

CONFERENCE PROGRAM

THE 9th INTERNATIONAL CONFERENCE ON
ADVANCED CONCEPTS IN MECHANICAL ENGINEERING

ACME2020

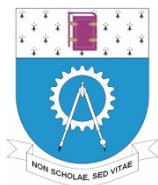
JUNE 4 – 5, 2020
IAȘI, ROMANIA



Organized by:

FACULTY of MECHANICAL ENGINEERING

THE "GHEORGHE ASACHI" TECHNICAL UNIVERSITY OF IASI

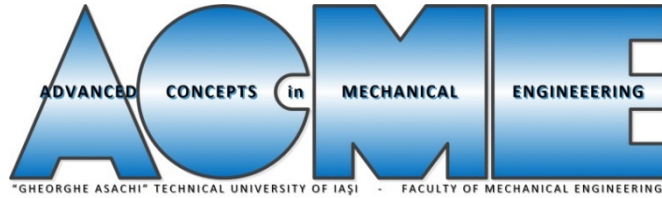


Under the aegis of:

ROMANIAN MINISTRY OF NATIONAL EDUCATION AND SCIENTIFIC RESEARCH
ROMANIAN ACADEMY OF TECHNICAL SCIENCES
ACADEMY OF ROMANIAN SCIENTISTS

In partnership with:

AMERICAN UNIVERSITY OF MADABA, JORDAN
SIAR - SOCIETY OF AUTOMOTIVE ENGINEERS OF ROMANIA
ARoTMM - ROMANIAN ASSOCIATION FOR MECHANISMS AND MACHINE SCIENCE
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SRT - ROMANIAN SOCIETY OF THERMODYNAMICS
AFCR - ROMANIAN ASSOCIATION FOR REFRIGERATION AND CRYOGENICS ENGINEERS



CONFERENCE PROGRAM OUTLINE

Thursday, June 4th, 2020

- 09:30 – 10:00 Online Participants Registration
10:00 – 10:30 Welcome, Conference Opening Ceremony
10:30 – 12:00 Online Plenary Session

- 1. Autonomous driving with an Unimog in rough terrain**
K Berns – Technical University of Kaiserslautern, Germany
- 2. Development of cyber physical system based manufacturing system design for process optimization**
V K Manupati – National Institute of Technology Warangal, India
- 3. About semi-analytical approaches of stress state developed in the material of machine parts subjected to concentrated contact loading**
S Cretu – “Gheorghe Asachi” Technical University of Iasi, Romania

- 12:00 – 14:00 Online Sections Session
14:00 – 15:00 Own World Lunch Break
15:00 – 19:00 Online Sections Session

Friday, June 5th, 2020

- 09:00 – 12:00 Online Sections Session (where required)
12:00 – 12:15 Conference Closing Ceremony

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Gheorghe VOICU	POLITEHNICA University Bucharest, RO

Session ACME-01-01: Machine Design. Tribology

Thursday, June 4th, 2020

Chairmen: *Prof. Lorena DELEANU*, *Assoc. Prof. Viorel PALEU* and *Dr. Shubrajit BHAUMIK*

No.	ACME code	Title of the papers and authors	Hours
1	1-04	The particularity of the contact at the passing of the wheel over the track changer – A case study M C Tudorache, I Neagoe	12.00 - 12.15
2	1-16	SR EN ISO 20623 - A standard for tribological evaluation of lubricants that may bust innovation L Deleanu, C Georgescu, T F Ionescu, D Guglea, D Isacescu	12.15 - 12.30
3	1-18	Rapeseed oil with anti-wear additives on the four ball tester T F Ionescu, D Guglea, D Dima, C Georgescu, L Deleanu	12.30 - 12.45
4	1-07	Fractal rigidity of the wheel-rail contact L M Babici, A Tudor, J Romeu Garbi, M Stoica	12.45 - 13.00
5	1-13	Investigating the friction reduction capability of dimpled surface using CNSL as lubricant S Bhaumik, V Paleu, D Chowdhury, MM Pranav, C Cîrlan Paleu	13.00 - 13.15
6	1-14	Vibrations analysis of bogie's axle from an electric locomotive class 43 M Alexandrov, V Goanta, V Paleu, D Apostol, M Atanasiu	13.15 - 13.30
7	1-22	New concepts in friction reduction in preloaded assemblies of angular- contact ball bearings A Zamă, D Olaru, V Paleu	13.30 - 13.45
		Own World Lunch Break	14.00 - 15.00

Session ACME-01-02: Machine Design. Tribology

Thursday, June 4th, 2020

Chairmen: *Prof. Traian CICONE* and *Prof. Dumitru OLARU*

No.	ACME code	Title of the papers and authors	Hours
1	1-06	Calculation elements for establishing the design of a rotating machine that transports fluids M M Stoican (Prisecaru), N Băran, A Costache	15.00 - 15.15

