

## Основные публикации сотрудников ИФВД РАН за 2023 г.

1. **О.Б. Циок, В.В. Бразкин**, Е.В. Бычков, А.С. Тверьянович, «Сжимаемость, металлизация и процессы релаксации в халькогенидном стекле нестехиометрического состава  $g\text{-As}_3\text{Te}_2$  при высоких гидростатических давлениях: сравнение с "классическим" стеклом  $g\text{-As}_2\text{Te}_3$ », ЖЭТФ, **163**, 585-596, 2023. DOI: 10.31857/S0044451023040156  
**О.В. Tsiok, V.V. Brazhkin**, E.V. Bychkov, A.S. Tverjanovich, "Compressibility, Metallization, and Relaxation in Nonstoichiometric Chalcogenide Glass  $g\text{-As}_3\text{Te}_2$  at High Hydrostatic Pressure versus "Classic"  $g\text{-As}_2\text{Te}_3$  Glass", Journal of Experimental and Theoretical Physics, **136**(4), 519–528, 2023. DOI:10.1134/S1063776123040131
2. A.S. Tverjanovich, **О.В. Tsiok, V.V. Brazhkin**, M. Bokova, A. Cuisset, and E. Bychkov, "Remarkably Stable Glassy  $\text{GeS}_2$  Densified at 8.3 GPa: Hidden Polyamorphism, Contrasting Optical Properties, Raman and DFT Studies, and Advanced Applications", J. Phys. Chem. B, **127**, 45, 9850-9860, 2023. DOI: 10.1021/acs.jpcc.3c05773
3. **В.В. Бразкин, И.В. Данилов, О.Б. Циок**, «Тайны воды и других аномальных жидкостей: "медленный" звук, релаксирующие сжимаемость и теплоемкость (Миниобзор)», Письма в ЖЭТФ, **117**, вып. 11, с. 840-856, 2023. DOI: 10.31857/S1234567823110071  
**V. Brazhkin, I. Danilov, O. Tsiok**, "Mysteries of water and other anomalous liquids: "slow" sound, relaxing compressibility and heat capacity", JETP Letters, **117**, issue 11, 834-848, 2023. DOI: 10.1134/S0021364023601318
4. **E.L. Gromnitskaya, I.V. Danilov**, F.I. Zubkov, **V.V. Brazhkin**, "Benzophenone glass, supercooled liquid, and crystals: elastic properties and phase transitions", Physical Chemistry Chemical Physics, **25**(23), 16060-16064, 2023. DOI: 10.1039/D3CP01601C
5. **I. Danilov, E. Gromnitskaya and V. Brazhkin**, "Thermobaric history as a tool to govern properties of glasses: case of dipropylene glycol", Physical Chemistry Chemical Physics, **25**, 26813-26819, 2023. DOI: 10.1039/D3CP03306F
6. I.A. Kolesnik, V.I. Potkin, M.S. Grigoriev, A.P. Novikov, R.M. Gomila, A.G. Podrezova, **V.V. Brazhkin**, F.I. Zubkov, A. Frontera, "Synthesis, X-ray characterization and DFT calculations of a series of 3-substituted 4,5-dichloroisothiazoles", CrystEngComm, **25**(13), 1976-1985, 2023. DOI: 10.1039/d3ce00112a
7. **M.V. Kondrin**, Y.B. Lebed, **V.V. Brazhkin**, "A new polymorph of graphene monoxide: an all- $sp^3$  bonded metal and ambient pressure superconductor", CrystEngComm, **25**(13), 1328-1332, 2023. DOI: 10.1039/D2CE01561G
8. **M.V. Kondrin**, A.A. Pronin, Y.B. Lebed, **V.V. Brazhkin**, "High pressures as an effective tool to separate different contributions to the electrode polarization of polar liquids and solids", Journal of Physics and Chemistry of Solids, **182**, 111570, 2023. DOI: 10.1016/j.jpcs.2023.111570
9. **M. Kondrin**, Y. Lebed, **V. Brazhkin**, "Planar defects as a way to account for explicit anharmonicity in high temperature thermodynamic properties of silicon", JETP, **164**, 396, 2023. DOI:10.48550/arXiv.2301.12745
10. N.O. Taibarei, V.G. Kytin, E.A. Konstantinova, V.A. Kulbachinskii, S.V. Savilov, V.A. Mukhanov, V.L. Solozhenko, **V.V. Brazhkin**, A.N. Baranov, "High-Pressure Synthesis of Cubic  $\text{ZnO}$  and Its Solid Solutions with  $\text{MgO}$  Doped with Li, Na, and K", Materials, **16**(15), 5341, 2023. DOI:10.3390/ma16155341

11. **В.В. Бражкин**, «“Квантовые значения” экстремумов “классических” макроскопических величин», УФН, **193**, № 11, 1227, 2023.  
