

**18th INTERNATIONAL MULTIDISCIPLINARY
SCIENTIFIC GEOCONFERENCE
S G E M 2 0 1 8**

CONFERENCE PROCEEDINGS

VOLUME 18



ENERGY AND CLEAN TECHNOLOGIES

ISSUE 4.1



NUCLEAR TECHNOLOGIES

**RENEWABLE ENERGY SOURCES AND CLEAN
TECHNOLOGIES**



2 July - 8 July, 2018

Albena, Bulgaria

DISCLAIMER

This book contains abstracts and complete papers approved by the Conference Review Committee. Authors are responsible for the content and accuracy.

Opinions expressed may not necessarily reflect the position of the International Scientific Council of SGEM.

Information in the SGEM 2018 Conference Proceedings is subject to change without notice. No part of this book may be reproduced or transmitted in any form or by any means, electronic or mechanical, for any purpose, without the express written permission of the International Scientific Council of SGEM.

Copyright © SGEM2018

All Rights Reserved by the International Multidisciplinary Scientific GeoConferences SGEM

Published by STEF92 Technology Ltd., 51 “Alexander Malinov” Blvd., 1712 Sofia, Bulgaria

Total print: 5000

ISBN 978-619-7408-44-7

ISSN 1314-2704

DOI: 10.5593/sgem2018/4.1

**INTERNATIONAL MULTIDISCIPLINARY SCIENTIFIC GEOCONFERENCE SGEM
Secretariat Bureau**

E-mail: sgem@sgem.org | URL: www.sgem.org

ORGANIZERS AND SCIENTIFIC PARTNERS

- THE CZECH ACADEMY OF SCIENCES
- LATVIAN ACADEMY OF SCIENCES
- POLISH ACADEMY OF SCIENCES
- RUSSIAN ACADEMY OF SCIENCES
- SERBIAN ACADEMY OF SCIENCES AND ARTS
- SLOVAK ACADEMY OF SCIENCES
- NATIONAL ACADEMY OF SCIENCES OF UKRAINE
- INSTITUTE OF WATER PROBLEM AND HYDROPOWER OF NAS KR
- NATIONAL ACADEMY OF SCIENCES OF ARMENIA
- SCIENCE COUNCIL OF JAPAN
- EUROPEAN ACADEMY OF SCIENCES, ARTS AND LETTERS
- ACADEMY OF SCIENCES OF MOLDOVA
- MONTENEGRIN ACADEMY OF SCIENCES AND ARTS
- CROATIAN ACADEMY OF SCIENCES AND ARTS, CROATIA
- GEORGIAN NATIONAL ACADEMY OF SCIENCES
- ACADEMY OF FINE ARTS AND DESIGN IN BRATISLAVA
- TURKISH ACADEMY OF SCIENCES
- NIZHNY NOVGOROD STATE UNIVERSITY OF ARCHITECTURE AND CIVIL ENGINEERING, RUSSIAN FEDERATION
- BULGARIAN ACADEMY OF SCIENCES
- BULGARIAN INDUSTRIAL ASSOCIATION
- BULGARIAN MINISTRY OF ENVIRONMENT AND WATER

INTERNATIONAL SCIENTIFIC COMMITTEE

Energy and Clean Technologies

- PROF. JEFFREY L. COLLETT, USA
- PROF. GIULIANO DALL'O', ITALY
- PROF. DR. PINJING HE, CHINA
- PROF. CASIMIRO PIO, PORTUGAL
- PROF. DSC KOSTADIN GANEV, BULGARIA
- PROF. DSC DIMITER SYRAKOV, BULGARIA
- PROF. DR. CHRISTOS S. ZEREFOS, GREECE

- PROF. DR. TERCIO AMBRIZZI, BRAZIL
- PROF. DSC SERGEY GANDZHA, RUSSIA
- PROF. DR DIMITER IVANOV, DSC, BULGARIA
- ASSOC. PROF. PETER FRIGAARD, DENMARK

