

8th International Conference on Thermal Equipment, Renewable Energy and Rural Development (TE-RE-RD 2019)

E3S Web of Conferences Volume 112 (2019)

Targoviste, Romania
6-8 June 2019

Editors:

**Gabriel-Paul Negreanu
Nicolae-Valentin Vlăduț**

ISBN: 978-1-5108-9212-5

Printed from e-media with permission by:

Curran Associates, Inc.
57 Morehouse Lane
Red Hook, NY 12571



Some format issues inherent in the e-media version may also appear in this print version.

This work is licensed under a Creative Commons Attribution 4.0 International License. License details:
<http://creativecommons.org/licenses/by/4.0/>.

No changes have been made to the content of these proceedings. There may be changes to pagination and minor adjustments for aesthetics.

Printed with permission by Curran Associates, Inc. (2019)

For additional information, please contact EDP Sciences – Web of Conferences at the address below.

EDP Sciences – Web of Conferences
17, Avenue du Hoggar
Parc d'Activité de Courtabœuf
BP 112
F-91944 Les Ulis Cedex A
France

Phone: +33 (0) 1 69 18 75 75

Fax: +33 (0) 1 69 28 84 91

contact-edps@webofconferences.org

Additional copies of this publication are available from:

Curran Associates, Inc.
57 Morehouse Lane
Red Hook, NY 12571 USA
Phone: 845-758-0400
Fax: 845-758-2633
Email: curran@proceedings.com
Web: www.proceedings.com