DOI:10.3367/UFN.2022.11.039261  
**V.V. Brazhkin**, “‘Quantum’ values of the extrema of ‘classical’ macroscopic quantities”, Physics - Uspekhi, **66** (11), 1154-1163, 2023. DOI: 10.3367/UFN.2022.11.039261
12. S.G. Menshikova, **N.M. Chtchelkatchev**, **V.V. Brazhkin**, “Solidification of the glass-forming Al<sub>86</sub>Ni<sub>2</sub>Co<sub>6</sub>Gd<sub>6</sub> melt under high pressure”, Materialia, **28**, 101713, 2023.  
DOI: 10.1016/j.mtla.2023.101713
13. S. Menshikova, **V. Brazhkin**, A. Danilova, “Study of the Al<sub>86</sub>Ni<sub>6</sub>Co<sub>4</sub>Gd<sub>2</sub>Tb<sub>2</sub> liquid alloys crystallization under high pressure of 10 GPa”, AIP Conference, **2899**(1), 020094, 2023.  
DOI: 10.1063/5.0163213
14. **N.M. Chtchelkatchev**, R.E. Ryltsev, **M.V. Magnitskaya**, S.M. Gorbunov, K.A. Cherednichenko, V.L. Solozhenko, **V.V. Brazhkin**, “Local structure, thermodynamics, and melting of boron phosphide at high pressures by deep learning-driven ab initio simulations” Journal of Chemical Physics, **159** № 6, 064507, 2023. DOI: 10.1063/5.0165948
15. **D.A. Salamatin**, **V.N. Krasnorussky**, **M.V. Magnitskaya**, **A.V. Semeno**, **A.V. Bokov**, A. Velichkov, Z. Surowiec, **A.V. Tsvyashchenko**, «Some magnetic properties and magnetocaloric effects in the high-temperature antiferromagnet YbCoC<sub>2</sub>», Magnetochemistry, **9**, №6, 152, 2023. DOI: 10.3390/magnetochemistry9060152
16. D.O. Skanchenko, E.V. Altynbaev, **V.A. Sidorov**, G. Chaboussant, N. Martin, A.E. Petrova, **D.A. Salamatin**, S.V. Grigoriev, **N.M. Chtchelkatchev**, **M.V. Magnitskaya**, **A.V. Tsvyashchenko**, «Split of the magnetic and crystallographic states in Fe<sub>1-x</sub>Rh<sub>x</sub>Ge», Journal of Alloys and Compounds, **935** (Pt. 2), 167943, 2023. DOI: 10.1016/j.jallcom.2022.167943
17. **D.A. Salamatin**, K.V. Klementiev, **V.N. Krasnorussky**, **M.V. Magnitskaya**, **N.M. Chtchelkatchev**, **V.A. Sidorov**, **A.V. Semeno**, **A.V. Bokov**, M.G. Kozin, A.V. Nikolaev, A.V. Salamatin, A. Velichkov, M.V. Mikhin, M. Budzynski, **A.V. Tsvyashchenko**, “The new high-pressure hexagonal Laves phase of the YbZn<sub>2</sub> compound”, Journal of Alloys and Compounds, **946**, 169275, 2023. DOI: 10.1016/j.jallcom.2023.169275
18. **А.В. Бокров**, **М.В. Магницкая**, **Д.А. Саламатин**, **А.В. Цвященко**, “Исследование сверхтонких взаимодействий в синтезированных при высоком давлении соединениях Y(Fe<sub>1-x</sub>Ni<sub>x</sub>)<sub>2</sub> (0 ≤ x ≤ 1) методом мёссбауэровской спектроскопии”, ЖЭТФ, **163**, № 3, 350, 2023. DOI: 10.31857/S0044451023030069  
**A.V. Bokov**, **M.V. Magnitskaya**, **D.A. Salamatin**, and **A.V. Tsvyashchenko**, “<sup>57</sup>Fe Mössbauer Effect Study of Y(Fe<sub>1-x</sub>Ni<sub>x</sub>)<sub>2</sub> Synthesized under High Pressure”, Journal of Experimental and Theoretical Physics, **136**, No. 3, 305–311, 2023. DOI: 10.1134/S1063776123020024
19. **D.A. Salamatin**, **A.V. Bokov**, M.G. Kozin, I.L. Romashkina, A.V. Salamatin, M.V. Mikhin, A.E. Petrova, **V.A. Sidorov**, A.V. Nikolaev, Z. Fisk and **A.V. Tsvyashchenko**, «Anomalous Positron Lifetime in Single Crystal of Weyl Semimetal CoSi», Crystals, **13**, 509, 2023.  