CONFERENCE PROCEEDINGS CONTENTS
NUCLEAR TECHNOLOGIES

- 1. ASSESSMENT OF ATMOSPHERIC DISPERSION CONDITIONS FOR NUCLEAR POWER PLANTS CONSTRUCTION**, Fedor Bryukhan, Andrey Bryukhan, Aleksey Vinogradov, Margarita Vinogradova, Moscow State University of Civil Engineering, Russia.....3
- 2. EMERGENCY COOLING SYSTEM FOR WATER-COOLED REACTORS**, Rashid Aminov, Aleksandr Egorov, Valeriy Yurin, Saratov Scientific Center Russian Academy of Sciences, Russia.....11
- 3. HYDROLOGICAL AND METEOROLOGICAL MONITORING IN THE NIZHNY NOVGOROD NPP SITING REGION**, Fedor Bryukhan, Aleksey Vinogradov, Ivan Vinogradov, Margarita Vinogradova, Moscow State University of Civil Engineering, Russia.....19
- 4. INVESTMENT ADVANTAGES OF THE DUAL FLUID REACTOR BASED ON THE EROI (ENERGY RETURNED ON INVESTED) ANALYSIS**, Agata Kowalska, Konrad Czerski, Daniel Weissbach, Goetz Ruprecht, Armin Huke, Maritime University of Szczecin, Poland.....25
- 5. MODEL OF ROTOR DEFORMATIONS DUE THE EARTHQUAKE**, Assoc. Prof. Petr Hruby, Dr. Tomas Nahlik, Dr. Dana Smetanova, Institute of Technology and Business in Ceske Budejovice, Czech Republic31
- 6. ON NON-CONFORMITY OF THE CLASSIC REACTOR KINETICS TO PHYSICS OF A CHAIN REACTION**, Nikolay Oshkanov, Ural Federal University, Russia39
- 7. OPTIMISING THE SAFETY OF CONTAMINATED PLANT BIOMASS MANIPULATION IN CASE OF NUCLEAR POWER PLANT ACCIDENT**, Kasparova Ivana, Pecharova Emilie, Zdrzil Vladimir, Czech University of Life Sciences Prague, Czech Republic.....47
- 8. PILOT SURVEY OF SOIL CONTAMINATION 30 YEARS AFTER CHERNOBYL**, Tesarova Blanka, Pecharova Emilie, Doksanska Tereza, Skrkal Jan, Czech University of Life Sciences Prague, Czech Republic.....59

RENEWABLE ENERGY SOURCES AND CLEAN TECHNOLOGIES

- 9. A MULTI-AGENT SYSTEM FOR ENERGY MANAGEMENT IN AN INTELLIGENT MICROGRID**, Dragomir Otilia Elena, Dragomir Florin, Valahia University of Targoviste, Romania67

10. A NEW LOOK AT VORTEX INDUCED MOTIONS AS CLEAN AQUATIC ENERGY SOURCE , Grigor Nikolov, Bulgarian Ship Hydrodynamic Center at IMSTCHA Bulgarian Academy of Sciences, Bulgaria.....	75
11. A NUMERICAL ANALYSIS ON INCREASING THE HEAT-EXCHANGE EFFICIENCY FOR UNGLAZED TRANSPIRED SOLAR COLLECTORS , Adrian CIOCANEA, Sanda BUDEA, University POLITEHNICA of BUCHAREST, Romania.....	81
12. A REVIEW ON ROMANIAN POTENTIAL OF RENEWABLE ENERGY SOURCES FOR POWER GENERATION IN BUILDING APPLICATIONS , Gheorghe Badea, Claudiu Oprea, Raluca - Andreea Felseghi, Ioan Aschilean, Andrei Bolboaca, Technical University of Cluj-Napoca, Romania	89
13. ACTIVE CERAMIC COATINGS AND THEIR APPLICATIONS IN VW 1,9 TDI ENGINE , Ing. Piotr Haller Msc., Ing. Piotr Kardasz Msc., Ewa Kardasz Msc., Prof. Dsc. Volodymyr Pohrebennyk, Prof. DSc. Olena Mitryasova, Finance Group SPZOO, Poland	97
14. AIR PREPARATION SYSTEM FOR A GROUND HEAT EXCHANGER SIMULATOR , Nalepa Krzysztof, Neugebauer Maciej, Solowiej Piotr, Miaskowski Wojciech, Piechocki Janusz, University of Warmia and Mazury in Olsztyn, Poland.....	103
15. ALGORITHM FOR DETERMINATION OF THERMAL TRANSFER, APPLIED IN THE CALCULATION OF ENERGY EFFICIENCY OF BUILDINGS , Assoc. Prof. Benedict Oprescu, Assoc. Prof. Daniela Giosanu, Lecturer Cicerone Marinescu, Assoc. Prof. Madalina Marian, Lecturer Andreea Marinescu, University of Pitesti, Romania.....	111
16. AN ANALYSIS OF THE RENEWABLE ENERGY RESOURCES IN THE REPUBLIC OF MOLDOVA , Caranfil Victoria, Eugen RUSU, Florin ONEA, University Dunarea de Jos Galati, Romania.....	119
17. ANALYSIS OF THE PRESENT AND NEAR FUTURE WIND CONDITIONS IN THE WESTERN SIDE OF THE BLACK SEA , Assist. Prof. Dr. Eng. Daniel Ganea, Prof. Dr. Eng. Elena Mereuta and Prof. Dr. Eng. Liliana Rusu, Dunarea de Jos University of Galati, Romania.....	127
18. ANALYSIS OF THE WIND ACTION ON THE TURBINES OPERATING IN THE DOBROGEA REGION FROM ROMANIA , Banescu A., Prof. Dr. Georgescu L.P., Prof. Dr. Iticescu C., Prof. Dr. Rusu E., Dunarea de Jos University of Galati, Romania.....	135
19. ASPECTS OF IMPLEMENTATION OF THE PROGRAM COMPONENT FOR CONTROLING ENERGY RESOURCES SYSTEM WITHIN THE REGION , Shirrime Kristina J., Trubaev Pavel A., Bulanin Alexey V., Koshlich Yuri A., BSTU named after Shukhov, Russia	143

