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|  | <p>PETROV, Nikolay V. Doctor of Science</p> |
| <p>Research interests</p> | <ul style="list-style-type: none"> ✓ Digital holography ✓ Phase retrieval ✓ Terahertz technology ✓ Singular optics, ✓ Femtosecond optics ✓ Nonlinear optical properties |
| <p>Features of the PhD program</p> | <p>Best holographic team in Russia</p> |
| <p>List of the supervisor's research projects (participation/supervision)</p> | <ul style="list-style-type: none"> ✓ Low-coherence digital holographic microscopy using the geometric phase effect and a polarizing camera for the dynamic study of the morphology of cell cultures (supervision) ✓ Phase reconstruction in the terahertz frequency range for 3D visualization problems" (supervision) |
| <p>List of potential thesis topics</p> | <ul style="list-style-type: none"> ✓ Digital holographic microscopy with wavefront modulation ✓ Use of broadband beams with orbital angular momentum in wireless telecommunications |
| <p>Publications in the last five years</p> | <p>85 (Scopus / Web of Science / RSCI)</p> |
| <p>Key publications</p> | <ol style="list-style-type: none"> 1. Tsiplakova E., Perraud J.-B., Chopard A., Guillet J.-P., Mounaix P., Petrov N. V. Terahertz Diffractive Imaging with Saturated Data Inpainting // Opt. Lett. 2023. Vol. 48, № 19. 2. Rabosh E.V., Balbekin N.S., Petrov N.V. Analog-to-digital conversion of information archived in display holograms: I. discussion // Journal of the Optical Society of America A: Optics and Image Science, and Vision -2023. - T. 40. - № 4. - C. B47-B56 3. Petrov N. V et al. Design of broadband terahertz vector and vortex beams: I. Review of materials and components // Light Adv. Manuf. 2022. Vol. 3, № 4. P. 640–652. 4. Petrov N. V. et al. Design of broadband terahertz vector and vortex beams: II. Holographic assessment // Light Adv. Manuf. 2022. Vol. 3, № 4. P. 752–770. 5. Grachev Y.V., Kokliushkin V., Petrov N.V. Open-source 3D-printed terahertz pulse time-domain holographic detection module//Applied Optics, 2022, Vol. 61, No. 5, pp. B307-B313 5. Georgieva A., Belashov A.V., Petrov N.V. Optimization of DMD-based independent amplitude and phase modulation by analysis of target complex wavefront//Scientific Reports, 2022, Vol. 12, No. 1, pp. 7754 |

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| Key IPs | <ul style="list-style-type: none"> ✓ P. V. Pavlov, I. E. Wolf, N. V. Petrov, T. M. Khakimov, A. A. Bogdanov “Method for the determination of impurities in liquid media” Invention RU 2730418 C1 from 21/08/2020 ✓ P. V. Pavlov, A. N. Malov, N. V. Petrov, T. M. Khakimov, V. A. Martynov, D. R. Manucharov, M. O. Astakhov, “Method for the determination of impurities in liquid media” Invention RU 2659192 C1 from 20/07/2017 ✓ E. A. Levshin, N. V. Petrov, A. N. Malov, O. S. Petrov, P. V. Pavlov, S. S. Tkachenko, “Method of non-destructive check of subsurface structure of semi-transparent objects” Invention RU 2563334 C1 from 24/06/2014 ✓ V. G. Bepalov, S. A. Vinokurov, A. P. Zhevlakov, N. V. Petrov, Yu. I. Soldatov “The system of non-destructive control of objects in the THz spectral range” The utility model # 114783 from 21/10/2011 |
| Supervisor’s specific requirements | <ul style="list-style-type: none"> ✓ Knowledge of the basics of the programming languages MATLAB, Python, LabVIEW ✓ Skills of work in the optical laboratory ✓ Ability to process experimental data ✓ Experience in preparing texts of scientific articles is desirable |
| Code of the subject area of the PhD program | 1.3.6 Optics |