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Тема диссертации	Картирование линейных и нелинейных свойств упругих сред на основе компрессионной ОКТ-эластографии для задач биомедицинской диагностики
Публикации	<p>1. "Real-Time Strain and Elasticity Imaging in Phase-Sensitive Optical Coherence Elastography Using a Computationally Efficient Realization of the Vector Method" Zaitsev, Vladimir Y., Sergey Y. Ksenofontov, Alexander A. Sovetsky, Alexander L. Matveyev, Lev A. Matveev, Alexey A. Zykov, and Grigory V. Gelikonov, Photonics 8, no. 12: 527 (2021) <a href="https://doi.org/10.3390/photonics8120527">https://doi.org/10.3390/photonics8120527</a></p> <p>2. "Simulating scan formation in multimodal optical coherence tomography: angular-spectrum formulation based on ballistic scattering of arbitrary-form beams" Alexander L. Matveyev, Lev A. Matveev, Aleksandr A. Moiseev, Alexander A. Sovetsky, Grigory V. Gelikonov, and Vladimir Y. Zaitsev, Biomed. Opt. Express 12, 7599-7615 (2021) <a href="https://doi.org/10.1364/BOE.440739">https://doi.org/10.1364/BOE.440739</a></p> <p>3. "Flexible computationally efficient platform for simulating scan formation in optical coherence tomography with accounting for arbitrary motions of scatterers" Alexey A Zykov, Alexander L Matveyev, Lev A Matveev, Alexander A Sovetsky, Vladimir Y Zaitsev, Journal of Biomedical Photonics &amp; Engineering , 7(1), 010304 (2021). <a href="https://doi.org/10.18287/JBPE21.07.010304">https://doi.org/10.18287/JBPE21.07.010304</a></p> <p>4. "Computationally efficient model of OCT scan formation by focused beams and its usage to demonstrate a novel principle of OCT-angiography" Alexander L Matveyev, Lev A Matveev, Alexander A Moiseev, Alexander A Sovetsky, Grigory V Gelikonov and Vladimir Y Zaitsev, Laser Physics Letters, 17(11), 115604 (2020) <a href="https://doi.org/10.1088/1612-202X/abac16">https://doi.org/10.1088/1612-202X/abac16</a></p> <p>5. "Multimodal OCT for Malignancy Imaging" Grigory Gelikonov, Valentin Gelikonov, Alexander Moiseev, Pavel Shilyagin, Sergey Ksenofontov, Irina Kasatkina, Dmitriy Terpelov, Lev Matveev, Alexander Matveyev, Vladimir Zaitsev, Alexander Sovetsky, Natalia Gladkova, Elena V. Zagaynova, Marina Sirotkina, Ekaterina Gubarkova, Elena Kiseleva, Anton Plekhanov, Vadim Elagin, Konstantin Yashin, Dmitry Vorontsov, Elena Sedova, Anna Maslennikova, Sergey Kuznetsov, Alex Vitkin. In: Tuchin V.V., Popp J., Zakharov V. (eds) Multimodal Optical Diagnostics of Cancer. Springer, Cham. pp 425-464 (2020) <a href="https://doi.org/10.1007/978-3-030-44594-2_12">https://doi.org/10.1007/978-3-030-44594-2_12</a></p> <p>6. "Strain and elasticity imaging in compression optical coherence elastography: the two-decade perspective and recent advances" Vladimir Y Zaitsev, Alexander L Matveyev, Lev A Matveev, Alexander A Sovetsky, Matt S Hepburn, Alireza Mowla, Brendan F Kennedy, Journal of Biophotonics, e202000257 (2020)</p>

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<p>Участие в конференциях</p>	<p>1. A. A. Sovetsky, A. L. Matveyev, L. A. Matveev, and V. Y. Zaitsev, "Mapping Large Strains and Supra-pixel Displacements in Phase- Sensitive OCT," in European Conferences on Biomedical Optics 2021 (ECBO), OSA Technical Digest (Optical Society of America, 2021), paper ETu2A.17.</p> <p>2. A. A. Plekhanov, E. V. Gubarkova, A. A. Sovetsky, M. A. Sirotkina, S. S. Kuznetsov, L. A. Matveev, D. A. Vorontsov, A. L. Matveyev, E. V. Zagaynova, V. Y. Zaitsev, and N. D. Gladkova, "Improvement of Breast Cancer Histological Examination by Means of Multimodal OCT," in European Conferences on Biomedical Optics 2021 (ECBO), OSA Technical Digest (Optical Society of America, 2021), paper EW4A.22;</p> <p>3. A. L. Matveyev, L. A. Matveev, A. A. Zykov, A. A. Moiseev, A. A. Sovetsky, G. V. Gelikonov, and V. Y. Zaitsev, "Computationally efficient spectral model of OCT-scan formation with easily accounted scatterer motions for simulating multimodal OCT," in European Conferences on Biomedical Optics 2021 (ECBO), OSA Technical Digest (Optical Society of America, 2021), paper ETu2A.36.