



9th International Conference on Thermal Equipment, Renewable Energy and Rural Development

TE-RE-RD 2020

ORGANIZERS:

University "POLITEHNICA" of Bucharest
Faculty of Mechanical Engineering and Mechatronics -
Faculty of Biotechnical Systems Engineering -

**National Institute Of Research – Development For Machines And
Installations Designed To Agriculture And Food Industry – INMA**

Romanian Agricultural Mechanical Engineers Society – SIMAR

PROCEE DINGS

Prof.dr.ing. Gabriel-Paul NEGREANU
Dr.ing. Valentin VLĂDUȚ

București – Romania
26 June - 27 June 2020

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TE-RE-RD 2020
CONFERENCE PROGRAMME

Friday, June 26	
08.30-09.00 Registration of participants	
09.00-09.30 Opening ceremony	
09.30-11.00 Oral presentations "Sections 1"	09.30-11.30 Oral presentations "Sections 2, 3, 4"
11.30-14.00 Oral presentations "Sections 1"	12.00-14.30 Oral presentations "Sections 2, 3, 4"
14.30-16.00 Oral presentations "Sections 1, 2, 3, 4"	
16.00-17.30 Oral presentations "Sections 2"	

Conference Programme

Friday, June 26

08.30-09.00

Registration of participants

Microsoft TEAMS

<https://teams.microsoft.com/l/team/19%3a735dab539ed9467397e7343b5252404d%40thread.tacv2/conversations?groupId=6320d34a-dbb1-4284-a1bf-3e0a5a4e3bc5&tenantId=2d8cc8ba-8dda-4334-9e5c-fac2092e9bac>

09.00-09.30

Opening ceremony

Welcome address:

Prof.dr.ing. Lucian MIHAESCU, Chairman TE-RE-RD 2020

Prof.dr.ing. Tudor PRISECARU, President of the Senate, University Politehnica of Bucharest

08.30-09.00
Registration of participants

Thermal Equipment

09.30-11.00

Chairmen:*Iliya Iliev and Ion Oprea*

Thermal Equipment Room

Presentation No.	Title	Authors	Start hour
1	The efficiency analysis of the SH-25A ball drum mill when grinding industrial products of fossil fuels	Saule Kamarova, Saule Abildinova, Angel Terziev, Aliya Elemanova	9:30
2	Condensing economizers for large scale steam boilers	Iliya Iliev, Angel Terziev, Hristo Beloev.	9.45
3	The amplitude influence on the thermal and hydraulic performances for a wavy air fin in a compact heat exchanger used in agriculture applications	Septimiu Albețel, Alexandru Rus, Eveline David, Vlad Marțian	10.00
4	Pipelines Designing By Using Hydraulic Criteria Equations	Gencho Popov, Kliment Klimentov, Boris Kostov	10.15
5	Numerical modeling of the thermal conduction process in water-air convector's fins	Zhivko Kolev, Seher Kadirova	10.30

Renewable Energy

09.30-11.30

Chairmen:*Ion Oprea and Razvan Carlanescu*

Renewable Energy Room

Presentation No.	Title	Authors	Start hour
1	Analysis of rotors' critical mode of operation to be employed in the design of a wind generation control unit	Alina Fazylova, Gani Balbayev, Diana Ilieva, Madina Aliyarova	9:30
2	Compressed air energy storage facility with water tank for thermal recovery	Iulian Vlăducă, Claudia Borzea, Dan Ionescu, Alexandra Țăranu, Răzvan Ciobanu, Vicențiu Ringheanu	9.45
3	Influence of four modern Flettner rotors, used as wind energy capturing system, on container ship stability	Mihail-Vlad Vasilescu, Ionut Voicu, Cornel Panait, Violeta-Vali Ciucur	10.00
4	Influence of Flettner balloon, used as wind energy capturing system, on container ship stability	Mihail-Vlad Vasilescu, Dumitru Dinu	10.15
5	Analysis of energy potential of biofuels obtained from camelina sativa	Madalina Ghilvacs, Razvan Carlanescu, Elena Pop, Maria Paraschiv, Malina Prisecaru	10.30
6	A combined approach for assessment the functionality of photovoltaic modules in realworld operation	Ivaylo Nedelchev, Hristo Zhivomirov	10.45
7	Predictive maintenance of photovoltaic plants using multirotor drones with automatic recharging system of Li-Po batteries	Vasile Plesca, Cristian Purece	11.00

