All-Russian Research-to-Practice Conference for Young Researchers, Postgraduate Students and Undergraduates 2016

Ecology and Safety in the Technosphere: Current Problems and Solutions

IOP Conference Series: Earth and Environmental Science Volume 50

Yurga, Russia 17 - 19 November 2016

ISBN: 978-1-5108-3523-8

ISSN: 1755-1307

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.

Copyright© (2016) by the Institute of Physics All rights reserved. The material featured in this book is subject to IOP copyright protection, unless otherwise indicated.

Printed by Curran Associates, Inc. (2017)

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

Volume 50

Ecology and safety in the technosphere: current problems and solutions 17–19 November 2016, Yurga, Russian Federation

Accepted papers received: 12 December 2016

Published online: 10 January 2017

Preface

011001 OPEN ACCESS

Ecology and safety in the technosphere: current problems and solutions

011002

OPEN ACCESS

Ecology and safety in the technosphere: current problems and solutions

Papers

012001

OPEN ACCESS

<u>Increasing Of Efficiency Of Environmentally Friendly Technology Of AWJ Of A Glass Fiber Plastic</u>

G Barsukov, T Zhuravleva and O Kozhus.....1

012002

OPEN ACCESS

<u>Aerodynamical Probation Of Semi-Industrial Production Plant For Centrifugal Dust</u> Collectors' Efficiency Research

Y I Buligin, M G Zharkova and L N Alexeenko.....8

OPEN ACCESS

<u>Factors Of Environmental Safety And Environmentally Efficient Technologies</u> <u>Transportation Facilities Gas Transportation Industry</u>

Bogdan U Vasiliev.....14

012004

OPEN ACCESS

<u>Increasing The Use Of Natural Gas On Motor Transport By An Efficient Location Of</u> The NGV RS (On The Example Of Tyumen)

E Chikishev, D Chainikov and I Anisimov.....21

012005

OPEN ACCESS

Level Recession Of Emissions Release By Motor-And-Tractor Diesel Engines Through The Application Of Water-Fuel Emulsions

A Ivanov and E Chikishev.....28

012006

OPEN ACCESS

Analysis The Potential Implementation And Use Of The Renewable Energy Sources In The Murmansk Region

S M Chekardovskiy, A G Zakirzakov and E F Gordievskaya.....35

012007

OPEN ACCESS

Research Of The Influence Of Reftinskii SDPP'S Ash On The Processes Of Cement Stone'S Structure Forming

G A Zimakova, V A Solonina and M P Zelig....41

012008

OPEN ACCESS

Natural Gas Use On Minibuses, Engaged In The Carriage Of Passengers And Baggage On The Regular Routes, As A Measure For Decrease In Harmful Environment Effects

E Chikishev, A Chikisheva, I Anisimov and D Chainikov.....48

OPEN ACCESS

<u>Coal Mining Machinery Development As An Ecological Factor Of Progressive Technologies Implementation</u>

A B Efremenkov, A A Khoreshok, S A Zhironkin and A V Myaskov.....56

012010

OPEN ACCESS

Rational Use of Land Resource During the Implementation of Transportless System of Coal Strata Surface Mining

T Gvozdkova, M Tyulenev, S Zhironkin, V A Trifonov and Yu M Osipov.....62

012011

OPEN ACCESS

NBIC-Convergence of Machinery and Basic Technologies as the Ecological Factor of Wellbeing

S A Zhironkin, K A Kolotov, A E Genin, F V Agafonov and S A Kovalevsky.....70

012012

OPEN ACCESS

Environmental Improvement Of Opencast Mining

S Prokopenko, A Sushko, Yu Filatov, M Kislyakov and I Kislyakov.....78

012013

OPEN ACCESS

The Modelling Of Basing Holes Machining Of Automatically Replaceable Cubical Units For Reconfigurable Manufacturing Systems With Low-Waste Production

N M Bobrovskij, D G Levashkin, I N Bobrovskij, P A Melnikov and A A Lukyanov.....84

012014

OPEN ACCESS

Integrated Development Of Noise-Dust Woodworking Machines At The Design Stage

A N Chukarin, Y I Buligin, L N Alexeenko and V A Romanov.....92

OPEN ACCESS

Environmental Aspects Of The Green Surface Plastic Deformation Technology Of Car Parts

