

Fifth Interdisciplinary Scientific Forum with International Participation "New Materials and Promising Technologies"

IOP Conference Series: Materials Science and Engineering
Volume 848

Moscow, Russia
30 October - 1 November 2019

ISBN: 978-1-7138-4731-1
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 statement	
A structure formation in Ti-Ni powder after high-energy mechanical treatment	1
<i>E V Abdulmenova, S N Kulkov</i>	
Development of chitosan-hyaluronic acid nanoparticles and study of their physico-chemical properties for targeted delivery of anticancer drugs	5
<i>N P Akentieva, A R Gizatullin, O Silvestre, O Savchuk, N I Shkondina, T P Prichodchenko, D V Mitschenko, A V Zhilenkov, P A Troshin, N A Sanina, N H Dremova, V I Torbov, S M Aldoshin, J B Nieder</i>	
Deoxidation Equilibrium of Silicon in the Nickel-Cobalt Melts	13
<i>A A Aleksandrov, V Ya Dashevskii, A G Kanevskii</i>	
Minimal pore size reached upon sintering	20
<i>M I Alymov, S I Averin, I V Saikov</i>	
Interaction of exogenous refractory nanoparticles of Al ₂ O ₃ and MgAl ₂ O ₄ with nonferrous metal impurities in iron melts.....	23
<i>S N Anuchkin</i>	
In silico determination of substrate spectrum of lactonases, hydrolyzing various N-acyl homoserine lactones.....	33
<i>A G Aslanli, E N Efremenko</i>	
High-temperature physical properties of the electrodes based on MAX-phase Ti-Al-C produced by SHS-extrusion method.....	42
<i>O A Averichev, A M Stolin</i>	
Self-propagating high-temperature synthesis of ceramic composite material based on Al ₂ O ₃ - SiO ₂ - ZrB ₂	49
<i>A P Chizhikov, P M Bazhin, A M Stolin</i>	
TiB / 30 wt.% Ti layered composite material obtained by free SHS compression on a Ti6Al4V titanium alloy.....	56
<i>P M Bazhin, A P Chizhikov, A S Konstantinov, A D Prokopets, E V Kostitsyna, A V Bolotskaya, A M Stolin, N Yu Khomenko</i>	
The impact of the lead on the physicochemical and optical properties of the fluorophosphate glasses doped by Nd ³⁺ ions	62
<i>O Bogdanov, E Kolobkova</i>	
Microstructural evolution of the AlMgMnZr alloy during severe plastic deformation	67
<i>Yu Borisova, D Yuzbekova, A Kalinenko, A Mogucheva</i>	
Synthesis, photoluminescence and thermal properties of nanostructured organosilicon luminophore based on 2,2'-bithienyl and 4,7-diphenyl-2,1,3-benzothiadiazole.....	72
<i>O V Borshchev, M S Skorotetcky, E A Svidchenko, N M Surin, S A Ponomarenko</i>	
Modification of barium aluminosilicate glass-ceramics with zirconium oxide additives.....	78
<i>A S Chaynikova, V S Kovaleva, D A Zabelin, I O Belachenko, S Y Modin</i>	

