

XIX International Scientific and Practical Conference: Energy and Resource Saving XXI Century (ERS 2021)

IOP Conference Series: Materials Science and Engineering
Volume 1211

Orel, Russia
10 - 12 November 2021

ISBN: 978-1-7138-4670-3
ISSN: 1757-8981

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 3.0 International Licence.
Licence details: <http://creativecommons.org/licenses/by/3.0/>.

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. (2022)

For permission requests, please contact the Institute of Physics
at the address below.

Institute of Physics
Dirac House, Temple Back
Bristol BS1 6BE UK

Phone: 44 1 17 929 7481
Fax: 44 1 17 920 0979

techtracking@iop.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

Preface	
Peer Review Declaration	
Methodology of fire risk analysis in electrical installations of a production facility.....	1
<i>O K Nikolsky, Yu D Shlionskaya, M A Gabova, A N Kachanov, V A Chernyshov</i>	
Methodology for comparing the energy efficiency of methods for regulating the performance of a blower station	10
<i>Maksim Vecherkin, Anvar Sarvarov, Irina Romanova</i>	
Combustion of wood pellets with a high amount of fines	17
<i>V K Lyubov, A N Popov, E I Popova</i>	
SRM with 8/6 magnetic system topology for electric drive of mine battery electric locomotives: design and modelling.....	26
<i>V N Antipov, A D Grozov, A V Ivanova</i>	
Study of the thermal characteristics of the aluminum radiator ROYAL Thermo Evolution	34
<i>Z G Mar'ina, A Y Vereshchagin, A V Novozhilova, M A Komarevtsev, K O Isaeva</i>	
Boilers slagging when burning wood pellets.....	40
<i>V K Lyubov, A V Malkov, P D Alekseev</i>	
Calculation features of compressed-bent build-up timber columns with nonlinear-deformable shear bracings	49
<i>E V Popov, A V Karelsky, V V Sopilov, B V Labudin, V V Cherednichenko</i>	
Methodology for determining the flow rate and temperature of generated hot water when calculating the thermal diagram of a hot water boiler room	60
<i>V P Gorshenin, A N Kachanov, V A Chernyshov, D A Korenkov, V V Maksimov</i>	
A differential operation principle of the automatic bus transfer system pickup unit as a way of decreasing the emergency clearing time.a	67
<i>Nikolay Danilov, Sergey Tsyruk, Alexandr Timonin, Karam Sharafeddine</i>	
Method for assessing the state and residual life of the insulation based on analysis of the time of discharge of the capacity of electric cables	75
<i>Ivan Maksimovich Kazymov, Boris Sergeevich Kompaneets</i>	
Modelling of Solar-Diesel Hybrid Power Plant.....	86
<i>A G Vaskov, N Y Mozder, A F Narynbaev</i>	
Method of calculation of water-diverting structures of low-head hydroelectric power plant for power supply of small power consumers.....	95
<i>Y Y Zakharov, A R Lepeshkin</i>	
Ensuring effective transit of electrical energy using the laws of environmental cybernetics and the foundations of automatic control	102
<i>A N Kachanov, V A Chernyshov, A Yu Burova, R P Belikov, M Sh Garifullin</i>	

Modeling the system of a dovetailless asynchronous electric drive for conveyor mechanisms	112
<i>Vladimir Vladimirovich Pikalov, Andrei Igorevich Boikov, Andrei Vitalievich Sdvizkov, Pavel Sergeevich Ponomarev</i>	
Low-temperature induction heating of flat metal objects in a traveling electromagnetic field	119
<i>A N Kachanov, Y S Stepanov, N A Kachanov, V A Chernyshov, D A Korenkov</i>	
Energy-efficient omd processes with complex local loading for the production of machine parts with a given level of properties	129
<i>V A Golenkov, D O Dorohov, S Y Radchenko</i>	
Automated fire risk evaluation of electrical installations in the man-machine system.....	140
<i>M A Gabova, O K Nikolsky, Yu D Shliionskaya</i>	
The development of an energy efficient electric drive for agricultural machines	148
<i>T M Khalina, S Yu Eremochkin, D V Dorokhov</i>	
Study Of The Thermal Processes Dynamics In The Feedstuff Disinfection By Electric Contact Heating	157
<i>T M Khalina, M V Khalin, M V Dorozhkin</i>	
Development of a Range of Modified Multifunctional Residual Current Systems and Their Industrial Implementation	167
<i>O K Nikolsky, T M Khalina</i>	
Electroresistive method for monitoring the technical condition, quality, reliability and safety the supports of rolling of electrical machines.....	176
<i>K V Podmasrreyev, V V Markov, V V Mishin, A V Selikhov, N V Uglova</i>	
Color sensor application in high-temperature spectral ratio pyrometer.....	185
<i>A A Valke, D G Lobov, A G Shkaev</i>	
The Diagnostics of the rotor misalignment of a permanent magnet motor.....	192
<i>A A Afanasev, V S Genin, L N Vasileva, V G Grigorev</i>	

Author Index