20. ASSESSMENT OF BIOFUEL PRODUCTION EFFICIENCY ON THE AGRICULTURAL FARMS IN ROMANIA , PhD Prof. Mateoc-Sirb Nicoleta, PhD Associate Prof. Gavrilescu Camelia, PhD Associate Prof. Mateoc Teodor, PhD Student Anca Ioana Nan, PhD Lecturer Manescu Camelia, Banat University of Agronomical Sciences and Veterinary Medicine, Romania.....	149
21. BIOCARBON AS AN ELECTRODE MATERIAL OF ASYMMETRIC SUPERCAPACITORS , Assoc. Prof. Dr. Igor Bordun Prof. Dr. Sc. Volodymyr Pohrebennyk Dr. Vadym Ptashnyk Dr. Anna Kochanek, State Higher Vocational School Nowy Sacz, Poland.....	157
22. BIOFUEL VIA INTERESTERIFICATION OF RAPESEED OIL WITH METHYL ACETATE IN PRESENCE OF POTASSIUM T-BUTOXIDE , Valdis Kampars, Zane Sustere, Ruta Kampare, Riga Technical University, Latvia	163
23. CASE STUDY REGARDING THE EFFICIENCY OF ELECTRICITY GENERATION USING PHOTOVOLTAIC PANELS , Carmen Marza, Georgiana Corsiuc, Alina Pop, Technical University of Cluj-Napoca, Romania.....	171
24. CATALYTIC HYDROTREATING OF KRAFT LIGNIN TO PRODUCE BIOFUEL COMPONENTS , Prof. Valentina Matveeva, Dr. Elena Shimanskaya, Prof. Mikhail Sulman., Dr. Anastasiya Filatova, Prof. Evgeniy Rebrov, Tver Technical University, Russia.....	179
25. CHARACTERISATION OF WOOD COMBUSTION FLY ASH IN A CONTEXT OF APPLICABILITY IN AGRICULTURE , Zane Vincevica-Gaile, Inga Grinfelde, Karina Stankevica, Edmunds Berzins, Maris Klavins, Latvia University of Life Sciences and Technologies, Latvia.....	187
26. CHARACTERIZATION OF ASH COMPONENT DESORPTION ON NOVEL BED MATERIAL FOR FLUIDIZED BED BOILERS , Pavleta Knutsson and Jesper Knutsson, Chalmers University of technology, Sweden	195
27. CHARCOAL FROM ALTERNATIVE MATERIALS FOR USE AS ENERGY CARRIER OR REDUCING AGENT: A REVIEW OF KEY FINDINGS IN EUROPE AND THE AMERICAS , Dr. Sigrid Kusch-Brandt, University of Padua, Italy.....	203
28. COMBINED STRESS ANALYSIS IN STEAM TURBINE BLADES , Rusu-Cassandra Aurelia, Baci Florin, Iliescu Nicolae, Atanasiu Costica, Politehnica University of Bucharest, Romania.....	211
29. COMMON CHALLENGES IN THE IMPLEMENTATION OF DECENTRALIZED COMBINED HEAT AND POWER PRODUCTION (CHP) , Dr. Sigrid Kusch-Brandt, University of Padua, Italy	219

