

ABOUT THE YOUNG SCIENTIST



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I am an employee of the Baikov Institute of Metallurgy and Materials Science of the Russian Academy of Sciences (IMET RAS) as a junior researcher at the Laboratory of Ceramic Composite Materials.

The research work is related to the study of the effect of various additives on sintering, physical, mechanical, biological properties of ceramic materials based on the ZrO₂-Al₂O₃ system; development of ceramic powders for 3D printing; development and research of composite biomaterials based on tricalcium phosphate.

EDUCATION

2016-2020 yy.

Researcher. Teacher-researcher in the field of training 18.06.01 Chemical technology
Scientific qualification work: "Development and research of ceramic materials based on the ZrO₂-Al₂O₃ system with a low sintering temperature"
Baikov Institute of Metallurgy and Materials Science of the Russian Academy of Sciences (IMET RAS)

2014-2016 yy.

Master's degree in the field of training 22.04.01 Materials Science and technology of materials
Diplom: "Study of corrosion-resistant steels in the medium of Pb-Bi liquid metal coolant at high temperatures"
"National Research Technological University "MISiS"

2014-2016 yy.

Employment training in "Technological entrepreneurship and innovative business development" course
"Moscow University of Physics and Technology (State University)"

2009-2014 yy.

Engineer by specialty 210602 Nanomaterials
Diplom: "The study of the effect of equal-channel angular pressing on the structure and mechanical properties of zirconium alloy E125"

BACKGROUND

2017 – nowadays

junior researcher

Baikov Institute of Metallurgy and Materials Science of the Russian Academy of Sciences (IMET RAS)

2015-2016 уу.

expert

Central Scientific Research Institute of Machine Building «CNITMASH»

PUBLICATIONS

The main results of scientific work are presented in 40 publications:

1. **Оболкина Т. О.**; Гольдберг М. А.; Смирнов С. В.; Антонова О. С.; Уткин Д. А.; Хайрутдинова Д. Р.; Коновалов А. А.; Кочанов Г. П.; Баринов С. М.; Комлев В. С. // Влияние Mn^{2+} на микроструктуру и механические свойства керамических материалов на основе $ZrO_2-Al_2O_3-SiO_2$ // Физика и химия обработки материалов – 2022. – С. 26-32.