2	1-03	A finite differences approach for fluid-structure interaction in a hydrostatic compliant thrust bearing A A Marinescu, T Cicone	15.15 - 15.30
3	1-19	Experimental assessment of permeability variation with the compression of soft reticulated foams C Enescu, P Turtoi, T Cicone, V C Istrate	15.30 - 15.45
4	1-20	Experimental investigation of the limits of fluid squeeze out from an imbibed porous material P Turtoi, G Lupu, T Cicone, D Apostol	15.45 - 16.00
5	1-21	Evaluation of the friction coefficient in greased ball-races contacts G Ianus, D Cojocaru, M C Oprisan, D Olaru	16.00 - 16.15
POSTER SESSION			
6	1-08	Determining experimental dynamic rigidity of a new elastic coupling with cylindrical bolts and nonmetallic elements M Ghițescu, I - M Ghițescu , I Stroe, P N Borza	16.15 - 16.25
7	1-09	Light_Sport_Aircraft, wing design elements and resistance calculus for a new 3D model applied for flaps control I-M Ghițescu, M Ghițescu, P N Borza , I Stroe	16.25 - 16.35

Session ACME-02: Materials and Surface Engineering

Thursday, June 4th, 2020

Chairmen: *Prof. Corneliu MUNTEANU* and *Lecturer Bogdan ISTRATE*

No.	ACME code	Title of the papers and authors	Hours
1	2-03	Reconfigurable multilayers architecture used as electromagnetic sensor N Iftimie, R Steigmann, G S Dobrescu, N A Danila, M D Stanciu, D Faktorova, A Savin	12.00 - 12.15
2	2-05	Researches regarding the static and dynamic behaviour of composites with natural reinforcements A I Rădoi, C M Mirițoiu, M Bogdan, M M Stănescu, D Bolcu	12.15 - 12.30
3	2-14	Mechanical properties determination for a hybrid sandwich bar reinforced with steel wire mesh A I Rădoi, C M Mirițoiu, M Bogdan, A Bolcu, I Geonea	12.30 - 12.45
4	2-07	The dimensional accuracy of plastic parts made by the fused filament fabrication M A Boca, A Sover, L Slătineanu	12.45 - 13.00

5	2-10	Morphological and tribological studies of thermal plasma jet deposited coatings used in cardan joints A Dascălu, B Istrate, C Munteanu, C Paleu Cîrlan, V Paleu	13.00 - 13.15
		Own World Lunch Break	14.00 - 15.00
		POSTER SESSION	
6	2-01	Analysis of the collapse mode classification in case of circular tubes C P Predoiu, R F Negrea, S Tabacu, D Popa	15.00 - 15.10
7	2-02	Ecological process for depositing thin layers with high tribology resistance for reconditioning the hydraulic turbines C A Tugui, P Vizureanu, N A Danila, M C Perju, D P Burduhos-Nergis	15.10 - 15.20
8	2-04	Experimental analysis of three tetra-anti-chiral auxetic honeycomb structures R Negrea, P Predoiu, S Tabacu, D Negrea	15.20 - 15.30
9	2-06	Fatigue cracks in aluminum alloys structures detection using electromagnetic sensors array R Steigmann, N Iftimie, G S Dobrescu, A Danila, P D Barsanescu, M D Stanciu, A Savin	15.30 - 15.40
10	2-09	Contact stress simulation problem in case of the Mg alloys S Lupescu, C Munteanu, A Tufescu, B Istrate, N Basescu	15.50 - 16.00
11	2-11	The study of the mechanism interaction between sparks electric discharges and a AISI 316L biocompatible metallic samples A Piron, F V Anghelina, C Popa, V Despa	16.00 - 16.10
12	2-12	Theoretical investigation of optical phenomenon from nanometric antireflex layers A T Pascu, M A Pascu, D Besnea	16.10 - 16.20
13	2-13	Experimental research and simulation of vibration isolation elements mounted within transport boxes D Voicu, R M Stoica, R Vilau, L Barothi	16.20 - 16.30
14	2-14	"In vivo" Analysis of Osteoinduction Treatment on Ti6Al7Nb V Lucero Baldevenites, N Florido Suarez, P Socorro Perdomo, J Mirza Rosca	16.30 - 16.40
15	2-15	Microscopic Passivation of Bio High Entropy Alloys: Initial studies N Florido Suarez, V Lucero Baldevenites, P Socorro Perdomo, I Voiculescu, V Geanta, J Mirza Rosca	16.40 - 16.50
16	2-16	Electrochemical Behavior of New Titanium Alloys V Lucero Baldevenites, N Florido Suarez, P Socorro Perdomo, J	16.50 - 17.00