S N Grigoriev, N M Bobrovskij, I N Bobrovskij, P A Melnikov and A A Lukyanov.....99

012016

OPEN ACCESS

Research Of Polytropic Exponent Changing For Influence Evaluation Of Actual Mixture Composition On Hydrocarbons Concentration Decreasing On Deep Throttling Operation

N M Smolenskaya, V V Smolenskii and I Bobrovskij.....107

012017

OPEN ACCESS

<u>Automated System Of Monitoring Of The Physical Condition Of The Staff Of The Enterprise</u>

A Pilipenko....114

012018

OPEN ACCESS

Algorithm Research Exposure Dust Emissions Enterprises Of Building Production On The Environment

E V Omelchenko, E A Trushkova, M V Sidelnikov, S L Pushenko and E V Staseva.....122

012019

OPEN ACCESS

<u>Evaluation Of Rotation Frequency Gas-Diesel Engines When Using Automatic Control System</u>

A Zhilenkov and A Efremov.....127

012020

OPEN ACCESS

Application Biosphere Compatibility Concept To Evaluate The Quality Of Urban Environment By Bioindication Methods

S Vorobyov....134

OPEN ACCESS

A Thermo-Physical Model Of Destruction Of Contaminants By Means Of A Water-Ice-Jet Cleaning Technology

Yu Stepanov, M Burnashov and E Stepanova.....142

012022

OPEN ACCESS

Eco-analytical Methodology in Environmental Problems Monitoring

M I Agienko, E P Bondareva, G V Chistyakova, O V Zhironkina and O I Kalinina.....149

012023

OPEN ACCESS

<u>International Cooperation in Environmental Management and Rational Use of Natural</u> Resources

E A Fedulova, I V Korchagina, S V Vik, O I Kalinina and V L Martyanov.....157

012024

OPEN ACCESS

From Mining to Post-Mining: The Sustainable Development Strategy of the German Hard Coal Mining Industry

J Kretschmann, A B Efremenkov and A A Khoreshok.....164

012025

OPEN ACCESS

The Concept of Ecologically Oriented Progress and Natural Resource Preservation

M A Gasanov, K A Kolotov, K A Demidenko, E A Podgornaya and O V Kadnikova.....173

012026

OPEN ACCESS

Water Resources Management In Support Of Raw Region Based On Decoupling Effect

Yu V Lesin, E A Fedulova, A O Akulov, S V Vik and R L Korchagin.....180

OPEN ACCESS

Environmental Management: the Ideology of Natural Resource Rational Use

V M Zolotukhin, V A Gogolin, M Yu Yazevich, M I Baumgarten and A V Dyagileva.....189

012028

OPEN ACCESS

Guaranteeng Of Ecological Safety Of Wastewater Tretment By Phytoremediation

E E Nefedieva, Yu N Kartushina, V F Zheltobryukhov, G A Sevriukova and E V Baybakova.....195

012029

OPEN ACCESS

Visualization Of Electromagnetic Environment Near GSM Antennae

M Yu Zvezdina, Yu A Shokova, N I Kundryukova, V D Kutukova and A V Pozdnyakova.....203

012030

OPEN ACCESS

Environmental-Socio-Economic Monitoring as a Tool of Region's Environmental-Economic System Management

T V Galanina, M I Baumgarten, V G Mikhailov, T G Koroleva and G S Mikhailov.....210

012031

OPEN ACCESS

The Study Of Soil And Agrochemical Features Of Zonal Soils Of Coal Mining Enterprises In Kemerovo Region

M A Yakovchenko, A A Kosolapova and V A Ermolaev.....217

012032

OPEN ACCESS

Main Pipelines Corrosion Monitoring Device

Bazhenov Anatoliy, Bondareva Galina, Grivennaya Natalia, Malygin Sergey and Goryainov Mikhail.....223

0	1	2	Λ	2	2
v	1	4	v	J	J

OPEN ACCESS

Dynamics Analysis of Wind Energy Production Development

V I Berg, A G Zakirzakov and E F Gordievskaya.....229

012034

OPEN ACCESS

The Analysis of the Development Dynamics and Structural Balance of Solar Energy in the World