TABLE OF CONTENTS

WASTE HEAT RECOVERY FOR A DIESEL TRACTOR ENGINE: A COMPARISON STUDY	1
<i>Radu Bogdan, Racovitza Alexandru</i>	
INFLUENCES OF USING B20 REFORMULATED TYPE FUEL ON A HEAVY-DUTY DIESEL ENGINE PERFORMANCES	11
<i>Rashid Adnan Kadhim, Radu Bogdan, Racovitza Alexandru, Chiriac Radu</i>	
REDUCE DEPOSITS ON HEAT EXCHANGE SURFACES WHEN BURNING INFERIOR COAL.....	19
<i>Bica Marin, Stoian Andrei, Tutunea Dragos, Calbureanu Madalina</i>	
CONSIDERATIONS ON THE COMBUSTION OF BIOFUELS IN COMPRESSION IGNITION ENGINES	29
<i>Fazal Um Min Allah, Bica Marin, Gruia Alexandru, Tutunea Dragos, Calbureanu Madalina</i>	
DETERMINING THE ENERGY PERFORMANCE OF A ROTATING MACHINE FOR FLUID FLOW.....	39
<i>Giovani Roza Albertino, Almaslamani Ammar, Tanase Elena Beatrice, Baran Nicolae, Constantin Mihaela</i>	
EXPERIMENTAL RESEARCH ON A HOT AIR GENERATOR WORKING ON THE TLUD PRINCIPLE.....	47
<i>Pavel Ioan, Radoi Radu-Iulian, Matache Gabriela, Popescu Ana-Maria Carla, Caba Ioan</i>	
EXPERIMENTAL STUDY OF HEAT PUMP TYPE AIR-WATER FOR HEATING SYSTEM PERFORMANCE.....	58
<i>Zlateva Penka, Yordanov Krastin</i>	
CFD SIMULATION OF FORCED HEAT TRANSFER OF GAS IN PIPE	66
<i>Kolev Zhivko, Kadirova Seher</i>	
PERFORMANCES OF A RESEARCH CFR OCTANE RATING UNIT ENGINE AND DACIA SINGLE CYLINDER SI ENGINE IGNITED BY A LASER SYSTEM.....	75
<i>George Done Bogdan, Copae Ion</i>	
NUMERICAL SIMULATION OF A PHASE CHANGE MATERIAL MELTING PROCESS	83
<i>Stanciu Dorin, Stanciu Camelia, Apostol Valentin, Pop Horatiu</i>	
A RESEARCH ON FUELLING A TRUCK DIESEL ENGINE WITH HYDROGEN.....	93
<i>Nutu Nikolaos Cristian, Pana Constantin, Negurescu Niculae, Cernat Alexandru, Fuiiorescu Dinu, Mirica Ionel</i>	
WASTE-ENERGY (HEAT) RECOVERY SYSTEM FROM THE GASES COMPRESSED BY AN OIL-FREE SCREW COMPRESSOR	102
<i>Vladuca Iulian, Stanciuc Ramona, Bimbasa Razvan, Tomescu Sorin Gabriel</i>	
DETERMINATION OF COEFFICIENT OF PERFORMANCE OF MECHANICAL VAPOUR RECOMPRESSION HEAT PUMP	110
<i>Valchev Slav, Nenov Nenko, Georgiev Vasil</i>	
SOME ASPECTS OF CYCLE VARIABILITY AT THE DIESEL ENGINE FUELLED WITH ANIMAL FATS	120
<i>Nicolici Adrian, Pana Constantin, Negurescu Niculae, Cernat Alexandru, Nutu Cristian</i>	
STUDY OF THE FIRE DYNAMICS IN A BURNING CAR AND ANALYSIS OF THE POSSIBILITIES FOR TRANSFER OF FIRE TO A NEARBY VEHICLE	128
<i>Terziev Angel</i>	
INSTANTANEOUS FIELD MEASUREMENTS OF THERMAL BRIDGE PARAMETERS IN GROUND FLOOR RESIDENTIAL ROOM	136
<i>Ivanov Martin</i>	
DEW POINT TEMPERATURE ANALYSES IN GROUND FLOOR RESIDENTIAL ROOM WITH EXISTING THERMAL BRIDGE.....	146
<i>Ivanov Martin</i>	
THE INITIATION STAGE OF FOOD COURT WASTE DURING AIR VERSUS STEAM GASIFICATION PROCESSES	156
<i>Nicoleta Tirtea Raluca, Bulmau Cora, Ionescu Gabriela, Marculescu Cosmin</i>	
EXPERIMENTAL STUDY OF FOOD COURT WASTE AIR GASIFICATION PROCESS PERFORMANCES IN A BATCH REACTOR.....	163
<i>Nicoleta Tirtea Raluca, Ionescu Gabriela, Bulmau Cora, Marculescu Cosmin</i>	
RESEARCHES ON THE MIXTURE LIMITS OF ANIMAL FATS WITH LIQUID HYDROCARBONS FOR COMBUSTION AT INDUSTRIAL LEVEL.....	170
<i>Bondrea Dana Andreyra, Mihaescu Lucian, Lazaroiu Gheorghe, Pisa Ionel, Negreanu Gabriel</i>	

