

# Davit Armen Ghazaryan

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## Research Institute of Physics

Laboratory of Advanced Functional Materials

Head of laboratory

## Language skills

English Русский

## Publications

*Article*

### **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. Yeranosyan

Colloids and Interface Science Communications 2024 100766-7

*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 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

*Article*

### **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 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

*Article*

### **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

*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

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*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  
Advanced Science 2024 2404694

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*Article*

**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

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*Article*

**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

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*Article*

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

H. Gharagulyan, Y. Melikyan, V. Hayrapetyan, Kh. Kirakosyan, D.A. Ghazaryan, M. Yerosyan  
Materials Science and Engineering: B 2023 116564

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*Article*

**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

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*Article*

**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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*Article*

**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  
Materials Horizons 2023 2427-2435

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*Article***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

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*Article***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

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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

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*Article***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

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*Article***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

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*Article***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

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Article

**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

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Article

**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

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Article

**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

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Article

**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

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Article

**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

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Article

**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

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