Rural Development

09.30-11.30

Chairmen:*Valentin Vlăduț and Nicoleta Ungureanu*

Rural Development Room

Presentation No.	Title	Authors	Start hour
1	Intensity of soil erosion in Romania, predictions in time and space, European and indigenous	Petru Cardei, Raluca Sfiru, Vergil Muraru	9:30
2	Soil moisture influence in the soil tillage operations	Petru Cardei, Raluca Sfiru, Sebastian Muraru, Paula Condruz	9.45
3	Finite element 3D numerical simulation study of car braking systems and brake disc/drum – pad/shoe friction couple materials	George Ipate, Filip Ilie, Gheorghe Voicu, Andreea Catalina Cristescu	10.00
4	Sorghum bicolor (L.) Moench. - Plant for the future in Moldavia agriculture (Romania) and for the human nutrition	Simona – Florina Isticioaia, Alexandra Leonte, Lorena - Diana Popa, Elena Troțuș, Livia Apostol, Valentin Vlăduț, Iulian Voicea, Gheorghe Matei	10.15
5	Theoretical considerations on the factors influencing the processing of hemp stalks	Paul Găgeanu, Mihai Olan, Iuliana Găgeanu, Alexandru Zaica	10.30
6	Research on the use of cylindrical cutting drums with blades in cascade for Miscanthus harvesting	Anișoara Păun, Gheorghe Stroescu, Valentin Vlăduț, Radu Popa, Vlad Popa	10.45
7	Desorption of the Exotic Fruit Jujube (Ziziphus Jujube Mill) of Bulgarian Origin	Albena Durakova, Adelina Bogoeva, Velichka Yanakieva, Tzvetana Gogova, Kornelia Choroleeva	11.00
8	Sorption Characteristics of Bulgarian Penny Buns (Boletus Edulis)	Albena Durakova	11.15

Miscellaneous

09.30-11.30

Chairmen:*Virgil Muraru and Gheorghe Voicu*

Miscellaneous Room

Presentation No.	Title	Authors	Start hour
1	Research of filtration and energy parameters of membrane bioreactors	Nikolay Makisha	9:30
2	The remotely controlled underwater robot system	Cristian Nita, Dumitru Deleanu, Ionut Voicu	9.45
3	Simulation regarding the forward part of underwater remotely operated vehicle designed for research in maritime and river districts	Andra-Teodora Nedelcu, Cătălin Faităr, Nicolae Buzbuchi, Liviu-Constantin Stan, Mihail Lucian Dumitrache	10.00
4	The strong connection between marine engineering and marine environmental education within a marine cluster	Mirela Iuliana Sundri, Feiza Memet	10.15
5	Mathematical modelling and numerical simulation of linear electro-hydraulic servomechanism with stepper motor	Vergil Muraru, Constantin Calinoiu, Sebastian Muraru, Ana Dulgheru	10.30
6	Finite element analysis of the compaction plate from a garbage truck	Gheorghe Voicu, Mircea Lazea, Gabriel-Alexandru Constantin, Elena-Madalina Stefan, Mariana-Gabriela Munteanu	10.45
7	Determination of granulometrical composition of the clinker by grinding in a ball mill to determine the specific consumption of additional energy	Cristian Ciobanu, Gheorghe Voicu, Gabriel-Alexandru Constantin, George Ipate, Paula Tudor	11.00

Thermal Equipment

11.30-14.00

Chairmen:

Constantin Pană and Elena Pop

Thermal Equipment Room

Presentation No.	Title	Authors	Start hour
1	The study of the spark ignition engine operation at fueling with n-butanol-gasoline blends	Cristian Sandu, Constantin Pană, Nicolae Negurescu, Alexandru Cernat, Cristian Nikolaos Nuțu, Rareș Georgescu	11:30
2	Researches on biofuels gasification using the Lurgi process with homogeneous air inlet over the combustion space	Gheorghe Lăzăroiu, Lucian Mihăescu, Ionel Pîșă, Gabriel Negreanu, Iulia Simion, Dana-Alexandra Ciupăgeanu	11.45
3	Combustion Experiments On A Solid Fuel With Low Sulphur Content	Tudor Prisecaru, Adrian Adam, Lucian Mihăescu, Ionel Pîșă, Elena Pop, Malina Prisecaru, Viorel Berbec	12.00
4	Application of waste oil purification technology on a heating installation of an industrial hall	Mihai Dragne, Elena Pop, Ionel Pîșă	12.15
5	Calculation of the main parameters involved in the combustion process of CH ₄ -H ₂ mixtures at different proportions	Razvan Carlanescu, Marius Enache, Raluca Maier, Andreea Alcea, Raluca Condruz, Cristian Stoica, Madalina Ghilvacs	12.30
6	Effects of CNG quantity on combustion characteristics and emissions of a dual fuelled automotive diesel engine	Silviu Rotaru, Constantin Pană, Nicolae Negurescu, Alexandru Cernat, Dinu Fuioreescu, Cristian Nikolaos Nuțu	12.45

Renewable Energy

12.00-14.30

Chairmen:

Angel Terziev and Gabriel Negreanu

Renewable Energy Room

Presentation No.	Title	Authors	Start hour
1	Researches on the development of an optical system for improving the efficiency of photovoltaic panels	Dana Rizescu, Ciprian Ion Rizescu, Cristian Gabriel Alionte	12.00
2	Transforming Romanian school buildings in prosumers. An opportunity for increasing the energy efficiency in electrical networks and reducing the environmental impact of the power distribution sector	Mircea Scripcariu, Cristian Gheorghiu, Ioan-Sevastian Bitir-Istrate, Mihaela-Madalina Bonea	12.15
3	Impact of pollutants in the energy sector on the environment and technologies for treating liquid and solid waste from power plants	Irina Alina Chera-Anghel, Loredana Popescu, Florentina Condrea	12.30
4	Solar collectors network map: shape and time dynamics of stored thermal energy for different user loads	Camelia Stanciu, Dorin Stanciu, Claudia Ioniță, Diana-Maria Olaru	12.45
5	IoT solution for monitoring indoor climate parameters in open space offices	Ioana Udrea, Viorel Ionut Gheorghe, Laurentiu Adrian Cartal, Despina Duminica, Silviu Petrache, Tudor Catalin Apostolescu, Valeru Friedemann Kraus	13.00
6	Solution for controlling a hydraulic motor using cloud data	Ioana Udrea, Viorel Ionut Gheorghe, Silviu Petrache, Alina Popescu-Cuta, Romeo Traian Popa	13.15
7	Obtaining thermal energy from renewable sources in rural areas using a combined energy system	Liliana Dumitrescu, Corneliu Cristescu, Radu Rădoi, Ioan Pavel	13.30

Rural Development

12.00-14.30

Chairmen:*Sorin-Stefan Biris and Iulian Voicea*

Rural Development Room

Presentation No.	Title	Authors	Start hour
1	Structural, kinematic and kinetostatic analysis of a manure spreader equipped by a mobile	Lucretia Popa, Stefan-Iulian Moise, Victor Moise, Vasilica Stefan, Paula Tudor, Ioan Ganea-Christu	12.00
2	Experimental Water Treatment Plant from Agrozootechnical Farm	Iulian Voicea, Ioana Corina Moga, Eugen Marin, Dragos Dumitru	12.15
3	Determining the qualitative working indices for various forms of the active body of a rut soil compartmentation equipment	Marius Remus, Oprescu Sorin, Stefan Biris, Iuliana Gageanu, Dragos Nicolae Dumitru	12.30
4	Evaluation of carbon dioxide released by bread dough during proving stage	Adriana Istudor, Gheorghe Voicu, Gheorghe Muscalu, Paula Tudor	12.45
5	Evaluation of hand transmitted chainsaw vibrations during wood cutting	Mihai Gabriel Matache, Gheorghe Voicu, Dragos Nicolae Dumitru	13.00
6	The influence of environmental factors and heavy metals in the soil on plants' growth and development	Nicoleta Alexandra Vanghele, Mirabela Augustina Pruteanu, Ancuța Alexandra Petre, Andreea Matache, Dumitru Bogdan Mihalache	13.15
7	Wastewater electrooxidation using stainless steel electrodes	Nicoleta Ungureanu, Valentin Vlăduț	13.30
8	Climate changes and methods to protect vegetable crops	Adriana Muscalu, Cătălina Tudora Constantin Coța, Zoltan Gyorgy, Floarea Burnichi, Valentin Vlăduț	14.00