Refractive index of fluoride crystals doped with rare earth ions with low concentration	85
<i>D S Chunaev, A Y Karasik, V A Konyushkin, A N Nakladov, P G Zverev</i>	
Functional properties and microstructure of TiNi alloy during multiple martensitic transformations	91
<i>A A Churakova</i>	
Thermochemical grinding of diamond films in installation for chemical vapor deposition of diamond from the gas phase	97
<i>S A Eremin, A M Kolesnikova, I A Leontiev, V N Anikin, O Yu Kudryashov, Y M Yashnov, M V Zhdanova</i>	
New method of obtaining heat-resistant biomorphic composites with carbide reinforcement	107
<i>A E Ershov, D V Prokhorov, T S Stroganova, I M Shmytko</i>	
Inhibitors based on new polysaccharides in technological processes of oil production. Efficiency of inhibition of scale formation and influence on stability of water-oil emulsion	117
<i>A V Fakhreeva, A I Voloshin, A G Telin, L A Magadova, L V Spirikhin, V A Dokichev</i>	
Reactionary-solidified oxygen permeable membrane material based on cermet $\text{Bi}_{1.6}\text{Er}_{0.4}\text{O}_3 - 26 \text{ wt } \% \text{ Ag} - 4 \text{ wt } \% \text{ In}$	124
<i>S V Fedorov, A S Lysenkov, I V Kulbakin</i>	
Effect of tantalum on short-term creep of a 12%Cr-3%Co-0.07%Ta martensitic steel for steam blades.....	129
<i>A E Fedoseeva, I S Nikitin, A E Fedoseev, E S Tkachev, R O Kaibyshev</i>	
Spectrophotometric determination of epinephrine using new analytical systems based on label-free silver triangular nanoplates.....	137
<i>A A Furlotov, V D Zaytsev, V V Apyari, A V Garshev, P A Volkov, S G Dmitrienko</i>	
Silver nanocomposites based on copolymers of N,N-diallyl-N'-acylhydrazines with N-vinylpyrrolidone	145
<i>M Gorbunova, T Batueva</i>	
Gold nanorods and their nanocomposites based on polyurethane foam for determination of catecholamines in biological fluids	152
<i>M V Gorbunova, V V Apyari, A V Garshev, P A Volkov, V V Tolmacheva, S G Dmitrienko</i>	
Problems of aviation leaded gasoline application on aircraft	163
<i>K I Gryadunov, M L Nemchikov, I S Melnikova, A N Timoshenko</i>	
Gradient structure formation in titanium alloys using thermohydrogen treatment technology	167
<i>S V Skvortsova, O N Gvozdeva, A V Shalin, A S Stepushin</i>	
The study of model reactions occurring in the synthesis of adaptive multiblock polyurethanes.....	175
<i>M A Gorbunova, A M Imamutdinova, V P Lodygina, D V Anokhin, E R Badamshina</i>	
The application of copper-containing nanoparticles as a gas nitriding catalyst.....	182
<i>I Yu Isaeva, E A Eliseeva, I V Morenko, V A Aleksandrov, G Yu Ostaeva</i>	
The electrochemical synthesis and investigation of nanostructured Fe-Pt and Co-Pt systems.....	188
<i>N Ivanova, A Lobanov, A Andyyakova, Yu Zakharov, A Popova, R Kolmykov</i>	
Application of optical methods in tests of new materials with gradient structure	196
<i>I S Kamantsev, N A Drukarenko, A V Kuznetsov, S I Stepanov, M A Chesnokov</i>	

Technology of spark plasma sintering as an innovative solution of synthesis high-density of SiC ceramics.....	200
<i>G D Kardashova</i>	
Oxide composite fibers with quasiplastic components and composites with brittle matrices on their basis.....	205
<i>V M Kiiko</i>	
Rheological properties of Si ₃ N ₄ and Si ₃ N ₄ with sintering additive CaO-Al ₂ O ₃ powders.....	213
<i>K A Kim, A S Lysenkov, D D Titov, E A Gumennikova, M G Frolova, D O Lemeshev, S N Perevislov, Yu F Kargin</i>	
Characterization of spherical stainless steel powders prepared by electric arc spraying process.....	217
<i>A A Kirsankin, T A Kalaida, M A Kaplan, M A Smirnov, A Yu Ivannikov, M A Sevostyanov</i>	
Electrochemical investigations of surfactants influence on copper ions cementation.....	222
<i>E B Kolmachikhina, E A Ryzhkova, D V Starkova, V A Val'nev</i>	
Comparative analysis of the influence of urea additives on the properties of poly(vinyl alcohol) cryogels formed from the polymer solutions in water or dimethylsulfoxide media.....	229
<i>O Yu Kolosova</i>	
The ratio of refractive index and molecular weight of copolymers of n-butyl acrylate and styrene obtained by the method of RAFT-radical polymerization.....	238
<i>E V Vaganov, R I Komendant, E O Perepelitsina, V P Grachev, S A Kurochkin</i>	
Using of direct piezo-discharge in generation of plasma-activated liquid media.....	244
<i>E M Konchekov, N G Gusein-Zade, L V Kolik, K V Artem'ev, A V Pulish</i>	
The effect of homogenizing annealing on the microstructure and microhardness of Ti-20Nb-(7.5-10)Ta alloys (at.%).....	250
<i>S V Konushkin, A Yu Ivannikov, E O Nasakina, K V Sergienko, L A Shatova, M A Sevostyanov</i>	
The investigation of the welded joints of the nitrogen containing cast austenitic steel, obtained by the manual arc welding.....	255
<i>V S Kostina, M V Kostina, M G Sharapov, I O Samodurov, S O Muradyan</i>	
Molecular Docking simulation and Fluorescence lifetime characteristics of NIR Cyanine Dye Complexes with Albumin.....	261
<i>A Kostyukov, M Mestergazi, A Shmykova, T Podrugina, V Pogonin, E Radchenko, V Palyulin, I Borissevitch, V Kuzmin</i>	
Effect of evaporating additive on sintering and properties ceramics based on magnesium aluminate spinel.....	272
<i>E A Kozlovskaya, D S Kseneva, M O Senina, D O Lemeshev</i>	
Dicationic disiloxane liquids.....	278
<i>V G Krasovskiy, O B Gorbatsrvich, L M Glukhov, E A Chernikova</i>	
Preparation and characterization of stable water soluble hybrid nanostructures of hydrophobic compounds by encapsulation into nanoparticles of amphiphilic N-vinylpyrrolidone copolymers of new generation.....	288
<i>S V Kurmaz, D V Konev, V D Sen', V A Kurmaz, A V Kulikov</i>	
Determination of phase transition temperatures (melting, crystallization, rotator phases) of n-alkanes by the optical method.....	298
<i>V N Kuryakov, D D Ivanova, A N Tkachenko, P N Sedenkov</i>	

