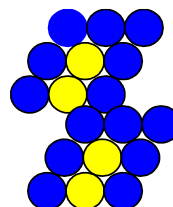


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"Perm National Research Polytechnic University"  
Russian Foundation for Basic Research  
Scientific Center for Powder Materials Science  
Faculty of Mechanical Engineering  
Department of materials, technology and design of machines



**International Scientific and Technical Conference  
“Actual problems of powder materials science”, dedicated to the  
85th anniversary of the birth academician V.N. Antsiferov**

## **Scientific program**



Perm, 26-28 November 2018

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**ООО «НПФ  
«ПОРОШКОВЫЕ  
МАТЕРИАЛЫ»**  
<https://powdermetallurgy.ru>

Address of the conference:  
Perm, Komsomolsky Prospect, 29,  
Main building PNRPU

**26 November 2018**

8.30 - 9.30 - registration of participants  
9.30 - 9.50 - opening of the conference  
9.50 - 11.00 - plenary session  
11.00 - 11.15 – coffee-break  
11.15 - 13.10 - plenary session  
13.10 - 13.50 - lunch break  
13.50 - 15.20 - breakout sessions  
15.20 - 15.40 – coffee-break  
15.40 - 18.15 - tour of the city of Perm

Assembly hall foyer, 2nd floor  
Assembly hall, 2nd floor  
Assembly hall 2nd floor  
Dining room, 1st floor  
Assembly hall, 2nd floor

Assembly hall / 222/162/423-b  
Dining room, 1st floor

**27 November 2018**

9.00 - 11.05 - plenary session  
11.05 - 11.20 – coffee-break  
11.20 - 12.50 - breakout sessions  
12.50 - 13.30 - lunch break  
13.30 - 15.45 - excursion "Aircraft and rocket science in Perm"  
15.45 - 16.00 – coffee-break  
16.00 - 17.30 - "round table"  
16.00 - 17.30 - master class for undergraduate and graduate students  
16.00 - 18.00 - poster sections

Assembly hall, 2nd floor  
Dining room, 1st floor  
Assembly hall / - / 222/423-b

Dining room, 1st floor  
423-b

UDTs "Pumori" aud. 104 k. B  
Foyer opposite the assembly  
hall

**28 November 2018**

9.00 - 10.00 - plenary session  
10.00 - 11.00 - breakout sessions  
11.00 - 11.15 – coffee-break  
11.15 - 12.30 - breakout sessions  
12.30 - 13.00 - closing of the conference  
12.45 - 13.30 - lunch break  
13.30 - 15.30 - excursion in PNRPU / Novomet-Perm JSC  
15.45 - 16.00 – coffee-break  
16.00 - departure of participants

423-b, 4th floor  
423-b / - / 162/222  
Dining room, 1st floor  
423-b / - / 162/222  
423-b, 4th floor

Dining room, 1st floor

## PLENARY REPORTS

"Trends in the development of powder metallurgy and powder materials science"

**26 November 2018**

*Assembly hall, 2nd floor*

*Section moderator - A. A. Tashkinov*

9.50 - 10.15	M.I. Alymov, I.V. Saykov	Institute of Structural Macrokinetics and Problems of Materials Science named after of A.G. Merzhanova of the RAS, Chernogolovka, Russian Federation	High-energy methods for the synthesis of powder materials
10.15 – 10.35	V.G. Bamburov, L.V., Ermakova, N.I. Lobachevskaya, Sh.M. Khaliullin, V.D. Zhuravlev	Institute of Metallurgy of Ural Branch of the RAS, Ekaterinburg, Russian Federation	Synthesis of refractory oxides in combustion reactions
10.35 – 11.00	E.A. Levashov <sup>1</sup> , Yu.Yu. Kaplanski <sup>1</sup> , E.I. Patsera <sup>1</sup> , P.A. Loginov <sup>1</sup> , A.V. Samokhin <sup>2</sup> , D.A. Martinov <sup>3</sup> , A.B. Mazalov <sup>4</sup>	<sup>1</sup> National University of Science and Technology "MISiS", Moscow, Russian Federation, <sup>2</sup> A.A. Baikov Institute of Metallurgy and Material Science of the RAS, Moscow, Russian Federation, <sup>3</sup> JSC "Polema", Tula, Russian Federation <sup>4</sup> SC Center of Technological Competences in Additive Technologies, Industrial Park "Maslovskii", Voronezh, Russian Federation	Heat-resistant NiAl based alloys and their application in additive technologies

### **11.00 – 11.15 – coffee-break**

*Section moderator – E.A. Levashov*

11.15 – 11.40	T.L. Talako	Institute of Powder Metallurgy, Minsk, Republic of Belarus	Perspective directions of development of powder metallurgy in the Republic of Belarus
11.40 – 12.05	A.N. Timofeev, A.I. Logacheva	JSC "Kompozit", Korolev, Russian Federation	From metallurgy of granules to additive technologies
12.05 – 12.30	A.P. Amosov, A.R. Samboruk, I.V. Yatsenko, V.V. Yatsenko	Samara State Technical University, Russian Federation	Application of the SHS process for fabrication of ceramic-metal composite powders on the basis of titanium carbide and iron

