

Ֆիզիկայի գիտահետազոտական ինստիտուտ

Առաջադեմ ֆունկցիոնալ մատերիալների լաբորատորիա
Ավագ գիտաշխատող

📖 Հրատարակումներ

Հոդված

Artificial intelligence guided search for van der Waals materials with high optical anisotropy

Liudmila A. Bereznikova, Ivan A. Kruglov, Georgy A. Ermolaev, Ivan Trofimov, Congwei Xie,

Arslan Mazitov, Gleb Tselikov, Anton Minnekhanov, Alexey P. Tsapenko, Maxim Povolotsky,

Davit A. Ghazaryan, Aleksey V. Arsenin, Valentyn S. Volkov, Kostya S. Novoselov

Materials Horizons 2025 1953 - 1961

Հոդված

Optical Properties of Biaxial van der Waals Crystals for Photonic Applications

A. Slavich, G. Ermolaev, I. Zavidovskiy, D. Grudin, M. Tatmyshevskiy, A. Toksumakov, A. Syuy,

A. Vyshnevyy, D. Yakubovsky, S. Novikov, D. Ghazaryan, A. Arsenin, V. Volkov

Bulletin of the Russian Academy of Sciences: Physics 2025 S433 - S438

Հոդված

In-Plane Directional MoS₂ Emitter Employing Dielectric Nanowire Cavity

Alexey Kuznetsov, Maria Aleksandrovna Anikina, Adilet Nurlanbekovich Toksumakov,

Artem Nikolaevich Abramov, Vyacheslav Vsevolodovich Dremov, Eseniya Zavyalova,

Valeriy Mikhailovich Kondratev, Vladimir Victorovich Federov, Ivan Sergeevich Mukhin, Vasily Kravtsov,

Kostya Sergeevich Novoselov, Aleksey Vladimirovich Arsenin, Valentyn Sergeevich Volkov,

Davit Armenovich Ghazaryan, Alexey Dmitrievich Bolshakov

Small Structures 2025 2400476

Հոդված

Germanium disulfide as an alternative high refractive index and transparent material for UV-visible nanophotonics

Aleksandr S. Slavich, Georgy A. Ermolaev, Ilya A. Zavidovskiy, Dmitriy V. Grudin, Konstantin V. Kravtsov,

Mikhail K. Tatmyshevskiy, Mikhail S. Mironov, Adilet N. Toksumakov, Gleb I. Tselikov,

Ilia M. Fradkin, Kirill V. Voronin, Maksim R. Povolotskiy, Olga G. Matveeva, Alexander V. Syuy,

Dmitry I. Yakubovsky, Dmitry M. Tsymbarenko, Ivan Kruglov, Davit A. Ghazaryan, Sergey M. Novikov,

Andrey A. Vyshnevyy, Aleksey V. Arsenin, Valentyn S. Volkov, Kostya S. Novoselov

Light: Science and Applications 2025 213

Հոդված

Exploring van der Waals materials with high anisotropy: geometrical and optical approaches

Aleksandr S Slavich, Georgy A Ermolaev, Mikhail K Tatmyshevskiy, Adilet N Toksumakov,

Olga G Matveeva, Dmitriy V Grudin, Kirill V Voronin, Arslan Mazitov, Konstantin V Kravtsov,

Alexander V Syuy, Dmitry M Tsymbarenko, Mikhail S Mironov, Sergey M Novikov, Ivan Kruglov,

Davit A Ghazaryan, Andrey A Vyshnevyy, Aleksey V Arsenin, Valentyn S Volkov, Kostya S Novoselov

Հոդված

Wandering principal optical axes in van der Waals triclinic materials

Georgy A Ermolaev, Kirill V Voronin, Adilet N Toksumakov, Dmitriy V Grudin, Ilya M Fradkin, Arslan Mazitov, Aleksandr S Slavich, Mikhail K Tatmyshevskiy, Dmitry I Yakubovsky, Valentin R Solovey, Roman V Kirtaev, Sergey M Novikov, Elena S Zhukova, Ivan Kruglov, Andrey A Vyshnevyy, Denis G Baranov, Davit A Ghazaryan, Aleksey V Arsenin, Luis Martin-Moreno, Valentyn S Volkov, Kostya S Novoselov
Nature Communications 2024 1552