- 30. COMPARATIVE STUDY OF WOOD FUEL SUPPLY CHAINS IN RUSSIAN KARELIA**, Prof. Anton Sokolov, Prof. Vladimir Syunev, Petrozavodsk State University, Russia.....227
- 31. CONTRIBUTIONS REGARDING DETERMINATION THE POSSIBLE DEFECTS THAT OCCURS IN THE RECONDITIONING PROCESS BY ULTRASONIC WELDING**, Assoc. Prof. Dan Nitoi, Prof. Gheorghe Amza, Assoc. Prof. Zoia Amza, Prof. Augustin Semenescu, Assoc. Prof. Oana Chivu, University Politehnica of Bucharest, Romania235
- 32. CURRENT AND POTENTIAL USE OF BIOMASS FOR ENERGY GENERATION IN THE REGION OF WARMIA AND MAZURY IN NORTH-EASTERN POLAND**, Piechocki J., Solowiej P., Neugebauer M., Nalepa K., Wesolowski M., University of Warmia and Mazury in Olsztyn, Poland.....243
- 33. DETERMINATION AND ANALYSIS OF DISTANCE WITH ULTRASOUND SENSOR IN GAS ENVIRONMENT**, Slusariuc Ioan Razvan, Marcu Marius, Stochitoiu Maria Daniela, Niculescu Titu, Popescu Florin, University of Petrosani, Romania.....249
- 34. DETERMINATION OF COMPOSITION OF INTRICATE RAPESEED OIL ALKYL ESTER MIXTURES USING GC METHOD**, Zane Sustere, Valdis Kampars, Riga Technical University, Latvia257
- 35. DETERMINATION OF THE ENERGY PERFORMANCE OF THE CHP DANUTONI INSTALATION**, Petrilean Dan Codrut, Racs Mihaela Dana, Gaita Bogdan Ioan, University of Petrosani, Romania265
- 36. DOPED NANOSTRUCTURED CARBONIC MATERIALS FOR HYDROGEN STORAGE - A COMPARATIVE RESEARCH**, PhD. Eng. Radu Mirea, PhD. Eng. Gimi Rimbu, PhD. Eng. Mihai Iordoc, Romanian Research and Development Institute for Gas Turbines COMOTI, Romania271
- 37. ECO- EFFICIENT AND NATURAL REFRIGERANTS -THEORETICAL STUDY CASE**, Prof. Gratiela Tarlea, PhD. Mioara Vinceriu, Dr. Ion Zabet, Ana Tarlea, Technical University of Civil Engineering of Bucharest, Romania.....279
- 38. ECO-FRIENDLY RECOVERY OF COPPER FROM WASTEWATER BY CEMENTATION**, Carmen ROBA, Ioana PISTEA, Oana ILCIUC, Cristina ROSU, Babes Bolyai University, Romania285
- 39. ECOTOXICITY OF CHICKEN MANURE DERIVED BIOCHARS**, Dzhabarova K.O., Kuryntseva P.A., Galitskaya P.Y., Selivanovskaya S.Y., Kazan (Volga Region) Federal University, Russia.....293

40. EFFECT OF RAW MATERIAL COMPOSITION ON PELLETS PHYSICAL PROPERTIES , Peter Krizan, Milos Matus, Juraj Beniak, Jozef Babics, Slovak University of Technology Bratislava, Slovakia.....	301
41. EFFECTIVENESS OF SHIPS PROPULSION OPERATING ON THE ALTERNATIVE FUELS TO HYDROCARBON FUELS. , Losiewicz Zbigniew, West Pommeranian University of Technology in Szczecin, Poland.....	309
42. ENERGY CONSUMPTION AND SKATING RINK TEMPERATURE VARIATION ANALYSIS FOR AN OUTDOOR ICE RINK , PhD. Gianni Flamaropol, Prof. Gratiela Tarlea, Prof. Dragos Hera, PhD. Elena Tamas, Technical University of Civil Engineering of Bucharest, Romania.....	317
43. ENERGY EFFICIENCY FOR RENEWABLE ENERGY APPLICATION , Hoarca Ioan Cristian, Enescu Florentina Magda, Bizon Nicu, University of Pitesti, Romania.....	325
44. ENERGY MANAGEMENT IN PELLETS PRODUCTION PLANTS , Assoc. Prof. Dr. Penka Zlateva, Assoc. Prof. Dr. Rozalina Chuturkova, Assoc. Prof. Dr. Daniela Toneva, Technical University of Varna, Bulgaria	333
45. ENERGY MANAGEMENT SOLUTIONS TO INCREASE PERFORMANCE OF A SUPPLIER AND CONSUMER SYSTEM: CASE STUDY FOR AN UNIVERSITY CHP , Lecturer Dr. Diana TUTICA, Assoc. Prof. Dr. Victor CENUSA, Lecturer Dr. Paula TUDOR, Prof. Dr. Roxana PATRASCU, Assoc. Prof. Dr. Eduard MINCIUC, Politehnica University of Bucharest, Romania	341
46. ENERGY VALORIZATION OF POULTRY MANURE THROUGH PRODUCTS RESULTED IN A PYROLYSIS PROCESS , Lucian MIHAESCU, Gheorghe LAZAROIU, Ionel PISA, Dana-Alexandra CIUPAGEANU, Viorel BERBECE, POLITEHNICA University of Bucharest, Romania	349
47. FATTY ACID CONVERSION OVER POLYMER-BASED CATALYSTS SYNTHESIZED IN SUBCRITICAL WATER , Prof. Valentina Matveeva, Dr. Antonina Stepacheva, Dr. Vladimir Molchanov, Dr. Galina Demidenko, Prof. Mikhail Sulman, Tver Technical University, Russia	357
48. FOSSIL FUEL IN CONTRAST WITH RENEWABLES IN ROMANIA , Eng. Alexandru Mihai Bulmez PhD Student, Irina Bucur, Gabriel Posea, Transilvania University of Brasov, Romania	363
49. HARNESSING HYDROPOWER IN NORTH-EASTERN POLAND , Solowiej P., Neugebauer M., Nalepa K., Piechocki J., Wesolowski M., Uniwersytet Warminko-Mazurski w Olsztynie, Poland.....	371