</p> <p>4. "Relaxation and osmotic-induced slow strain mapping in biological tissues by optical coherence elastography," Yu. M. Alexandrovskaya, O. I. Baum, A. A. Sovetsky, L. A. Matveev, A. L. Matveyev, V. Yu. Zaitsev, Proc. SPIE 11845, Saratov Fall Meeting 2020: Optical and Nanotechnologies for Biology and Medicine, 1184503 (4 May 2021) <a href="https://doi.org/10.1117/12.2590710">https://doi.org/10.1117/12.2590710</a></p> <p>5. "Numerical simulation in optical coherence tomography as a tool for development of emerging OCT-modalities," Lev A. Matveev, Alexander L. Matveyev, Alexander A. Moiseev, Alexander A. Sovetsky, Alexey A. Zykov, Grigory V. Gelikonov, Vladimir Y. Zaitsev, Proc. SPIE 11846, Saratov Fall Meeting 2020: Laser Physics, Photonic Technologies, and Molecular Modeling, 118460P (4 May 2021) <a href="https://doi.org/10.1117/12.2590750">https://doi.org/10.1117/12.2590750</a></p> <p>6. "OCE-based quasistatic elasto-spectroscopy of living and freshly excised tumor tissue for histology-like morphological segmentation and express assessment of tumor subtypes", Vladimir Y. Zaitsev, Aleksander L Matveyev, Lev Matveev, Alexander Sovetsky, Anton Plekhanov, Ekaterina Gubarkova, Marina Sirotkina, Elena V. Zagaynova M.D., Natalia Gladkova, Proc. SPIE 11645, Optical Elastography and Tissue Biomechanics VIII, 116450J (5 March 2021); <a href="https://doi.org/10.1117/12.2587183">https://doi.org/10.1117/12.2587183</a></p> <p>7. "Spatially-resolved slow dynamics of strains due to residual stresses in cartilaginous implants visualized by phase-sensitive optical coherence tomography", Yu. M. Alexandrovskaya, O. I. Baum, A. A. Sovetsky, A. L. Matveyev, L. A. Matveev, E. N. Sobol, V. Yu. Zaitsev, Proc. SPIE 11641, Dynamics and Fluctuations in Biomedical Photonics XVIII, 116410S (5 March 2021); <a href="https://doi.org/10.1117/12.2588236">https://doi.org/10.1117/12.2588236</a></p> <p>8. "Optical coherence elastography to determine the high- and low-grade colon adenocarcinoma", Anton A. Plekhanov, Marina A.</p>

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<p>Участие в грантах</p>	<p>Грант РФФ № 16-15-10274 (“Новые ОКТ методы как основа контрольных систем с обратной связью при разработке нового поколения лазерных медицинских технологий для управляемой коррекции формы хрящей и роговицы глаза”)</p> <p>Грант РФФ № 17-72-20249 (“Использование метода синтеза апертуры для увеличения информативности Оптической Когерентной Томографии в исследованиях in vivo”)</p> <p>Грант РФФИ № 16-02-00642 А (“Развитие методов микромасштабного картирования реологических/релаксационных свойств биотканей на основе анализа динамики спекловой структуры в спектральной ОКТ с апробацией на сосудах с целью</p>

	<p>диагностики нестабильных атеросклеротических бляшек”) Грант РФФИ № 18-32-00608 мол_а (“Сравнительное исследование упругих свойств биологических тканей различных типов/патологических состояний методами оптической когерентной эластографии”)</p> <p>Грант РФФИ № 18-32-20056 мол_а_вед (“Нелинейная оптическая когерентная эластография как новый метод исследования упругих нелинейных свойств биотканей и их использование для дифференцирования различных типов патологических состояний ткани”)</p> <p>Грант РФФИ № 18-42-520018 р_а (“Новые функциональные возможности оптической когерентной томографии”)</p> <p>Грант