Հոդված

Broadband optical properties of Ti3C2 MXene revisited

Aleksey V. Arsenin, Valentyn S. Volkov, Daria A. Panova, Gleb I. Tselikov, Georgy A. Ermolaev, Alexander V. Syuy, Dmitrii S. Zimbovskii, Olesya O. Kapitanova, Dmitry I. Yakubovsky, Arslan B. Mazitov, Ivan A. Kruglov, Andrey A. Vyshnevyy
Optics Letters 2024 25-28

Հոդված

Crystallinity as a factor of SERS stability of silver nanoparticles formed by Ar+ irradiation

Aleksey V. Arsenin, Valentyn S. Volkov, Natalia V. Doroshina, Oleg A. Streletskiy, Ilya A. Zavidovskiy, Mikhail K. Tatmyshevskiy, Gleb I. Tselikov, Olesya O. Kapitanova, Alexander V. Syuy, Roman Romanov, Prabhask Mishra, Vjaceslavs Bobrovs, Andrey M. Markeev, Dmitry I. Yakubovsky, Irina A. Veselova, Sergey M. Novikov
Heliyon 2024 e27538

Հոդված

Chiral Photonic Super-Crystals Based on Helical van der Waals Homostructures

Kirill V. Voronin, Adilet N. Toksumakov, Georgy A. Ermolaev, Aleksandr S. Slavich, Mikhail K. Tatmyshevskiy, Sergey M. Novikov, Andrey A. Vyshnevyy, Aleksey V. Arsenin, Kostya S. Novoselov, Davit A. Ghazaryan, Valentyn S. Volkov, Denis G. Baranov
Laser and Photonics Reviews 2024 2301113

Հոդված

Programmable Carbon Nanotube Networks: Controlling Optical Properties Through Orientation and Interaction

Kirill V. Voronin, Georgy A. Ermolaev, Maria G. Burdanova, Aleksandr S. Slavich, Adilet N. Toksumakov, Dmitry I. Yakubovsky, Maksim I. Paukov, Ying Xie, Liu Qian, Daria S. Kopylova, Dmitry V. Krasnikov, Davit A. Ghazaryan, Denis G. Baranov, Alexander I. Chernov, Albert G. Nasibulin, Jin Zhang, Aleksey V. Arsenin, Valentyn Volkov
Advanced Science 2024 2404694

Հոդված

Polarization control of lasing from few-layer MoTe2 coupled with the optical metasurface supporting quasi-trapped modes

A. V. Prokhorov, A. N. Toksumakov, A. V. Shesterikov, F. M. Maksimov, M. K. Tatmyshevskiy, M. Yu. Gubin, R. V. Kirtaev, E. I. Titova, D. I. Yakubovsky, E. S. Zhukova, V. V. Burdin, S. M. Novikov,

A. I. Chernov, D. A. Ghazaryan, A. V. Arsenin, V. S. Volkov

Applied Physics Letters 2024 041702

Հոդված

Anisotropic Optical Properties of Monolayer Aligned Single-Walled Carbon Nanotubes

Aleksey V. Arsenin, Valentyn S. Volkov, Georgy A. Ermolaev, Ying Xie, Liu Qian,

Mikhail K. Tatmyshevskiy, Aleksandr S. Slavich, Jin Zhang, Alexander I. Chernov

Physica Status Solidi - Rapid Research Letters 2024 2300199

Հոդված

Exploring stable hot carrier multiplication in filled carbon nanotubes

Aleksey V. Arsenin, Maksim I. Paukov, Shuang Sun, Anna A. Vorfolomeeva, Alexander V. Syuy,

Roman I. Romanov, Mikhail S. Mironov, Andrey A. Vyshnevyy, Gennadiy A. Komandin,

Lyubov G. Bulusheva, Alexander V. Okotrub, Valentyn Volkov, Yan Zhang, Maria G. Burdanova

Carbon 2024 119580

Հոդված

Laser-synthesized TiN-based nanoparticles as novel efficient electrostatic nanosorbent for environmental water cleaning

Aleksey V Arsenin, Valentyn S Volkov, Alexander V Syuy, Ilya V Martynov, Ilya A Zavidovskiy,