DOI: 10.3390/cryst13030509
20. **D.A. Salamatin**, S.E. Kichanov, **I.E. Kostyleva**, **L.F. Kulikova**, **A.V. Bokov**, **I.P. Zibrov**, D. Kozlenko, **A.V. Tsvyashchenko**, “The pressure-induced crystal structure transformations in the high-pressure annealed Bi<sub>1-x</sub>Tb<sub>x</sub>FeO<sub>3</sub> compounds (x = 0.05, 0.1, and 0.3)”, Appl. Phys. Lett., **122**(21), 211905, 2023. DOI: 10.1063/5.0149444

21. **V.A. Sidorov**, E.V. Sterkhov, L.B. Vedmid, S.E. Kichanov, K.N. Mikhalev, A.Yu. Germov, S.G. Titova, “Pressure influence on electric and magnetic states in PrBaMn<sub>2</sub>O<sub>6</sub> double manganite”, *Physica B: Condens. Matter*, **651**, 414577, 2023.  
DOI: 10.1016/j.physb.2022.414577
22. A.L. Khoroshilov, K.M. Krasikov, A.N. Azarevich, A.V. Bogach, V.V. Glushkov, V.N. **Krasnorussky**, V.V. Voronov, N.Y. Shitsevalova, V.B. Filipov, S. Gabáni, K. Flachbart, N.E. Sluchanko, “Hall Effect Anisotropy in the Paramagnetic Phase of Ho<sub>0.8</sub>Lu<sub>0.2</sub>B<sub>12</sub> Induced by Dynamic Charge Stripes”, *Molecules*, **28**(2), 676, 2023.  
DOI: 10.3390/molecules28020676
23. **А.П. Новиков, А.В. Боков, С.Г. Ляпин, А.В. Цвященко**, «Ячейка с алмазными наковальнями и внешним нагревом образца для in situ оптических исследований», *Физические основы приборостроения*, **12**, № 3(49), 2-6, 2023.  
DOI: 10.25210/jfop-2303-ROGESC. EDN: ROGESC
24. **В.Н. Рыжов, Е.А. Гайдук, Е.Е. Тареева, Ю.Д. Фомин, Е.Н. Циок**, «Сценарии плавления двумерных систем - возможности компьютерного моделирования», *ЖЭТФ*, 2023, **164**, вып. 1 (7), 143–171, 2023. DOI: 10.31857/S0044451023070131  
**V. N. Ryzhov, E. A. Gaiduk, E. E. Tareeva, Yu. D. Fomin, and E. N. Tsiok**, “Melting Scenarios of Two-Dimensional Systems: Possibilities of Computer Simulation”, *Journal of Experimental and Theoretical Physics*, **137**, No. 1, 125–150.  
DOI: 10.1134/S1063776123070129
25. **E. A. Gaiduk, Yu. D. Fomin, E. N. Tsiok, and V. N. Ryzhov**, “Investigation of the Anomalous Behavior of the Density and Thermal Expansion in a Two-Dimensional System with the Hertz Potential, *Physics of Wave Phenomena*”, **31**, No. 3, 135-140, 2023.  
DOI: 10.3103/S1541308X23030044
26. **V.N. Ryzhov, E.A. Gaiduk, Yu.D. Fomin, and E.N. Tsiok**, “Self-Organization of Two-Dimensional Systems: The Role of Translational and Orientational Order Parameters”, *Physics of Particles and Nuclei Letters*, **20**, No. 5, 1124-1127, 2023.  
DOI: 10.1134/S1547477123050667.
