



MSF'2020

Materials science of the future:  
research, development, scientific training

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17-18 NOVEMBER, 2020, Nizhny Novgorod, Russia

## **SCIENTIFIC PROGRAM**

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**2020**

# Organizers

## Russian Professor Assembly Lobachevsky University



## Center for Collective Use "New Materials and Resource-Saving Technologies"



The instrumental base development is carried out within the framework of the project Renewal and development of the Center for Collective Use "New Materials and Resource-Saving Technologies" to support the implementation of research programs of the scientific educational center activities "(project RFMEFI59420X0020)

## Organizing Committee

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The Chairman of the Russian Professor Assembly

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**D.Sc. Economics**

Chief of staff of the Russian Professor Assembly

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**D.Sc. Physics and Mathematics, Habilitation, Professor**

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**D.Sc. Chemistry, Professor,**

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**D.Sc. Chemistry, Professor,**

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## Contacts of Organizing Committee

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## Presentation of reports

**Language:** Russian and English

**Duration of oral presentation** - 10 minutes (including questions), **plenary lectures** - 30 minutes. Time for a speech provided by this program includes 2-3 minutes to answer the questions.

Conference will be held in on-line format.

To participate in the conference, you need to download and install the Zoom program on your computer. To work you need a webcam and a headset (or headphones with a microphone).

We kindly ask you to indicate your real name and surname during the Zoom registration process. We ask you to turn off the microphones during the conference, turn them on only for questions. Questions can also be asked in the chat.

A link to connect will soon be publicly available on the conference website in the "Program" section.

**Reports of virtual participation are not included in the conference program.**

# PROGRAM OF MSF-2020



11.00-11.10

17 November 2020, Tuesday

## OPENING CEREMONY

Chairman: Alexander V. Knyazev

## PLENARY LECTURES

11.10-11.40

**Artem R. Oganov**

*Skolkovo Institute of Science and Technology, Moscow, Russia*

**Artificial intelligence methods for discovering novel materials and exotic compounds**

11.45-12.15

**Dmitry A. Permin**

*G.G. Devyatikh Institute of Chemistry of High-Purity Substances of the RAS, Nizhni Novgorod, Russia*

**Hot pressing and Spark plasma sintering of MgO-Y<sub>2</sub>O<sub>3</sub> IR- ceramics**

## SECTION 2. CHEMISTRY OF MATERIALS

12.20-12.30

**Alexander G. Kvashnin**

*Skolkovo Institute of Science and Technology, Moscow, Russia*

**Computational Search For Ternary High-Entropy Transition Metal Borides**

12.35-12.45

**Alexey A. Sibirkin**

*Lobachevsky University, Nizhny Novgorod, Russia*

**The Role of Oxidation and Reduction Processes in Preparation of Tellurite-Molybdate Glasses with Improved Optical Transparency**

12.50-13.00

**Anastasia M. Kusutkina**

*Lobachevsky University, Nizhny Novgorod, Russia*

**X-ray studies of d, l-aspartic and l-glutamic acids in a wide range of temperatures**

13.05-13.15

**Irina G. Fedotova**

*Lobachevsky University, Nizhny Novgorod, Russia*

**The Properties of Tellurite-Molybdate Glasses Containing Lanthanum Oxide**

**13.20-13.30**      **Sergey S. Kryuchkov**  
*Nizhny Novgorod State Technical University R.E. Alekseev, Nizhny Novgorod, Russia*

**Intensification of ammonia capture by membrane-assisted gas absorption technique using deep eutectic solvents as an absorbent**

**13.35-13.45**      **Vladislav M. Goryaev**  
*Lobachevsky University, Nizhny Novgorod, Russia*

**Preparation of  $\text{TeO}_2 - \text{MoO}_3 - \text{Pr}_2\text{O}_3$  Glasses with Improved Optical Transparency**

**13.50-14.00**      **Artem I. Bokov**  
*Lobachevsky University, Nizhny Novgorod, Russia*

**Synthesis, structure and thermal expansion of immobilizing materials with the eulytite mineral structure**

**14.00-14.30**      **LUNCH**

**14.30-14.40**      **Alexey A. Sibirkin**  
*Lobachevsky University, Nizhny Novgorod, Russia*

**The Evaluation of  $\text{Mo}^{+5}$  Content in Tellurite-Molybdate Glasses from Optical Measurements**

**14.45-14.55**      **Darina S. Malygina**  
*Privolzhsky Research Medical University, Nizhny Novgorod, Russia*

**Zinc oxide nanoparticles modified by triterpenoids as a promising component of new drugs**

**15.00-15.10**      **Oleg V. Timofeev**  
*Institute of Chemistry of High-Purity Substances of the Russian Academy of Sciences, Nizhny Novgorod, Russia*