50. HARVESTING GEOTHERMAL FROM ABANDONED, SUPERDEEP DRY HOLES, Mate Horvath, Daniel Kelemen, Aniko N. Toth, David K. Fenerty, CANONUS-WORK Kft, Hungary	379
51. HYDROGENATION OF LEVULINIC ACID USING MONO- AND BIMETALLIC POLYMER-BASED RU-CONTAINING CATALYSTS, Prof. Esther Sulman, Ms. Dialia Abusuek, Dr. Linda Nikoshvili, Prof. Yury Kosivtsov, Prof. Evgeny Rebrov, Tver Technical University, Russia	385
52. IMPROVING THE ENERGY EFFICIENCY OF MULTIFUNCTION MOTOR VEHICLES BY EQUIPPING THEM WITH HYDROSTATIC PUMPS WITH LOAD SENSING, Ph.D. Stud. Eng. Polifron-Alexandru CHIRITA, Ph.D. Eng. Corneliu CRISTESCU, Ph.D. Stud. Eng. Liliana DUMITRESCU, Ph.D. Stud. Eng. Alexandru-Daniel MARINESCU, HYDRAULICS AND PNEUMATICS RESEARCH INSTITUTE INOE 2000 IHP, Romania	393
53. INCREASING ENERGY EFFICIENCY AND FLOW RATE REGULARITY IN FACILITIES, MACHINERY AND EQUIPMENT PROVIDED WITH HIGH OPERATING PRESSURE AND LOW FLOW RATE HYDRAULIC SYSTEMS, Teodor Costinel Popescu, Polifron-Alexandru Chirita, Alina Iolanda Popescu, Institut INOE 2000-IHP, Romania	401
54. INCREASING PERFORMANCES OF A COMBINED HEAT AND POWER PLANT BY OPTIMAL TECHNOLOGY SELECTION AND OPERATION, Lecturer Dr. Diana TUTICA, Assoc. Prof. Dr. Victor CENUSA, Lecturer Dr. Paula TUDOR, Prof. Dr. Roxana PATRASCU, Assoc. Prof. Dr. Eduard MINCIUC, Politehnica University of Bucharest, Romania.....	409
55. INFLUENCE OF SUPPORT SCHEME ON ELECTRICITY PRODUCTION FROM RES IN ROMANIA, Assoc. Prof. Dr. Bogdan Popa, Assoc. Prof. Dr. Liana Ioana Vuta, Assist. Prof. Dr. Florica Popa, Assoc. Prof. Dr. Gabriela Elena Dumitran, Assist. Drd. Eliza Tica, Politehnica University of Bucharest, Romania	417
56. INFLUENCE OF THE CE ADDITION ON THE FUEL COMBUSTION PROCESS IN THE DIESEL ENGINE, Ewa Kardasz, Katarzyna Pstrowska, Piotr Kardasz, Volodymyr Pohrebennyk, Olena Mitryasova, Finance Group SPZOO, Poland ..	425
57. LIFE-CYCLE COST ANALYSIS OF RAPESEED OIL- AND ALGAE OIL-BASED BIOFUELS, Ewa Kardasz, Lyubov Onyshchuk, Piotr Kardasz, Volodymyr Pohrebennyk, Olena Mitryasova, Finance Group SPZOO, Poland.....	433
58. MATHEMATICAL MODELING OF GLUCOSE ELECTRO-OXIDATION IN A SLIGHT ACID SOLUTION AT THE BIOFUEL CELL ANODE, Arkadeva I. N., Bogdanovskaya V. A., Vasilenko V. A., Fokina E. A., Koltsova E.M., D. Mendelejev University of Chemical technology of Russia, Russia	441