12.30 – 12.50	Zinigrad M.	Ariel University, Ariel, Israel	Commercialization of University Innovation. Israel experience
12.50 – 13.10	V.Yu. Dorofeyev	The South-Russian State Polytechnic University (NPI) named after M.I. Platov, Novocherkassk, Russian Federation	On some perspectives of development of the ideas of academician V.N. Antsiferov in the field of structural powder materials
<b>27 November 2018</b> Assembly hall, 2nd floor			
<i>Section moderator – A.P. Amosov</i>			
9.00 – 9.25	O.B. Naimark	Institute of Continuum Mechanics of Ural Branch of the RAS, Perm, Russian Federation	Structural and mechanical properties and multiscale patterns of dynamic fragmentation of ceramics
9.25 – 9.50	B.R. Gelchinsky <sup>1</sup> , A.G. Merkushev <sup>2</sup> , S.A. Ilinykh <sup>1</sup> , A.V. Dolmatov <sup>1</sup> , V.A. Krashaninin <sup>1</sup> , S.V. Zhidovinova <sup>1</sup> , L.A. Marshuk, A.S. Fefelov <sup>2</sup>	<sup>1</sup> Institute of Metallurgy of Ural Branch of the RAS, Ekaterinburg, Russian Federation <sup>2</sup> Ural Federal University named after the First President of Russia B.N. Yeltsin, Ekaterinburg, Russian Federation	Application of protective coatings on products received by the additive technology method
9.50 – 10.15	V.E. Perelman	Moscow Technological University (MITCT), Russian Federation	Theory and practice of rational methods of sealing hardformable powder materials
10.15 – 10.40	V.A. Zhilyaev	Institute Chemistry of Solid State of the Ural Branch of the RAS, Ekaterinburg, Russian Federation	State of research, problems of powder materials science and prospects of development of TiC-, TiCN-cermet (review)
10.40 - 11.05	D. Oshchepkov	Höganäs AB, SE-263 83, Höganäs, Sweden, Malme	Foreground developments of höganäs AB in powder metallurgy field
<b>28 November 2018</b> Assembly hall, 2nd floor			
<i>Section moderator – V.G. Bamburov</i>			
9.00 – 9.30	E.G. Grigoryev	Merzhanov Institute of Structural Macrokinetics and Materials Science of the RAS, Chernogolovka, Russian Federation	Advantages and limitations of the method of high-voltage consolidation of powder materials

9.30-10.00

V. Mironovs<sup>1</sup>, P.  
Stankevich<sup>2</sup>

<sup>1</sup>Laboratory of Powder  
Materials, Riga Technical  
University, Kalku 1, LV-  
1006, Latvia

<sup>2</sup>Institute of Transport, Riga  
Technical University,  
Kalku 1, LV-1006, Latvia

The application of low-alloy  
iron powders for the manufacture  
of parts of railway transport

## SECTION 1 "POWDER METAL AND COMPOSITE MATERIALS"

**26 November**

**13.50-15.20**

*Assembly hall, 2nd floor*

*Section moderators – B.R. Gelchinsky, S. A. Oglezneva*

13.50–14.05	L.V. Spivak <sup>1</sup> , N.E. Shchepina <sup>2</sup>	<sup>1</sup> Perm State University, Russian Federation, <sup>2</sup> Natural Sciences Institute of Perm State University, Russian Federation	Thermoactivation parameters of $\alpha$ - $\gamma$ transformation in the iron with various etimology
14.05– 14.20	V.N. Antsiferov <sup>1</sup> V.V. Popov <sup>2</sup> , I.I. Gorbachyov <sup>2</sup> , S.A. Oglezneva <sup>1</sup>	<sup>1</sup> Scientific Center of Powder Material Science, Perm National Polytechnic University, Russian Federation <sup>2</sup> M.N. Miheev Institute of Metal Physics of Ural Branch of the RAS, Ekaterinburg, Russian Federation	Thermodynamic calculations of phase equilibria in mechanically alloyed nitrogen steels
14.20-14.35	A. Sobolev, A. Kossenko, M. Zinigrad, K. Borodianskiy	Ariel University, Israel	Investigation of plasma electrolytic oxidation coatings obtained in aqueous electrolyte and molten salt on Al 1050 alloy
14.35–14.50	V.Yu. Lopatin, Zh.V. Ereemeeva, V.S. Panov, A.I. Lizunov	National Research Technological University “MISiS”, Moscow, Russian Federation	Study of the impact of the method of obtaining the porush of boron carbide and type of nano-addition on formability and severability
14.50 –15.05	A.A. Shatsov	Perm National Research Polytechnic University, Russian Federation	Two problems of powder metallurgy of iron
15.05– 15.20	M.N. Safonova, A.A. Fedotov	North-Eastern Federal University in Yakutsk, Russian Federation	Study of influence of natural diamond powders ultradisperse dimensions on the microstructure of material based on tin bronze

**27 November**

**11.20-12.50**

*Assembly hall, 2nd floor*

*Section moderator – Zh.V. Ereemeeva*

11.20 – 11.35	V.I. Kostikov, Zh.V. Ereemeeva, D.A. Cluta	National University of Science and Technology “MISiS”, Moscow, Russian Federation	Mechanical properties of composite material carbon-carbon fiber modified with nano-carbon fiber "taunit"
11.35 – 11.50	M.A. Tupitsin, V.O. Kharlamov, A.V. Krokhalev, E.I. Ivanenko	Volgograd State Technical University, Russian Federation	Production of powder composite materials of the SiC–Ti system by explosion
11.50 – 12.05	V.O. Kharlamov, A.V. Krokhalev, S.V. Kuz'min, V.I. Lysak	Volgograd State Technical University, Russian Federation	Preservation of Cr <sub>3</sub> C <sub>2</sub> –Ti coatings when applied to steel substrates by explosion

12.05 – 12.20	V.A. Gupalo <sup>1,2</sup> , V.S. Kazansky <sup>1,2</sup> , S.A. Kamenev <sup>1,2</sup> , P.M. Zagorodnikov <sup>1,2</sup> , <u>S.V. Zverev</u> <sup>1,2</sup> , S.A. Krayukhin <sup>1,3</sup>	<sup>1</sup> Ural Mining and Metallurgical Company, Verkhnyaya Pyshma, Russian Federation, <sup>2</sup> JSC “Uralelectromed”, Verkhnyaya Pyshma, Russian Federation, <sup>3</sup> Technical University UMMC, Verkhnyaya Pyshma, Russian Federation	Production of collector plates by powder metallurgy
12.20 – 12.35	V.A. Dovydenkov, E.V. Soloveva	Volga State University of Technology, Yoshkar-Ola, Russian Federation	Effect of disparity of the oxide phase on temperature changes during the infiltration of compositions from highly dispersed porous iron
12.35 – 12.50	A.V. Krokhaliev, V.O. Kharlamov, S.V. Kuz'min, V.I. Lysak	Volgograd State Technical University, Russian Federation	Use of explosion to produce hard alloys based on Cr3C2

