

Publications

Article

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 Tsybarenko, Mikhail S Mironov, Sergey M Novikov, Ivan Kruglov,

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

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Wandering principal optical axes in van der Waals triclinic materials

Georgy A Ermolaev, Kirill V Voronin, Adilet N Toksumakov, Dmitriy V Grudin, Ilia M Fradkin,

Arslan Mazitov, Aleksandr S Slavich, Mikhail K Tatmyshevskiy, Dmitry I Yakubovskiy, 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

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Article

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. Yakubovskiy, Arslan B. Mazitov,

Ivan A. Kruglov, Andrey A. Vyshnevyy

Optics Letters 2024 25-28

Article

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,

Prabhash Mishra, Vjaceslavs Bobrovs, Andrey M. Markeev, Dmitry I. Yakubovskiy, Irina A. Veselova,

Sergey M. Novikov

Heliyon 2024 e27538

Article

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

Article

Conjugated small molecules based on alkylsilyl-modified triphenylamine: promising hole transport materials in perovskite photovoltaics

Aleksey V. Arsenin, Ilya V. Martynov, Aleksandra N. Zhivchikova, Mikhail D. Tereshchenko, Ilya E. Kuznetsov, Stepan Baryshev, Valentyn S. Volkov, Marina Tepliakova, Alexander V. Akkuratov
Sustainable Energy and Fuels 2024 3704-3710

Article

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
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Article

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

Article

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

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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. Svitov, A.S. Antonovich, Yu. Klishin, D.A. Ghazaryan, A.V. Arsenin, V.S. Volkov, O.O. Kapitanova, G.N. Panin
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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

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

D. V. Grudin, 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
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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

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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

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Optical Nanoimaging of Surface Plasmon Polaritons Supported by Ultrathin Metal Films

Aleksey V. Arsenin, Valentyn S. Volkov, Dmitriy I. Yakubovsky, Dmitriy V. Grudinin, Georgy A. Ermolaev, Kirill Voronin, Dmitry A. Svintsov, Andrey A. Vyshnevyy, Mikhail S. Mironov

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Article

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

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Article

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. Grudinin, 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

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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

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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
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Article

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

Article

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

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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

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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

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