CONCEPTUAL MATRIX FOR THE BIOFUELS OF THE FUTURE APPLICABLE TO THE ROMANIAN ECONOMY	177
<i>Lazaroiu Gheorghe, Mihaescu Lucian, Negreanu Gabriel, Berbece Viorel, Jarcu Elena-Adriana, Stanescu Laura Alexandra</i>	
ENERGY PASSIVATION OF A BUILDING. THE ICSTM BUILDING CASE STUDY	186
<i>Nedelcu Otilia, Salisteanu Ioan Corneliu, Ivanovici Traian, Dogaru Valentin</i>	
EXPERIMENTAL RESEARCH ON INFLUENCE OF FUNCTIONAL PARAMETERS OF COMBINED INSTALLATIONS DESIGNED AT SEPARATING THE IMPURITIES OUT OF CEREAL SEEDS	195
<i>Bracacescu Carmen, Tenu Ioan, Mircea Costin, Bunduchi George</i>	
USAGE OF BIOMASS CHP FOR BALANCING OF POWER GRID IN UKRAINE	204
<i>Epik Oleksii, Zubenko Vitalii</i>	
BIOMASS CONSUMPTION IN RESIDENTIAL SECTOR OF UKRAINE IN 2007–2016	214
<i>Antonenko Viacheslav, Levinska Sofiia</i>	
OPTIMIZATION OF BIOGAS COMPOSITION IN EXPERIMENTAL STUDIES	220
<i>Dimitrov Radostin, Ivanov Zdravko, Zlateva Penka, Mihaylov Veselin</i>	
CONTRIBUTIONS TO THE DEVELOPMENT OF A METHODOLOGY FOR DETERMINING THE FLOW RATE	226
<i>Purece Cristian, Panaitescu Valeriu, Chera Anghel Irina Alina</i>	
MODELLING AND SIMULATION OF A WIND ENERGY SYSTEM	234
<i>Alionte Cristian-Gabriel, Ungureanu Liviu-Marian</i>	
COMPRESSED AIR ENERGY STORAGE INSTALLATION FOR RENEWABLE ENERGY GENERATION	241
<i>Borzea Claudia, Vladuca Iulian, Ionescu Dan, Petrescu Valentin, Niculescu Filip, Nechifor Cristian, Vataselu Gabriel, Hanek Mihai</i>	
NOISE ASSESSMENT OF THE SMALL-SCALE WIND FARM	251
<i>Alionte Cristian-Gabriel, Comeaga Daniel-Constantin</i>	
IRRADIANCE CHARACTERISTIC OF A SMALL-SCALE SOLAR SIMULATOR FOR TESTING THERMAL COLLECTORS	260
<i>Gheorghian Adina-Teodora, Apostol Valentin, Prisecaru Tudor, Stanciu Camelia, Pop Horatiu</i>	
MONITORING THE STATE OF SMALL POWER EQUIPMENT	268
<i>Dragomirescu Andrei, Carp-Ciocârdia Craița, Safta Carmen-Anca, Orasanu Nicolae, Magheti Ioan</i>	
FISH LADDER GEOMETRICAL SIZES AND HYDRAULIC PERFORMANCES. EXPERIMENTAL APPROACH	278
<i>Petica Cristina-Catalina, Safta Carmen-Anca, Pincovschi Irina, Mandrea Lucian</i>	
DRONES AND WINDBREAKS	287
<i>Cardei Petru, Muraru Sebastian, Matache Mihai</i>	
RESEARCHES ON THE CAPITALIZATION OF SOME MEDICINAL PLANTS TO OBTAIN ESSENTIAL OILS BY USING THE PERFORMANT INNOVATIVE INSTALLATION EUV 2X1000 TYPE	297
<i>Grigore Ion, Grigore Andreea Iulia, Vladutoiu Laurentiu-Constantin, Cristea Mario, Sorica Elena, Dumitru Dragos, Sirbu Florin, Badea Gabriel, Gradila Marga, Raischi Marius, Duta Denisa, Sandu Roxana Andreea</i>	
THEORETICAL AND EXPERIMENTAL RESEARCH ON SOWING RATE OPTIMIZATION OF GRASSLAND DRILLS	306
<i>Manea Dragos, Marin Eugen, Mateescu Marinela, Dumitrascu Andrei</i>	
EXPERIMENTAL RESEARCH ON INFLUENCE OF FUNCTIONAL PARAMETERS OF COMBINED INSTALLATIONS DESIGNED AT SEPARATING THE IMPURITIES OUT OF CEREAL SEEDS	314
<i>Bracacescu Carmen, Tenu Ioan, Mircea Costin, Bunduchi George</i>	
RAIN USE EFFICIENCY IN SOUTHERN ROMANIA AFTER USING THE DEVICE FOR SOIL MODELLING IN INTERRUPTED FURROWS FOR WEEDING CROPS -DMBC-5	323
<i>Oprescu Remus Marius, Voicea Iulian Florin, Dumitru Iulian, Dragan Ioana, Biolan Costel, Ungureanu Pnicoleta, Neagu Emil Adrian, Norbert Bara, Jaloba Daniel, Arsenoala Vlad Nicolae</i>	
MODELLING BEHAVIOUR OF A PARTIALLY LOADED ROAD TANKER WITH AGRO-FOOD LIQUIDS DURING THE BREAKING MANOEUVRE	331
<i>Milian Gabriela, Biris Sorin-Stefan, Ipate George</i>	
EXPERIMENTAL RESULTS ON THE SOLID ORGANIC FERTILIZER MACHINE MG 5	337
<i>Stefan Vasilica, Sfiru Raluca, Popa Lucretia</i>	
RESEARCHES ON ECOLOGICAL WEED CONTROL IN VEGETABLE CROPS	346
<i>Muscalu Adriana, Sorica Cristian, Persu Catalin, Andrei Ana-Maria, Dorogan Angela, Tudora Catalina</i>	
CONCAVES INFLUENCE ON THE MILLING PROCESS OF CEREAL SEEDS IN HAMMER MILLS	354
<i>Paun Anisoara, Stroescu Gheorghe, Milea Dumitru, Olan Mihai, Epure Mariana</i>	

