

# Table of Contents

## Preface

<b>Mathematical Model of Melting of Solid Sulfur Particles when Loaded into a Melting Bath</b> P.V. Iakovlev and V.A. Lebedev	1
<b>Investigation of Low Rotational Speeds Effect during Centrifugal Casting on the Mechanical Properties of Polymer Composites Material</b> V.V. Talapov and V. Melnikov	6
<b>Prospects for the Use of the Sorbent for Purification of Gases from Sulfur-Containing Components on the Basis of Manganese Ore</b> V.A. Bolotov, O.V. Cheremisina, M.A. Ponomareva and D.A. Alferova	13
<b>Determination of the Conditions of an Effective Functioning of Elongated Cumulative Charges in Processing the Marble Stone</b> G.P. Paramonov, V.N. Kovalevskiy and A.V. Mysin	19
<b>Effective Parameters of Tail Processing of Gold-Bearing Ore Hydrotransport for Verninskaya Processing Factory</b> V.I. Alexandrov, A.V. Kopteva and S.L. Serzan	25
<b>Using the Diffusion Saturation Technology for the Surface of Different Steel Products from Melts of Low-Melting Metals</b> S.N. Dzhabbarov and E.I. Pryakhin	36
<b>Development of Heat Treatment Mode with Quenching in Different Quenching Environments for the Casing Pipe in Order to Obtain the Required Mechanical Properties</b> S.N. Dzhabbarov and E.I. Pryakhin	41
<b>Studying Resistance to Cold in Low-Alloy Steels</b> L.G. Borisova and T.P. Gorshkova	46
<b>Carbon Materials for Immobilization of Biologically Active Substances</b> O.V. Denisova and I.I. Rastvorova	52
<b>The Relationship between Fractal Properties and Active Porosity of Peat Compositions</b> A.V. Mikhailov, O.Z. Garmaev and A.S. Fedorov	58
<b>Treatment of Titanium Alloys Based on Preliminary Plastic Impact</b> V.V. Maksarov, A.E. Efimov and T.S. Golikov	63
<b>Improvement of Magnetic-Abrasive Finishing of Nonuniform Products Made of High-Speed Steel in Digital Conditions</b> V.V. Maksarov, A.I. Keksin and I.A. Filipenko	71
<b>Thermoplastic Polymer Composites Production by Automated Fiber Placement Method</b> A.M. Iuvshin, S.D. Tretyakov, Y.S. Andreev and I.N. Gibadullin	78
<b>Application of Duplex Technology for Modification of Friction Pair Surfaces</b> D.V. Vasilkov, A.S. Aleksandrov, V.V. Golikova and I.Y. Tarikov	84
<b>Fractured-Laminar Structure of Formations and Methods of Coal Loosening</b> V.V. Gabov, D.A. Zadkov, A.Y. Kuzkin and A.S. Elikhin	90
<b>Application of the Method of X-Ray Fluorescence Analysis to Determine the Composition of Glassy and Crystalline Alloys of the Systems <math>As_xS_{1-x}</math> and <math>As_xSe_{1-x}</math></b> A.Y. Egorova and E.S. Lomakina	97
<b>Laser Modification: Increasing the Wear Resistance of Friction Surfaces</b> V.I. Shastin and S.K. Kargapol'tsev	104
<b>Laser Modification of the "Ring-Cylinder Liner" Mating Surfaces</b> V.I. Shastin and S.K. Kargapol'tsev	111
<b>Laser Modification of Metal Cutting Tool: Assessment of the Influence on Wear Resistance and Quality of the Processed Surface</b> S.K. Kargapol'tsev, V.I. Shastin and V.E. Gozbenko	118
<b>Improving the Efficiency of Drilling and Blasting Operations for High Water Cut Conditions</b> M.A. Marinin, V.V. Dolzhikov and V.A. Isheyskiy	124
<b>Repair Ability of Low-Alloyed Steel Strength of K70 (X90) Class</b> E.I. Pryakhin and D.M. Sharapova	131
<b>Improving the Wear Resistance of Bushings through Polymer Coatings</b> V.A. Krasnyy and D.A. Osminko	136

<b>Theoretical Analysis of Chroming Electrolytes and Properties of Chrome Coatings</b> Y.A. Stekolnikov, S.D. Polischuk, D.G. Churilov, N.V. Byshov, S.N. Borychev, I.A. Uspenskiy, I.A. Yukhin and I.S. Arapov	142
<b>Peculiarities of Chromium Coating in Low-Concentrated Electrolytes when Repairing Details</b> S.D. Polischuk, Y.A. Stekolnikov, D.G. Churilov, N.V. Byshov, S.N. Borychev, I.A. Uspenskiy and I.S. Arapov	151
<b>Corrective Maintenance and Hardening of Agricultural Machinery Parts</b> S.D. Polischuk, Y.A. Stekolnikov, D.G. Churilov, N.V. Byshov, S.N. Borychev, N.Y. Stekolnikova and V.K. Astanin	158