Miscellaneous

12.00-14.30

Chairmen:*Mircea Scripcariu and Viorel Panaitescu*

Miscellaneous Room

Presentation No.	Title	Authors	Start hour
1	The smart transition of Power Transmission Network needed for the sustainable development of Bucharest City	Mircea Scripcariu, Cristian Gheorghiu, Ion Tristiu, Alexandra-Gabriela Dobrica	12.00
2	Efficient phosphate removal by biological corrosion method	Olga Ruzhitskaya	12.15
3	Elimination of the biogenic pollution effects on aquatic environments	Vladimir Sherbakov, Konstantin Chizhik, Tatyana Shchukina, Anastasiya Milyaeva	12.30
4	Development of thermal bridge numerical model, based on conjugate heat transfer and indoor and outdoor environment parameters	Martin Ivanov, Sergey Mijorski	12.45
5	Determination of the minimum wind speed leading to the galloping of conductors	Muratkali Zhamanbaev, Diana Ilieva, Rakhimash Abitaeva, Bulbul Ongar	13.00
6	The influence of the vitiated air from the treatment plants on the urban and rural development	Fanel-Viorel Panaitescu, Mariana Panaitescu, Nicolae Ion	13.15
7	Assessment and risk prevention of air pollution in urban sites	Mariana Panaitescu, Fanel-Viorel Panaitescu, Cornel Panait, Octavia Bardasu, Viorica-Ani Merla	13.30

Thermal Equipment

14.30-16.00

Chairmen:

Gabriel Negreanu and Ionut Cristian Scurtu

Thermal Equipment Room

Presentation No.	Title	Authors	Start hour
1	Researches on the delimitation between the water aeration and oxygenation processes	Rasha Cusma, Nicolae Băran, Nicolae Vlad Sima, Mihaela Petroșel, Remus Voicu, Mariana Mirela Stoican (Prisecaru), Mihaela Constantin	14:30
2	Some design characteristics of micro steam turbines for agricultural biomass energy conversion	Gabriel Negreanu, Ion Oprea, Viorel Berbece	14.45
3	Determination of hydraulic resistance of the aerothermopressor for gas turbine cyclic air cooling	Dmytro Konovalov, Halina Kobalava, Mykola Radchenko, Ionut-Cristian Scurtu, Roman Radchenko	15.00
4	Consideration regarding the reduction of pollutions emissions by increasing energy efficiency in ship operations	Lucian Mihail Dumitrache, Nicolae Buzbuchi, Cătălin Faităr	15.15
5	Seismic qualification by analysis of a nuclear class horizontal pressure vessel	Liviu-Constantin Stan, Ioan Călimănescu, Cătălin Faităr	15.30
6	Structural and Technological Features of an Installation for Recovery of End-of-life Automobile Tires	Violeta Rasheva, Georgi Komitov, Ivan Binev, Georgi Valtchev	15.45

Renewable Energy

14.30-16.00

Chairmen:

Mariana Panaitescu, and Gheorghe Lazaroiu

Renewable Energy Room

Presentation No.	Title	Authors	Start hour
1	Simulation analysis of thermal performance of the solar air/water collector by using computational fluid dynamics	Jafer Shandal, Qahtan A. Abed, Dhafer M. Al-Shamkhee	14:30
2	Energy and exergy analysis of a flat plate collector using collector test equations	Adina-Teodora Gheorghian, Tudor Prisecaru, Cristina Ciobanu	14.45
3	Gas yield variation in wood biomass co-current air gasification process – continuous operation	Gabriela Ionescu, Raluca Nicoleta Tirtea, Cora Gheorghe-Bulmau, Cosmin Marculescu	15.00
4	Process characterization and energy balance of air wood residues gasification using continuous operated pilot scale reactor	Cora Gheorghe-Bulmau, Raluca Nicoleta Tirtea, Gabriela Ionescu, Cosmin Marculescu	15.15
5	The generation of a mathematical model of the biogas production process from organic municipal solid waste	Marzhan Temirbekova, Madina Aliyarova, Iliya Iliiev, Aliya Yelemanova, Saule Sagintayeva	15.30
6	Operation on battery packs of damaged installations on a tugboat	Violeta-Vali Ciucur, Andreea Jenaru	15.45