INNOVATIVE TECHNICAL EQUIPMENT FOR WEED CONTROL IN LEGUMINOUS CROPS	362
<i>Marin Eugen, Mateescu Marinela, Rosca Ioan, Andrei Ana-Maria, Jinga Vasile, Gradila Marga</i>	
RESEARCHES ON THE SEPARATION OF IMPURITIES FROM A SEED FLOW BASED ON THE AERODYNAMIC PRINCIPLE	366
<i>Stroescu Gheorghe, Paun Anisoara, Voicu Gheorghe, Bracacescu Carmen, Popa Radu, Popa Vlad</i>	
RESEARCHES ON THE CAPITALIZATION OF SOME MEDICINAL PLANTS TO OBTAIN ESSENTIAL OILS BY USING THE PERFORMANT INNOVATIVE INSTALLATION EUV 2X1000 TYPE	373
<i>Grigore Ion, Grigore Andreea Iulia, Vladutoiu Laurentiu-Constantin, Cristea Mario, Sorica Elena, Dumitru Dragos, Sirbu Florin, Badea Gabriel, Gradila Marga, Raischi Marius, Duta Denisa, Sandu Roxana Andreea</i>	
UTILIZATION OF THE THERMOHYDRIC STRESS IN THE PSAMOSOLS AREA IN SOUTHERN OLTENIA THROUGH THE COWPEA CULTURE	382
<i>Draghici Reta, Draghici Iulian, Diaconu Aurelia, Croitoru Mihaela, Paraschiv Alina Nicoleta, Dima Milica, Constantinescu Mircea</i>	
RESULTS ON BIOENERGETIC POTENTIAL OF SOME SWEET SORGHUM HYBRIDS CULTIVATED UNDER PSAMOSOLS CONDITIONS IN SOUTHERN OLTENIA	392
<i>Draghici Iulian, Draghici Reta, Diaconu Aurelia, Croitoru Mihaela, Paraschiv Alina Nicoleta, Dima Milica, Ciuciuc Elena, Ciuciuc Daniel</i>	
COST STRUCTURE – AN IMPORTANT INDICATOR OF INNOVATION ACTIVITY IN AGRO-INDUSTRIAL COMPLEX (BY THE EXAMPLE OF CROP PRODUCTION)	400
<i>Voiku Ivan, Varlamov George</i>	
KINEMATIC PARAMETERS DETERMINATION OF THE DRILLING EQUIPMENT DESIGNED TO WORK IN SLOPE DEGRADED TERRAINS	407
<i>Visan Alexandra Liana, Bogdanof Gabriel Constantin, Milea Dumitru, Ciuperca Radu, Gheorghe Gabriel</i>	
RESEARCHES ON DRYING THE CLOVER THROUGH AERATION TO OBTAIN HAY	416
<i>Zaica Ana, Nedelcu Ancuta, Ciuperca Radu, Zaica Alexandru, Visan Alexandra-Liana</i>	
ASPECTS REGARDING FEM SIMULATION OF STRESS IN HAMMER MILL WORKING TOOL	424
<i>Moiceanu Georgiana, Paraschiv Gigel, Maican Edmond, Dinca Mirela, Gageanu Iulia, Arsenoia Vlad Nicolae</i>	
THEORETICAL RESEARCH ON KINEMATIC AND CONSTRUCTIVE PARAMETERS OF ROLLER PRESSES FOR SWEET SORGHUM	433