Changes in electrochemical properties of a heavy tungsten alloy during its processing under the influence of DC current in ammonia-alkali solutions.....	305
<i>O G Kuznetsova, A M Levin, M A Sevostyanov, O I Tsybin, A O Bolshikh</i>	
AC electrochemical oxidation of nickel and VNZh alloy in alkaline-ammonium solutions	311
<i>O G Kuznetsova, A M Levin, M A Sevostyanov, O I Tsybin, A O Bolshikh</i>	
Study of the effect of crystallization conditions on the structure of polyurethane block copolymer based on poly- ϵ -caprolactone diol and isophoron diisocyanate.....	316
<i>M A Gorbunova, V A Lelecova, D M Shukhardin, G V Malkov, D V Anokhin, E R Badamshina</i>	
Development of scientific and technological bases of processing of cast iron from thermal timing and ladle processing method of the resonant intermittent refining	322
<i>D A Lubyanoi, A V Markidonov, V M Nevolin, D D Lubyanoi, I O Kambalin</i>	
Development of optimal formulations of natural alloyed cast irons for metals and engineering, and thermal timing subjected to secondary treatment by the method of resonance-intermittent refining	327
<i>D A Lubyanoi, S Yu Shevchenko, D D Lubyanoi, A V Markidonov, E B Zvarych</i>	
Effect of synthesis parameters on the structure and properties of carbon particles formed from amorphous fullerites	332
<i>I N Lukina, O P Chernogorova, E I Drozdova, E A Ekimov, M O Apostolova, D A Prokopenko, A V Soldatov, V Benavides</i>	
Fabrication and characterization of 1, 5, 10 at.% Ce:Y ₂ O ₃ nanopowders	338
<i>K E Lukyashin, A S Chepusov, V I Solomonov</i>	
21R-Sialon ceramics, obtained by hot pressing.....	343
<i>A S Lysenkov, M O Stolbova, D D Titov, A I Plokhikh, K A Kim, D V Gridin, M G Frolova, N V Petrakova, K D Danilin, D O Lemeshev, Yu F Kargin</i>	
Application of mutagenic treatment of active silt for oxidation of cellulose nitrate.....	349
<i>E A Saratovskikh, L V Avdeeva, V A Shcherbakova, A I Kazakov, R N Yarullin</i>	
Perfluorocarbon nanoemulsions containing fluorinated photosensitizer for photodynamic cancer therapy.....	359
<i>A A Markova, E V Belyaeva, A S Radchenko, M V Dmitrieva, A L Sigan, A A Shtil', N D Chkanikov</i>	
Carbon-forming properties of oils influencing the service of engines and aircraft reducers	368
<i>I S Melnikova, L V Kovba, D V Ratenko, V S Dvoyeglazov</i>	
Research of the intermetallics formation mechanism during the synthesis of functionally graded layered steel-aluminum compositions	375
<i>R S Mikheev, I E Kalashnikov, L K Bolotova, A G Kolmakov</i>	
Effect of ions concentration in buffer solutions on the nucleation of hydroxyapatite surface on the octacalcium phosphate granules	382
<i>P V Mikheeva, A Yu Teterina, I V Smirnov, A Yu Fedotov, V S Komlev</i>	
Study characteristics of failure multilayered steel materials in conditions at alternating symmetrical bending.....	388
<i>A A Minakov, A I Plokhikh, D V Vlasova, K B Polikevich</i>	
Hardness and fracture-toughness of hot-pressed LaB ₆ -TiB ₂ ceramics	395
<i>D D Nesmelov, E S Novoselov, A S Lysenkov, S V Vikhman, S N Perevislov</i>	

