Tatiana (Tetiana) Orlova

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Laboratory of Optoelectronics and Photonics
Ֆոտոնիկայի և արհեստական բանականության լաբորատորիա
Leading Researcher
Research Institute of Physics
Laboratory of Optoelectronics and Photonics
Ֆոտոնիկայի և արհեստական բանականության լաբորատորիա
Leading Researcher
Institute of Physics
Chair of Optics and Photonics
Lecturer on an hourly basis

Education

Institution	- Other -
Faculty	Faculty of Natural Sciences
Date	2001 - 2002
Degree name	Masters

Institution	- Other -
Faculty	Faculty of Natural Sciences
Date	1997 - 2001
Degree name	Bachelor

Scientific Rank/degree

Institution	- Other -
Date	2007
Degree name	Candidate
Scientific Supervisor	Iryna Terenetska (Irina Terenetskaya)
Research Topic	Optical and spectral properties of liquid crystals with photosensitive chiral steroid dopant

Language skills

Русский English Українська Français

Participation in international conferences and seminars

23/10/2025 - 27/10/2025	4th Sino-Russia Forum on Science and Technology Harbin China
02/02/2026 - 15/02/2026	Business trip to the Infochemistry Scientific Center of ITMO University Saint-Petersburg Russian Federation (the)
22/06/2026 - 26/06/2026	22nd International Conference Laser Optics (ICLO) Saint-Petersburg Russian Federation (the)
27/07/2026 - 31/07/2026	The 48th PhotonIcs and Electromagnetics Research Symposium (PIERS) Suzhou China

Publications

Article

Light-induced isotropic pen for generation of topological solitons and hopfion–toron transition in frustrated chiral nematic films

Sergey A. Shvetsov, Darina D. Darmoroz, Alexey Vasil’ev, Tetiana Orlova, Igor S. Lobanov, Mushegh Rafayelyan

Chaos Solitons & Fractals 2025 116905

Article

A Dynamic Analysis of Toron Formation in Chiral Nematic Liquid Crystals Using a Polarization Holographic Microscope

Tikhon V. Reztsov, Aleksey V. Chernykh, Tetiana Orlova, Nikolay V. Petrov

Polymers 2025 1849

Article

Polarization-controlled orbital angular momentum of light passing through a cholesteric spherulite

A. N. Shalev, A. A. Misura, A. O. Georgieva, A. V. Chernykh, N. V. Petrov, T. Orlova, I. S. Lobanov, E. V. Aksenova, V. M. Uzdin, A. D. Kiselev

Optics Letters 2025 4866-4869

Article

Rewritable Binary Recording of the Photon Spin State in Chiral Liquid Crystals

Nicolas Bruni, Charles Loussert, Mushegh Rafayelyan, Tetiana Orlova, Delphine Coursault, Etienne Brasselet

Physical Review Letters 2025 223804

Article

Fine Tuning of the Rotational Speed of Light-Driven, Second-Generation Molecular Motors by Fluorine Substitution

Ivan Tambovtsev, Yorick L. A. Schmerwitz, Gianluca Levi, Darina D. Darmoroz, Pavel V. Nesterov,

Tetiana Orlova, Hannes Jónsson

The Journal of Physical Chemistry Letters 2025 4014 - 4020

Article

Microsecond-scale observation of phase transition and diffusion in 5CB liquid crystal at the molecular level
N. Kasapenko, T. Orlova, N. Kondratyuk

The Journal of Chemical Physics 2025 154901

Article

Light-Induced Heating of Microsized Nematic Volumes
Dmitrii Shcherbinin, Denis A. Glukharev, Semyon Rudyi, Anastasiia Piven, Tetiana Orlova, Izabela Sliwa,

Alex Zakharov

Crystals 2025 822

Article

On-Demand Photopatterned Twisted Nematics for Generation of Polychromatic Vector Fields
Edvard Grigoryan, Hayk H. Harutyunyan, Hrayr Hakobyan, Sergey A. Shvetsov, Tetiana Orlova,

Mushegh Rafayelyan, Vahram L. Grigoryan

Crystals 2025 877

Article

Large Supramolecular Patterns in Photoactive Chiral Liquid Crystals for Light-Controllable Soft Micromechanical Systems
Darina Darmoroz, Tetiana Orlova, Anastasiia Piven

Small Structures 2025 e202500506

Article

Nanostructured Material Design via a Retrieval-Augmented Generation (RAG) Approach: Bridging Laboratory Practice and Scientific Literature
Nikita A. Krotkov, Dmitrii A. Sbytov, Anna A. Chakhoyan, Polina I. Kornienko, Anna A. Starikova,