<i>Olan Mihai, Matei Gheorghe, Apostol Livia, Jinga Vasile, Lipianu Steluta, Gageanu Paul, Zaica Ana, Voicea Iulian, Cristea Oana</i>	
RESEARCHES ON THE ACCUMULATION AND TRANSFER OF HEAVY METALS IN THE SOIL IN TOMATOES -SOLANUM LYCOPERSICUM	445
<i>Nitu Mihaela, Pruteanu Augustina, Bordean Despina Maria, Popescu Carmen, Deak Gyorgy, Boboc Madalina, Mustatea Gabriel</i>	
STRUCTURAL AND KINEMATIC ANALYSIS OF A SHUTTER FROM MONOCOQUE TRAILER	453
<i>Popa Lucretia, Moise Stefan-Iulian, Moise Victor, Stefan Vasilica, Tabara Iulian</i>	
MODELLING BY FINITE ELEMENT METHOD OF THE TWIN-SCREW OF A PRESS FOR OBTAINING GRAPE SEED OIL	460
<i>Vasilachi Carmen, Biris Sorin-Stefan</i>	
RESEARCHES ON THE HIGHER VALUATION OF SUGAR BEET PULP FROM SUGAR PRODUCTION TO OBTAIN PREMIXES FOR ANIMAL FEED	469
<i>Nagy Elena Mihaela, Cota Constantin, Cioica Nicolae, Gyorgy Zoltan, Deac Teodora</i>	
A REVIEW ON PHYTOREMEDIATION AS AN ECOLOGICAL METHOD FOR IN SITU CLEAN UP OF HEAVY METALS CONTAMINATED SOILS	475
<i>Cioica Nicolae, Tudora Catalina, Iuga Dorin, Deak György, Matei Monica, Nagy Elena Mihaela, Gyorgy Zoltan</i>	
IMPROVING THE COMPOSTING OF WASTE MATERIALS FROM AGRICULTURAL FARMS, A STEP TOWARDS SUSTAINABLE AGRICULTURE	485
<i>Caba Ioan, Bordean Despina, Matei Gheorghe, Matei Monica, Pavel Ion</i>	
GREENHOUSE HEATING BY USING AN INSTALLATION OF BIOMASS GASIFICATION	495
<i>Laza Evelin, Dumitrescu Liliana, Boboc Madalina, Moiceanu Georgiana</i>	
SOIL COMPACTION UNDER THE WHEEL OF A SPRAYER	502
<i>Ungureanu Nicoleta, Vladut Valentin, Cujbescu Dan</i>	
EXPERIMENTAL AND NUMERICAL SIMULATION RESEARCH OF SEDIMENTATION PROCESS IN STATIONARY COLUMN OF AQUEOUS SUSPENSION OF SOLIDS	512
<i>Ipate George, Musuroi Gabriel, Constantin Gabriel-Alexandru, Stefan Elena Madalina, Zabava Bianca, Pihurov Marina</i>	
DETERMINATION OF EXTENSIBILITY FOR CERTAIN TYPES OF PRETZELS DOUGH	518
<i>Munteanu Mariana Gabriela, Voicu Gheorghe, Stefan Elena Madalina, Constantin Gabriel Alexandru</i>	