2. Khayrutdinova D.R., Goldberg M. A., Antonova O.S., Kroklicheva P.A., Fomin A.S., **Obolkina T.O.**, Konovalov A.A., Akhmedova S.A., Sviridova I.K., Kirsanova V.A., Sergeeva N.S., Barinov S.M., Komlev V.S. Effects of Heat Treatment on Phase Formation in Cytocompatible Sulphate-Containing Tricalcium Phosphate Materials //Minerals. – 2023. – Т. 13. – №. 2. – С. 147. DOI:10.3390/min13020147
3. Goldberg M. A., Antonova O.S., Donskaya N.O., Fomin A.S., Murzakhanov F.F., Gafurov M.R., Konovalov A.A., Kotyakov A.A., Leonov A.V., Smirnov S.V., **Obolkina T.O.**, Kudryavtsev E.A., Barinov S.M., Komlev V.S. Effects of Various Ripening Media on the Mesoporous Structure and Morphology of Hydroxyapatite Powders //Nanomaterials. – 2023. – Т. 13. – №. 3. – С. 418. DOI: 10.3390/nano13030418
4. БАТАНОВА О.А., МАТВИЕНКО Ю.Г., МАРЧЕНКОВ А.Ю., МАТЮНИН В.М., **ОБОЛКИНА Т.О.**, СМОРНОВ С.В. Анализ влияния температуры спекания на сопротивление разрушению керамики на базе экспериментов на скалывание кромки образца// ПРОБЛЕМЫ МАШИНОСТРОЕНИЯ И НАДЕЖНОСТИ МАШИН. 2022. №4. С.14-20. DOI: 10.31857/S0235711922040034
5. Batanova O. A., Matvienko Y. G., Marchenkov A. Y., Matyunin V. M., **Obolkina T. O.**, Smirnov S. V. Analysis of the Influence of Sintering Temperature on the Fracture Resistance of Ceramics Based on Experiments on Chipping of a Sample Edge //Journal of Machinery Manufacture and Reliability. – 2022. – Т. 51. – №. 4. – С. 294-299. <https://doi.org/10.3103/S1052618822040021>
6. **Obolkina T.O.**, Goldberg M.A., Antonova O.S., Smirnov S.V., Tyutkova Y.B., Egorov A.A., Smirnov I.V., Konovalov A.A., Barinov S.M., Komlev V.S. Effect of Complex Additives Based on Iron, Cobalt, and Manganese Oxides and Sodium Silicate on the Sintering and Properties of Low-Temperature Ceramics $3Y-TZP-Al_2O_3$ //Russian Journal of Inorganic Chemistry. – 2021. – Т. 66. – С. 1223-1228. <https://doi.org/10.1134/S0036023621080192>
7. Smirnov V.V., Smirnov S.V., **Obolkina T.O.**, Antonova O.S., Goldberg M.A., Barinov S.M. Low-temperature liquid-phase sintering of zirconia: Phase composition and microstructure //Doklady Chemistry. – Pleiades Publishing, 2020. – Т. 494. – С. 159-162. <https://doi.org/10.1134/S0012500820100043>
8. **Obolkina T.O.**, Goldberg M.A., Smirnov S.V., Konovalov A.A., Antonova O.S., Akhmedova S.A., Kirsanova V.A., Sviridova I.K., Sergeeva N.S., Barinov S.M., Komlev V.S. Effect of Co^{2+} on the Phase Formation, Mechanical Properties, and In Vitro Behavior of Ceramics

