

International Conference on Mechanical Engineering and Modern Technologies (MEMT2020)

IOP Conference Series: Materials Science and Engineering
Volume 1118

Tomsk, Russia
26 - 30 October 2020

ISBN: 978-1-7138-3404-5
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. (2021)

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

SELF-CONTAINED DRILLING ASSEMBLY	1
<i>L Yu Belozertseva</i>	
DETERMINATION OF ROCK FRACTURE PARAMETERS IN DIRECTIONAL PERCUSSION DRILLING WITH DRILLHOLE PATH ADJUSTABILITY	7
<i>E M Chernienkov</i>	
INVESTIGATION OF THE CRITERIA FOR EVALUATING ELECTRODE METAL TRANSFER IN SHORT CIRCUIT GAS-SHIELDED ARC WELDING	14
<i>S V Bolotov</i>	
ION-PLASMA TREATED PARTS QUALITY IMPROVEMENT ANALYSIS BASED ON THE RELIABILITY THEORY CRITERIA.....	20
<i>V I Bogdanovich, M G Giorbelidze</i>	
ION-PLASMA COATINGS PERFORMANCE PROPERTIES IMPROVEMENT OBTAINED BY ARC DEPOSITION	25
<i>V I Bogdanovich, M G Giorbelidze</i>	
ANALYSIS OF CONTACT STRENGTH OF SPHERICAL ROLLER TRANSMISSION WITH DOUBLE-ROW PINION.....	30
<i>M E Lustenkov, A N Moiseenko</i>	
EXPERIMENTAL ESTIMATION OF EFFICIENCY AND KINEMATIC ACCURACY OF A SPHERICAL ROLLER TRANSMISSION	36
<i>E S Lustenkova</i>	
SIMULATION OF SURFACE WORK-HARDENING PROCESS DURING CONTROLLED INERTIAL IMPACT TREATMENT OF PARTS MADE OF HIGH STRENGTH CAST IRON	42
<i>V M Pashkevich, V V Afanevich</i>	
EFFECT OF GLOW DISCHARGE TREATMENT ON THE DEPTH AND DEGREE OF STRUCTURAL PHASE MODIFICATION OF TOOL STEEL PRODUCTS	48
<i>V M Shemenkov, M A Rabyko</i>	
SURFACE TREATMENT BY COMBINED PROCESSES OF CUTTING AND MAGNETODYNAMIC ROLLING.....	55
<i>D M Svirepa, A S Kruchynina</i>	
EFFECT OF HOT ISOSTATIC PRESSING ON THE QUALITY OF METAL PARTS OBTAINED BY SELECTIVE LASER MELTING	60
<i>A V Zhdanov, A A Voznesenskaya, A S Raznoschikov</i>	
STABILIZATION OF ROOT PARAMETERS FOR SHIELDED ARC WELDING	65
<i>P P Krasikov, A V Savinov, O A Polesskiy, A A Chudin, L S Krasikova, I V Kozlov, D S Borisov, V V Filippov</i>	
COLD DEFORMATION OF NON-CIRCULAR DRILL PIPES	70
<i>S V Parshin, A I Dronov</i>	
ILABIT ROBOTICA: A PHOTO-REALISTIC EXTENSION FOR ROBOTICS TOOLBOX	74
<i>Ivan Kholodilin, Nikita Savosteenko, Yuri Abramov, Luis A Lago</i>	

