

## Ֆիզիկայի գիտահետազոտական ինստիտուտ

Առաջադեմ ֆունկցիոնալ մատերիալների լաբորատորիա  
Լաբորատորիայի վարիչ

## 🌐 Լեզուների իմացություն

English Русский

## 📖 Հրատարակումներ

Հոդված

### Inelastic resonant tunnelling through adjacent localised electronic states in van der Waals heterostructures

E. E. Vdovin, K. Kapralov, Yu. N. Khanin, A. Margaryan, K. Watanabe, T. Taniguchi, C. Yang, S. V. Morozov, D. A. Svintsov, K. S. Novoselov, D. A. Ghazaryan  
npj 2D Materials and Applications 2025 7

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

### E-beam induced micropattern generation and amorphization of L-cysteine-functionalized graphene oxide nano-composites

Y. Melikyan, H. Gharagulyan, A. Vasil'ev, V. Hayrapetyan, M. Zhezhu, A. Simonyan, D.A. Ghazaryan, M.S. Torosyan, A. kharatyan, J. Michalicka, M. Yerosyan  
Colloids and Interface Science Communications 2024 100766-7

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  
Light: Science and Applications 2024 68

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

**Infrared photodetection in graphene-based heterostructures: bolometric and thermoelectric effects at the tunneling barrier**

Dmitry A. Mylnikov, Mikhail A. Kashchenko, Kirill N. Kapralov, Davit A. Ghazaryan, Evgenii E. Vdovin, Sergey V. Morozov, Kostya S. Novoselov, Denis A. Bandurin, Alexander I. Chernov, Dmitry A. Svintsov  
npj 2D Materials and Applications 2024 34

---

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 MoTe<sub>2</sub> 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

**Improving the electro-optical properties of MoS<sub>2</sub>/rGO hybrid nanocomposites using liquid crystals**

A. Vasil'ev, Y. Melikyan, M. Zhezhu, V. Hayrapetyan, M.S. Torosyan, D.A. Ghazaryan, M. Yerosyan, H. Gharagulyan  
Materials Research Bulletin 2024 113036

---

Հոդված

**Essential L-Amino Acid-Functionalized Graphene Oxide for Liquid Crystalline Phase Formation**

H. Gharagulyan, Y. Melikyan, V. Hayrapetyan, Kh. Kirakosyan, D.A. Ghazaryan, M. Yeranossyan

Materials Science and Engineering: B 2023 116564

---

Հոդված

**Graphene on SiO<sub>2</sub>/Si and Al<sub>2</sub>O<sub>3</sub> 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. Grudinin, 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

**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 TiS<sub>2</sub> 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 InGaS<sub>3</sub>**

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  
IEEE Photonics Journal 2022 182243

---

*Հոդված*

**Twisted monolayer and bilayer graphene for vertical tunneling transistors**

Davit A. Ghazaryan, Abhishek Misra, Evgenii E. Vdovin,, Kenji Watanabe, Takashi Taniguchi,  
Sergei V. Morozov, Artem Mishchenko, Kostya S. Novoselov  
Applied Physics Letters 2021 183106

---

*Հոդված*

**On the Role of Structural Imperfections of Graphene in Resonant Tunneling through Localized States in the h-BN Barrier of van-der-Waals Heterostructures**

M. V. Grigoriev, D. A. Ghazaryan, E. E. Vdovin, Yu. N. Khanin, S. V. Morozov, K. S. Novoselov  
Физика и техника полупроводников (Semiconductors) 2020 291-296

---

*Հոդված*

**High-temperature electronic devices enabled by hBN-encapsulated graphene**

Makars Šiškins, Ciaran Mullan, Seok-Kyun Son, Jun Yin, Kenji Watanabe, Takashi Taniguchi,  
Davit Ghazaryan, Kostya S. Novoselov, Artem Mishchenko  
Applied Physics Letters 2019 123104

---

*Հոդված*

**Engineering Graphene Flakes for Wearable Textile Sensors via Highly Scalable and Ultrafast Yarn Dyeing Technique**

Shaila Afroj, Nazmul Karim, Zihao Wang, Sirui Tan, Pei He, Matthew Holwill, Davit Ghazaryan,  
Anura Fernando, Kostya S. Novoselov  
ACS Nano 2019 3847-3857

---

*Հոդված*

**Field-induced insulating states in a graphene superlattice**

S. Pezzini, S. Wiedmann, A. Mishchenko, M. Holwill, R. Gorbachev, D. Ghazaryan, K.S. Novoselov,

U. Zeitler

Physical Review B 2019 045440

---

*Հոդված*

**Planar and van der Waals heterostructures for vertical tunnelling single electron transistors**

Gwangwoo Kim, Sung-Soo Kim, Jonghyuk Jeon, Seong In Yoon, Seokmo Hong, Young Jin Cho,

Abhishek Misra, Servet Ozdemir, Jun Yin, Davit Ghazaryan, Matthew Holwill, Artem Mishchenko,

Daria V. Andreeva, Yong-Jin Kim, Hu Young Jeong, A-Rang Jang, Hyun-Jong Chung, Andre K. Geim,

Kostya S. Novoselov, Byeong-Hyeok Sohn, Hyeon Suk Shin

Nature Communications 2019 230

---