- in the ZrO₂–Al₂O₃ System //Doklady Chemistry. – Pleiades Publishing, 2020. – T. 493. – C. 99-104. <https://doi.org/10.1134/S0012500820070010>
9. Goldberg M., **Obolkina T.**, Smirnov S., Protsenko P., Titov D., Antonova O., Konovalov A., Kudryavtsev E., Sviridova I., Kirsanova V., Sergeeva N., Komlev V., Barinov S. The influence of Co additive on the sintering, mechanical properties, cytocompatibility, and digital light processing based stereolithography of 3Y-TZP-5Al₂O₃ ceramics //Materials. – 2020. – T. 13. – №. 12. – C. 2789. <https://doi.org/10.3390/ma13122789>
 10. Goldberg M.A., Smirnov V.V., Antonova O.S., Tut'kova Y.B., **Obolkina T.O.**, Khairutdinova D.R., Krokhicheva P.A., Barinov S.M., Komlev V.S. Ceramic materials in the tricalcium phosphate–trimagnesium phosphate system //Inorganic Materials. – 2020. – T. 56. – C. 314-320. <https://doi.org/10.1134/S0020168520030036>
 11. **Obolkina T.O.**, Goldberg M.A., Smirnov V.V., Smirnov S.V., Titov D.D., Konovalov A.A., Kudryavtsev E.A., Antonova O.S., Barinov S.M., Komlev V.S. Increasing the sintering rate and strength of ZrO₂–Al₂O₃ ceramic materials by iron oxide additions //Inorganic Materials. – 2020. – T. 56. – C. 182-189. <https://doi.org/10.1134/S0020168520020156>
 12. Smirnov V.V., Smirnov S.V., **Obolkina T.O.**, Antonova O.S., Goldberg M.A., Khairutdinova D.R., Barinov S.M. Sintering and Properties of ZrO₂–Al₂O₃ Composites with Additives Forming Melts Based on Sodium Silicate //Inorganic Materials: Applied Research. – 2020. – T. 11. – C. 154-159. <https://doi.org/10.1134/S2075113320010359>
 13. **Obolkina T.O.**, Goldberg M.A., Smirnov V.V., Smirnov S.V., Antonova O.S., Titov D.D., Barinov S.M. The effect of transition metal oxides on the sintering and properties of ceramics in the ZrO₂–Al₂O₃ system //Journal of Physics: Conference Series. – IOP Publishing, 2019. – T. 1347. – №. 1. – C. 012025. DOI: 10.1088/1742-6596/1347/1/012025
 14. Khairutdinova D.R., Smirnov V.V., Antonova O.S., Goldberg M.A., Smirnov S.V., **Obolkina T.O.**, Barinov S.M. Effect of Doping with Sodium and Potassium on the Phase Formation in the Synthesis of Calcium Sulfate //Doklady Chemistry. – Pleiades Publishing, 2019. – T. 489. – C. 272-274. <https://doi.org/10.1134/S0012500819110028>
 15. Smirnov V.V., Smirnov S.V., **Obolkina T.O.**, Antonova O.S., Goldberg M.A., Khairutdinova D.R., Ovchinnikova O.A., Barinov S.M. Effect of Sodium Silicate on the Sintering and Properties of Zirconia Ceramics //Doklady Chemistry. – Pleiades Publishing, 2019. – T. 488. – C. 239-241. <https://doi.org/10.1134/S0012500819090015>
 16. Smirnov V.V., Barinov S.M., Smirnov S.V., Krylov A.I., Antonova O.S., Goldberg M.A., **Obolkina T.O.**, Konovalov A.A., Leonov A.V. Structure and thermal stability of lithium-substituted hydroxyapatite ceramics //Inorganic materials. – 2019. – T. 55. – C. 715-723. <https://doi.org/10.1134/S0020168519070185>
 17. Smirnov V.V., Smirnov S.V., **Obolkina T.O.**, Antonova O.S., Goldberg M.A., Barinov S.M. The Influence of Manganese Oxide on the Sintering and Properties of the Eutectic Ceramics of the ZrO₂–Al₂O₃–SiO₂ System //Doklady Chemistry. – Pleiades Publishing, 2019. – T. 486. – C. 160-163. <https://doi.org/10.1134/S0012500819060041>
 18. Smirnov V.V., Smirnov S.V., **Obolkina T.O.**, Goldberg M.A., Antonova O.S., Barinov S.M. Influence of the Sodium Niobate Addition on the Sintering and Properties of Zirconia Ceramics //Doklady Chemistry. – Pleiades Publishing, 2019. – T. 486. – C. 141-143. <https://doi.org/10.1134/S0012500819050033>
 19. Smirnov V.V., Smirnov S.V., Krylov A.I., Antonova O.S., Goldberg M.A., **Obolkina T.O.**, Konovalov A.A., Leonov A.V., Barinov S.M. Influence of lithium on the structure and phase composition formation in the synthesis of hydroxyapatite //Doklady Chemistry. – Pleiades Publishing, 2018. – T. 481. – C. 177-180. <https://doi.org/10.1134/S0012500818080025>
 20. Smirnov V.V., **Obolkina T.O.**, Krylov A.I., Smirnov S.V., Goldberg M.A., Antonova O.S., Titov D.D., Barinov S.M. Agglomeration and properties of ceramics based on partially stabilized zirconium dioxide containing oxides of aluminum and iron //Inorganic Materials: Applied Research. – 2018. – T. 9. – C. 121-124. <https://doi.org/10.1134/S2075113318010252>