ESTIMATION OF ELECTRIC LOADS DYNAMICS IN THE GAS FIELDS OF WESTERN SIBERIA TAKING INTO ACCOUNT THE LIFE CYCLE OF THE FIELDS	80
<i>I M Bogachkov, R N Khamitov, V P Frayshteter</i>	
STUDYING INTERACTION OF MULTI-MOTOR FORMING SYSTEM FOR DOUBLE CURVATURE ITEMS.....	90
<i>N E Deryuzhkova, V A Solovyev, V V Teterin</i>	
COMPARISON OF CONTROL METHODS FOR INVERTED 2-DEGREE OF FREEDOM PENDULUM MOUNTED ON THE CART	97
<i>O Y Sumenkov, A S Belyaev</i>	
THE DESIGN OF A SUPPORT CHAIR FOR MORE EFFECTIVE PATIENT REHABILITATION.....	103
<i>G Mamontov, V Seryakov, Y Khmelevsky, L Tkacheva</i>	
QUALITY RATIOS FOR PUBLIC TRANSPORT SERVICES	109
<i>A N Novikov, S V Eremin, A G Shevtsova, D O Lomakin, A V Kulev</i>	
PATH-BUILDING AND LOCALIZATION SYSTEM FOR MOBILE ROBOTIC PLATFORMS BASED ON RASPBERRY PI	113
<i>E A Ivanov, A S Belyaev, O A Brylev</i>	
EVALUATION OF THE POSSIBILITY OF USING MULTILAYER NANOSTRUCTURED COATINGS TO IMPROVE THE OUTPUT CHARACTERISTICS OF ROLLER SCREW MECHANISMS	119
<i>A V Zhdanov, E A Novikova, N S Dovbysh, A N Mitrofanov</i>	
A DEVICE FOR AUTOMATIC FEEDING OF COATED ELECTRODES INTO A WELD POOL	124
<i>A S Gordynets, A S Nepomnyashiy</i>	
RESULTS OF MODELING THE OPERATION OF THE HYDRAULIC PUMP IN THE MATLAB-SIMULINK APPLICATION AND TESTING ON THE DIAGNOSTIC BENCH	128
<i>Yu Vlasov, M Meshcheriakov, T Alushkin</i>	
THERMAL CONDUCTIVITY AND HEAT CAPACITY OF NANOFLUID BASED ON WATER MODIFIED BY HYBRID MATERIAL OF COMPOSITION DETONATION NANODIAMONDS-CARBON NANOTUBES	132
<i>A A Vozniakovskii, A P Voznyakovskii, S V Kidalov, E K Kalashnikova</i>	
STUDY OF THE MAGNETIC PROPERTY OF SUPERMAGNETIC FLUID.....	137
<i>O K Kuvandikov, Sh J Kuvandikov, M K Salakhitdinova, Kh A Kayumov</i>	
DETERMINATION OF OPTIMAL FREQUENCY TO REPLACE CUTTING ELEMENTS IN CHAIN TRENCHERS	141
<i>S M Kravchenko, V A Slepchenko, I V Slepchenko</i>	
EFFICIENT TECHNOLOGIES FOR PRODUCING CAST IRON BILLETS AND PRODUCTS WITH SPECIFIED PROPERTIES AND MICROSTRUCTURE.....	146
<i>D A Lubyanoi, A V Markidonov, E Yu Pudov, V N Shakhmanov, E G Kuzin, O S Semenova</i>	
FAILURES OF SAFETY SERVICES IN CASE OF EMERGENCY FALL OF CARGO-PASSENGER ELEVATOR'S CABIN EXPLOITED IN INDUSTRIAL AND CIVIL PREMISES	151
<i>M Popov, A Negodin</i>	
SIMULATION ON ELEVATOR EMERGENCY BRAKE	155
<i>M Popov, A Negodin</i>	

THE STUDY OF THE POWER SUPPLY SYSTEM OF THE EXISTING GAS FIELDS IN WESTERN SIBERIA USING THE THEORY OF EXPERIMENTAL PLANNING	159
<i>I M Bogachkov</i>	
DEVELOPING THE CALCULATION METHODS OF EFFECTIVE VALUES OF CURRENT AND VOLTAGE FOR NONSINUSOIDAL TRANSIENT MODES IN ELECTRIC POWER SYSTEMS BASED WAVELET TRANSFORM.....	166
<i>O V Arkhipova, N N Dolgikh, V Z Kovalev, D S Osipov, A O Paramzin, V A Tkachenko</i>	
THE POSSIBILITY TO USE BANDSAW DYNAMIC TENSIONING IN BANDSAW MACHINES	172
<i>V K Shilko, V A Slepchenko, I V Slepchenko</i>	
INFLUENCE OF SOME PARAMETERS OF MAGNETIZATION AND CUTTING MODES ON THE TOOL LIFE WHEN MACHINING CONSTRUCTION MATERIALS	177
<i>S M Khasanov, A A Yakubov</i>	
FLEXURAL PROPERTIES OF COPPER-FILLED CARBON FIBER REINFORCED POLYMERS.....	183
<i>A V Eremin, A V Burkov</i>	
THERMOGRAVIMETRIC ANALYSIS OF EPOXY-BASED CARBON FIBER REINFORCED POLYMERS MODIFIED BY CARBON FILLERS.....	188
<i>M V Burkov, A V Eremin</i>	

Author Index