		Mirza Rosca	
17	2-17	Nanostructured Ti-20Zr in Artificial Extra-cellular Fluids V Lucero Baldevenites, N Florido Suarez, P Socorro Perdomo, J Mirza Rosca	17.00 - 17.10

Session ACME-03-01: Mechatronics. CAD. Mechanical Vibrations

Thursday, June 4th, 2020

Chairmen: *Prof. Jose MACHADO* and *Lecturer Vlad CARLESCU*

No.	ACME code	Title of the papers and authors	Hours
1	03-01	Experimental analysis of vertical vibration of railway bogie M Dumitriu, I C Cruceanu	12.00 - 12.15
2	03-03	Designing and testing a stand used to simulate the dummy head impact with different surfaces using CAD software A I Radu, D D Trușcă, G R Toganel, B C Benea	12.15 - 12.30
3	03-04	Bearing fault diagnosis using the Kolmogorov-Smirnov test on frequency features extracted using the Goertzel algorithm D Cordoneanu	12.30 - 12.45
4	03-32	Arduino based mobile robot controlled by voluntary eye-blinks using LabVIEW GUI & NeuroSky Mindwave Mobile Headset O A Rușanu, L Cristea, M C Luculescu	12.45 - 13.00
5	03-06	Modelling and optimization of dynamic absorber with viscous friction R Ibănescu, M Ibănescu	13.00 - 13.15
6	03-08	Determinations regarding the influence of the different elastic systems from the suspension structure of a N2 type vehicle, on the movement and comfort M F Mitroi, A Chiru	13.15 - 13.30
7	03-12	Student demonstrator for teaching Brain-Computer Interfaces A Ianoși-Andreeva-Dimitrova, D S Mândru, I D Bologa	13.30 - 13.45
8	03-25	Design, tuning and evaluation of a stand-alone nitinol based thermomechanical actuator driver with a closed-loop position control system N Popescu	13.45 - 14.00
		Own World Lunch Break	14.00 - 15.00

Session ACME-03-02: Mechatronics. CAD. Mechanical Vibrations

Thursday, June 4th, 2020

Chairmen: *Prof. Carmen BUJOREANU* and *Assoc. Prof. Victor CONSTANTIN*

No.	ACME code	Title of the papers and authors	Hours
1	03-26	Design, simulation and experimentation of an electro-dynamic system for semi-active control of vibrations N. Popescu, C. D. Comeagă, M. Avram	15.00 - 15.15
2	03-15	Laser-assisted additive technologies for the execution of dental restorative prostheses E Moraru, O Dontu , C Rizescu, A Spanu, R Ciobanu, C Draghici	15.15 - 15.30
3	03-18	Appraisal of gear pitting severity by vibration signal analysis A Geröcs, Z I Korka, A V Bloju, C R Sfetcu	15.30 - 15.45
4	03-19	Development of an inertial propulsion drive by using motion simulation A Geröcs, Z I Korka, D Nedelcu, G R Gillich	15.45 - 16.00
5	03-20	Improving the Electric Response of a Cantilever Piezoelectric Energy Harvester by Constraining Tip Curvature C I Borzea, C D Comeagă, M N Uddin, R D Hrițcu	16.00 - 16.15
6	03-21	A novel approach for assessing the instantaneous flow rate of an external gear pump using 3d printing and computer vision V Sarb, M Avram	16.15 - 16.30
7	03-22	Trends and perspectives in proportional pneumatics M Avram, A I Sgârciu, C Bucșan	16.30 - 16.45
8	03-23	A state of the art of predictive maintenance techniques P Coandă, M Avram, V Constantin	16.45 - 17.00
9	03-24	A hands-on approach to demonstrating active noise cancelling P Coandă, M Avram, D Comeagă	17.00 - 17.15
10	03-27	Mechatronics educational systems in vibration field E Niță, D Comeagă, M Avram	17.15 - 17.30
11	03-05	Valorization the innovative potential of mechatronics for smart and sustainable society development V Măties, P Pop, A Pop Vădean, S Pop, L Dache, V Tămaș	17.30 - 17.45
12	03-37	Regenerative braking kinematics analysis and optimisation strategies V Stajilov, C Bujoreanu	17.45 – 17.55

