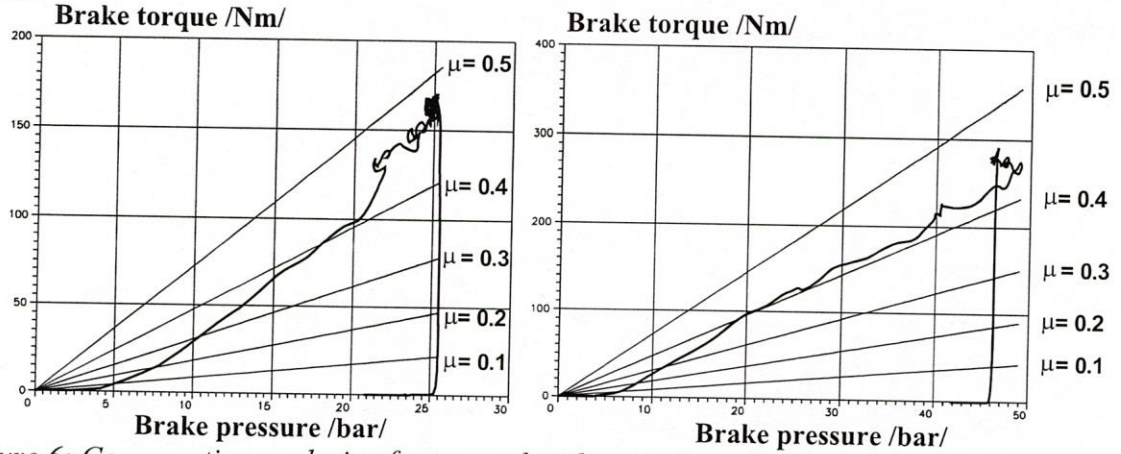


Figure 6: Comparative analysis of measured and analytically determined brake torque aimed at determination of friction coefficient for unloaded and fully loaded vehicle at $v_0 \approx 40$ [km/h]

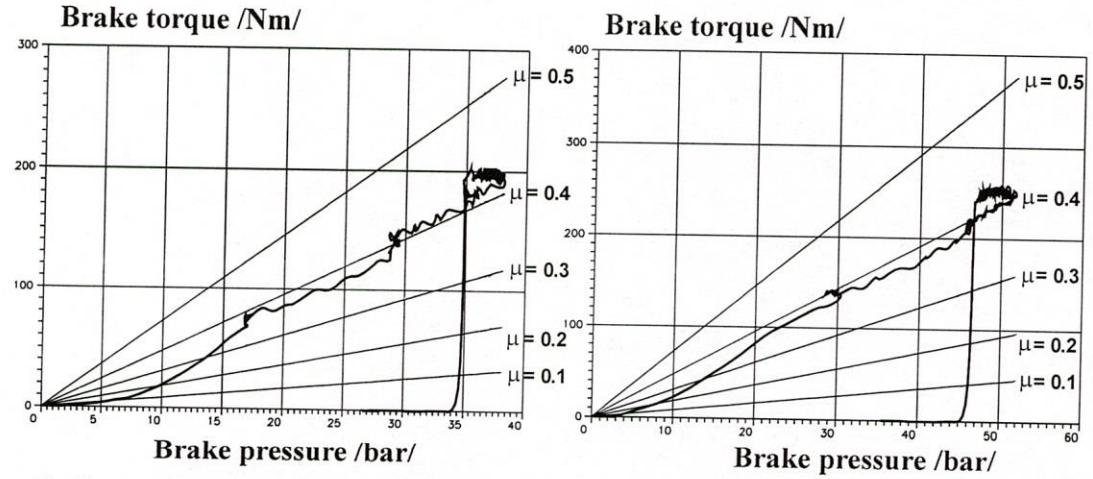


Figure 7: Comparative analysis of measured and analytically determined brake torque aimed at determination of friction coefficient for unloaded and fully loaded vehicle at $v_0 \approx 80$ [km/h]

Variation of friction coefficient during braking may be determined based on results obtained by experimental tests and on assumption of cosine distribution of surface pressure along brake pad. As an illustration of methodology applied, variation of friction coefficient during testing with initial speed of *40* [*km/h*] is presented in figure 8.

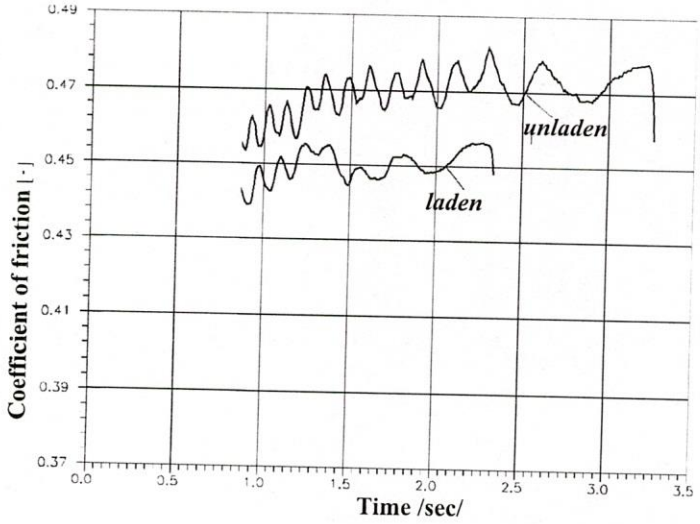


Figure 8 : Variation of friction coefficient during brake test at $v_0 \approx 40$ [km/h]

3. CONCLUSIONS

There is a large number of tests (compressibility tests, heat conductivity tests, etc.) used during development of friction materials and additives, but the final assessment of friction materials for brakes includes large tests on vehicle with real size components. Braking performance is influenced not only by friction materials and vehicle design, but also by a driver's behavior, vehicle condition, brake pads condition, and lastly by environment in which the vehicle drives. Possible influences of the brake system control part, engine braking and wheel space aerodynamics may be added to already listed influences. Hence, laboratory tests can not precisely simulate the driving conditions.

All mentioned before, justifies the development of polygon test methodologies based on which time variation of friction coefficient of drum brake pad's friction materials is determined and the influence of load, speed and rear brake cylinder pressure is analyzed. Measuring system developed also enables real time evaluation of operation characteristic deterioration with the increase in temperature (fading), an occurrence specially expressed in drum brakes.

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