РФФИ № 19-02-00645 А (“Радиофизический подход к моделированию сигнала в мультимодальной оптической когерентной томографии: выявление возможностей ОКТ-методов путем численного моделирования и сопоставление с физическими экспериментами”)</p> <p>Грант РФФИ № 19-05-0053 А (“Трещино- и контакто-содержащие среды: развитие нетрадиционных подходов к описанию их акустоупругих свойств для получения информации о структурных характеристиках из сравнения с данными экспериментов”)</p> <p>Грант РФФИ № 19-32-90110 Аспиранты (“Новый метод морфологического сегментирования в оптической когерентной томографии на основе анализа эластографических ОКТ-изображений ткани”)</p> <p>Грант Президента Российской Федерации МК-3416.2018.2 (“Разработка принципов высокоразрешающей трехмерной лимфоангиографии без использования контрастных агентов на основе спектральной ОКТ для увеличения эффективности диагностики и контроля лечения онкологических заболеваний”)</p> <p>УМНИК-18 №14017ГУ/2019 (“Разработка компрессионной оптической когерентной эластографии для оценки эффективности дерматологических средств и процедур”)</p>
<p>Научно-педагогическая деятельность</p>	<p>Тьюторство над студентами первого курса ВШОПФ</p>
<p><b>Успеваемость</b></p>	
<p>дисциплина</p>	<p>дата экзамена</p>
<p><b>Радиофизика</b></p>	<p><b>18.12.2020</b></p>
<p><b>Иностранный язык</b></p>	<p><b>03.06.2019</b></p>
<p><b>История и философия науки</b></p>	<p><b>13.06.2019</b></p>
<p>Личные достижения (дипломы, грамоты, сертификаты, именные стипендии)</p>	<p>1) Сертификат финалиста конкурса инновационных проектов «Умник-2018»</p> <p>2) Сертификат за второе место в номинации «Лучший студенческий постер» на международной конференции SFM 2017(25-30 сентября 2017 г.)</p> <p>3) Диплом I степени за устный доклад на XXIV Нижегородской</p>

	<p>сессии молодых учёных (21-24 мая 2019 г.)</p> <p>4) Диплом за 3 место в секции «Биофотоника» на XVII Всероссийской молодёжной Самарской Конкурс-конференции научных работ по оптике и лазерной физике.</p> <p>5) Диплом 2 степени на XXII Конкурсе работ молодых учёных ИПФ РАН</p> <p>6) Диплом за 1 место в секции Биомед (медицина, здравоохранение и биотехнологии) XIII Областного конкурса молодёжных инновационных команд РОСТ 2019 за проект «Разработка прижизненной экспресс методики определения лечебного патоморфоза методом оптической когерентной эластографии»</p> <p>7) Диплом за 1 место в секции «Биофотоника» на XVIII Всероссийской молодёжной Самарской Конкурс-конференции научных работ по оптике и лазерной физике.</p> <p>8) Финалист V Всероссийского научного форума "Наука будущего - наука молодых"</p>
<p>Дополнительная информация</p>	<p>[1] Обзор результатов, представленных на сайте ИПФ РАН в разделе Важные результаты, «Мультиמודальный ОКТ комплекс для лабораторных и клинических применений» был включен в число важнейших результатов года, рекомендуемых в отчет РАН.</p> <p>[2] Патент «Способ прижизненной оценки микроструктуры опухолевой ткани в эксперименте» Автор(ы) Плеханов Антон Андреевич, Сироткина Марина Александровна, Губарькова Екатерина Владимировна, Зайцев Владимир Юрьевич, Советский Александр Александрович, Кузнецов Сергей Станиславович, Матвеев Лев Александрович, Матвеев Александр Львович, Загайнова Елена Вадимовна, Гладкова Наталья Дорофеевна, №2020114397/14(024020) дата 22.04.2020</p> <p>[3] Государственную регистрацию программы для ЭВМ Elastoscan, Федеральная служба по интеллектуальной собственности (Роспатент), Реестр программ для ЭВМ, регистрационный № 2021616416 от 21.04.2021</p> <p>[4] Государственную регистрацию программы для ЭВМ Nonlinelastoscan, Федеральная служба по интеллектуальной собственности (Роспатент), Реестр программ для ЭВМ, регистрационный № 2021680098 от 07.12.2021</p>