Session ACME-04-01: Theory of Mechanisms and Machinery. Robotics

Thursday, June 4th, 2020

Chairmen: *Prof. Virgil ATANASIU, Prof. Ioan DOROFTEI* and *Lecturer*

Florentin BUIUM

No.	ACME code	Title of the papers and authors	Hours
1	4-01	Design and analysis of a new bicontact cam mechanism A Alaci, F-C Ciornei and F Buium	12.00 - 12.15
2	4-04	The conjugate profile of the circular teeth of a spur gear. Part I: Problem statement F C Ciornei, S Alaci and I Doroftei	12.15 - 12.30
3	4-02	The conjugate profile of the circular teeth of a spur gear. Part II: Problem solution S Alaci, F-C Ciornei and I Doroftei	12.30 - 12.45
4	4-05	Mathematical modelling of a search and rescue robot with TriSTAR locomotion units M Gyarmati and M O Tătar	12.45 - 13.00
5	4-07	Dynamic balancing of RECOVER robotic system I Nadas, B Gherman, I Bîrlescu, R Bogateanu, A Banica, G Carbone and D Pîsla	13.00 - 13.15
6	4-10	Virtual and experimental device for hip revision prostheses testing D L Popa, D C Calin and G Buciu	13.15 - 13.30
7	4-11	A virtual approach to orthopedic systems based on implants and prostheses D L Popa, D Iliuta and I L Petrovici	13.30 - 13.45
8	4-12	An elastic model for tooth contact analysis of spur gears using FEM simulation M C Radu, N Dourado, I G Coltun and G Andrei	13.45 - 14.00
		Own World Lunch Break	14.00 - 15.00

Session ACME-04-02: Theory of Mechanisms and Machinery. Robotics

Thursday, June 4th, 2020

Chairmen: Assoc. Prof. Emil BUDESCU and Lecturer Eugen MERTICARU

No.	ACME code	Title of the papers and authors	Hours
1	4-16	Forces transmission in the case of SSR structural group C D Duca and F Buium	15.00 - 15.15
2	4-17	About some problems regarding IKP-DKP of a 9R planar parallel mechanism F Buium, D Leohchi and S Alaci	15.15 - 15.30
3	4-08	A study of biomechanical model of seated human body exposed to vertical vibrations A T Oncescu, D Tarnita, D Bolcu and R Malciu	15.30 - 15.45
4	4-09	Design and virtual model of an exoskeleton for lower limb rehabilitation A Petcu, D Tarnita, D N Tarnita	15.45 - 16.00
5	4-15	Experimental study of sit-to-stand kinematics in healthy, osteoarthritic and prosthetic knee D Tarnita, A Petcu, V Ontica, D Prunoiu, D N Tarnita	16.00 - 16.15
POSTER SESSION			
6	4-3	A comparative analysis between some dynamic models for the vehicle suspension system C Alexandru	16.15 - 16.25
7	4-6	Geometric synthesis of the folding bridge mechanism V Moise, I Dugaesescu, L M Ungureanu and A Rotaru	16.25 - 16.35
8	4-13	On the Kinematic Modelling of an Accurate Tracking System To Be Implemented into Solar-Thermal Collectors R Saulescu, C Jaliu and D Ciobanu	16.35 - 16.45
9	4-14	Comparative Analysis of Two Wind Turbines with Counter-Rotating vs. Fixed-Stator Electric Generator R Saulescu, M Neagoe and N Cretescu	16.45 - 16.55
10	4-18	A dynamic study of a complex gear transmission E Merticaru, V Merticaru jr	16.55 - 17.05
11	4-19	Aspects regarding the traumatology of the foot in the body jumping E Merticaru and E Budescu	17.05 - 17.15
12	4-20	Aspects regarding the dynamics of the humero-cubito-radial joint E Budescu, E Merticaru and I G Budescu	17.15 - 17.25

13	4-27	Preliminary experiments towards the evaluation of an ankle rehabilitation robotic system C M Racu (Cazacu) and I Doroftei	17.25 - 17.35
14	4-21	Dismantling strategy for capacitors placed on printed circuits boards: challenges and preliminary results S Cazan, D Chirita , C Stamate, D Irimia, A Burlacu, I Doroftei	17.35 - 17.45
15	4-22	Modelling and analysis of some planar deployable mechanisms. Part 1: translational bar mechanisms I A Doroftei, C Bujoreanu and I Doroftei	17.45 - 17.55
16	4-23	Modelling and analysis of some planar deployable mechanisms. Part 2: curvilinear bar mechanisms I A Doroftei, C Bujoreanu and I Doroftei	17.55 - 18.05
17	4-24	Theoretical aspects on internal cylindrical gears with small tooth number difference I Doroftei and O Crivoi	18.05 - 18.15
18	4-25	Preliminary concept on an agricultural robot for small farms C A Cardos (Morar), I A Doroftei, I Doroftei and M Hagan	18.15 - 18.25
19	4-26	Robotic applications on agricultural industry: A review C A Cardos (Morar), I A Doroftei, I Doroftei and M Hagan	18.25 - 18.35
20	4-28	Aspects regarding the development of a gripper with variable geometry E A Grosz, C Lapusan and C Brisan	18.35 – 18.45