HEAVY METALS CONTAMINATION OF THE SOIL – WATER – VEGETABLES CHAIN IN THE ILFOV REGION	526
<i>Mustatea Gabriel, Belc Nastasia, Ungureanu Elena Loredana, Lacatusu Radu, Petre Jana, Pruteanu Augustina</i>	
CEREAL SUPPLY CHAIN WASTE IN THE CONTEXT OF CIRCULAR ECONOMY	533
<i>Belc Nastasia, Mustatea Gabriel, Apostol Liviu, Iorga Sorin, Vladut Valentin-Nicolae, Mosoiu Claudia</i>	
RESEARCHES ON OBTAINING VEGETABLE OILS AS A SOURCE OF ALTERNATIVE ENERGY	542
<i>Gageanu Paul, Gageanu Iuliana, Bunduchi George, Zaica Alexandru</i>	
RESEARCHES ON THE FREEZING OF BLUEBERRIES AND GREEN BEAN PODS USING AN EXPERIMENTAL MODEL OF A FAST FREEZING EQUIPMENT	550
<i>Sorica Cristian, Vintila Marian, Pirna Ion, Grigore Ion, Cristea Mario, Vladutoiu Laurentiu, Sorica Elena, Neacsu Balanescu Irina, Grosu Cristina, Raischi Marius, Gradila Marga</i>	
STRUCTURAL ANALYSIS OF DEEP SOIL LOOSENING MACHINE MAS-65	560
<i>Matache Mihai Gabriel, Oprescu Remus Marius, Dumitru Dragos Nicolae, Gheorghe Gabriel Valentin, Cujbescu Dan, Persu Catalin</i>	
ANALYSIS AND OPTIMIZATION OF A PIEZOELECTRIC ENERGY HARVESTER	568
<i>Borzea Claudia, Comeaga Daniel</i>	
THE CONCEPT OF SUSTAINABILITY APPLIED TO AN INDUSTRIAL SLUDGE DEPOSIT	578
<i>Stefanescu Mariana-Florentina, Dobrovicescu Alexandru, Prodea Iuliana-Marlena, Sporea Nicoleta</i>	
THEORETICAL ANALYSIS OF THE DYNAMICS OF A NACELLE DRIVE SYSTEM IN ORDER TO OPTIMIZE THE SYSTEM ENERGY	588
<i>Dumitrescu Liliana, Chirita Polifron Alexandru, Cristescu Corneliu, Lepadatu Ioan, Laza Evelin</i>	
TRANSFORMER LIFETIME MANAGEMENT BY ANALYZING THE CONTENT OF FURAN AND GAS DISSOLVED IN OIL	597
<i>Chera Anghel Irina Alina, Gatman Elena</i>	
MODELLING AND SIMULATION OF A WASTE SORTING MECHATRONIC SYSTEM FOR MULTI-FLOOR RESIDENTIAL BUILDINGS	603
<i>Ungureanu Liviu-Marian, Dugaesescu Ileana, Nicolae Elisabeta</i>	
DEMAND-SIDE MANAGEMENT PROGRAMS – A JOINT ENVIRONMENTAL PROTECTION ACTION. CASE STUDY: THE LIGHTING SYSTEM IN THE CAMPUS OF THE UNIVERSITY POLITEHNICA OF BUCHAREST	610
<i>Scripcariu Mircea, Bitir-Istrate Ioan Sevastian, Gheorghiu Cristian, Pluteanu Stefanita, Neniu Aida Maria</i>	
THE ENVIRONMENTAL IMPACT REDUCTION OBTAINED BY IMPLEMENTING AN ENERGY MANAGEMENT SYSTEM. THE ADVANTAGES OF USING ENERGY MANAGEMENT AND ENERGY SAVINGS STANDARDS WHEN PERFORMING INDUSTRIAL ENERGY AUDITS	620
<i>Scripcariu Mircea, Bitir-Istrate Ioan Sevastian, Gheorghiu Cristian, Neniu Aida Maria</i>	
ENERGY -EFFICIENT RECONSTRUCTION OF PUBLIC LIGHTING IN PRAVETS MUNICIPALITY FROM BULGARIA	630
<i>Kamburova Veselka, Rasheva Violeta, Velikanov Michail</i>	
EXPERIMENTS IN USE OF BENTONITE FOR ENERGY RECOVERY OF USED OILS	640
<i>Dragne Mihai, Pop Elena, Covaliu Cristina Ileana, Matei Ecaterina, Pisa Ionel</i>	
HALLOYSITE NANOTUBE APPLICATIONS FOR HEAVY METALS REMOVAL FROM WASTEWATER	646
<i>Covaliu Cristina, Paraschiv Gigel, Stoian Oana, Buzatu Bogdan, Mircea Costin, Cristea Camelia</i>	
Author Index	