

	<p>ORLOVA, Tatiana PhD awarded by the Institute of Physics of the National Academy of Sciences of Ukraine</p>
<p>Research interests</p>	<p>Self-assembled supramolecular architectures, their topology, evolution, optics, photonics and photophysics</p> <ul style="list-style-type: none"> <li>✓ Principles, methods, approaches of forming localized elastic excitations in liquid crystals</li> <li>✓ Spatiotemporal evolution of localized liquid crystal structures</li> <li>✓ Numerical and experimental analysis of the topology and evolution of liquid crystal structures</li> <li>✓ Study of optical and photonic properties of localized liquid crystal structures</li> <li>✓ Development of “smart” photomechanical systems based on localized elastic excitations</li> </ul>
<p>Features of the PhD program</p>	<p>The opportunity to participate in interdisciplinary projects at the intersection of soft matter physics, photochemistry, physical chemistry, and IT. Permanent cooperation with foreign colleagues from leading European universities, regular participation in mobility programs. Gaining experience in the development and use of unique experimental facilities for studying light-matter interaction.</p>
<p>List of the supervisor’s research projects (participation/supervision)</p>	<ul style="list-style-type: none"> <li>✓ Partnership project “Development of a methodology for creating “smart” packaging for food quality control” (supervision)</li> <li>✓ Russian Science Foundation project 22-13-00185 “Nucleophilic reactions of the polyunsaturated carbonyl-containing compounds as synthetic platform for the original materials possessing photophysical properties” (main participant)</li> </ul>
<p>List of potential thesis topics</p>	<ul style="list-style-type: none"> <li>✓ Localized elastic excitations in chiral nematic liquid crystals as “smart” photomechanical systems</li> <li>✓ Topological soliton structures in liquid crystalline media for optical and photonic applications</li> </ul>
<p>Publications in the last five years</p>	<p>15 (Scopus / Web of Science / RSCI)</p>
<p>Key publications</p>	<ol style="list-style-type: none"> <li>1. I. Membrillo Solis, M. Van Rossem, T. Madeleine, N. Podoliak, T. Orlova, G. D'Alessandro, J. Brodzki, M. Kaczmarek, ‘Learning complex systems dynamics from vector fields over discrete measure spaces’, Research Square DOI: <a href="https://doi.org/10.21203/rs.3.rs-3011267/v2">https://doi.org/10.21203/rs.3.rs-3011267/v2</a></li> <li>2. Orlova T., Piven A., Darmoroz D., Aliev T., Abdelrazek T., Boitsev A., Grafeeva N., Skorb E. Machine learning for soft and liquid molecular materials//Digital Discovery, 2023, Vol. 2, No. 2, pp. 298-315</li> </ol>

	<p>3. Lobanov I., Aksenova E., Orlova T., Darmoroz D., Uzdin V., Kiselev A.D. Optical Imaging and Analytical Design of Localized Topological Structures in Chiral Liquid Crystals//Symmetry, 2022, Vol. 14, No. 12, pp. 2476</p> <p>4. S.A. Shvetsov, T. Orlova, A.V. Emelyanenko, A.S. Zolot'ko, and H.L. Ong, 'Optical nonlinearity of a dual-frequency nematic liquid crystal via temperature-mediated mapping of dielectric anisotropy', Opt. Express 30, 47909, 2022.</p> <p>5. Shvetsov S.A., Orlova T., Emel'Yanenko A. Light-Induced Structures and Microparticle Transportation in a Free-Surface Frustrated Chiral Nematic Film//Crystals, 2022, Vol. 12, No. 4, pp. 549</p>
Key IPs	<ul style="list-style-type: none"> <li>✓ Ukrainian Patent for Utility Model UA 84586 U. Method for determining the biological dose of ultraviolet radiation. Samchenko Y.M., Ulberg Z.P., Boldeskul I.E., Terenetska I.P., Orlova T.M., Kapinos P.S. Date of filling Ukrainian patent application is 23.04.2013. Date of effective is 25.10.2013</li> <li>✓ United States Patent US 8552391 B2. Methods and devices for in situ determination of a vitamin-D synthesizing amount of natural and artificial UV radiation. Terenetska I.P., Orlova T.M., Kirilenko E.K., Galich G.A., Eremenko A.M. International filing date is 23.03.2010. Entry date is 10.08.2011. National number is 13148804. Date of national patent is 08.10.2013</li> <li>✓ Ukrainian Patent UA 93569 C2. A method for in situ determination of the vitamin-D-synthetic dose of natural and artificial ultraviolet irradiation and its implementation in a personal bio-dosimeter. Terenetska I.P., Orlova T.N., Kirilenko E.K., Eremenko A.M., Galich G.A. Date of filling Ukrainian patent application is 24.03.2009. Date of effective is 25.02.2011</li> </ul>
Supervisor's specific requirements	<ul style="list-style-type: none"> <li>✓ Molecular physics</li> <li>✓ Basics of physical chemistry</li> <li>✓ Basics of optics and photonics</li> <li>✓ Programming skills</li> </ul>
Code of the subject area of the PhD program	1.3.8 Physics of condensed matter