Session ACME-05-01: Mechanics of Deformable Bodies

Thursday, June 4th, 2020

Chairmen: *Prof. Viorel GOANTA* and *Prof. Paul Doru BARSANESCU*

No.	ACME code	Title of the papers and authors	Hours
1	5-06	The stress raisers effect on the fatigue safety coefficients V Goanță, M Mareș, P Crețu	12.00 - 12.15
2	5-11	Evaluation of mechanical properties of glass fibers chopped strands mat composite subjected to UV degradation M D Stanciu, H D Teodorescu, M Trandafir, V Guțăș, A Savin	12.15 - 12.30
3	5-12	Dynamic behavior of a car trailer M D Stanciu, S Năstac, D Dobrescu	12.30 - 12.45
4	5-13	Effect of the wood anisotropy on eigenmodes and eigenvalues using finite element analysis – case of violin plates	12.45 - 13.00

		M D Stanciu, S. Năstac, V Gh Gliga, M Câmpean, V Bucur	
5	5-03	Researches on the distribution of stresses in a wall girder with geometrical discontinuities C. Atanasiu, Șt. Sorohan	13.00 - 13.15
6	5-16	Tower structure optimization through finite element analyses FI Vlădulescu, D M Constantinescu	13.15 - 13.30
7	5-14	Non-convex layup optimization of the composite laminates with fast and robust FEA model and modified SPEA-II Al Șerban, P D Bârsănescu	13.30 - 13.45
8	5-15	Automatic detection of fibers orientation on composite laminates using convolutional neural networks Al Șerban, P D Bârsănescu	13.45 - 14.00
		Own World Lunch Break	14.00 - 15.00
9	5-01	Some aspects regarding materials behavior under different loading conditions L Andrușcă	15.00 - 15.15
10	5-02	The influence of track characteristics on the stresses introduced in operation in the frame of the electric locomotive class 43, EC 3400 kW M Alexandrov, V Goanță, D Apostol, I Blanari	15.15 - 15.30
11	5-04	Influence of geometric elements on the pressure distribution and the state of tension at non-Hertzian wheel-rail contact I Blanari, V Goanță, M Alexandrov	15.30 - 15.45
12	5-05	Influence of wear on the distribution of pressures and the state of tension on the wheel-rail interface I Blanari, V Goanță, M Alexandrov, C Moraras	15.45 - 16.00
13	5-07	Compression behavior study for GFRP fiberglass-reinforced material used in the construction of wind turbine blades C Morăraș, B Leitoiu, I Blanari, L Andruscă	16.00 - 16.15
14	5-08	Some aspects regarding the influence of humidity on the tensile characteristics of GFRP composite material C Morăraș, P D Bârsănescu, C A Țugui	16.15 - 16.30
15	5-09	Design guideline for plastic parts that need to fulfill EN62368 norm S G Pal, V Goanță, D P Bistriceanu	16.30 - 16.45
16	5-10	Step of the vertical walls for warpage compensation on plastic housings S G Pal, V Goanță, D P Bistriceanu	16.45 - 17.00

Session ACME-06-01: Automotives. Engine and Transmission.

Road Safety

Thursday, June 4th, 2020

Chairmen: *Prof. Edward RAKOSI* and *Prof. Eugen GOLGOTIU*

No.	ACME code	Title of the papers and authors	Hours
1	6-11	The impact behavior of the crash boxes A M Manea, D Iozsa and C Stan	12.00 - 12.15
2	6-05	Assessment criteria and nonlinear phenomena that accompany cyclic dispersion in the case of laser ignition B G Done, I Copae	12.15 - 12.30
3	6-08	Effects of the hydrogen addition on combustion in automotive diesel engine A M Ene, C Pana, N Negurescu, A Cernat, D Fuiorescu, and C Nutu	12.30 - 12.45
4	6-14	Simulation possibilities of the internal combustion engine management elements using Lotus Engine Simulation software V B Magdas, D C Mastan and N Burnete	12.45 - 13.00
5	6-13	Theoretical and experimental possibilities to set up some sensors systems involved in active safety process N Ispas, M Năstăsoiu	13.00 - 13.15
6	6-15	Influence of the flywheel profile on the energy storage capacity of the kers system L Milica and G Andrei	13.15 - 13.30
7	6-06	Weigh-in-motion sensors and traffic monitoring systems - State of the Art and Development Trends A I Dontu, P D Barsanescu, L Andrusca and N A Danila	13.30 - 13.45
8	6-09	Improving brake efficiency by optimizing the design of a car brake caliper M Gaidur, I Pascal, C C Ciobotar, E Rakosi, S Talif and Gh. Manolache	13.45 - 14.00
		Own World Lunch Break	14.00 - 15.00
9	6-22	Experimental investigations of an automotive diesel engine fuelled with natural gas in dual fuel mode S Rotaru, C Pana, N Negurescu, Al Cernat, D Fuiorescu, Cr N Nutu	15.00 - 15.15