Dmitry V Dyubo, Qingjiang Sun, Xi Yang, Gleb V Tikhonowski, Daniil I Tselikov, Maxim S Savinov,

Islam V Sozaev, Anton A Popov, Sergey M Klimentov, Gleb I Tselikov, Sergey M Novikov, Xiangwei Zhao,

Andrei V Kabashin

Physica Scripta 2024 115914

Հոդված

Leveraging Femtosecond Laser Ablation for Tunable Near-Infrared Optical Properties in MoS₂-Gold Nanocomposites

Aleksey V. Arsenin, Alexey D. Bolshakov, Ilya A. Zavidovskiy, Ilya V. Martynov, Daniil I. Tselikov,

Alexander V. Syuy, Anton A. Popov, Sergey M. Novikov, Andrei V. Kabashin, Gleb I. Tselikov,

Valentyn S. Volkov

Nanomaterials 2024 1961

Հոդված

Unveiling the broadband optical properties of Bi₂Te₃: Ultrahigh refractive index and promising applications

Aleksey V. Arsenin, Valentyn S. Volkov, Georgy A. Ermolaev, et al.

Applied Physics Letters 2024 241101

Հոդված

SERS analysis of single cells and subcellular components: A review

A. Arsenin, V. Volkov, M. Barshutina

Heliyon 2024 e37396

Հոդված

Graphene on SiO₂/Si and Al₂O₃ under thermal annealing and electric current: Competition of dopant desorption and conformation to substrate

E.A. Kolesov, M.S. Tivanov, O.V. Korolik, I.A. Svito, A.S. Antonovich, Yu. Klishin, D.A. Ghazaryan,

A.V. Arsenin, V.S. Volkov, O.O. Kapitanova, G.N. Panin

Diamond and Related Materials 2023 110362

Հոդված

Dry Assembly of van der Waals Heterostructures Using Exfoliated and CVD-Grown 2D Materials

Adilet N. Toksumakov, M. N. Sidorova, A. S. Slavich, M. K. Tatmyshevskiy, I. A. Zavidovskiy,

G. A. Ermolaev, V. S. Volkov, D. A. Ghazaryan, A. V. Arsenin

Bulletin of the Russian Academy of Sciences: Physics 2023 S453-S457

Հոդված

Hexagonal boron nitride nanophotonics: a record-breaking material for the ultraviolet and visible spectral ranges

D. V. Grudinina, G. A. Ermolaev, D. G. Baranov, A. N. Toksumakov, K. V. Voronin, A. S. Slavich,

A. A. Vyshnevyy, A. B. Mazitov, I. A. Kruglov, D. A. Ghazaryan, A. V. Arsenin, K. S. Novoselov, V. S. Volkov

Materials Horizons 2023 2427-2435

Հոդված

Anomalous optical response of graphene on hexagonal boron nitride substrates

Adilet N Toksumakov, Georgy A Ermolaev, Mikhail K Tatmyshevskiy, Yuri A Klishin, Aleksandr S Slavich,

Ilya V Begichev, Dusan Stosic, Dmitry I Yakubovsky, Dmitry G Kvashnin, Andrey A Vyshnevyy,

Aleksey V Arsenin, Valentyn S Volkov, Davit A. Ghazaryan

Communications Physics 2023 13

Հոդված

Tunable THz flat zone plate based on stretchable single-walled carbon nanotube thin film

Gleb M Katyba, Nikita I Raginov, Eldar M Khabushev, Vladislav A Zhelnov, Andrei Gorodetsky,

Davit A Ghazaryan, Mikhail S Mironov, Dmitriy V Krasnikov, Yuri G Gladush, James Lloyd-Hughes,

Albert G Nasibulin, Aleksey V Arsenin, Valentyn S Volkov, Kirill I Zaytsev, Maria G Burdanova

Optica 2023 53-61

Հոդված

Optical Nanoimaging of Surface Plasmon Polaritons Supported by Ultrathin Metal Films

Aleksey V. Arsenin, Valentyn S. Volkov, Dmitriy I. Yakubovsky, Dmitriy V. Grudinina, Georgy A. Ermolaev,