**28 November**

**10.00-12.30**

*Aud. 423-b, 4nd floor*

*Section moderator – B.R. Gelchinsky*

10.00-10.15	V.A. Kozvonin <sup>1</sup> , A.A. Shatsov <sup>2</sup> , I.V. Ryaposov <sup>1</sup>	<sup>1</sup> Perm Scientific Industrial Instrument-Making Company, Russian Federation, <sup>2</sup> Perm National Research Polytechnic University, Russian Federation	Powder metastable magnets with increased cobalt content
10.15-10.30	<u>M.N. Kachenyuk</u> , A.A. Smetkin, O.V. Somov	Perm National Research Polytechnic University, Russian Federation	Obtaining wearproof material system TiC–SiC–Al <sub>2</sub> O <sub>3</sub>
10.30-10.45	O.V. Somov, V.A. Vasin, V.A. Pashkin	NPP “Poligon-MT”, Chekhov, Russian Federation	Investigation of phase formation and tribological properties of pyrolytic carbide chrome coating on 40X steel after annealing
10.45-11.00	S. N. Peshcherenko	Novomet-Perm JSC, Perm	How laser prototyping changed the methodology for designing new engineering products

**11.00-11.15 – coffee-break**

*Section moderator – V.Yu. Dorofeyev*

11.15-11.30	I.A. Astapov, T.B. Ershova, S.M. Vlasova, M.A. Kulik	Institute of Materials Science, Khabarovsk Scientific Center of Far-Easteru branch of the RAS, Russian Federation	Study of the structure and properties of the composite material of the Ti–Al–SiC system obtained by powder metallurgy method
11.30-11.45	A.I. Rabinovich	Perm, Russian Federation	From RITC pm to strategic enterprise or from technologies to



			innovations
11.45-12.00	D.V. Kostin, A.R. Samboruk, E.A. Kuznets, S.V. Zhukov	Samara State Technical University, Russian Federation	Development of feedstock from alloy 22X15KA
12.00-12.15	A.O. Grisharin, T.R. Ablyaz, N.D. Ogleznev, A.A. Omelin, I.V. Osinnikov, A.V. Khabarova	Perm National Research Polytechnic University, Russian Federation	Application of composite electrodes-instruments for electroerosive processing of materials with various physical-mechanical properties
12.15-12.30	B. Yu. Prydeznikov	North-Eastern Federal University in Yakutsk, Russian Federation	Liquid-phase sintering of alloys based on aluminum with the addition of products of direct reduction of iron ore

### **POSTER PRESENTATIONS**

*Assembly hall foyer, 2nd floor*

1	Sh. R. Kurbanbekov	Branch "Institute of Atomic Energy" National Nuclear Center of the Republic of Kazakhstan, Kurchatov	Determination of the sorption properties of an alloy based on titanium obtained by the IPA method
2	G.Kh. Sharipzyanova, N.M. Nitkin, E.V. Morozova	Moscow Polytechnic University, Russian Federation	Effect of technological modes of obtaining a cutting tool from powder quickly cutting steels and modes of multicomponent diffusion saturation on its resistance
3	V.V. Savich	Institute of Powder Metallurgy, Minsk, Republic of Belarus	Powder metallurgy in dental and orthopedic implants
4	N. V. Gerasimov	Novomet-Perm JSC, Perm	The experience of Novomet-Perm JSC in the use of iron-based powder materials in petroleum engineering
5	P.V. Sirotin, B.G. Gasanov, M.A. Ismailov	The South-Russian State Polytechnic University (NPI) named after M.I. Platov, Novocheboksarsk, Russian Federation	Evaluation of the possibility of improving shock-abrasive performance of composite materials at the account of optimization of their elastic-dissipative properties
6	L.N. Dyachkova, A.I. Letsko, L.Ya. Voronetskaya, N.M. Parnitsky	Institute of Powder Metallurgy, Minsk, Republic of Belarus	Structure and properties of powder carbon steels with composition additive of nickel, titanium and iron aluminides
7	A.V. Leshok, A.N. Rogovoi	Institute of Powder Metallurgy, Minsk, Republic of Belarus	Sintered powder friction material based on copper containing fiber
8	P.P. Sharin, M.P. Akimova	Institute of Physical and Technical Problems of the North named after V.P. Larionov of Siberian Federal University, Yakutsk, Russian Federation	Diamond-matrix transition zone structure in the ruling tool obtained with diamond metalization during sintering of WC-Co bricket with Cu impregnation