10	6-24	The study of cyclic variability at a n-butanol spark ignition engine fueled Cr Sandu, C Pana, N Negurescu, Al Cernat, D Fuiorescu, R Georgescu and C Nutu	15.15 - 15.30
11	6-26	Tyres influence on vehicle fuel economy A Œoica, A Budală and I S Comănescu	15.30 - 15.45
12	6-27	Study Case Regarding the Measurement of an Intake Gallery Airflow M Stoica, C Cretu and L Cucu	15.45 - 16.00
13	6-02	Theoretical study of SES solution for extending the electric vehicles autonomy C Ciobotar, I Pascal, M Gaidur, E Rakosi, Gh Manolache and S Talif	16.00 - 16.15
14	6-10	Analytical study regarding the topological optimization of an internal combustion engine piston M Gaidur, I Pascal, C C Ciobotar, E Rakosi, Gh Manolache and S Talif	16.15 - 16.30
POSTER SESSION			
15	6-16-	Redundancy in the control of a gas turbine for naval applications F Niculescu, A Savescu and M L Vasile	16.30 - 16.40
16	6-25	Model based diagnosis of gasoline injection engine M Singureanu and I Copae	16.40 - 16.50
17	6-12	Influence of warning lights for intervention vehicles on aerodynamic performance D Iozsa, L Ilea and G Fratila	16.50 - 17.00
18	6-20	Modeling and simulating the activities in an automobile repair shop using ARENA software – part 1 I Radulescu, A C Tociu and A V Radulescu	17.00 - 17.10
19	6-21	Modeling and simulating the activities in an automobile repair shop using ARENA software – part 2 I Radulescu, A C Tociu and A V Radulescu	17.10 - 17.20

Session ACME-07-01: Applied Thermodynamics, Heat Transfer, and Renewable Energy. Thermal Systems

Thursday, June 4th, 2020

Chairmen: *Prof. Bogdan HORBANIUC* and *Prof. Aristotel POPESCU*

No.	ACME code	Title of the papers and authors	Hours
1	7-14	Air-to-water heat pumps: the impact of climate, compressor technology, water output temperature and sizing on the seasonal coefficient of performance for heating G A Mouzeviris and K T Papakostas	12.00 - 12.15
2	7-06	The analysis of the thermal barrier coating using Ansys software M Frățița, K Uzuneanu, F Popescu and I V Ion	12.15 - 12.30
3	7-07	Considerations on pollution from the use of biofuels A Gruia, M Bică and A Istrate	12.30 - 12.45
4	7-11	Compression ignition engine – solutions for reducing pollutant emissions A Istrate, M Bică and M Duinea	12.45 - 13.00
5	7-12	Compression ignition engine - sources of pollution A Istrate, M Bică and M Simion	13.00 - 13.15
6	7-18	Predicting vehicle waste heat recovery potential in road gradient driving cycle - A case study V Sandu, V B Ungureanu, C Leahu and A Mazilu	13.15 - 13.30
7	7-19	Maximum energy efficiency on photovoltaic solar panels by using an innovative solar tracker I A Sgârciu, A S Cernian, A M Anghel and V Sgârciu	13.30 - 13.45
8	7-21	Exergy and Performance Analyses of Impact Subcooling for Vapor Compression Refrigeration System Utilizing Eco-friendly Refrigerants L T Ali, J Al Douri, V Apostol, H L Pop and C Ionita	13.45 - 14.00
Own World Lunch Break			14.00 - 15.00
9	7-01	Experimental measurements of CO₂ concentrations in sleeping rooms D A Adîncu, A Popescu and M Atanasiu	15.00 - 15.15
10	7-02	Impact of weather extremes on fresh air ventilation systems D A Adîncu, A Popescu and M Atanasiu	15.15 - 15.30
11	7-22	CFD analysis of a round shaped air cushion vehicle with	15.30 - 15.45

		flexible skirt segments at 90° and different air clearance height M S Pavăl, A Popescu and D Zahariea	
12	7-23	CFD analysis of a round shaped air cushion vehicle with inclined skirt segments M S Pavăl, A Popescu and D Zahariea	15.45 - 16.00
13	7-10	Finite-difference approach of ice build-up around a cylindrical pipe B Horbaniuc, Gh Dumitraşcu and M Atanasiu	16.00 - 16.15
14	7-03	In situ study on the condensate latent heat recovery and its economic impact in the case of a 60 kW condensing boilers system D T Bălănescu, V M Homutescu, G Ianuş and A Popescu	16.15 - 16.30
15	7-04	Study on the in situ performance of a 60 kW condensing gas boilers thermal installation and economic assessment D T Bălănescu, V M Homutescu and G Ianuş	16.30 - 16.45
16	7-17	Case study regarding the use of three different fuels in a multi-stage hybrid rocket engine S Predoi, S Grigorean and G Dumitraşcu	16.45 - 17.00
17	7-24	NZEB design principles for affordable single-family housing accounting for regional climatic conditions T Hapurne, I Bliuc, A I Dumitrascu and C G Corduban	17.00 - 17.15
18	7-13	Hybrid PV-TE-T modules: life cycle analysis and end of life assessment A G Lupu, V M Homutescu, D T Balanescu and A Popescu	17.15 - 17.30
19	7-25	Design and sizing of an air source heat pump for a building heating system V Popa and C L Popa	17.30 - 17.45
20	7-16	Impact of COVID-19 pandemic on renewable sources implementation: case of PV systems in Romania A Popescu and C E Panaite	17.45 - 18.00
21	7-15	Desiccant assisted air conditioning - a micro-scale approach C E Panaite, A Popescu, M Homutescu, D Bălănescu	18.00 - 18.15