27. **Ю.Д. Фомин, Е.Н. Циок, С.А. Бобков, В.Н. Рыжов**, «Молекулярное моделирование структуры воды в узких щелевых порах», *Коллоидный журнал*, **85**, № 4, 526-548, 2023.  
DOI: 10.31857/S0023291223600360  
**Yu. D. Fomin, E. N. Tsiok, S. A. Bobkov, and V. N. Ryzhov**, “Molecular Simulation of Water Structure in Narrow Slitlike Pores”, *Colloid Journal*, **85**, No. 4, 605-628, 2023.  
DOI: 10.1134/S1061933X23600525
28. **Yu.D. Fomin, I.V. Danilov and E.L. Gromnitskaya**, “Ultrasonic study and molecular dynamics simulation of propylene glycol at pressures up to 1.4 GPa”, *Physica Scripta*, **98**(4), 045016, 2023. DOI: 10.1088/1402-4896/acc1b5
29. **Yu.D. Fomin, E.N. Tsiok, V.N. Ryzhov**, “Molecular simulation of bulk and confined (1,1,1,3,3-pentafluorobutane)”, *Physica Scripta*, **98**(12), 125910, 2023.  
DOI: 10.1088/1402-4896/ad057f
30. **A.M. Belemuk, S.M. Stishov**, “Magnetic properties of chiral magnets with impurities”, *Physical Review B*, **107**, 184411, 2023. DOI: 10.1103/PhysRevB.107.184411
31. **V.E. Valiulin, A.V. Mikheyenkov, N.M. Chtchelkatchev, K.I. Kugel**, “The resistance of quantum entanglement to temperature in the Kugel-Khomskii model”, *SciPost Physics Core*, **6**, No. 2, 025, 2023. DOI: 10.21468/SciPostPhysCore.6.2.025

32. **N.M. Chtchelkatchev**, R.E. Ryltsev, **A.V. Mikheyenkov**, **V.E. Valiulin**, I.Ya. Polishchuk, “Description of a glass transition with immeasurable structural relaxation time”, *Physica A*, **615**, 128610, 2023. DOI: 10.1016/j.physa.2023.128610
33. V.G. Lebedev, K.Y. Shklyayev, S.G. Menshikova, **M.G. Vasin**, “About causes of slow relaxation of melted intermetallic alloys”, *CALPHAD: Computer Coupling of Phase Diagrams and Thermochemistry*, **83**, 102615, 2023. DOI: 10.1016/j.calphad.2023.102615
34. **M.G. Vasin**, **V.E. Ankudinov**, “Competition of glass and crystal: Phase-field model”, *Mathematical Methods in the Applied Sciences (MMA)*, 1–12, 2023. DOI: 10.1002/mma.9207
35. R.A. Konchakov, A.S. Makarov, G.V. Afonin, J.C. Qiao, **M.G. Vasin**, N.P. Kobelev, V.A. Khonik, “Critical behavior of the fluctuation heat capacity near the glass transition of metallic glasses”, *Journal of Non-Crystalline Solids*, **619**, 122555, 2023. DOI: 10.1016/j.jnoncrysol.2023.122555
36. **V.E. Ankudinov**, “Formation and Stability of the Crystalline Structures in Two-Mode Phase-Field Crystal Model”, *Phys. Solid State*, **64**, N. 8, 417-424, 2023. DOI:10.1134/S1063783422090013
37. S. Kavousi, **V. Ankudinov**, P. K. Galenko, M. A. Zaeem, “Atomistic-informed kinetic phase-field modeling of non-equilibrium crystal growth during rapid solidification”, *Acta Materiala*, **253**, 18960, 2023. DOI: 10.1016/j.actamat.2023.118960
38. N. Kondratyuk, R. Ryltsev, **V. Ankudinov**, **N. Chtchelkatchev**, “First-principles calculations of the viscosity in multicomponent metallic melts: Al-Cu-Ni as a test case”, *Journal of Molecular Liquids*, **380**, 121751, 2023. DOI: 10.1016/j.molliq.2023.121751
39. A.O. Tipeev, R.E. Ryltsev, **N.M. Chtchelkatchev**, S. Ramprakash, E.D. Zanotto, “Machine learning-assisted MD simulation of melting in superheated AlCu validates the Classical Nucleation Theory”, *Journal of Molecular Liquids*, **387**, 122606, 2023. DOI: 10.1016/j.molliq.2023.122606
40. И.А. Балякин, Р.Е. Рыльцев, **Н.М. Щелкачев**, «Структурная наследственность жидкость-кристалл в потенциалах машинного обучения для сетевых систем», *Письма в ЖЭТФ*, **117(5)**, 377, 2023. DOI: 10.31857/S1234567823050099  