9	D.A. Ivanov, S.D. Shlyapin, N.D. Akkugin	Moscow Aviation Institute (National Research University), Russian Federation	Structure and properties of al–Al <sub>2</sub> O <sub>3</sub> composite material, obtained from highly dispersed aluminum industrial powder of pap-2 brand
10	P. P. Tarasov	North-Eastern Federal University in Yakutsk, Russian Federation	The structure and properties of sintered alloys based on aluminum with the addition of products of direct reduction of iron ore
11	V.K. Korneeva	Belarusian State Agrarian Technical University, Minsk, Republic of Belarus	Fiber materials from copper cable waste
12	S.N. Sergeenko	The South-Russian State Polytechnic University (NPI) named after M.I. Platov, Novocheerkassk, Russian Federation Новочеркасск	Technologies of hot compacting powder materials
13	I.V. Selevtsova	The South-Russian State Polytechnic University (NPI) named after M.I. Platov, Novocheerkassk, Russian Federation	Increasing the durability of powder materials
14	R.A. Okulov <sup>1,2</sup> , M.N. Zakharov <sup>1</sup>	<sup>1</sup> Institute of Metallurgy of Ural Branch of the RAS (IMET UrB RAS), Ekaterinburg, Russian Federation, <sup>2</sup> Ural Federal University named after the First President of Russia B.N. Yeltsin, Ekaterinburg, Russian Federation	Computer simulation of the influence of the form of the internal channel of a plasmotron on the speed and the temperature of a plasma bar with the purpose of improving the design of a plant for producing metallic powders
15	D.I. Tokarev, A.A. Drozdov, L.D. Sirotenko	Perm National Research Polytechnic University, Russian Federation	Turning processing of composite polymeric material F-4K20
16	S.A. Ilyinykh, B.R. Gelchinsky, V.A. Krashaninin, S.A. Chusov, K.I. Sarsadskih, O.A. Korolev, R.A. Okulov	Institute of Metallurgy of Ural Branch of the RAS, Ekaterinburg, Russian Federation	Multifunctional plasma plant mak-100 working with powders of metals and nonmetalls
17	S.A. Ilyinykh, O.A. Korolev, V.A. Krashaninin	Institute of Metallurgy of Ural Branch of the RAS, Ekaterinburg, Russian Federation	Investigation of coatings on the basis of Ni–B–Si–Fe, Co–Ni–Cr–B–Si–Fe powders obtained by the method of supersonic plasma spraying
18	O.V. Romanova <sup>1</sup> , A.G. Zalazinskiy <sup>2</sup> , D.I. Kryuchkov <sup>2</sup> , V.G. Titov <sup>2</sup>	<sup>1</sup> Institute of Metallurgy of Ural Branch of the RAS, Ekaterinburg, Russian Federation, <sup>2</sup> Institute of Engineering Science of Ural Branch of the RAS, Ekaterinburg, Russian Federation	Optimization of the composition of pitch shirt on the basis of the titanium alloy VT22 for the formation of composite material

19	E.V. Matygullina, D.M. Karavaev, D.V. Birin, L.E. Makarova	Perm National Research Polytechnic University, Russian Federation	Receiving the method of epicyclic granulation of new materials of expanded graphite
20	V.A. Vasin <sup>1</sup> , V.A. Nevrovsky <sup>2</sup> , A.A. Smetkin <sup>3</sup> , O.V. Somov <sup>4</sup>	<sup>1</sup> NPP "Poligon-MT", S. Noviy Byt MO, Russian Federation, <sup>2</sup> Moscow Aviation Institute (National Research University), Russian Federation, <sup>3</sup> Perm National Research Polytechnic University, Russian Federation, <sup>4</sup> Center of Powder Materials Science, Perm National Research Polytechnic University, Russian Federation	Electrical copper-chromium material for high-voltage vacuum switching devices
21	E.A. Morozov, S.A. Oglezneva	Perm National Research Polytechnic University, Russian Federation	Technological recommendations about laser heat treatment of powder pseudo- alloy FEC1CU15
22	V. Mironovs, E. Blumbergs	Laboratory of Powder Materials, Riga Technical University, Kalku 1, LV-1006, Latvia	Hollow mini spheres and their consolidation methods
23	P.A. Vityaz <sup>1</sup> , <u>A.F. Ilyushchenko</u> <sup>2</sup> , V.V.Savich <sup>2</sup>	<sup>1</sup> Presidium of the NASciences of Belarus, Minsk, Republic of Belarus, <sup>2</sup> Institute of Powder Metallurgy, Minsk, Republic of Belarus	Powder metallurgy in belarus and in the world: development trends and mutual influence
24	S.A. Oglezneva, <u>K.L. Saenkov</u>	Perm National Research Polytechnic University, Russian Federation	Investigation of the effect of grain size austenite on phase transformation temperature iron-based alloys

## SECTION 2 "POWDER MATERIALS IN ADDITIVE TECHNOLOGIES"

*26 November*

*13.50-15.20*

*Aud. 222*

*Section moderators – L.D. Sirotenko, D. A. Oshchepkov*

<i>13.50–14.05</i>	E.F. Khanipov, <u>A.A. Smetkin</u>	Perm National Research Polytechnic University, Russian Federation	Structure and properties of stainless steel produced by selective laser melting
<i>14.05– 4.20</i>	P.N. Kilina, L.D. Sirotenko	Perm National Research Polytechnic University, Russian Federation	Obtaining of implants with a regular cellular structure for bone defects replacement by selective laser melting
<i>14.20-14.35</i>	<u>B.P. Mishchinov</u> , I.R. Zigan'shin, I.E. Igoshev	Perm National Research Polytechnic University, Russian Federation	Perspective of gel-casting usage in additive technologies
<i>14.35–14.50</i>	G.V. Amirdzhanyan	All-Russian Scientific Research Institute of Aviation Materials (ARSRIAM), Moscow, Russian Federation	Study the possibility of improving the efficiency of obtaining metal-powder compositions of heat-proofalloy based on nickel by the method of gas atomization
<i>14.50 –15.00</i>	A.A. Min'kova, A.L. Kameneva	UEC-Aviadvigatel, Perm, Russian Federation, Perm National Research Polytechnic University, Russian Federation	Influence of protective atmosphere on the structure of 12H18N10T selective laser melting steel during the annealing
<i>15.00– 15.10</i>	S.V. Komarov	Perm National Research Polytechnic University, Russian Federation	Mechanisms of the implementation of "lean" manufacturing on the enterprises of additive technologies
<i>15.10– 15.20</i>	<u>K.V. Kalinin</u> , S.A. Oglezneva	Perm National Research Polytechnic University, Russian Federation	Influence of parameters of melting atomizing technological characteristics of the powder of the brand KHN60M