59. MICRO SMART GRID TO INCREASE THE EFFICIENCY OF ELECTRICAL POWER SUPPLY FOR THE UNIVERSITY CAMPUS , Sanda Budea, Ramona-Elena Huluba, Lucian Mandrea, University POLITEHNICA of BUCHAREST, Romania	449
60. MINI-CHP PLANT ON THE BASIS OF THE METHANE AIR CONVERSION REACTOR AND ELECTROCHEMICAL GENERATOR , Prof. Dr. Alexei M. Dubinin, Prof. Dr. Sergei E. Shcheklein, Ural Federal University, Russia .	457
61. MODEL PREDICTIVE CONTROL APPLICATION FOR A BATTERY ENERGY STORAGE SYSTEM IN A WIND POWER PLANT , Phd.Candidat Dana-Alexandra Ciupageanu, Prof. Dr. Gheorghe Lazaroiu, Prof. Dr. Linda Barelli, POLITEHNICA University of Bucharest, Romania	469
62. MODELING OF METHANE-TANK WORK WITH AIRLIFT IMMIXTURE , Dmytriv V., Hornostai M., Kochan R., Bubela T., Yatsuk V., Lviv National Agrarian University, Ukraine	477
63. MODERN CONICAL TUBES FROM ALUMINUM INTENDED FOR LIGHTWEIGHT STREAMING LAMPS FOR LED STREET LAMPS , Robert Kruzal, Pawel Helbrych, Czestochowa University of Technology, Poland.....	483
64. NEW EVOLUTIONS, DIRECTIONS AND TRENDS IN CONVERSION AND STORAGE OF RENEWABLE ENERGIES , Ph.D. Eng. Corneliu CRISTESCU, Ph.D.Stud. Eng. Liliana DUMITRESCU, Prof. Ph.D. Eng. Valeriu DULGHERU, Ph.D. Eng. Catalin DUMITRESCU, Institut INOE 2000-IHP, Romania	493
65. NH₃ AND CO₂ STUDY CASES - REFRIGERATION APPLICATIONS , Mioara Vinceriu, Prof. Gratiela Tarlea, PhD. Ion Zabet, Ana Tarlea, Technical University of Civil Engineering of Bucharest, Romania.....	501
66. NI IMPREGNATED INTO HYPERCROSSLINKED POLYSTYRENE IN N-METHYL-D-GLUCOSAMINE SYNTHESIS , Prof. Esther Sulman, Dr. Valentin Doluda, Mr. Stepan Mikhailov, Dr. Natalia Lakina, Prof. Mikhail Sulman, Tver Technical University, Russia.....	509
67. OCCUPATIONAL RISK FACTORS IN THE LATVIAN BIOGAS PLANTS , L. Sisenis, I. Pilvere, A. Jansons, J. Gailis, D. Brizga, Latvia University of Agriculture, Latvia	515
68. ON THE POSSIBILITY OF USING POULTRY LITTER AS A BIOFUEL FOR ELECTRICITY PRODUCTION , Rafail Isemin, Oleg Milovanov, Natalia Muratova, Aleksandr Mikhalev, Victor Zaichenko, Tambov State Technical University, Russia	523

69. OVERVIEW OF BIOMASS UTILIZATION IN THE AGGLOMERATION PROCESS, Ing. Martina Dzupkova PhD.,Ing. Zuzana Semanova, Prof. Maria Frohlichova, CSc., Assoc.Prof. Jaroslav Legemza, PhD., Assoc.Prof. Robert Findorak, PhD., Technical University of Kosice, Slovakia	531
70. PERFORMANCE EVALUATION OF THERMAL SOLAR POWER PLANTS IN CONDITIONS OF BELGOROD REGION, RUSSIA, Pavel Trubaev, Yury Koshlich, Alexander Belousov, Belgorod State Technological University named after V.G. Shukhov, Russia	537
71. PHOTOVOLTAIC ENERGY SYSTEMS – AN ENVIRONMENTALLY FRIENDLY SOLUTION FOR A COAL MINE, Ilie Ciprian Jitea, Attila Kovacs, Edward Gheorghiosu, Daniela Rus, Cristian Radeanu, National Institute for Research and Development in Mine Safety and Protection to Explosion - INSEMEX, Romania.....	545
72. POLYMERIC CATALYSTS FOR THE PROCESS OF CELLULOSE CONVERSION INTO AMINES, Prof. Esther Sulman, Prof. Mikhail Sulman, Dr. Oleg Manaenkov, Ms. Ekaterina Ratkevich, Dr. Olga Kislitza, Tver Technical University, Russia.....	555
73. POWER QUALITY ANALYSIS OF GRID CONNECTED PV POWER SYSTEM, Florin Dragomir, Otilia Elena Dragomir, Nicolae Olariu, Adrian Oprea, Valahia University of Targoviste, Romania	563
74. PREDICTION OF ENERGY CONSUMPTION IN MUNICIPAL INSTITUTIONS DURING THE YEAR, Shirime Kristina J. Trubaev Pavel A., BSTU named after Shukhov, Russia	571
75. PRODUCTION OF BIODIESEL USING K₂CO₃, K₃PO₄, NA₂CO₃ AND NA₃PO₄ AS ALKALINE CATALYSTS., Kristaps Malins, Riga Technical University, Latvia	579
76. PROJECT MANAGEMENT OF AN ENERGY EFFICIENT COMMERCIAL BUILDING – CASE STUDY, PhD. Elena Camelia Tamas, Prof. Gratiela Tarlea, Prof. Dragos Hera, PhD. Gianni Flamaropol, Technical University of Civil Engineering of Bucharest, Romania.....	587
77. PROPOSAL FOR EFFICIENT USE OF THE GREEN ENERGY ON THE SELECTED OBJECTS OF THE CONSTRUCTION EQUIPMENT, Andrej Adamuscin, Minh Nguyen Tien, Marek Dubek, Eva Jankovichova, Silvia Dubek, Slovak University of Technology in Bratislava - Institute of Management, Slovakia.....	595
78. REPLACEMENT POSSIBILITIES OF THE HEAVY OVERLOAD PISTON OF GRAVITY HYDRO-POWER-TOWER ENERGY STORAGE PLANTS USING COMPRESSED AIR, Prof. Emeritus DSc. Eng. Ioan David, PhD student Eng. Ioan Vlad, Lecturer DSc. Eng. Camelia Stefanescu, Politehnica University Timisoara, Romania.....	603