I.A. Balyakin, R.E. Ryltsev, **N.M. Chtchelkatchev**, “Liquid–Crystal Structure Inheritance in Machine Learning Potentials for Network-Forming Systems”, *JETP Letters*, **117(5)**, 370–376, 2023. DOI:10.1134/S0021364023600234
41. **I.V. Sterkhova**, **L.V. Kamaeva**, V.I. Lad'yanov, **N.M. Chtchelkatchev**, «Structure and solidification of the  $(\text{Fe}_{0.75}\text{B}_{0.15}\text{Si}_{0.1})_{100-x}\text{Tax}$  ( $x=0-2$ ) melts: Experiment and machine learning», *Journal of Physics and Chemistry of Solids*, **174**, 111143, 2023. DOI: 10.1016/j.jpics.2022.111143
42. Е.О. Хазиева, **Н.М. Щелкачев**, А.О. Типеев, Р.Е. Рыльцев “Точность, производительность и переносимость межчастичных потенциалов для сплавов Al-Cu: сравнение моделей погруженного атома и глубокого машинного обучения” *ЖЭТФ*, **164**, 980, 2023. DOI: 10.31857/S004445102312012X  
E.O. Khazieva, **N.M. Shchelkatchev**, A.O. Tipeev, R.E. Ryltsev “Accuracy, Performance, and Transferability of Interparticle Potentials for Al–Cu Alloys: Comparison of Embedded Atom and Deep Machine Learning Models”, *JETP*, **137**, 864–877, 2023. DOI: 10.1134/S1063776123120208
43. Y. Chen, C. Li, T. Yang, **E.A. Ekimov**, C. Bradac, S.T. Ha, ... & T.T. Tran, “Real-time ratiometric optical nanoscale thermometry”, *ACS nano*, **17(3)**, 2725-2736. DOI: 10.1021/acsnano.2c10974

44. Y. Chen, S. White, **E.A. Ekimov**, C. Bradac, M. Toth, I. Aharonovich, & T.T. Tran, “Ultralow-power cryogenic thermometry based on optical-transition broadening of a two-level system in diamond”, *10*, 8, 2481-2487, 2023. DOI: 10.1021/acsp Photonics.2c01622
45. **E.A. Ekimov**, A.A. Shiryaev, **V.A. Sidorov**, **V. A.**, Y.V. Grigoriev, A.A. Averin, & **M.V. Kondrin**, “Synthesis and properties of nanodiamonds produced by HPHT carbonization of 1-fluoroadamantane”, *Diamond and Related Materials*, **136**, 109907, 2023. DOI: 10.1016/j.diamond.2023.109907
46. **E.A. Ekimov**, S.N. Nikolaev, A.G. Ivanova, **V.A. Sidorov**, A.A. Shiryaev, I.I. Usmanov, A.L. Vasiliev, V.V. Artemov, **M.V. Kondrin**, M.A. Chernopitsskiy, and V. S. Krivobok, “Structural, optical and transport properties of layered europium disulfide synthesized under high pressure”, *CrystEngComm*, **25**(19), 2966-2978, 2023. DOI:10.1039/D2CE01647H
47. A.Y. Neliubov, I.Y. Eremchev, V.P. Drachev, S.S. Kosolobov, E.A. **Ekimov**, A.I. Arzhanov, ... & A.V. Naumov, “Enigmatic color centers in microdiamonds with bright, stable, and narrow-band fluorescence”, *Physical Review B*, **107**(8), L081406, 2023. DOI: 10.1103/PhysRevB.107.L081406
48. Ю.В. Плесков, М.Д. Кротова, **Е.А. Екимов**, «Алмазные электроды-компакты с повышенной электроактивностью: анодное окисление этилендиаминтетрауксусной кислоты», *Электрохимия*, 59, № 9, 530-535, 2023. DOI: 10.31857/S0424857023090104  
Y.V. Pleskov, M.D. Krotova, & **E.A. Ekimov**, “Diamond Compact Electrodes with Increased Electroactivity: Anodic Oxidation of Ethylenediaminetetraacetic Acid”, *Russian Journal of Electrochemistry*, **59**(9), 678-682, 2023. DOI: 10.1134/S1023193523090100
49. **Е.А. Екимов**, С.Н. Николаев, **М.В. Кондрин**, В.С. Кривобок, «Влияние эффектов электронного конфайнмента на ширину запрещенной зоны почти моноатомных слоев EuS<sub>2</sub>», *Письма в ЖЭТФ*, **118**, № 3-4 (8), 263-269, 2023. DOI: 10.31857/S1234567823160073  