### **POSTER PRESENTATIONS**

*Assembly hall foyer, 2nd floor*

1	K.A. Klimov	Perm National Research Polytechnic University, Perm	The prospect of growing demand for the Russian market of additive technologies in Al and Mg alloys
2	M.S. Nagaev, S.A. Oglezneva	Perm National Research Polytechnic University, Russian Federation	Influence of the nozzle type and the gas volume when atomizing the 12X18H10T melt on the technological characteristics of the powder
3	D.V. Minko, K.E. Belyavin	Belarusian National Technical University, Minsk, Republic of Belarus	Selective laser sintering of gradient porous and compact-porous powder structures
4	L.P. Babentsova,	Perm National	Study of the effect of high-temperature

I.V. Antsiferova	Research Polytechnic University, Russian Federation	tempering and prolonged heating on the size of the pores in the billet produced using the SLS method of stainless steel PH1
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### SECTION 3 "CERAMIC POWDER MATERIALS"

**26 November**

**11.20-12.50**

*Aud. 162*

*Section moderator – T.L. Talako*

<i>13.50–14.05</i>	A.G. Rogozhnikov	Perm State Medical University. Acad. E.A. Wagner of the Ministry of Health of Russia, Perm	Experimental studies of zirconia ceramic modified composition for the manufacture of structures of dentures
<i>14.05– 4.20</i>	T.L. Talako <sup>1</sup> , A.I. Letsko <sup>1</sup> , Y.A. Reutsionak <sup>1</sup> , A.S. Yasianovich <sup>1</sup> , A.P. Abramchuk <sup>1</sup> , S.A. Oglezneva <sup>2</sup> , M.N. Kachenyuk <sup>2</sup> , A.A. Smetkin <sup>2</sup>	<sup>1</sup> Institute of Powder Metallurgy, Minsk, Republic of Belarus, <sup>2</sup> Perm National Research Polytechnic University, Russian Federation	The effect of reaction mixture composition on the fine structure parameters of titanium silicon carbide in SHS powders
<i>14.20-14.35</i>	E.N. Portnova <sup>1</sup> , <u>V.Z. Poilov</u> <sup>2</sup> , O.V. Zhakova <sup>2</sup> , A.G. Dokuchaev <sup>1</sup> , T.V. Kaisina <sup>1</sup>	<sup>1</sup> Ural Research Institute of Composite Materials, Perm, Russian Federation, <sup>2</sup> Perm National Research Polytechnic University, Russian Federation	High-temperature ceramic coatings based on silicon carbide
<i>14.35–14.50</i>	<u>V.O. Shokov</u> , S.E. Porozova, D.S. Vokhmyanin	Perm National Research Polytechnic University, Russian Federation	Genesis microstructure materials from pressed nanopowder partially stabilized zirconia
<i>14.50 –15.05</i>	<u>V.B. Kulmeteva</u> , E.A. Sibiryakova	Perm National Research Polytechnic University, Russian Federation	Influence of the ree concentrate on the stabilization of high-temperature phases and on the properties of ceramics based on ZrO <sub>2</sub> –7wt.% Y <sub>2</sub> O <sub>3</sub>
<i>15.05– 15.20</i>	<u>A.A. Semukov</u> , D.A. Ordin, D.V. Saulin, V.Z. Poylov, N.P. Uglev	Perm National Research Polytechnic University, Russian Federation	The formation of ceramic shell for casting high temperature alloys

**27 November**

**11.20-12.50**

*Aud. 222*

*Section moderator – I.V. Antsiferova*

<i>11.20 – 11.35</i>	D.A. Ordin, A.L. Kazantsev, E.N. Novokreshchennykh, V.Z. Poylov, <u>N.P. Uglev</u>	Perm National Research Polytechnic University, Russian Federation	Modeling of physico-mechanical properties of ceramic materials based on oxides of metals
<i>11.35 – 11.50</i>	V.B. Kul'met'yeva, <u>V.E. Chuvashov</u> , M.P. Yaburov	Perm National Research Polytechnic University, Russian Federation	Investigation of the effect of rare earth elements on ceramic materials based on ZrB <sub>2</sub> –20VOL.%SiC obtained by the method of spark plasma sintering
<i>11.50 – 12.05</i>	E.A. Kulagina, S.E. Porozova	Perm National Research Polytechnic University, Russian Federation	Sintetic quartz glass matrix zirconia integration

12.05 – 12.20	<u>V.Z. Poilov, A.L. Kazancev</u>	Perm National Research Polytechnic University, Russian Federation	Production of mixed metal oxide powders by thermohydrolysis method
12.20 – 12.35	<u>V.G. Gilev, D.C. Vokhmyanin, K.A. Minin</u>	Perm National Research Polytechnic University, Russian Federation	Research of parafin based composites for obtaining highly porous Si <sub>3</sub> N <sub>4</sub> materials by consolidation of preliminary prepared elements
12.35 – 12.50	<u>T.Y. Pozdeeva, V.B. Kulmeteva</u>	Perm National Research Polytechnic University, Russian Federation	Production and consolidation of composition powders of zirconium-graphen oxide

**28 November**

**10.00-12.00**

*Aud. 162*

*Section moderator – S.E. Porozova*

10.00-10.15	<u>I.S. Bezdenezhnykh, E.V. Matigullina</u>	Perm National Research Polytechnic University, Russian Federation	Selection of an elementary cell for modeling of foam filter structure
10.15-10.30	<u>E.N. Novokreshchennykh, A.L. Kazantsev, D.A. Ordin, V.Z. Poylov, N.P. Uglev</u>	Perm National Research Polytechnic University, Russian Federation	The development of binder composition for manufacturing the ceramic molds
10.30-10.45	<u>D.A. Starkov, S.E. Porozova</u>	Perm National Research Polytechnic University, Russian Federation	Influence of additive the titania on porosity of the deposited material based on nickel powder EP648-VI
10.45-11.00	<u>D.A. Ordin, A.L. Kazantsev, V.Z. Poylov, N.P. Uglev</u>	Perm National Research Polytechnic University, Russian Federation	The influence of the composition of ceramics on the coefficient of thermal expansion

