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флуорофоров в коже и её применение для биомедицинской диагностики»**

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**Список основных научных публикаций за последние 5 лет по специальности  
соискателя 01.04.21 — «лазерная физика»:**

1. Shirshin, E. A., Yakimov, B. P., Budylin, G. S., Buyankin, K. E., Armaganov, A. G., **Fadeev, V. V.**, & Kamalov, A. A. (2022). Melanin diagnostics with nonlinear optics: a mini-review. *Quantum Electronics*, 52(1), 28.
2. Yakimov, B. P., Venets, A. V., Schleusener, J., **Fadeev, V. V.**, Lademann, J., Shirshin, E. A., & Darvin, M. E. (2021). Blind source separation of molecular components of the human skin in vivo: non-negative matrix factorization of Raman microspectroscopy data. *Analyst*, 146(10), 3185-3196.
3. Yakimov, B. P., Rubekina, A. A., Budylin, G. S., Zhrebker, A. Y., Kompanets, V. O., Chekalin, S. V., **Fadeev, V.V.**, ... & Shirshin, E. A. (2021). Ultrafast Energy Transfer Determines the Formation of Fluorescence in DOM and Humic Substances. *Environmental Science & Technology*, 55(15), 10365-10377.
4. Gorbunov, M. Y., Shirsin, E., Nikonova, E., **Fadeev, V. V.**, & Falkowski, P. G. (2020). A multi-spectral fluorescence induction and relaxation (FIRE) technique for physiological and taxonomic analysis of phytoplankton communities. *Marine Ecology Progress Series*, 644, 1-13.
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- molecules with ultrafast relaxation: Implications for assessment of protein binding and aggregation. *Laser Physics Letters*, 16(7), 075601.
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  9. Yakimov, B. P., Gogleva, M. A., Semenov, A. N., Rodionov, S. A., Novoselova, M. V., Gayer, A. V., **Fadeev, V.V.** & Shirshin, E. A. (2019). Label-free characterization of white blood cells using fluorescence lifetime imaging and flow-cytometry: molecular heterogeneity and erythrophagocytosis. *Biomedical optics express*, 10(8), 4220-4236.
  10. Shirshin, E. A., Yakimov, B. P., Rodionov, S. A., Omelyanenko, N. P., Priezzhev, A. V., **Fadeev, V. V.**, ... & Darvin, M. E. (2018). Formation of hemoglobin photoproduct is responsible for two-photon and single photon-excited fluorescence of red blood cells. *Laser Physics Letters*, 15(7), 075604.
  11. Shirshin, E. A., Gurfinkel, Y. I., Priezzhev, A. V., **Fadeev, V. V.**, Lademann, J., & Darvin, M. E. (2017). Two-photon autofluorescence lifetime imaging of human skin papillary dermis in vivo: assessment of blood capillaries and structural proteins localization. *Scientific reports*, 7(1), 1-10.
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13. **Shirshin, E. A.**, Shirmanova, M. V., Gayer, A. V., Lukina, M. M., Nikonova, E. E., Yakimov, B. P., ... & Scully, M. O. (2022). Label-free sensing of cells with fluorescence lifetime imaging: the quest for metabolic heterogeneity. *Proceedings of the National Academy of Sciences of the United States of America*, 119, № 9

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17. Barmin, R. A., Rudakovskaya, P. G., Chernyshev, V. S., Guslyakova, O. I., Belcov, P. A., Obukhova, E. N., **Shirshin, E.A.**,... & Gorin, D. A. (2021). Optoacoustic/Fluorescent/Acoustic Imaging Probe Based on Air-Filled Bubbles Functionalized with Gold Nanorods and Fluorescein Isothiocyanate. *ACS omega*, 6(5), 3809-3821.
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27. Shaham-Niv, S., Arnon, Z. A., Sade, D., Lichtenstein, A., **Shirshin, E. A.**, Kolusheva, S., & Gazit, E. (2018). Intrinsic Fluorescence of Metabolite Amyloids Allows Label-Free Monitoring of Their Formation and Dynamics in Live Cells. *Angewandte Chemie International Edition*, 57(38), 12444-12447.

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