Reactive hot-pressed $\text{LaB}_6\text{-W}_2\text{B}_5$ ceramics	401
<i>D D Nesmelov, E S Novoselov, D D Titov, S S Ordan'yan, S N Perevislov</i>	
Copper and cerium co-substituted hydroxyapatite: powders synthesis and sintering.....	406
<i>Y O Nikitina, N V Petrakova, A A Egorov, D D Titov, A A Ashmarin, S M Barinov, V S Komlev</i>	
Distribution of impurities in ceramics based on zirconium nitride obtained using the oxidative constructing approach.....	412
<i>I A Kovalev, S V Shevtsov, K G Vorkachev, A A Ashmarin, A V Shokodko, A I Ogarkov, N A Ovsyannikov, G P Kochanov, A V Tenishev, V N Kazakova, D P Shornikov, E A Shokodko, S S Strelnikova, A S Chernyavskii, K A Solntsev</i>	
Hard radiation of reological explosion	419
<i>I B Oparina, V V Shienok</i>	
Scandium extraction from multicomponent systems by crystallization of complex sulfates	423
<i>L A Pasechnik, I S Medyankina, S P Yatsenko</i>	
Investigation of the influence LiF sintering additive on the properties of magnesium aluminate spinel ceramics	428
<i>M O Senina, D O Lemeshev, M S Pedchenko</i>	
Thermal conductivity of $\text{SiC-B}_4\text{C}$ materials obtained by reaction-sintering method	433
<i>S N Perevislov, E S Motaylo, E S Novoselov, D D Nesmelov</i>	
Physical and mechanical properties of composite materials in the $\text{MoSi}_2\text{-SiC-TiB}_2$ system.....	439
<i>S N Perevislov, M A Markov, E S Motailo, S V Vikhman, D D Titov</i>	
Sintering and physico-mechanical properties of materials based on silicon nitride nanoscale powders	444
<i>S N Perevislov, O A Lukyanova, A S Lysenkov, K A Kim, A B Vysotin</i>	
Studying the properties of carbides in the system ZrC-HfC , TaC-ZrC and TaC-HfC	451
<i>S N Perevislov, A B Vysotin, O Yu Shcherbakova</i>	
Structural changes after high-speed impact of tungsten powder with a steel target	456
<i>E V Petrov, V S Trofimov, G R Saikova, V O Kopytskiy</i>	
Oxidation and biodegradation of polymeric composites based on polylactide: structure and properties.....	462
<i>M V Podzorova, Yu V Tertyshnaya</i>	
Silver niobate doped lead-free perovskite KNN ceramics.....	468
<i>E D Politova, G M Kaleva, N V Golubko, A V Mosunov, N V Sadovskaya, D A Kiselev, A M Kislyuk, T S Ilina, S Yu Stefanovich</i>	
Tunable parallel plate waveguide array based on VO_2 thin films.....	477
<i>V I Polozov, S S Maklakov, S A Maklakov, V A Chistyayev, A A Politiko, K M Baskov, A D Mishin, D A Petrov, V N Kisel</i>	
The cobalt and nickel-containing polyethylene prepared by using metal-vapor synthesis	485
<i>P V Pribytkov, A Yu Vasil'kov, A V Naumkin</i>	
Surface modification TRIP \ TWIP steels	495
<i>D V Prosvirnin, M D Larionov, A G Kolmakov, A V Larionova, M E Pruckov, S V Pivovarchik</i>	