**11.15-11.30 – coffee-break**

**Aud. 162**

*Section moderator – S.E. Porozova*

11.30-11.45	<u>R.S. Raycheva, A.Yu. Omarov</u>	Moscow Polytechnic University (Moscow Polytech), Russian Federation	Structure and properties of aluminium hydroxide obtained by chemical dispersion of aluminium-lithium alloy
11.45-12.00	<u>M.K. Osipchuk<sup>1,2</sup>, M.K. Tsibinogina<sup>1,2</sup>, S.A. Oglezneva<sup>1</sup>, O.K. Kel<sup>2</sup></u>	<sup>1</sup> Perm National Research Polytechnic University, Russian Federation <sup>2</sup> Perm Research and Production Instrument-Making Company, Russian Federation	Comprehensive development of mathematical models for the formation of structures of optical fibers with the required properties for fiber-optic gyros

## POSTER PRESENTATIONS

*Assembly hall foyer*

1	T.V. Kaisina	JSC Ural Research Institute of Composite Materials, Perm	Production of ultra-high-temperature ceramics based on zirconium diboride, molybdenum silicides and silicon carbide using the method of “gel” casting when forming, and the process of siliconizing during sintering
2	V.L. Tarasovsky <sup>1,2</sup> , B.L. Krasny <sup>1</sup> , V.V. Rybalchenko <sup>2</sup> , V. Vasin <sup>2</sup> , V. Smirnov <sup>2</sup> , V.V. Belov <sup>3</sup>	<sup>1</sup> Moscow Polytechnic University, Russian Federation, <sup>2</sup> NTC "Bakor", Ltd, Moscow, Russian Federation, <sup>3</sup> Tver State Technical University, Russian Federation	Properties of granular refractory ceramics from powders of melted and sintered periclase
3	E.N. Makarova <sup>1</sup> , I.V. Antsiferova <sup>2</sup>	<sup>1</sup> University of Vienna, Vienna, Austria, <sup>2</sup> Perm National Research Polytechnic University, Russian Federation	Physical chemistry of processes for obtaining ceramic materials based on nanopowders of zirconium, yttrium, cerium and aluminum oxides
4	N.A. Rudenskaya <sup>1</sup> , G.P. Shveykin <sup>2</sup> , M.V. Rudenskaya <sup>3</sup>	<sup>1</sup> “IPK and PC” of Belarus National Technical University, Minsk, Republic of Belarus, <sup>2</sup> Science Institute of Chemistry of Urals Branch of the RAS, Ekaterinburg, Russian Federation, <sup>3</sup> SPB-JSC “Mashinostroitel Zavod “Krasny Oktyabr”, St. Petersburg, Russian Federation	New processes prone plasma coatings at their former
5	A.V. Ushakov, I.V. Karpov, A.A. Lepashev	Krasnoyarsk Scientific Center of Siberian Branch of the RAS, Russian Federation, Siberian Federal University, Krasnoyarsk, Russian Federation	Influence of non-superconducting particles ZrO <sub>2</sub> on the critical current of YBa <sub>2</sub> Cu <sub>3</sub> O <sub>7</sub> -Y granular/nano-ZrO <sub>2</sub> composites
6	A.N. Yarmonov	Perm National Research Polytechnic University, Russian Federation	Assessment of opportunities for the use of a high-alumina raw materials of the pashiy metallurgical-cement factory for the production of propaints for HF
7	K.G. Kuzminykh	Perm National Research Polytechnic University, Perm	The microstructure of ceramics based on zirconium diboride and silicon carbide, obtained using slip casting and reaction sintering by siliconizing





**SECTION 4 "POWDER FUNCTIONAL MATERIALS, NANOMATERIALS AND NANOTECHNOLOGY"**

**26 November**

**13.50-15.20**

*Aud. 423-6*

*Section moderator – E.V. Matigullina*

13.50–14.05	O.A. Shuliatnikova <sup>1</sup> , G.I. Rogozhnikov <sup>1</sup> , V.A. Chetvertnyh <sup>1</sup> , S.E. Porozova <sup>2</sup> , L.A. Chetvertnyh <sup>2</sup>	<sup>1</sup> Perm State Medical University names after academician E.A. Vagner, Russian Federation, <sup>2</sup> Perm National Research Polytechnic University, Russian Federation	The development of ceramic coatings based on nanostructured titanium dioxide for use in dentistry
14.05– 4.20	V.D. Paygin, E.S. Dvilis, O.L. Khasanov, S.A. Stepanov, T.R. Alishin	National Research Tomsk Polytechnic University, Russian Federation	Influence of the small concentrations of CeO <sub>2</sub> on the properties of transparent ceramics based on MgAl <sub>2</sub> O <sub>4</sub>
14.20-14.35	A.Sh. Shamsutdinov, A.S. Starostin, I.V. Valtsifer, V.A. Valtsifer	Perm Federal Research Center of Ural Branch of the RAS, Russian Federation	Silica nano- and microparticles as regulators of rheological properties of powder compositions
14.35–14.50	K.N. Generalova, I.V. Ryaposov, A.A. Shatsov	Perm National Research Polytechnic University, Russian Federation	Magnetic properties and structure of powder ridged alloy with 4%Mo and 1%Si
14.50 –15.05	M.Yu. Belova, O.Yu. Isaev, D.V. Smirnov	Sealur, Ltd., Perm, Russian Federation	Development of the first interstate standard for thermally expanded graphite materials
15.05– 15.20	A.A. Tserlyukevich	JSC Ural Research Institute of Composite Materials, Perm	Selection of the type of binders for compositions based on nanosized ZrB <sub>2</sub> and C powders when molded by slip casting ZrB <sub>2</sub> -SiC ceramic blanks