Maxim G. Stepanov, Anastasiia O. Piven, Timur A. Aliev, Tetiana Orlova, Mushegh S. Rafayelyan,

Ekaterina V. Skorb

Journal of Chemical Information and Modeling 2025 11064-11078

Article

Light-controllable liquid crystal platform for microparticle oscillations and transport
Sergey Shvetsov, Tetiana Orlova, Aleksandr Hayrapetyan, Alexey Vasil'ev, Mushegh Rafayelyan

Soft Matter 2024 6920-6928

Article

Machine learning methods for liquid crystal research: phases, textures, defects and physical properties
Anastasiia Piven, Darina Darmoroz, Ekaterina Skorb, Tetiana Orlova

Soft Matter 2024 1380 - 1391

Article

Topological Learning for the Classification of Disorder: An Application to the Design of Metasurfaces

Tristan Madeleine, Nina Podoliak, Oleksandr Buchnev, Ingrid Membrillo Solis, Tetiana Orlova, Maria van Rossem, Malgosia Kaczmarek, Giampaolo D'Alessandro, Jacek Brodzki

ACS Nano 2024 630−640

Article

Reactions of 5-(Trialkyl)silylpent-1-en-4-yn-3-ones with Hydrazines: Original Synthetic Routes to Luminescent Substances Containing Azole Motifs

Ivan S. Odin, Kareem V. Gordon, Radik N. Itakhunov, Dmitry M. Gusev, Sergey A. Sokov, Anna V. Vologzhanina, Stanislav A. Grabovskiy, Ilya M. Sosnin, Anton I. Ukolov, Olga I. Orlova, Vladimir A. Lazarenko, Pavel V. Dorovatovskii, Darina D. Darmoroz, Anastasiia O. Piven, Tetiana Orlova, Alexander A. Golovanov

SYNTHESIS 2024 243-266

Article

Machine learning for soft and liquid molecular materials

Tetiana Orlova, Anastasiia Piven, Darina Darmoroz, Timur Aliev, Tamer Mahmoud Tamer Abdel Razik, Anton Boitsev, Natalia Grafeeva, Ekaterina Skorb

Digital Discovery 2023 298-315

Article

МЕТОД ОПТИЧЕСКОЙ МОЛЕКУЛЯРНОЙ ГЕНЕРАЦИИ ЛОКАЛИЗОВАННЫХ ХИРАЛЬНЫХ СТРУКТУР В ФОТОАКТИВНЫХ ЖИДКОКРИСТАЛЛИЧЕСКИХ ПЛЕНКАХ

Д. Д. ДАРМОРОЗ, А. О. ПИВЕНЬ, Т. ОРЛОВА

Izvestiâ vyšših učebnyh zavedenij Priborostroenie 2023 306 - 312

Article

Optical nonlinearity of a dual-frequency nematic liquid crystal via temperature-mediated mapping of dielectric anisotropy

S. A. Shvetsov, T. Orlova, A. V. Emelyanenko, A. S. Zolot'ko, H. L. Ong

Optics Express 2022 47909-47920

Article

Optical Imaging and Analytical Design of Localized Topological Structures in Chiral Liquid Crystals

Igor Lobanov, Elena Aksenova, Tetiana Orlova, Darina Darmoroz, Valery Uzdin, Alexei D. Kiselev

Symmetry 2022 2476

Article

Light-Induced Structures and Microparticle Transportation in a Free-Surface Frustrated Chiral Nematic Film

Sergey A. Shvetsov, Tetiana Orlova, Alexander V. Emelyanenko

Crystals 2022 549

Article

Nanoparticle-Induced Property Changes in Nematic Liquid Crystals

Nicolas Brouckaert, Nina Podoliak, Tetiana Orlova, Denitsa Bankova, Angela F. De Fazio, Antonios G. Kanaras, Ondrej Hovorka, Giampaolo D'Alessandro, Malgosia Kaczmarek

Nanomaterials 2022 341

Article

When Bubbles Are Not Spherical: Artificial Intelligence Analysis of Ultrasonic Cavitation Bubbles in Solutions of Varying Concentrations

Ilya Korolev, Timur A. Aliev, Tetiana Orlova, Sviatlana A. Ulasevich, Michael Nosonovsky, Ekaterina V. Skorb

Journal of Physical Chemistry B 2022 3161 - 3169

Article

Tracking the time evolution of soft matter systems via topological structural heterogeneity

Ingrid Membrillo Solis, Tetiana Orlova, Karolina Bednarska, Piotr Lesiak, Tomasz R. Woliński, Giampaolo D'Alessandro, Jacek Brodzki, Malgosia Kaczmarek

Communications Materials 2022 1