Session ACME-01-03: Machine Design. Tribology

Friday, June 5th, 2020

Chairmen: *Prof. Ilie MUSCĂ* and *Assoc. Prof. Gelu IANUȘ*

No.	ACME code	Title of the papers and authors	Hours
1	1-02	About four balls scuffing test parameters C Hangan, I C Romănu, I Muscă	09.00 - 09.15
2	1-05	Tribological Investigation of Human Skin Friction with Polytetrafluoroethylene PTFE under Different Boundary Conditions K A Subhi, E K Hussein, T S Gaaz, A Călin, A Tudor	09.15 - 09.30
3	1-10	Simulation of high-pressure pump behaviour after running in urban regime R C Iordache, C Bujoreanu, N D Petrea, G Ianuș	09.30 - 09.45
4	1-11	Influence of tightening screws process in high-pressure injection pump D P Bistriceanu, S G Pal, S Alaci, C Bujoreanu	09.45 - 10.00
5	1-12	Study on the sealing defects impact on high pressure pump D P Bistriceanu, S G Pal, F C Ciornei, C Bujoreanu	10.00 - 10.15
6	1-15	Evaluation of friction behaviour on human finger skin considering precision grip task V Cârlescu, C M Opreșan, D Olaru, G Ianuș	10.15 - 10.30
7	1-17	Influence of the stiffness and the speed on the stick-slip process C-M Opreșan, B Chiriac, V Cârlescu, D N Olaru	10.30 - 10.45
POSTER SESSION			
8	1-01	A Model of the Effect of Dry Friction on the Behaviour of a Dynamical System F C Ciornei, S Alaci, C Bujoreanu	10.45 - 10.55

Session ACME-03-03: Mechatronics. CAD. Mechanical Vibrations

Friday, June 5th, 2020

Chairmen: *Assoc. Prof. Alina SPĂNU* and *Prof. Gheorghe PRISACARU*

No.	ACME code	Title of the papers and authors	Hours
1	03-33	Experiment on the empathic reaction of an animatronic	09.00 - 09.15

		structure determined by a voice command M Ionescu, I Borcosi, G Gilca, S I Cismaru, F Besnea (Petcu), C Resceanu, N G Bizdoaca	
2	03-34	Torsion Frequency Response Function of a Train Driving Wheelset M Gheți, T Mazilu	09.15 - 09.30
3	03-35	Some considerations on vibrations and noise of automotive HVAC system A M Vranău, C Bujoreanu, A Sachelarie, V Caunii	09.30 - 09.45
4	03-36	Hydraulic pitch control including virtual instruments R I Pelin, I Tița	09.45 - 10.00
5	03-38	Bathroom telemonitoring system with alerting function for independent life of elderly S B Sebesi, A Ianoși-Andreeva-Dimitrova, D S Mândru	10.00 - 10.15

Session ACME-03-04: Mechatronics. CAD. Mechanical Vibrations

POSTER SESSION

Friday, June 5th, 2020

Chairmen: *Prof. Carmen BUJOREANU* and *Lecturer Vlad CÂRLESCU*

No.	ACME code	Title of the papers and authors	Hours
1	03-16	Researches, studies and development prospects of the quality of metallic parts made on cnc machines N Pușcaș (Popescu), I Tempea	10.15 - 10.25
2	03-17	The quality of metal products bent on CNC machines N Pușcaș (Popescu), I Tempea	10.25 - 10.35
3	03-07	Intelligent speed control system for electric vehicle D Turcian, V Dolga	10.35 - 10.45
4	03-39	Optimization of the measurement cycle for a gonio photometer for asphalt reflectivity C Galatanu, C Cazacu, V Carlescu and I Doroftei	10.45 - 10.55
5	03-40	"E4D@box - A compact and efficient controller board, based on Tensilica Xtensa LX6 (ESP32) , for 3D printers, CNC and robots. Concept, Design and Testing " A Barnea, M Manco, G Prisacaru, C Stamate	10.55 - 11.05
6	03-09	Displacement and velocity estimation of the earthquake response signals measured with accelerometers D Nedelcu, T C Malin, G R Gillich, C I Barbinta, V Iancu	11.05 - 11.15
7	03-10	A new predictive model to estimate the frequencies for beams with branched cracks C Tufisi, G R Gillich, C I Barbinta, D Nedelcu, C O Hamat	11.15 - 11.25