79. RESEARCH ON THE OCCURRENCE OF GEOTHERMAL ENERGY IN THE "BOHEMIAN MASSIF" IN THE NORTH BOHEMIA. (CZE), Assoc. Prof. RNDr. Miroslava Blazkova, Ph.D., RNDr. Michal Rehor, Ph.D., Assoc. prof. Ing. Petr Vrablik, Ph. D., Katerina Markova, Ph.D., Eliska Wildova, J. E. Purkyne University in Usti nad Labem, Czech Republic	611
80. ROMANIA ENERGETIC STRATEGY 2016-2030 ANALYSIS, PERSONAL POINT OF VIEW, Mihalcea Alina-Daniela, Ovidius University of Constanta, Romania.....	619
81. ROMANIA'S POTENTIAL FOR REDUCING GREENHOUSE GAS EMISSIONS BY IMPROVING ENERGY PRODUCTION AND CONSUMPTION PROCESSES BASED ON RENEWABLE ENERGY, Eng. Alexandru Mihai Bulmez PhD Student, Prof. Eng. Mat. Vasile Ciofoaia PhD, Transilvania University of Brasov, Romania.....	627
82. SOLAR WATER AND SPACE-HEATING SYSTEMS, Prof. Dr. Eng. Ioan Sarbu, PhD Student Danut Tokar, Politehnica University of Timisoara, Romania	635
83. STUDY OF THE DEPENDENCE OF BENDING RESISTANCE IN CORRELATION TO TEMPERATURE OF A CONDUCTIVE MATERIAL, Popescu Florin, Slusariuc Ioan Razvan, Utu Ilie, Cucaila Simona, Stochitoiu Maria Daniela, University of Petrosani, Romania	643
84. STUDY OF THE KINETICS OF THERMAL DEGRADATION OF POLYMER COMPOSITES BASED ON POLYVINYLCHLORIDE FILM AND BIOPOLYMER FILLER, R.O. Olekhovich, V.E. Sitnikova, S.V. Chereneva, K.V. Volkova, E. V. Belukhichev, ITMO University, Russia	651
85. STUDY OF THE WINTER EXTREME WIND IN THE BLACK SEA IN THE CONTEXT OF THE CLIMATE CHANGES, Assist. Prof. Dr. Eng. Daniel Ganea, Prof. Dr. Eng. Liliana Rusu and Prof. Dr. Eng. Elena Mereuta, Dunarea de Jos University of Galati, Romania.....	659
86. SUSTAINABLE MATERIALS BASED ON NATURAL FIBRES – A STATE OF THE ART, PhD. phys. Monica Chereches, eng. Alina Cobzaru, PhD. eng. Adrian Ciobanu, PhD. eng. Aurelia Bradu, PhD. eng. Constantin Miron, N.I.R.D. URBAN-INCERC, Romania	667
87. TEST RESULTS OF PONGAMIA BIODIESEL IN DIESEL ENGINE, Prof. Mykola Bannikov, Prof. Igor Vasilev, Eng. Umair Zeb, Eng. Mohammad Shuaib Raza, Eng. Usama Faiz, GIK Institute of Engineering Sciences and Technology, Pakistan.....	675
88. THE FUTURE OF HARD COAL AS A GUARANTOR OF ENERGY SECURITY IN POLAND, Aurelia rybak, Aleksandra Rybak, Silesian University of Technology, Poland	681