**27 November**

**11.20-12.50**

*Aud. 423-b*

*Section moderator – L. D. Sirotenko*

11.20 – 11.35	N.S. Podkina <sup>1</sup> , N.N. Zoubkov <sup>2</sup> , O.Yu. Isaev <sup>3</sup> , D.V. Smirnov <sup>3</sup>	<sup>1</sup> Perm National Research Polytechnic University, Russian Federation <sup>2</sup> Bauman Moscow State Technical University, Russian Federation <sup>3</sup> Sealur, Ltd., Perm, Russian Federation	The use of macroreliefs obtained by deforming shearing for increasing the reliability of the thermal-expanded graphite seals
11.35 – 11.50	E.V. Saenko, N.B. Kondrashova, I.I. Lebedeva, V.A.	Institute of Technical Chemistry of Ural Branch of the RAS, Perm, Russian	Synthesis control of mesoporous silicon dioxide

	Valtsifer	Federation	
11.50 – 12.05	<u>D.S. Vokhmyanin</u> , S.A. Oglezneva, T.Y. Pozdeeva	Perm National Research Polytechnic University, Russian Federation	Investigation of the influence of variative preparation of carbide plates on the nucleation density, morphology and adhesion characteristics of a diamond film
12.05 – 12.20	O.Yu. Isaev <sup>1</sup> , D.V. Smirnov <sup>1</sup> , A.A. Ponomarev <sup>1</sup> , A.L. Kameneva <sup>2</sup> , I.S. Shelemba <sup>3</sup> , A.A. Ogleznev <sup>3</sup> , R.S. Yudin <sup>3</sup>	<sup>1</sup> Sealur, Ltd., Perm, Russian Federation, <sup>2</sup> Perm National Research Polytechnic University, Russian Federation, <sup>3</sup> Inversion Sensor Co., Ltd., Perm, Russian Federation	Usage of fiber bragg gratings for control of impermeability of flange joint with eg sealings
12.20 – 12.35	I.I. Lebedeva, A.I. Nechaev, I.V. Valtsifer	Perm Federal Research Center of Ural Branch of the RAS, Russian Federation	Synthesis of metaloxide core- shell structures
12.35 – 12.50	V.A. Kostilev <sup>1</sup> , L.I. Leontiev <sup>2</sup> , V.L. Lisin <sup>2</sup> , S.A. Petrova <sup>2</sup> , A.V. Varaksin <sup>1</sup>	<sup>1</sup> LLC “Tantalum Technologies”, Ekaterinburg, Russian Federation, <sup>2</sup> Institute of Metallurgy of Ural Branch of the RAS, Ekaterinburg, Russian Federation	Preparation of nano- and ultra- dispersed powders of metals, their carbides, borides and silicides by electrochemical method and their use for laser surfacing of hard alloys

**28 November**

**10.00-12.30**

*Aud. 222*

*Section moderator - N. D. Astashina*

10.00-10.15	<u>Astashina N.</u> <sup>1</sup> , Lugovskoy A. <sup>2</sup> , Kossenko A. <sup>2</sup> , Lugovskoy S. <sup>2</sup> , Zinigrad M. <sup>2</sup>	<sup>1</sup> Perm State Medical University named after academician E.A. Vagner, Russian Federation, <sup>2</sup> Ariel University, Laboratory of Coatings and Nanotechnology, Ariel, Israel	Effect of Time on the Formation of Hydroxyapatite in PEO Process with Hydrothermal Treatment of the Ti-6Al-4V Alloy1
10.15-10.30	I.A. Esaulova	Perm National Research Polytechnic University, Perm, Russian Federation	Safety management staff research laboratories when working with nanomaterials
10.30-10.45	<u>A.A. Sultanov</u> , A.V. Myasnikova, M.Yu. Belova, O.Yu. Isaev	Sealur, Ltd., Perm, Russian Federation	The modifying additives for thermally expanded graphite materials producing combined inhibition effect
10.45-11.00	<u>A.L. Kameneva</u> , A.Yu. Klochkov, N.V. Kameneva	Perm National Research Polytechnic University, Perm, Russian Federation	Evolution of element composition, structure and microhardness of Zr-Al-N coating under the conditions of changing the gase relation in the gas mixture

**11.15-11.30 – coffee-break**

11.30-11.45	<u>A.V. Myasnikova</u> , Yu.S. Gradinar, M.Yu. Belova,	Sealur, Ltd., Perm, Russian Federation	The influence of the graphite nature on characteristics of TEG
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	O.Yu. Isaev, V.A. Kholkin		materials
11.30-11.45	N.B. Astashina <sup>1</sup> , A.A. Smetkin <sup>2</sup> , M.N. Kachenyuk <sup>2</sup>	<sup>1</sup> Perm State Medical University named after academician E.A. Vagner, Russian Federation, <sup>2</sup> Perm National Research Polytechnic University, Russian Federation	Development of new implantation systems implemented on the basis of carbon composite materials for application in medical practice
11.45-12.00	A.Sh. Shamsutdinov, E.A. Lebedeva, S.A. Astaf'eva	Perm Federal Research Center of Ural Branch of the RAS, Russian Federation	Effect of aluminum dispersion and surface modification on mechanical properties of oligodiene composites
12.00-12.15	V.M. Bushuev <sup>1</sup> , I.L. Sinani <sup>1,2</sup> , V.A. Nekrasov <sup>1</sup>	<sup>1</sup> Ural Scientific Research Institute of Composite Materials, Perm, Russian Federation <sup>2</sup> Perm National Research Polytechnic University, Russian Federation	Formation of graphite substrate under pyrolytic carbon coating for manufacturing of hermetically-sealed products made of C/C composites
12.15-12.30	V.M. Bushuev <sup>1</sup> , I.L. Sinani <sup>1,2</sup> , V.A. Nekrasov <sup>1</sup>	<sup>1</sup> Ural Scientific Research Institute of Composite Materials, Perm, Russian Federation <sup>2</sup> Perm National Research Polytechnic University, Russian Federation	Production of carbon-carbon composites by impregnation of fabric-powder substrate with pyrolytic carbon, using thermal-gradient method