21. Smirnov V.V., Krylov A.I., Smirnov S.V., Goldberg M.A., Antonova O.S., **Obolkina T.O.**, Kononov A.A., Barinov S.M. Evolution of the microstructure and phase composition of materials based on the fluorohydroxyapatite–zirconia–alumina system during sintering // *Inorganic Materials*. – 2017. – Т. 53. – С. 980-986. <https://doi.org/10.1134/S0020168517090151>
22. В.В. Смирнов, **Т.О. Оболкина**, А.И. Крылов, С.В. Смирнов, М.А. Гольдберг, О.С. Антонова, Д.Д. Титов, С.М. Баринов Спекание и свойства керамики на основе частично стабилизированного диоксида циркония, содержащей оксиды алюминия и железа // *Материаловедение*. 2017. № 7. С. 45-48.
23. Смирнов В.В., Крылов А.И., Смирнов С.В., Гольдберг М.А., Антонова О.С., **Оболкина Т.О.**, Коновалов А.А., Баринов С.М. Формирование микроструктуры и фазового состава при спекании материалов на основе системы фторгидроксиапатит-диоксид циркония-оксид алюминия // *Неорганические материалы*. 2017. Т. 53. № 9. С. 1001-1007.
24. Смирнов В.В., Смирнов С.В., **Оболкина Т.О.**, Антонова О.С., Гольдберг М.А., Хайрутдинова Д.Р., Баринов С.М. Спекание и свойства композиционных ZrO₂-Al₂O₃-материалов с добавками, образующими расплавы на основе силиката натрия // *Материаловедение*. 2019. № 6. С. 32-36.
25. Смирнов В.В., Смирнов С.В., **Оболкина Т.О.**, Антонова О.С., Гольдберг М.А., Хайрутдинова Д.Р., Овчинникова О.А., Баринов С.М. Влияние силиката натрия на спекание и свойства диоксидциркониевой керамики // *Доклады Академии наук*. 2019. Т. 488. № 1. С. 36-39.
26. Хайрутдинова Д.Р., Смирнов В.В., Антонова О.С., Гольдберг М.А., Смирнов С.В., **Оболкина Т.О.**, Баринов С.М. Влияние допирования натрием и калием на фазообразование при синтезе сульфата кальция // *Доклады Академии Наук*, 2019, том 489, No 1, с. 44–47
27. В.В. Смирнов, С.В. Смирнов, Т.О. Оболкина, М.А. Гольдберг, О.С. Антонова, С. М. Баринов Влияние добавки ниобата натрия на спекание и свойства диоксидциркониевой керамики // *Доклады Академии наук*. - 2019. - Т. 486. - №1. - С. 57-60.
28. Смирнов В.В., Баринов С.М., Смирнов С.В., Крылов А.И., Антонова О.С., Гольдберг М.А., **Оболкина Т.О.**, Коновалов А.А., Леонов А.В. Структура и термическая стабильность керамики из литийзамещенного гидроксиапатита // *Неорганические материалы*. – 2019. – Т. 55. - №7. – С. 760-768
29. Смирнов В.В., Смирнов С.В., **Оболкина Т.О.**, Антонова О.С., Гольдберг М.А., Баринов С.М. Влияние оксида марганца на спекание и свойства эвтектической керамики системы ZrO₂-Al₂O₃-SiO₂ // *Доклады Академии наук*. - 2019. - Т. 486. - №6. - С. 675-679.
30. Гольдберг М.А., **Оболкина Т.О.**, Смирнов С.В., Антонова О.А., Титов Д.Д. Влияние переходных металлов на свойства и температуру спекания керамики на основе системы ZrO₂—Al₂O₃ // *Труды Кольского научного центра РАН*, - 2019. - №1. - С. 249
31. Смирнов С.В., **Оболкина Т.О.**, Гольдберг М.А., Антонова О.С., Титов Д.Д. Разработка и исследования композиционных составов полимер—керамика для 3D-печати методом стереолитографии // *Труды Кольского научного центра РАН*, - 2019. - №1. - С. 329
32. Гольдберг М.А., Смирнов В.В., Антонова О.С., Тютюкова Ю.Б., **Оболкина Т.О.**, Хайрутдинова Д.Р., Крохичева П.А., Баринов С.М., Комлев В.С. Керамические материалы в системе трехкальциевый фосфат–трехмагнийевый фосфат // *Неорганические материалы*. – 2020. – Т. 56. – №. 3. – С. 329-335. DOI: 10.31857/S0002337X20030033.
33. Смирнов, В. В., Смирнов, С. В., **Оболкина, Т. О.**, Антонова, О. С., Гольдберг, М. А., Баринов, С. М. Низкотемпературное жидкофазное спекание диоксида циркония: исследование фазового состава и микроструктуры // *Доклады Российской академии наук. Химия, науки о материалах*. – 2020. – Т. 494. – №. 1. – С. 37-41.
34. **Оболкина Т.О.**, Гольдберг М.А., Смирнов В.В., Смирнов С.В., Титов Д.Д., Коновалов А.А., Кудрявцев Е.А., Антонова О.С., Баринов С.М., Комлев В.С. ИНТЕНСИФИКАЦИЯ СПЕКАНИЯ И УПРОЧНЕНИЕ КЕРАМИЧЕСКИХ МАТЕРИАЛОВ