Metals Recovery from Molybdenite Concentrate by Electrooxidation and Leaching.....	499
<i>S N Rasulova, V P Guro, E T Safarov, X F Adinaev</i>	
Precision human bone prototypes manufactured by 3D printing for training and experimental studies.....	507
<i>I D Romanov, A D Romanov, N A Kulinchenko, R O Gorbatov, A A Klenin</i>	
Study of sintered aluminum materials with nanoparticles microadditions	512
<i>L E Agureev, S V Savushkina, I N Laptev, B S Ivanov, A V Ivanov, V I Kostikov, Zh V Eremeeva</i>	
Research of thermoradiation properties and expansion of tantalum carbide at high temperatures.....	519
<i>V N Senchenko, R S Belikov, A V Tennishev</i>	
Optimization potential of anaerobic biocatalytic processes using intracellular ATP concentration as the main criterion for decision making.....	525
<i>O V Senko, O V Maslova, E N Efremenko</i>	
Elementoxanealumoxanes – modifiers of silicon carbide ceramic composites components.....	532
<i>G I Shcherbakova, P A Storozhenko, T L Apukhtina, M Kh Blokhina, D V Zhigalov, E A Novokovskaya, M S Varfolomeev, D D Titov, A A Ashmarin</i>	
Study of high-frequency magnetic properties of Fe-Ti-B films obtained by magnetron sputtering.....	538
<i>E N Sheftel, E V Harin, V A Tedzhetov, G Sh Usmanova, S Y Bobrovskii, K N Rozanov, P A Zezyulina, Ph V Kiryukhantsev-Korneev</i>	
Advantages of drawing and rolling metals with pulse current	544
<i>O A Troitsky, V I Stashenko</i>	
Microscopic research of amorphous alloys AlFeNiLa exposed to magnetic pulse processing	552
<i>A A Viryus, T P Kaminskaya, M N Shipko, N D Bakhteeva, V V Korovushkin, A G Savchenko, M A Stepovich, E S Savchenko, E V Todorova</i>	
Novel materials for high-resolution three-dimensional printing using surface-selective laser sintering.....	557
<i>M Syachina, S Minaeva, E Krumins, S Howdle, V Popov</i>	
Mass-transfer kinetics, structure, and tribological properties of coatings deposited on steel in Ar or N ₂ +O ₂ by electro-spark alloying using Cr ₃ C ₂ -NiAl electrodes	562
<i>Ph V Kiryukhantsev-Korneev, A D Sytchenko, V A Gorshkov, E A Levashov</i>	
Reducing of holes effect on composite elements strength.....	567
<i>E Kh Akhmedshin, A N Polilov, N A Tatus</i>	
Modeling of paths and energy losses of high-energy ions in single-layered and multilayered materials	571
<i>D I Tishkevich, S S Grabchikov, E A Grabchikova, D S Vasin, S B Lastovskiy, A S Yakushevich, D A Vinnik, T I Zubar, I V Kalagin, S V Mitrofanov, D V Yakimchuk, A V Trukhanov</i>	
Rheological properties of Y ₃ Al ₅ O ₁₂ powder obtained by preceramic organoyttroxanealumoxanes.....	581
<i>D D Titov, E A Gumennikova, K D Danilin, N V Petrakova, A S Lysenkov, M G Frolova, G I Shcherbakova, E A Novokovskaya, D O Lemeshev, Yu F Kargin</i>	
Structure Of The Al ₈₅ Ni ₇ Fe ₄ La ₄ Polycrystalline Alloy After Complex Impacts Of Deformation And Flash Lamp Annealing	587
<i>N D Bakhteeva, E V Todorova, S V Kannykin</i>	