**E.A. Ekimov**, S.N. Nikolaev, **M.V. Kondrin**, & V.S. Krivobok, “Influence of Electron Confinement Effects on the Band Gap of Almost Monatomic EuS<sub>2</sub> Layers”, *JETP Letters*, **118**(4), 266-272, 2023. DOI: 10.1134/S0021364023602191
50. D.G. Stone, Y. Chen, **E.A. Ekimov**, T.T. Tran, & C. Bradac, “Diamond Nanothermometry Using a Machine Learning Approach”, *ACS Applied Optical Materials*, **1**(4), 898-905, 2023. DOI: 10.1021/acsaom.3c00059
51. И.Н. Лукина, О.П. Черногорова, Е.Н. Дроздова, **Е.А. Екимов**, «Структура и свойства спеченных при высоком давлении композиционных материалов, армированных частицами аморфного бора», *Журнал физической химии*, **127**, № 1, 21-25, 2023. DOI: 10.31857/S0044453723010193  
I.N. Lukina, O.P. Chernogorova, E.I. Drozdova, & **E.A. Ekimov**, “Structure and Properties of Composite Materials Sintered at High Pressure and Reinforced with Amorphous Boron Particles”, *Russian Journal of Physical Chemistry A*, **97**(1), 19-23, 2023. DOI: 10.1134/S0036024423010193
52. **Е.А. Екимов**, **В.А. Сидоров**, Р.А. Хмельницкий, **С.Г. Ляпин**, «Синтез сверхпроводящих легированных бором алмазов в растворе углерода и бора в расплавах золота и меди», *Неорганические материалы*, **59**, № 9, 959-965, 2023. DOI: 10.31857/S0002337X23090038
53. E. Drozdova, O. Chernogorova, I. Lukina, **E. Ekimov**, “Characterization of Fine Structure and Mechanical Properties of the Disordered Carbon Materials Synthesized from C60 Fullerite under High Pressure”, *Russian Metallurgy (Metally)*, No. 9, 1309-1313, 2023. DOI: 10.1134/S0036029523090148

54. S. Fiedler, S. Morozov, D. Komisar, **E.A. Ekimov, L.F. Kulikova, V.A. Davydov**, V.N. Agafonov, S. Kumar, Ch. Wolff, S.I. Bozhevolnyi and N.A. Mortensen, “Sub-to-super-Poissonian photon statistics in cathodoluminescence of color center ensembles in isolated diamond crystals”, *Nanophotonics*, **12**(12), 2231-2237 2023.  
DOI: 10.1515/nanoph-2023-0204
55. S.S. Starchikov, V.A. Zayakhanov, I.S. Lyubutin , A.L. Vasiliev , M.V. Lyubutina , N.K. Chumakov, K.O. Funtov, **L.F. Kulikova**, V.N. Agafonov, **V.A. Davydov**, “Evolution of the phase composition, crystal structure and magnetic properties of core@shell nanoparticles obtained during conversion of ferrocene at high pressure and high temperature”, *Applied Surface Science*, **615**, 156269, 2023. DOI: 10.1016/j.apsusc.2022.156269
56. S. Sahoo, **V. A. Davydov**, V. N. Agafonov, and S. I. Bogdanov, “Hybrid quantum nanophotonic devices with color centers in nanodiamonds [Invited]”, *Optical Material Express*, **13**, No. 1, 191, 2023. DOI: 10.1364/OME.471376
57. **V.A. Davydov**, V.N. Agafonov, T. Plakhotnik & V.N. Khabashesku, “Insights on self-assembly of carbon in the processes of thermal transformations under high pressures”, *Functional Diamond*, **3**, no. 1, 2193212, 2023. DOI: 10.1080/26941112.2023.2193212
58. T. Plakhotnik, T. Duka, **V. A. Davydov**, V.N. Agafonov, “Formation of doping in bottom -up grown HPHT nanodiamonds and its implication for optical nanosensing”, *Diamond and Related Materials*, **139**(19):110363, 2023. DOI: 10.1016/j.diamond.2023.110363
59. D. Komisar, S.Kumar, Y. Kan , C. Meng, **L.F. Kulikova, V. A. Davydov**, V.N. Agafonov & S.I. Bozhevolny, “Multiple channelling single-photon emission with scattering holography designed metasurfaces”, *Nature Communications*, **14**, 6253, 2023.  
