

IV International Conference on Modern Technologies for Non-Destructive Testing 2015

IOP Conference Series: Materials Science and
Engineering Volume 132

Tomsk, Russia
5 – 10 October 2015

ISBN: 978-1-5108-2535-2
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.

Copyright© (2015) 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. (2016)

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

Modern Technologies of Nondestructive Testing of Construction Materials	1
<i>R. Fediuk, A. Yushin</i>	
Informativeness Improvement of Hardness Test Methods for Metal Product Assessment	7
<i>S. Osipov, I. Podshivalov, O. Osipov, A. Zhantybaev</i>	
Improvement of the Quality of Water Purification from Hydrocarbons Using the Fibers from Recycled Thermoplastics	13
<i>O. Galtseva, S. Bordunov, N. Natalinova, S. Mazikov</i>	
Thermo-Electromotive Force and Electrical Resistivity of Hydrogenated VT1-0 Titanium Alloy	18
<i>A. Lider, V. Larionov, M. Kroening, V. Kudiiarov</i>	
Angular Velocity's Neural Network Observer of the Electric Drive of TVR - IM Type Implemented in Software Environment LabVIEW	22
<i>L. Kozlova, E. Bolovin, L. Payuk</i>	
The Level/Preventive Approach to Solving Technical and Economic Tasks as One of Directions in Development of the Enterprises of Oil Refining and Petrochemical Industry	28
<i>R. Damineva, R. Daminev, O. Karimov</i>	
Integrative Modeling of Electrical Properties of Pacemaker Cardiac Cells	32
<i>M. Grigoriev, L. Babich</i>	
Generation and Analysis of Wire Rope Digital Radiographic Images	37
<i>S. Chakhlov, P. Anpilogov, A. Batranin, S. Osipov, S. Zhumabekova, I. Yadrenkin</i>	
Regimes of Decomposition of Clathrate in Natural Strata Purged by Methane	43
<i>M. Khasanov, V. Shagapov</i>	
Development and Experimental Investigations of Motion Detection Module for Smart Lighting System	48
<i>I. Matveev, E. Siemens, A. Yurchenko, D. Kuznetsov</i>	
Integrated Method – the Optimum Way to Improve the Quality of Frequency Response Characteristics of the Space Vehicle Attitude Control System	54
<i>Y. Britova, V. Dmitriev, T. Kostyuchenko</i>	
Experimental Research of High-Energy Capabilities of Material Recognition by Dual-Energy Method for the Low-Dose Radiation	60
<i>A. Abashkin, S. Osipov, S. Chakhlov, A. Shteyn</i>	
Diagnosing the Bottom of the Vertical Tank, a Device Based on the Phased Acoustic Gratings	65
<i>Y. Bezborodov, A. Selsky, N. Lysyannikova, Y. Kravtsova, A. Lysyannikov, V. Shram, Y. Kaiser, M. Merko</i>	
Means and Method for Measurement of Drilling Fluid Properties	71
<i>A. Lysyannikov, P. Kondrashov, P. Pavlova</i>	
Remote Diagnosis of Dug-in Areas and Bottom Pipe by Main Acoustic Emission Method Using a Self-organizing Wireless Network	76
<i>Y. Kravtsova, V. Shram, N. Lysyannikova, Y. Bezborodov, A. Selsky, A. Lysyannikov</i>	
Temperature Control Method in the Snow Road Construction	81
<i>Y. Serebrennikova, A. Lysyannikov, Y. Kaizer, R. Zhelykevich, M. Plakhotnikova, N. Lysyannikova, M. Merko, I. Merko</i>	
Simulation of Electrical Characteristics of a Solar Panel	86
<i>O. Obukhov, I. Plotnikov, M. Kryuchkova</i>	
Creation of Favourable Conditions for Introducing Hydrogen Fuel in Russia	92
<i>E. Boretsky, M. Egorova</i>	
Methods of Statistical Control for Groundwater Quality Indicators	98
<i>E. Yankovich, O. Nevidimova, K. Yankovich</i>	
Possibility of Using Nonmetallic Check Samples to Assess the Sensitivity of Penetrant Testing	103
<i>N. Kalinichenko, I. Lobanova, A. Kalinichenko, E. Loboda, T. Jakubec</i>	
Application of Non-destructive Methods of Stress-strain State at Hazardous Production Facilities	108
<i>V. Shram, Y. Kravtsova, A. Selsky, Y. Bezborodov, N. Lysyannikova, A. Lysyannikov</i>	
Simulation of the Focal Spot of the Accelerator Bremsstrahlung Radiation	113
<i>V. Sorokin, V. Bepalov</i>	
Development of the Production Process Model Based on the Controllable Input Factors	118
<i>I. Plotnikova, L. Redko, O. Titova, O. Chaykovskaya</i>	
Review of Studies of Mechanoelectrical Transformations in Rocks in Russia and Abroad	122
<i>E. Pomishin, L. Yavorovich</i>	

Tool and Method for Testing the Resistance of the Snow Road Cover to Destruction	127
<i>R. Zhelykevich, A. Lysyannikov, Y. Kaiser, Y. Serebrenikova, N. Lysyannikov, V. Shram, Y. Kravtsova, M. Plakhotnikova</i>	
Control Methods of Operational Properties of Lubricants	132
<i>N. Lysyannikova, B. Kovalski, Y. Bezborodov, A. Lysayannikov, Y. Kravtsova, V. Shram, M. Kovaleva</i>	
The Classification of Weld Seam Defects for Quantitative Analysis by means of Ultrasonic Testing	137
<i>Y. Salchak, T. Tverdokhlebova, S. Sharavina, A. Lider</i>	
Modelling of Fuzzy Control Modes for the Automated Pumping Station of the Oil and Gas Transportation System	142
<i>A. Sagdatullin, E. Muravyova, M. Sharipov</i>	
Calibration Interval Adjustment of a Measuring Instrument in Industries During Long-term Use.....	148
<i>N. Natalinova, N. Ilina, E. Frantcuzskaia</i>	
Author Index	