Effect of rotary swaging on structure and properties of low-carbon steel	592
<i>A A Tokar, V A Lunev, A S Dolzhenko, O V Rybalchenko, M M Morozov, V S Yusupov, G V Rybalchenko, P D Odessky, S V Dobatkin</i>	
Influence of gallium oxide concentration on the properties of transparent ceramics based on magnesium aluminate spinel	602
<i>A V Ulyanova, M O Senina, D O Lemeshev</i>	
Effect of sintering temperature on magnetic hysteresis characteristics of powder alloy Fe-30Cr-8Co (wt.%).....	609
<i>A S Ustyukhin, V A Zelensky, I M Milyaev, A B Ankudinov, V S Shustov</i>	
Phosphors based on Ce:(Pb,Gd) ₃ (Al,Ga) ₅ O ₁₂ epitaxial films: synthesis, optical properties, application	615
<i>D A Vasil'ev, D A Spassky, V G Plotnichenko, V V Voronov, A V Khakhalin, A M Galstyan, N V Vasil'eva</i>	
Magnetic properties of the Fe-24%Cr-15%Co-3%Mo-1.5%Ti hard magnetic alloy in anisotropic and isotropic states	622
<i>T A Vompe, I M Milyaev</i>	
Preparation and researching the properties of organic aerogels based on epoxy resins	628
<i>A E Voytik, G V Malkov, A T Kapasharov, E I Knerelman, A Yu Kostin</i>	
Ceria-based solid solutions for environmental application.....	637
<i>I V Zagaynov, I V Shelepin, S V Fedorov, A A Klimashin, I V Kulbakin</i>	
Investigation of iron grains growth during solid-phase carbothermic reduction of red mud in the presence of iron metallic particles	641
<i>A S Zakunov, P I Grudinsky, D V Zinoveev, A F Semenov, M O Panova, V G Dyubanov, A L Petelin</i>	
Study of active media based on microparticles of solid-state laser materials.....	652
<i>O A Burdukova, V A Konyshkin, Yu L Kopylov, K V Lopukhin, V A Petukhov, Yu V Senatsky, P G Zverev</i>	
Ti-(15-25)Nb-5Ta Alloy Plate Hardness Research for Medical Applications.....	662
<i>S V Konushkin, K V Sergienko, A S Baikin, A A Kolmakova, N V Berezina, A V Mikhailova, Y A Morozova, E P Balashov, A G Kolmakov, M A Sevostyanov</i>	
Corrosion resistance of nonnickel shape memory alloy	668
<i>E O Nasakina, M A Sudarchikova, A M Tsareva, K V Sergiyenko, S V Konushkin, M A Kaplan, E P Balashov, M A Sevost'yanov</i>	
Research of mechanical properties of composite material based on titanium nickelide with a titanium surface layer depending on magnetron sputtering time.....	674
<i>E O Nasakina, M A Sudarchikova, A M Tsareva, K V Sergiyenko, S V Konushkin, M A Kaplan, A S Baikin, L A Shatova, M A Sevost'yanov</i>	
Study of the effect of the catalyst on the mechanical properties of RTV grade siloxane	681
<i>A M Tsareva, E O Nasakina, M A Sudarchikova, E P Balashov, A S Baikin, L A Shatova, M A Sevost'yanov</i>	
Study of the effect of the catalyst on the microstructure and film thickness of RTV siloxane.....	686
<i>A M Tsareva, E O Nasakina, E P Balashov, A S Baikin, S V Konushkin, M A Sevost'yanov</i>	

The development of the high-strength corrosion resistant austenitic steels for the oil equipment shafts.....	692
<i>S O Muradyan, O S Muradyan, M V Kostina, V S Kostina</i>	
Study of the processes of three-dimensional printing of caprolactone copolymers with methylphosphate groups.....	697
<i>A O Mariyanats, A V Mironov, I E Nifant'ev, A V Shlyakhtin, V K Popov</i>	
Study of products influence of rice waste liquid-phase catalytic oxidation on growth and plant development.....	705
<i>A V Khvatov, S M Sevostyanov, P A Sakharov, E A Bocharnikova, N Ph Deeva, B K Son, D Yu Aladin, S M Lomakin, Yu K Lukanina, A Yu Zhrebker, A S Kononikhin, D V Demin</i>	
Synergetic flame retardant effect of bio-flame retardant based on oxidized wood in polyester's compositions.....	711
<i>A V Khvatov, P A Sakharov, S M Lomakin, S D Varfolomeev, Yu K Lukanina, A A Minikh, S M Frolov</i>	
Numerical solution of stress-strain state during electromechanical treatment of plasma sprayed coatings.....	717
<i>A Yu Ivannikov</i>	
Research and development of the inert gas atomization of the wire by means of arc spraying.....	724
<i>A Yu Ivannikov, A A Kirsankin, T A Kalayda, M A Sevostyanov</i>	
Formation of $\text{Si}_3\text{Al}_3\text{O}_3\text{N}_5$ oxonitride from mixtures of xerogels and silicon and aluminum nitrides in the nitrogen atmosphere.....	730
<i>S N Ivicheva, A A Klimashin, N A Ovsyannikov, A S Lysenkov, Yu F Kargin</i>	
Properties of composites SiC/SiC_f obtained by hot pressing of SHS of silicon carbide powder.....	734
<i>M G Frolova, A S Lysenkov, D D Titov, E I Istomina, S N Perevislov, K A Kim, V V Zakorzhevsky, S V Fedorov, Yu F Kargin</i>	
Studies of the effectiveness of the chemical decomposition of polychlorinated biphenyls in alluvial meadow soils in situ under the influence of special physicochemical active compounds.....	738
<i>D Yu Aladin, S M Sevostyanov, N Ph Deeva, D V Demin</i>	

Author Index