DOI: 10.1038/s41467-023-42046-3
60. U.S. Lazdovskaia, I.O. Orekhov, A. Ismaeel, Y. Feifei, D.A. Dvoretzkiy, S.G. Sazonkin, V.E. Karasik, L.K. Denisov, **V.A. Davydov**, “High-Density Well-Aligned Single-Walled Carbon Nanotubes for Application as a Saturable Absorber with High-Pass Filter Effect in an Erbium-Doped Ultra-Short Pulse Fiber Laser”, *ACS Appl. Nano Mater.*, **6**, 23410–23417, 2023. DOI: 10.1021/acsanm.3c04766
61. V.V. Tkatchenko, **V.P. Filonenko, R.K. Bagramov, I.P. Zibrov**, A.S. Anokhin, M.A. Andrianov, A.N. Shipkov, “Diamond composites with Al-Co binder: Synthesis, structure, wear resistance”, *Materials Letters*, **330**,133317, 2023. DOI:10.1016/j.matlet.2022.133317
62. I.S. Pavlov, A.G. Ivanova, **V.P. Filonenko, I.P. Zibrov**, A. Voloshin, P.V. Zinin, A.L. Vasiliev, “The rhombic hexecontahedronboron carbide microcrystals – crystal structure analysis”, *Scripta Materialia*, **222**, 115023, 2023. DOI:10.1016/j.scriptamat.2022.115023
63. O.S. Kudryavtsev, **R.H. Bagramov**, D.G. Pasternak, A.M. Satanin, O.I. Lebedev, **V.P. Filonenko**, I.I. Vlasov, “Raman fingerprints of ultrasmall nanodiamonds produced from adamantane”, *Diamond & Related Materials*, **133**, 109770, 2023.  
DOI: 10.1016/j.diamond.2023.109770
64. **R.H. Bagramov, V.P. Filonenko, I.P. Zibrov**, E.A. Skryleva, B.A. Kulnitskiy, V.D. Blank and V.N. Khabashesku, “Magnetic Nanoparticles with Fe-N and Fe-C Cores and Carbon Shells Synthesized at High Pressures”, *Materials*, **16**, 7063, 2023. DOI:10.3390/ma16227063
65. A.M. Romshin, A.V. Gritsienko, A.S. Ilin, **R.K. Bagramov, V.P. Filonenko**, A.G. Vitukhnovsky, I.I. Vlasov, “Enhancing single-photon emission of silicon-vacancy centers in nanodiamonds by a gold film”, *St. Petersburg Polytechnic University Journal. Physics and Mathematics.*, **16**(1.3), 135-139, 2023. DOI: 10.18721/JPM.161.323

66. А.М. Ромшин, Д.Г. Пастернак, А.С. Алтахов, **Р.Х. Баграмов, В.П. Филоненко, И.И. Власов**, «Температурные характеристики люминесцирующих центров "кремний-вакансия" в алмазных частицах, синтезированных различными методами», *Оптика и спектроскопия*, **131**, вып. 2, 141-144, 2023. DOI: 10.21883/OS.2023.02.54995.18-23
67. **С.И. Ниненко**, Е.В. Жовнерчук, «Образование гидрата ксенона из парогазовой среды», *Журнал физической химии*, **97**, № 6, 800-804, 2023. DOI: 10.31857/S0044453723060225
68. **С.И. Ниненко**, «Сильфонная камера в качестве дожимающей ступени для получения давления 1 ГПа в газовой среде», *Приборы и техника эксперимента*, № 4. 97-100, 2023. DOI: 10.31857/S0032816223030254
69. A. Shatskiy, **A.V. Arefiev, K.D. Litasov** “Change in carbonate budget and composition during subduction below metal saturation boundary”, *Geoscience Frontiers*, **14**, 101463, 2023. DOI: 10.1016/j.gsf.2022.101463
70. N.E. Sagatov, D.N. Sagatova, P.N. Gavryushkin and **K.D. Litasov**, “New High-Pressure Structures of Transition Metal Carbonates with O<sub>3</sub>C-CO<sub>3</sub> Orthooxalate Groups”, *Symmetry*, **15**, 421, 2023. DOI: 10.3390/sym15020421
71. A. Shatskiy, Y.G. Vinogradova, A.V. Arefiev & **K.D. Litasov**, “The system NaAlSi<sub>2</sub>O<sub>6</sub>–CaMgSi<sub>2</sub>O<sub>6</sub>–CO<sub>2</sub> at 3–6.5 GPa: implications for CO<sub>2</sub> stability in the eclogitic suite at depths of 100–200 km”, *Contributions to Mineralogy and Petrology*, **178**, 22, 2023. DOI: 10.1007/s00410-023-01999-w
72. A. Shatskiy, I.S. Podborodnikov, A.V. Fedoraeva, A.V. Arefiev, A. Bekhtenova, **K.D. Litasov**, “The NaCl–CaCO<sub>3</sub> and NaCl–MgCO<sub>3</sub> systems at 6 GPa: Link between saline and carbonatitic diamond forming melts”, *American Mineralogist*, **108** (4), 709-718, 2023. DOI: 10.2138/am-2022-8403.