A E Brand, S M Chekardovskiy and K A Akulov.....235

012035

OPEN ACCESS

A Method of Effective Quarry Water Purifying Using Artificial Filtering Arrays

M Tyulenev, E Garina, A Khoreshok, O Litvin, Y Litvin and E Maliukhina.....241

012036

OPEN ACCESS

Heuristic Model Of The Composite Quality Index Of Environmental Assessment

A N Khabarov, A A Knyaginin, D V Bondarenko, I P Shepet and L N Korolkova.....249

012037

OPEN ACCESS

Investment Appeal of the Recreational Potential of the Region

T V Galanina, V G Mikhailov, N N Golofastova and T G Koroleva.....257

012038

OPEN ACCESS

Environmental-Economic Assessment Of Generation, Flow And Efficiency Of Use Of Production And Consumption Waste

V G Mikhailov, N N Golofastova, T V Galanina, T G Koroleva and Ya S Mikhailova.....263

OPEN ACCESS

Photolytic AND Catalytic Destruction of Organic Waste Water Pollutants

V F Torosyan, E S Torosyan, S O Kryuchkova and V E Gromov.....271

012040

OPEN ACCESS

<u>Integrated Approach To An Efficiency Assessment Of Self-Organizing Textile Materials</u>
Packages In The Subnormal Climate

M Rodicheva, A Abramov, P Kanatnikova, N Kanatnikov and G Kharlamov.....276

012041

OPEN ACCESS

Analysis the Changes of the NGL Product Pipe Safety in the Process of Operation

V I Berg, V A Petryakov and A E Brand.....284

012042

OPEN ACCESS

The Use Of Foamed Concrete For Oil Spill Treatment And Carbon Capture

K A Akulov, V A Petryakov and N A Mostovaya.....289

012043

OPEN ACCESS

Reducing The Risk Of Fires In Conveyor Transport

M S Cheremushkina and D A Poddubniy.....295

012044

OPEN ACCESS

<u>Innovative Solutions Shockproof Protection In Occupations Associated With An Increased Risk Of Injury</u>

O V Denisov, Y I Buligin, A E Ponomarev, I A. Ponomareva and V V Lebedeva.....301

OPEN ACCESS

Monitoring Of Air Quality Parameters For Construction Of Fire Risk Detection Systems

I I Romancov, A G Dashkovky, V F Panin and D N Melkov.....308

012046

OPEN ACCESS

Assessment of Potential Environmental Risks from Saline Soils Subsidence

L Ya Pobereznyi, L Ya Poberezhna, P O Maruschak and S V Panin.....314

012047

OPEN ACCESS

Improving Hygienic Characteristics of Coated Electrodes for Welding High-Alloy Steels

D P Il'yaschenko, D A Chinakhov, K V Ivanov and I D Sadikov.....321

012048

OPEN ACCESS

<u>Acid-Base Properties Of Glass Substrate And SiO₂ – Bi₂O₃ Thin-Film Systems Obtained On It</u>

A G Mal'chik, S V Litovkin, A V Filonov, O V Ulyanova and V E Gromov.....327

012049

OPEN ACCESS

Object-Oriented Programming When Developing Software in Geology and Geophysics

R K Ahmadulin and L N Bakanovskaya.....334

012050

OPEN ACCESS

Modeling hydrodynamic flows in plasma fluxes when depositing metal layer on the surface of catalyst converters

D A Chinakhov, V D Sarychev, A Yu Granovsky, S A Solodsky, S A Nevsky and S V Konovalov.....340

012051 OPEN ACCESS

Structure and Properties of Detonation Coatings of Mechanocomposite Based on Bazalt-NiAl

V I Yakovlev, A A Sitnikov, A G Ovcharebko, T A Golovina and T A Sitnikova.....349

012052

OPEN ACCESS

Technological Support of Critical Parts for Railway Transport Working Properties

A V Gabets, D A Gabets, A M Markov, M V Radchenko and S L Leonov.....355

012053 OPEN ACCESS

Forecasting of Machined Surface Waviness on the Basis of Self-oscillations Analysis

E B Belov, S L Leonov, A M Markov, A A Sitnikov and V A Khomenko.....363