- 89. THE HOT WATER OIL EXPULSION TECHNIQUE FOR GEOTHERMAL RESOURCES: A SUGGESTION FOR BATI RAMAN FIELD OF TURKEY,** Alperen Sahinoglu, Adil Ozdemir and Erdal Dursun, ISTANBUL RUMELI UNIVERSITY, Turkey.....689
- 90. THE PARTICULARITIES FLAME TO BURNING BIO-FUELS,** Phd. Candidate Andreyana Dana Bondrea, Prof. Dr. Gheorghe Lazaroiu, Prof. Dr. Lucian Mihaescu, Phd. Candidate Viorel Berbece, POLITEHNICA University of Bucharest, Romania.....697
- 91. THE PRODUCTION OF BIOFUEL AND THE GENERATION OF ELECTRICITY BY CLOSTRIDIUM ACETOBUTYLICUM IN MICROBIAL FUEL CELLS,** Gorbunova Yu O, Karpukhina L S, Tolstoy M Yu, Timofeeva S S, Stom D I, Irkutsk State University, Russia..... 705
- 92. THE RESEARCH OF THE EARTH BATTERY AS THE SOURCE OF RENEWABLE ENERGY,** V.V. Belov, S.A. Avchukova, G.S. Yunusov, A.G. Sveshnikov, A.V. Stepanova, Chuvash state agricultural Academy, Russia713
- 93. THE ROLE OF AGRICULTURAL BIOMASS IN THE PRODUCTION OF ECOLOGICAL ENERGY IN ROMANIA,** Prof. Dr. Gheorghe Lazaroiu, Prof. Dr. Lucian Mihaescu, Prof. Dr. Ionel Pisa, Prof. Dr. Gabriel-Paul Negreanu, Lect. ing. Viorel Berbece, POLITEHNICA University of Bucharest, Romania.....721
- 94. THE ROLE OF ALKALI METAL COMPOUNDS IN SYNTHESIS OF EFFECTIVE POLYMER-BASED PALLADIUM CATALYSTS OF SELECTIVE HYDROGENATION,** Prof. Esther Sulman, Ms. Tatyana Khudyakova, Dr. Linda Nikoshvili, Dr. Alexey Bykov, Prof. Liubov Kiwi-Minsker, Tver Technical University, Russia727
- 95. THEORETICAL INVESTIGATION ON EMPOWERING AN IMPORTANT HYDROTECHNIC NODE WITHIN AN URBAN AREA,** Assoc. Prof. Dr. Liana Ioana Vuta, Assoc. Prof. Dr. Bogdan Popa, Assoc. Prof. Dr. Gabriela Elena Dumitran, Assist. Prof. Dr. Florica Popa, Assist. Prof. Dr. Mihaela Diminescu, Politehnica University of Bucharest, Romania.....733
- 96. THERMAL ANALYSIS OF THE ELECTRODYNAMIC BRAKE,** Nalepa Krzysztof, Neugebauer Maciej, Solowiej Piotr, Miaskowski Wojciech, Piechocki Janusz, University of Warmia and Mazury in Olsztyn, Poland741
- 97. THERMOGRAVIMETRIC STUDY OF MUNICIPAL WASTE PLASTICS CONSIDERING PERSPECTIVES OF WASTE PYRO-GASIFICATION,** Dmitry Porshnov, Dr. Linda Ansone-Berina, Viesturs Ozols, Dr. Juris Burlakovs, Prof. Dr. Hab. Maris Klavins, Latvijas Universitate, Latvia.....747

- 98. TIME SERIES MODEL APPLIED TO PREDICTION THE SOLAR POWER PRODUCTION**, Irina Meghea, Mihaela Mihai, George Cristian Lazaroiu, University POLITEHNICA of BUCHAREST, Romania759
- 99. USAGE OF POTASSIUM METHOXIDE IN METHANOL AND POTASSIUM TERT-BUTOXIDE IN TERT-BUTANOL AS CATALYSTS IN INTERESTERIFICATION OF RAPESEED OIL**, Dr. Elina Sile and Prof. Dr. Valdis Kampars, Riga Technical University, Latvia.....767
- 100. USE OF ALTERNATIVE FUELS FOR HYDROCARBON FUELS FOR SHIPS PROPULSION IN THE ASPECT OF IMPACT ON THE SAFETY OF NAVIGATION AND ENVIRONMENTAL PROTECTION.**, Zbigniew Losiewicz, West Pommeranian University of Technology in Szczecin, Poland.....775
- 101. USE OF LOW-GRADE THERMAL ENERGY OF ALTERNATIVE AND WASTE INDUSTRIAL ENERGY SOURCES BY MEANS OF A THERMOMECHANICAL PUMP**, Assoc. Prof. PhD. Evgeny Starikov, Prof. Dr. Sergey Shekhelein, Ural Federal University, Russia.....783
- 102. USE OF NATURAL ORES IN THERMAL CONVERSION OF BIOMASS**, Dr. Pavleta Knutsson, Dr. Jesper Knutsson, Chalmers University of technology, Sweden791
- 103. USING ENERGY EFFICIENCY IN TRANSPORT SECTOR FOR REDUCING POLLUTING EMISSION**, Lect. Ruscă Marcel, Rusu Tudor Andrei, Plugaru Sebastian, Technical University of Cluj-Napoca, Romania.....799
- 104. VARIABILITY ASSESSMENT OF RENEWABLE ENERGY SOURCES BASED ON POWER GENERATION RECORDINGS**, Phd.Candidat Dana-Alexandra Ciupageanu, Prof. Dr. Gheorghe Lazaroiu, Prof. Dr. Linda Barelli, POLITEHNICA University of Bucharest, Romania807
- 105. VIRTUAL POWER PLANTS: POWERING SMART CITIES OF THE FUTURE**, Ebenezer Agbozo Adven Masih, Ural Federal Univercity, Russia.....815
- 106. WIND TURBINE MODEL WITH PIC MICROCONTROLLER POWER CONTROL**, Assoc. Prof., PhD, Eng. Bohdan Borowik, PhD Barbara Borowik, PhD, Eng. Volodymyr Karpinskyi, PhD Aleksandra Kłos -Witkowska, Assoc. Prof., PhD, Eng. Aigul Shaikhanova, University of Bielsko-Biala, Poland823