### **POSTER PRESENTATIONS**

*Assembly hall foyer*

1	N.A. Adamenko, A.V. Kazurov, D.V. Savina	Volgograd State Technical University, Volgograd	The effect of explosive pressing on the thermal and electrical conductivity of copper powder materials containing fluoroplast
2	N.B. Astashina <sup>1</sup> , O.N. Sedegova <sup>1</sup> , M.N. Kachenyuk <sup>2</sup>	<sup>1</sup> Perm State Medical University named after academician E.A. Vagner, Russian Federation, <sup>2</sup> Perm National Research Polytechnic University, Russian Federation	Assessment of the main characteristics of carbon fiber and prospects for its use in dentistry
3	S.N. Polushkin, S.A. Oglezneva	Perm National Research Polytechnic University, Russian Federation	Thin ceramic and metal film vacuum deposition methods on a substrate of silicate glass
4	A.V. Ushakov, I.V. Karpov, A.A. Lepeshev	Krasnoyarsk Scientific Center of Siberian Branch of the RAS, Russian Federation, Siberian Federal University, Krasnoyarsk, Russian Federation	Structuring in fast-quenched ferrite compositions under plasma spraying
5	N. B. Astashina <sup>1</sup> , N. Rozhkova <sup>2</sup> , A. A. Smetkin <sup>3</sup> , M. N. Kachenyuk <sup>3</sup> , S. S.	<sup>1</sup> Perm State Medical University named after academician E.A. Vagner, <sup>2</sup> Institute of Geology,	Analysis of the surface of a carbon composite material modified by shungite carbon nanostructures

	Rozhkov <sup>2</sup>	Karelian Research Center, Russian Academy of Sciences, Petrozavodsk <sup>3</sup> Perm National Research Polytechnic University, Russian Federation	
6	V.I. Goncharov, V.A. Mikutsky, O.L. Smorygo	Institute of Powder Metallurgy, Minsk, Republic of Belarus	Obtaining high-porous cellular material based on inconel 625 alloy
7	E.V. Yaroshevich	JSC Ural Research Institute of Composite Materials, Perm	Thermochemical resistance at temperatures of 1900-2000 ° C of the ZrB <sub>2</sub> -SiC ceramics obtained by slip casting followed by reaction sintering
9	A.A. Kadochnikov, A.A. Smetkin	Perm National Research Polytechnic University, Russian Federation	Forming on the surface of the titanium alloy protective oxide coating
10	N.D. Ogleznev, A.I. Talai	Perm National Research Polytechnic University, Russian Federation	Study of the structure and properties of electrical materials "copper-carbon phases"
11	A.Ph. Ilyushchanka <sup>1,2</sup> , I.N. Charniak <sup>2</sup> , D.I. Zhehdryn <sup>2</sup> , R.A. Kusin <sup>3</sup> , N.S. Ruchay <sup>4</sup> , I.N. Kuznetsov <sup>4</sup>	<sup>1</sup> State Research and Production Powder Metallurgy Assotiation, Minsk, Republic of Belarus, <sup>2</sup> Powder Metallurgy Institute, Minsk, Republic of Belarus, <sup>3</sup> Belarusian State Agrarian Technical University, Minsk, Republic of Belarus, <sup>4</sup> Belarusian State Technological University, Minsk, Republic of Belarus	Application of the microfiltration module based on powder filtering material for continuous mash fermentation in ethanol production
12	N.V. Pimenova, I.V. Ryaposov, A.A. Shatsov	Perm Research and Production Instrument- Making Company, Russian Federation	Powder superinvar
13	A.G. Shurik	Ural Research Institute of Composite Materials, Perm, Russian Federation	Results pyro-compacting highly porous carbon by isothermal method
14	A.O. Vozyakov, S.E. Porozova	Perm National Research Polytechnic University, Russian Federation	The influence of alloying elements on the sintering of xerogel
15	Yu.G. Tselishchev, K.O. Ukhin, I.V. Valtsifer	Institute of Technical Chemistry of Ural Branch of the RAS, Perm, Russian Federation	Computational modeling of capillary forces interacting between powder material particles
16	E.A. Kirichenko, P.G. Chigrin	Institute of Materials Science, KhSC FEB of the RAS, Russian Federation	Effective manganese-containing catalyst of diesel soot oxidation and the reduction of No <sub>x</sub> with a perovskite structure
17	A.G. Shurik, A.V. Rozhkov, S.V. Dokuchaev, V.A. Petrov	Ural Research Institute of Composite Materials, Perm, Russian Federation	Revision of the influence of carbon nanoparticles on the strength properties HPCCM
18	A.G. Shurik, S.V. Dokuchaev, V.A. Petrov	Ural Research Institute of Composite Materials, Perm, Russian Federation	To test the ability to change the properties HPCCM containing nanotubes

19	V.M. Bushuev <sup>1</sup> , I.L. Sinani <sup>1,2</sup> , V.A. Nekrasov <sup>1</sup>	<sup>1</sup> Ural Scientific Research Institute of Composite Materials, Perm, Russian Federation <sup>2</sup> Perm National Research Polytechnic University, Russian Federation	Processing of graphite on pyrolytic carbon matrix
20	V.S. Patrushev M. N. Kachenyuk	Perm National Research Polytechnic University, Russian Federation,	The use of nanotechnology in filtration
21	S.A. Oglezneva, K.L. Saenkov, <u>A.A. Knyazev</u>	Perm National Research Polytechnic University, Russian Federation	Investigation of physico – mechanical properties of powder alloys of Fe–Ni–TiC system using micro and nanodispersed powders
22	M.I. Dvornik, T.B. Ershova, E.A. Mikhailenko	Institute of Materials Science KhSC FEB of the RAS, Khabarovsk, Russian Federation	Influence of cobalt and grains growth inhibitors migration on gradient hard alloy properties

**«Round table»**  
**Aud. 423-b**  
**27 November 2018**  
**16.00 – 17.30**

Theme: "Achievements, problems, prospects for the development of powder materials".