

## Ֆիզիկայի գիտահետազոտական ինստիտուտ

Առաջադեմ ֆունկցիոնալ մատերիալների լաբորատորիա  
Գիտական աշխատող

## 📖 Հրատարակումներ

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### Leveraging Femtosecond Laser Ablation for Tunable Near-Infrared Optical Properties in MoS<sub>2</sub>-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  
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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  
Small 2023 2301660

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

Alexey Kuznetsov, Prithu Roy, Dmitry V. Grudin, 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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### Numerical Study of GaP Nanowires: Individual and Coupled Optical Waveguides and Resonant Phenomena

Maria A. Anikina, Prithu Roy, Svetlana A. Kadinskaya, Alexey Kuznetsov, Valeriy M. Kondratev, Alexey D. Bolshakov  
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### Deep-Level Emission Tailoring in ZnO Nanostructures Grown via Hydrothermal Synthesis

Alexey D. Bolshakov, Svetlana A. Kadinskaya, Valeriy M. Kondratev, Ivan K. Kindyushov, Olga Yu. Koval, Dmitry I. Yakubovsky, Alexey Kuznetsov, Alexey I. Lihachev, Alexey V. Nashchekin, Irina Kh. Akopyan, Alexey Yu. Serov, Mariana E. Labzovskaya, Sergey V. Mikushev, Boris V. Novikov, Igor V. Shtrom  
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**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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**Si Nanowire-Based Schottky Sensors for Selective Sensing of NH<sub>3</sub> and HCl via Impedance Spectroscopy**

Valeriy M. Kondratev, Ekaterina A. Vyacheslavova, Talgat Shugabaev, Demid A. Kirilenko, Alexey Kuznetsov, Svetlana A. Kadinskaya, Zamir V. Shomakhov, Artem I. Baranov, Svetlana S. Nalimova, Vyacheslav A. Moshnikov, Alexander S. Gudovskikh, Alexey D. Bolshakov  
ACS Applied Nano Materials 2023 11513 - 11523

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**Single GaP nanowire nonlinear characterization with the aid of an optical trap**

Alexey D. Bolshakov, Ivan Shishkin, Andrey Machnev, Mihail Petrov, Demid A. Kirilenko, Vladimir V. Fedorov, Ivan S. Mukhin, Pavel Ginzburg  
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**Anisotropic Radiation in Heterostructured “Emitter in a Cavity” Nanowire**

Alexey D. Bolshakov, Alexey Kuznetsov, Prithu Roy, Valeriy M. Kondratev, Vladimir V. Fedorov, Konstantin P. Kotlyar, Rodion R. Reznik, Alexander A. Vorobyev, Ivan S. Mukhin, George E. Cirlin  
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**Silicon Nanowire-Based Room-Temperature Multi-environment Ammonia Detection**

Alexey D. Bolshakov, Valeriy M. Kondratev, Ivan A. Morozov, Ekaterina A. Vyacheslavova, Demid A. Kirilenko, Alexey Kuznetsov, Svetlana A. Kadinskaya, Vyacheslav A. Moshnikov, Alexander S. Gudovskikh, Svetlana S. Nalimova  
ACS Applied Nano Materials 2022 9940 - 9949

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**XRD Evaluation of Wurtzite Phase in MBE Grown Self-Catalyzed GaP Nanowires**

Alexey D. Bolshakov, Olga Yu. Koval, Vladimir V. Fedorov, Igor E. Eliseev, Sergey V. Fedina, Georgiy A. Sapunov, Stanislav A. Udovenko, Liliia N. Dvoretckaia, Demid A. Kirilenko, Roman G. Burkovsky, Ivan S. Mukhin  
Nanomaterials 2021 960

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**Work function tailoring in gallium phosphide nanowires**

Alexey Bolshakov, Vladislav Sharov, Prokhor Alekseev, Vladimir Fedorov, Mikhail Nestoklon, Alexander Ankudinov, Demid Kirilenko, Georgy Sapunov, Olga Koval, George Cirlin, Ivan Mukhin  
Applied Surface Science 2021 150018

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**Tailoring Morphology and Vertical Yield of Self-Catalyzed GaP Nanowires on Template-Free Si**

## **Substrates**

Alexey D. Bolshakov, Vladimir V. Fedorov, Yury Berdnikov, Nickolay V. Sibirev, Sergey V. Fedina, Georgiy A. Sapunov, Liliia N. Dvoretckaia, George Cirlin, Demid A. Kirilenko, Maria Tchernycheva, Ivan S. Mukhin  
Nanomaterials 2021 1949

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### **Gallium Phosphide Nanowires in a Free-Standing, Flexible, and Semitransparent Membrane for Large-Scale Infrared-to-Visible Light Conversion**

Alexey Bolshakov, Vladimir V. Fedorov, Sergey V. Makarov, Olga Sergaeva, Vladimir Neplokh, Daria Markina, Stephanie Bruyere, Grégoire Saerens, Mihail I. Petrov, Rachel Grange, Maria Timofeeva, Ivan S. Mukhin  
ACS Nano 2020 10624 - 10632

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### **Perovskite-Gallium Phosphide Platform for Reconfigurable Visible-Light Nanophotonic Chip**

Alexey Bolshakov, Pavel Trofimov, Anatoly P. Pushkarev, Ivan S. Sinev, Vladimir V. Fedorov, Stéphanie Bruyère, Ivan S. Mukhin, Sergey V. Makarov  
ACS Nano 2020 8126 - 8134

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