ZrO₂-Al₂O₃ ВВЕДЕНИЕМ ОКСИДА Fe // Неорганические материалы. 2020. Т. 56. № 2. С. 192-199.

35. **Оболкина Т.О.**, Гольдберг М.А., Смирнов С.В., Коновалов А.А., Антонова О.С., Ахмедова С.А., Кирсанова В.А., Свиридова И.К., Сергеева Н.С., Баринов С.М., Комлев В.С. Влияние Co²⁺ на фазообразование, механические свойства и поведение in vitro керамики в системе ZrO₂-Al₂O₃ Доклады Российской академии наук. Химия, науки о материалах. 2020. Т. 492-493. № 1. С. 42-49.

36. **Оболкина Т.О.**, Гольдберг М.А., Антонова О.С., Смирнов С.В., Тютькова Ю.Б., Егоров А.А., Смирнов И.В., Коновалов А.А., Баринов С.М., Комлев В.С. влияние комплексных добавок на основе оксидов железа, кобальта, марганца и силиката натрия на спекание и свойства низкотемпературной керамики 3Y-TZP-Al₂O₃ Журнал неорганической химии. 2021. Т. 66. № 8. С. 1120-1125.

37. Смирнов В.В., Смирнов С.В., Крылов А.И., **Оболкина Т.О.**, Антонова О.С., Баринов С.М. Керамические конструкционные материалы с низкой температурой спекания на основе диоксида циркония // Перспективные материалы No 5, с. 60 – 65

38. Смирнов В. В., Смирнов, С. В., Крылов, А. И., Антонова, О. С., Гольдберг, М. А., **Оболкина, Т. О.**, Баринов, С. М. . Влияние лития на формирование структуры и фазового состава при синтезе гидроксиапатита // Доклады Академии наук. – Федеральное государственное бюджетное учреждение " Российская академия наук", 2018. – Т. 481. – №. 4. – С. 391-394.

39. **Оболкина Т. О.**, Гольдберг, М. А., Смирнов, С. В., & Антонова, О. А. СПЕКАНИЕ И СВОЙСТВА КЕРАМИЧЕСКОГО МАТЕРИАЛА НА ОСНОВЕ СИСТЕМЫ ZrO₂-Al₂O₃, СОДЕРЖАЩЕЙ СПЕКАЮЩИЕ ДОБАВКИ //Труды Кольского научного центра РАН. – 2020. – Т. 11. – №. 3-4.

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PATENTS

1. Patent No. 2665734 RU Ceramic material with low sintering temperature based on zirconium dioxide tetragonal modification. Smirnov V.V., Smirnov S.V., **Obolkina T.O.**, Antonova O.S., Kochanov G.P., Barinov S.M. Publ. 04.09.2018.

2. Patent No. 2,675,391 RU Ceramic material with low sintering temperature based on zirconium dioxide tetragonal modification. Smirnov V.V., Smirnov S.V., **Obolkina T.O.**, Antonova O.S., Kochanov G.P., Barinov S.M. Publ. 19.12.2018.

3. Patent No. 2,710,341 RU Ceramic material with a low sintering temperature based on a system of zirconium dioxide - Al₂O₃ - silicon oxide Smirnov V.V., **Obolkina T.O.**, Smirnov S.V., Goldberg M.A., Barinov S.M. Publ. 12/25/2019.

4. Patent No. 2784938 RU A method for producing porous ceramics based on tricalcium phosphate according to the manufactured three-dimensional models by the method of layer-by-layer deposition using photopolymerization. Khairutdinova D.R., Antonova O.S., Goldberg M.A., Smirnov S.V., **Obolkina T.O.**, Barinov S.M., Komlev V.S., publ. 01.12.2022.

5. Patent No. 2795518 RU Ceramic material of the zirconium dioxide-aluminum oxide-silicon oxide system with a reduced sintering temperature. Barinov S.M., **Obolkina T.O.**, Goldberg M.A., Smirnov S.V. Publ. 05.04.2023

6. Patent No. 2795866 RU Ceramic material with low sintering temperature based on zirconium dioxide tetragonal modification for additive manufacturing. Smirnov S.V., **Obolkina T.O.**, Goldberg M.A., Barinov S.M., Antonova O.S. Publ. 12.05.2023

PROJECTS

The total number is 10, of which: head – 3, as a performer – 7.

Grant «UMNIK» No. 12649GU/2017 "Development and research of new high-strength materials based on the ZrO₂-Al₂O₃ system with low temperature sintering" - head (2018-2019 yy.)

Grant «START» No. 3818GS1/63275 "Creation of a charge for the production of bioceramic products based on zirconium dioxide and aluminum oxide with low temperature sintering" - head (2020-2021 yy.)

Grant of the President of the Russian Federation SP-4319.2022.4 "Cytocompatible low-temperature ceramics in the ZrO₂-Al₂O₃ system with antibacterial properties adapted for three-dimensional printing by stereolithography" (2022-2024 yy.)

RFBR Project No. 16-38-00686 mol_a "Synthesis and properties of ceramic materials based on zirconium dioxide with low sintering temperature" - performer (2016-2017yy.)

RFBR Project No. 18-03-00429 A "Creation of calcium phosphate composite bone cements containing calcium sulfate granules: the effect of the composition, size, porosity of granules on the phase composition, microstructure, mechanical and biological properties of cements" - performer (2017-2020 yy.)

RFBR Project No. 18-29-11053 mk "Development of physico-chemical bases of new methods for obtaining new ceramic materials on the basis of zirconium dioxide and on the basis of calcium phosphates for medicine with the use of additive technologies" (2018-2021 yy.)