73. A. Shatskiy, A. Bekhtenova, A.V. Arefiev, **K.D. Litasov**, “Melt composition and phase equilibria in the eclogite-carbonate system at 6 GPa and 900–1500° C”, *Minerals*, **13**(1), 82, 2023. DOI: 10.3390/min13010082.
74. A. Semerikova, A.D. Chanyshev, K. Glazyrin, A. Pakhomova, A. Kurnosov, **K. Litasov**, L. Dubrovinsky, T. Fedotenko, E. Koemets, S. Rashchenko, “Does It “Rain” Diamonds on Neptune and Uranus?”, *ACS Earth and Space Chemistry*, **7**(3), 582-588, 2023. DOI: 10.1021/acsearthspacechem.2c00343
75. A. Shatskiy, I.V. Podborodnikov, A.V. Arefiev, **K.D. Litasov**, “The system KCl–CaCO<sub>3</sub>–MgCO<sub>3</sub> at 3 GPa”, *Minerals*, **13**(2), 248, 2023. DOI: 10.3390/min13020248
76. A.V. Arefiev, A. Shatskiy, A. Bekhtenova, **K.D. Litasov**, “Phonolite-Carbonatite Liquid Immiscibility at 3–6 GPa”, *Minerals*, **13**(3), 443, 2023. DOI: 10.3390/min13030443
77. N.E. Sagatov, T.V. Bekker, Y.G. Vinogradova, A.V. Davydov, I.V. Podborodnikov, **K.D. Litasov**, “Experimental and ab initio study of Ba<sub>2</sub>Na<sub>3</sub>(B<sub>3</sub>O<sub>6</sub>)<sub>2</sub>F stability in the pressure range of 0–10 GPa”, *International Journal of Minerals, Metallurgy and Materials*, **30** (9), 1846-1854, 2023. DOI: 10.1007/s12613-023-2647-0
78. P.N. Gavryushkin, N.E. Sagatov, D.N. Sagatova, A. Bekhtenova, M.V. Banaev, E.V. Alexandrov, **K.D. Litasov**, “First finding of high-pressure modifications of Na<sub>2</sub>CO<sub>3</sub> and K<sub>2</sub>CO<sub>3</sub> with sp<sup>3</sup>-hybridized carbon atoms”, *Crystal Growth & Design*, **23** (9), 6589-6596, 2023. DOI: 10.1021/acs.cgd.3c00507
79. A. Shatskiy, Y.G. Vinogradova, A.V. Arefiev, **K.D. Litasov**, “Revision of the CaMgSi<sub>2</sub>O<sub>6</sub>–CO<sub>2</sub> *P-T* phase diagram at 3–6 GPa”, *American Mineralogist*, **108** (12), 2338-2347, 2023. DOI: 10.2138/am-2022-8588

80. A.F. Shatskiy, I.V. Podborodnikov, A.V. Arefiev, **K.D. Litasov**, “The NaCl–CaCO<sub>3</sub>–MgCO<sub>3</sub> System at 3 GPa: Implications for Mantle Solidi”, *Russian Geology and Geophysics*, **64** (8), 932–949, 2023. DOI: 10.2113/RGG20234587