**Preparation of surfaces of optical elements of CVD-zinc selenid for magneto-rheological polishing**

**15.15-15.25**      **Elizaveta A. Tyurina**  
*G.G. Devyatikh Institute of Chemistry of High-Purity Substances of the Russian Academy of Sciences, Nizhny Novgorod, Russia*

**Stability against crystallization of  $\text{Ga}_x\text{Ge}_{y-x}\text{S}_{100-y}$  glasses as potential IR optics materials**

**15.30-15.40**      **Andrey A. Umnikov**  
*G.G. Devyatikh Institute of Chemistry of High-Purity Substances of the Russian Academy of Sciences, Nizhny Novgorod, Russia*

**Bi-doped fiber preforms fabrication technologies**

15.45-15.55

**Alexey A. Zolotukhin**

*G. A. Razuvaev Institute of Organometallic Chemistry of RAS, Nizhny Novgorod, Russia*

**Redox-isomeric systems – the path to new materials for electronic devices**



18 November 2020, Wednesday

## PLENARY LECTURES

10.00-10.30

**Вельмузов Александр Павлович**

*ИХВВ РАН, Нижний Новгород, Россия*

**Особо чистые стекла на основе халькогенидов германия. Получение, свойства, применение**

10.35-11.05

**Alexey V. Nokhrin**

*Lobachevsky University, Nizhny Novgorod, Russia*

**Study of corrosive resistance of ultrafine-grained  $\alpha$ - and near- $\alpha$  titanium alloy**

## SECTION 1. PHYSICS OF MATERIALS

11.10-11.20

**Pavel V. Andreev**

*Institute of Chemistry of High-Purity Substances RAS, Nizhny Novgorod*

**Sintering kinetics of  $\text{Si}_3\text{N}_4$  with yttrium-aluminum garnet nanocomposites**

11.25-11.35

**Maxim S. Boldin**

*Lobachevsky University, Nizhny Novgorod, Russia*

**The role of plastic deformation in the shrinkage during SPS**

11.40-11.50

**Pavel D. Drozhilkin**

*Lobachevsky University, Nizhny Novgorod, Russia*

**Compaction by spark plasma sintering of  $\text{Si}_3\text{N}_4$  –  $\text{Y}_2\text{O}_3$  –  $\text{Al}_2\text{O}_3$  powder compositions obtained by different synthesis methods**

11.55-12.05

**Anatoly A. Fagin**

*G. A. Razuvaev Institute of Organometallic Chemistry of Russian Academy of Sciences, Nizhny Novgorod, Russia*

**Reactions of iodide-nitrides  $[(\text{LnI}_2)_3\text{N}]$  ( $\text{Ln} = \text{Nd}, \text{Dy}$ ) with chalcogenes**





- 15.00-15.10**      **Кирилл Олегович Каразанов**  
*Национальный исследовательский Нижегородский государственный университет им. Н.И. Лобачевского, Нижний Новгород, Россия*
- Физико-механические свойства керамик на основе  $\text{Si}_3\text{N}_4$ , изготовленных методом искрового плазменного спекания**
- 15.15-15.25**      **Артем Александрович Мурашов**  
*Национальный исследовательский Нижегородский государственный университет им. Н.И. Лобачевского, Нижний Новгород, Россия*
- Исследование структуры и состава тонких износостойких покрытий для твердосплавного режущего инструмента**
- 15.30-15.40**      **Глеб Вячеславович Щербак**  
*Национальный исследовательский Нижегородский государственный университет им. Н.И. Лобачевского, Нижний Новгород, Россия*
- Исследование свойств высокопрочного композита ZTA, полученного по технологии керамической 3D-печати (LCM)**
- 15.45**            **Closing Ceremony**