8	03-11	Deriving patterns for the vibration-based damage detection in side frames of bogies C I Barbinta, G R Gillich, D Nedelcu, T Manescu	11.25 - 11.35
9	03-13	Constructive and functional particularities of 3D printers with applications in the food industry D Besnea, M Avram, S Cananau, E Moraru, A Spanu, V Constantin, I C Panait	11.35 - 11.45
10	03-14	Experimental stand for studying the stretch behaviour of woven plastic nets used in the food industry D Besnea, E Dinu, C Rizescu, E Moraru, D Rizescu, N Baran, T Pascu, I C Panait	11.45 - 11.55

**Session ACME-06-02: Automotives. Engine and Transmission.
Road Safety**

Friday, June 5th, 2020

Chairmen: *Lecturer Sorinel TALIF and Lecturer Gabriel URSESCU*

No.	ACME code	Title of the papers and authors	Hours
1	6-01	Dynamics study of an automobile equipped with a hybrid powertrain system compared with the classic one M Burciu	09.00 - 09.15
2	6-03	Virtual model of the SES solution for extending the vehicles electric propulsion system autonomy C C Ciobotar, M Gaidur, I Pascal, E Rakosi, S Talif and Gh Manolache	09.15 - 09.30
3	6-04	Physical functional model of the SES solution for extending autonomy of the electric vehicles propulsion system C C Ciobotar, M Gaidur, I Pascal, E Rakosi, S Talif and Gh Manolache	09.30 - 09.45
4	6-23	The investigation of pedestrians accident according the place where they are thrown A Sachelarie, R Gaiginschi	09.45 - 10.00
5	6-07	New concept of WIM system for urban traffic monitoring A I Dontu, L Gaiginschi, P D Barsanescu, E Rakosi, L Andrusca and N A Danila	10.00 - 10.15
6	6-17	The finite element analysis of pelvic assembly resulted from a pedestrian's traffic accident. The analysis of the iliac bone I Pascal, M Gaidur, C. C. Ciobotar, E Rakosi, S Talif and Gh Manolache	10.15 - 10.30

7	6-18	The finite element analysis of pelvic assembly resulted from a pedestrian's traffic accident. The analysis of the sacral bone I Pascal, M Gaidur, C. C. Ciobotar, E Rakosi, Gh Manolache and S Talif	10.30 - 10.45
8	6-19	The finite element analysis of pelvic assembly resulted from a pedestrian's traffic accident. The dynamic analysis I Pascal, M Gaidur, C. C. Ciobotar, E Rakosi, S Talif and Gh Manolache	10.45 - 11.00
9	6-28	Intelligent system for driver assistance in overtaking manoeuvres using multiple camera and radar sensors S Zamfir and R Drosescu	11.00 - 11.15
10	6-29	Applying FMEA methodology to evaluate different shapes of car struts A Maftai, A I Dontu and P D Barsanescu	11.15 – 11.30

Session ACME-07-02: Applied Thermodynamics, Heat Transfer, and Renewable Energy. Thermal Systems

Friday, June 5th, 2020

Chairmen: *Assoc. Prof. Ema PANAITE and Assoc. Prof. Dan Teodor BALANESCU*

No.	ACME code	Title of the papers and authors	Hours
1	7-09	Thermodynamic cycles named Stirling - a review V M Homutescu, D T Bălănescu and A G Lupu	09.00 - 09.15
POSTER SESSION			
2	7-08	A mathematical model of an adiabatic helical capillary tube used for R1234yf and R600a refrigerants K S Hmood, H Pop, V Apostol, J Al Douri, S J Al Qaisy and V Badescu	09.15 - 09.25
3	7-05	Analysis of a dual-purpose refrigerating and heat pump system D Dima, C Ionita, E E Vasilescu, A T Gheorghian and A Dobrovicescu	09.25 - 09.35
4	7-20	CO₂ high temperature heat pump – a promising solution O Talaba, D Dima, V Buiuc, C Ionita, M F Stefanescu, A Serban and A Dobrovicescu	09.35 - 09.55

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TOPICS:

- Machine Design. Tribology (Section 1);
- Materials and Surface Engineering (Section 2);
- Mechatronics. CAD. Mechanical Vibrations (Section 3);
- Theory of Mechanisms and Machinery. Robotics (Section 4);
- Mechanics of Deformable Bodies (Section 5);
- Automotives. Engine and Transmission. Road Safety (Section 6);
- Applied Thermodynamics, Heat Transfer, and Renewable Energy. Thermal Systems (Section 7);
- Technologies in Agriculture and Food Processing (Section 8);