Kirill Voronin, Dmitry A. Svintsov, Andrey A. Vyshnevyy, Mikhail S. Mironov

Nano Letters 2023 9461-9467

Հոդված

Physisorption-Mediated Charge Transfer in TiS₂ Nanodiscs: A Room Temperature Sensor for Highly Sensitive and Reversible Carbon Dioxide Detection

Aleksey V. Arsenin, Valentyn S. Volkov, Samrah Manzoor, Mohammad Talib, Sergey M. Novikov,

Prabhash Mishra

ACS Sensors 2023 3435-3447

Հոդված

van der Waals Materials for Overcoming Fundamental Limitations in Photonic Integrated Circuitry

Aleksey V. Arsenin, Valentyn S. Volkov, Andrey A. Vyshnevyy, Georgy A. Ermolaev, Dmitriy V. Grudinina,

Kirill V. Voronin, Ivan Kharichkin, Arslan Mazitov, Ivan A. Kruglov, Dmitry I. Yakubovsky, Prabhash Mishra, Roman V. Kirtaev, Kostya S. Novoselov, Luis Martin-Moreno
Nano Letters 2023 8057-8064

Հոդված

Elastic Gallium Phosphide Nanowire Optical Waveguides—Versatile Subwavelength Platform for Integrated Photonics

Alexey Kuznetsov, Eduard Moiseev, Artem N. Abramov, Nikita Fominykh, Vladislav A. Sharov, Valeriy M. Kondratev, Ivan I. Shishkin, Konstantin P. Kotlyar, Demid A. Kirilenko, Vladimir V. Fedorov, Svetlana A. Kadinskaya, Alexandr A. Vorobyev, Ivan S. Mukhin, Aleksey V. Arsenin, Valentyn S. Volkov, Vasily Kravtsov, Alexey D. Bolshakov
Small 2023 2301660

Հոդված

Self-assembled photonic structure: a Ga optical antenna on GaP nanowires

Alexey Kuznetsov, Prithu Roy, Dmitry V. Grudinin, Valeriy M. Kondratev, Svetlana A. Kadinskaya, Alexandr A. Vorobyev, Konstantin P. Kotlyar, Evgeniy V. Ubyivovk, Vladimir V. Fedorov, George E. Cirlin, Ivan S. Mukhin, Aleksey V. Arsenin, Valentyn S. Volkov, Alexey D. Bolshakov
Nanoscale 2023 2332 - 2339

Հոդված

Photoluminescence anisotropy in hybrid nanostructures based on gallium phosphide nanowire and 2D transition metal dichalcogenides

MA Anikina, A Kuznetsov, AN Toksumakov, VV Dremov, DA Ghazaryan, VV Fedorov, AV Arsenin, VS Volkov, AD Bolshakov
St. Petersburg State Polytechnical University Journal: Physics and Mathematics 2023 3.2

Հոդված

Temperature-dependent Raman spectroscopy and thermal conductivity of TiS₂ hexagonal nanodiscs

Mohammad Talib, Samrah Manzoor, Davit A. Ghazaryan, Aleksey V. Arsenin, Valentyn S. Volkov, Prabhash Mishra
Materials Science in Semiconductor Processing 2022 107084

Հոդված

High-refractive index and mechanically cleavable non-van der Waals InGaS₃

Adilet N. Toksumakov, Georgy A. Ermolaev, Aleksandr S. Slavich, Natalia V. Doroshina,, Ekaterina V. Sukhanova, Dmitry I. Yakubovsky, Alexander V. Syuy, Sergey M. Novikov,, Roman I. Romanov, Andrey M. Markeev, Aleksandr S. Oreshonkov, Dmitry M. Tsymbarenko, Zakhar I. Popov, Dmitry G. Kvashnin, Andrey A . Vyshnevyy, Aleksey V. Arsenin, Davit A. Ghazaryan, Valentyn S. Volkov
npj 2D Materials and Applications 2022 85

Հոդված

Broadband optical and terahertz properties of 1D van der Waals heteronanotubes

Maria G. Burdanova, Yongjia Zheng, Maksim I. Paukov, Georgy A. Ermolaev, Gennady A. Komandin, Davit Ghazaryan, Sergey Novikov, Rong Xiang, Shohei Chiashi, Shigeo Maruyama, James Lloyd-Hughes, Alexey V. Arsenin, Valentin Volkov