Rural Development

14.30-16.00

Chairmen:*Mihai Matache and Edmond Maican*

Rural Development Room

Presentation No.	Title	Authors	Start hour
1	Study of the compression behaviour of grape seeds using the Finite Element Method	Carmen Vasilachi (Baltăţu), Sorin-Ştefan Biriş, George Ipate, Gabriel Gheorghe	14:30
2	Study on the effects and changes of soil degradation under the influence of antibiotics	Ancuta Alexandra Petre, Nicoleta Alexandra Vanghele, Dragoş Dumitru, Mariana Mădălina Stanciu, Dumitru Bogdan Mihalache, Andreea Matache, Iulia Andreea Grigore, Laurenţiu Vladuţoiu	14.45
3	Static and modal analysis of an deep soil loosening machine	Gabriel Gheorghe, Daniel Lates, Catalin Persu, Marinela Mateescu	15.00
4	Mathematical modelling of the drying process of sugar beet pulp with macro and microelement additions in order to improve the feed quality	Elena Mihaela Nagy, Constantin Coţa, Zoltan Gyorgy, Teodora Deac	15.15
5	Research on methods, techniques and technologies of carbon sequestration in soil	Oana Diana Cristea, Valentin Vlăduţ , Nicoleta Ungureanu, Diana Lorena Popa	15.30
6	Theoretical research to accomplish a system of ecological heating a greenhouse for vegetables	Eugen Marin, Marinela Mateescu, Dragos Manea, Gabriel-Valentin Gheorghe, Andrei Dumitrascu, Carmen Vasilachi, Radu Popa Vlad Popa	15.45

Miscellaneous

14.30-16.00

Chairmen:*Carmen-Anca Safta and Cristian-Gabriel Alionte*

Miscellaneous Room

Presentation No.	Title	Authors	Start hour
1	More on Smart Cultural Landscapes: technicalities of the planning processes	Alexandru Calcatinge	14:30
2	Study of Sequencing Batch Reactor operation with an inflow of wastewater with low concentration of organic contaminations	Elena Gogina	14.45
3	Mathematical Description of Sequencing Batch Reactor operation of treatment of wastewater with low concentration of organic contaminations	Elena Gogina	15.00
4	Black sea marine litter pollution related to naval operations	Valerian Novac, Luminiţa Moraru, Carmen Gasparotti, Eugen Rusu	15.15
5	Mechano-hydraulic pumping solutions for reduction off energy losses in agricultural mobile machinery	Alexandru Hristea, Bogdan Tudor, Stefan Sefu	15.30
6	Dynamic behaviour of pneumatic actuators in open-loop controlled by proportional valves	Valentin Nicolae Cococi, Carmen-Anca Safta, Constantin Călinoiu	15.45

Rural Development

16.00-17.30

Chairmen:*Iulian Dutu and Iuliana Gageanu*

Rural Development Room

Presentation No.	Title	Authors	Start hour
1	Sound power determination for centrifugal pumps used for local agricultural irrigation in Romania	Mihai Chițoiu, Georgiana Moiceanu, Gigel Paraschiv, Gheorghe Voicu, Andreea Matache	16:00
2	An analysis of baffles designs for limiting impact on the directional response for a partially filled tank with agro-food liquids	Gabriela Milian, Sorin-Ștefan Biriș, George Ipate	16.15
3	Kinetostatic analysis of a scissor jack mechanism powered by a tetrad RRR-Ta-RRR	Victor Moise, Ileana Dugaesescu, Lucretia Popa, Liviu Ungureanu, Ștefan-Iulian Moise	16.30
4	Analysis of the process of green hemp stalks sequential harvesting	Ănișoara Păun, Gheorghe Stroescu, Alexandru Zaica, Valentin Vlăduț, Radu Ciupercă, Constantin Bogdanof	16.45
5	Experimental testing of a helical rotor for compost distribution	Vasilica Ștefan, Ladislau David, Radu Ciupercă, Ana Zaica, Ancuța Nedelcu, Albert Suvac	17.00