RFBR Project No. 18-33-20170 mol_a_ved "Bone cements based on calcium and magnesium phosphates with antibacterial properties: introduction of an antibiotic and cationic substitutions" - performer (2019-2020 yy.)

Grant of the President of the Russian Federation MK 5661.2018.8 "Creation of new high-strength composite ceramic materials based on the zirconium dioxide - aluminum oxide system with low sintering temperature containing transition metal oxides" - performer (2018-2019 yy.)

The program of fundamental research of the Russian Academy of Sciences 34P "Actual problems of surface physicochemistry and the creation of new composite materials" project: "Creation of composite ceramic materials based on dispersed systems of zirconium dioxide with aluminum oxide containing components that contribute to the formation of structures on the interface, providing an increase in mechanical properties and a decrease in sintering temperature" - performer (2018-2019 yy.)

Conducting studies of the microstructure, phase composition, mechanical and electrophysical properties of ceramic material at various production stages of its manufacture" - performer (2019-2022 yy.)

CONFERENCES

Russian annual conferences of young scientist XIII -XIX "Physico-chemistry and technology of inorganic materials" (2016-2022, Moscow), VIII-XIII Conferences of Young scientists on General and inorganic Chemistry (2018-2023, Moscow), Conference of "Mechanical properties of modern structural materials" (2018, Moscow), Interdisciplinary scientific forums "New materials and promising technologies" (2018-2020, Moscow), III–IV International Scientific Conferences "Science of the Future" (2019, Sochi; 2020, Moscow Moscow), IV–V Russian Forums "Science of the Future-the Science of the science of the young" (2019, Sochi; 2020, Moscow), XV International Russian-Chinese Symposium "New Materials and Technologies" (2019, Sochi), VIII International Conference "Deformation and Destruction of Materials and Nanomaterials" (2019, Moscow), Interregional scientific and technical conferences "Scientific and practical problems in the field of chemistry and chemical technologies" (2019-2022, Apatity), International Youth Scientific Forum "LOMONOSOV 2020" (2020, Moscow Moscow), 4th International Conference on Physical Chemistry and Functional Materials

(PCFM21) (2021, Elazığ, Turkey), International Scientific and Practical Conference of Young Scientists "Innovative Materials and Technologies – 2023" (2023, Minsk, Republic of Belarus).

AWARDS

- The winner of the "UMNIK" program (2018 y.)
- Diploma for an interesting scientific report presented in the III Scientific Readings named after Corresponding Member of the Russian Academy of Sciences I.A. Odinga "Mechanical properties of modern structural materials" (2018 y.)
- The winner of the contest of works on the XV Russian Academy of Sciences annual conference of young researchers and postgraduates "Physico-chemistry and technology of inorganic materials" (2018)
- The winner of the contest of works on the XVI Russian Annual Conference of Young researchers and Postgraduates "Physico - chemistry and technology of inorganic materials" (2019)
- The winner for the best project in the section "Digital technologies" in the VI All-Russian Forum "Science of the Future - science of the young", III International Youth Conference "Science of the Future" (2019)
- The winner at the Sixth Interdisciplinary Scientific Forum with international participation "NEW MATERIALS AND PROMISING TECHNOLOGIES" (2020)
- The winner of the contest of works on the XVII Russian Annual Conference of Young Researchers and Postgraduates "Physico - chemistry and technology of inorganic materials" (2020)
- The winner of the contest of works on the XVIII Russian Annual Conference of Young researchers and Postgraduates "Physico- chemistry and technology of inorganic materials" (2021)
- The winner of the contest of works on the XIX Russian Annual Conference of Young Researchers and Postgraduates "Physico - chemistry and technology of inorganic materials" (2022)
- The winner of the 2022-2024 competition for the right to receive a Grant of the President of the Russian Federation.

MENTORING

Mentoring of student Utkin D.A. in the bachelor's work "Study of the influence of technological parameters of mechanical activation on the physical and mechanical properties of composite ceramic materials based on the ZrO₂-Al₂O₃ system", 2021-2022, MITHT.

Mentoring of student Utkin D.A. in the master's work "Development and research of ceramic materials based on the ZrO₂-Al₂O₃ system containing zinc oxide", 2022-present, MITHT.

Mentoring of the student Levin D. O. in the bachelor's work "Low-temperature ceramic materials based on zirconium dioxide", 2022-2023, MITHT