CURRICULUM VITAE

Professor Nikolai G. Khlebtsov

Khlebtsov Nikolai Grigorievich, Head of Laboratory of Nanobiotechnology at the Institute of Biochemistry and Physiology of Plants and Microorganisms, Russian Academy of Sciences (IBPPM RAS), Saratov, Russia; also Full Professor at the Department of Nano- and Biomedical Technologies, Saratov National Research State University.

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Education: 1957-1967 Middle School (gold medal), 1967-1972, Saratov State University, Physical Department, Speciality – Radiophysics and electronics (distinct diploma).

Degrees: ***Doctor of Physical and Mathematical Sciences***, Speciality - Optics, Saratov State University (1996); ***PhD***, Speciality - Optics, Saratov State University (1982).

Field of Research and Experience: Static and dynamic light scattering by small particles and clusters, optics and electro-optics of disperse systems, fractal clusters, thermodynamics of high polymer solutions, Fortran programming and calculation of light scattering and absorption by using various approximate and state-of-the-art numerical methods. Experimental research using static and dynamic light scattering, UV-Vis spectroscopy, electrooptical, electron microscopy and other biophysical methods. My **current research interests** include: nanobiotechnology; plasmonics; biophotonics; fabrication, functionalization and biomedical applications of metal nanoparticles and multifunctional composite nanoparticles; computer simulation of light scattering and absorption by various metal and dielectric nanostructures.

Recent Professional Activities and Awards: Promoter of 6 PhD Theses. Invited speaker and member of scientific committee at Saratov Fall Meeting (SFM) - Int. School for young scientists and students on optics, laser physics and biophysics, Saratov Fall Meetings (2000-2013, **Invited** or **Plenary** lectures); NATO ASI (2003, 2008, 2010, **Invited**); CIMTEC 2012, 4th International Conference on Smart Materials, Structures and Systems, 2012, Italy (**Invited),** META'12, the 3rd International Conference on Metamaterials, Photonic Crystals and Plasmonics, Paris, France, 2012 (**Invited**), Electromagnetic and Light Scattering XIV, Lille, France, (**Invited);** XII Int. Conf. on Nanostructured Materials, NANO 2014, Moscow State Univ., 2014 (**Invited)**, SFM-2015 (Plenary **Lecture),** 17-th Int. Conf. "Laser Optics 2016", 4-th Int. Symp. "Lasers in Medicine and Biophotonics", St.-Petersburg, Russia, June 27-July 1, 2016 **(Invited),** 17-th Int. Conf. on Metamaterials, Photonic Crystals and Plasmonics, Malaga, Spain, 25-28 July 2016 **(Invited),** Electromagnetic and Light Scattering XVI, Maryland/College Park, USA, 19-25 March 2017 **(Invited),** VI International Symposium Topical Problems of Biophotonics, 28- July-03 August, 2017, St. Petersbur – Nizhny Novgorod, **(Invited),** Saratov Fall Meeting – 2018, Int. Symp. "Optics and Biophotonics", Saratov, Russia, 24-29 Sept. 2018 (**Plenary**), 18th International Conference on Laser Optics ICLO 2018 4-8 June, 2018 St.Petersburg, Russia. (**Invited),** Laser Applications in Life Sciences (LALS) 2018, 18-20 Nov 2018, Ramat Gan, Israel **(Invited)**, RSC-NPL Symposium: Nanoparticle concentration – critical needs and state-of-the-art measurement. 24 April 2018, London, UK ((**Invited**), Topical Problems of Biophotonics, 27-31 July 2019, Nizjny Novgorod **(Invited),** 27th International Conference on Advanced Laser Technologies (ALT'19), Prague, 15-20 Sept. 2019 **(Invited),** IVth International Caparica Symposium on Nanoparticles, Nanomaterials and Applications. ISN^{2}A2020, 20-23 Jan 2020, Caparica, Portugal (**(Invited).**

Awards: Honored worker of science of the Russian Federation (2016); Thomson Reuter Award (2015) http://www.strf.ru/material.aspx?CatalogId=222&d_no=110553#.VpS591Iprq1; SCOPUS AWARD Russia (2015) http://www.scopusaward.ru; Diploma from the Ministry of Education and Science of the Russian Federation for publication of two most cited papers among all papers of

scientific teams granted by the Federal Scientific Program "Scientific and scientific-educational personnel of innovative Russia" (2009-2013) published in scientific journals that are indexed by Web of Science during 2009-201; Award from MAIK Publishing for the best publications in Colloidal Journal (2004)

Associate Editor of the Journal of Quantitative Spectroscopy and Radiative Transfer (2006-2019); Honorary Associate Editor (2019-precent), Member of Editorial Board of Journal of Biomedical Photonics and Engineering (2014-present).

Research Grants (Principal Investigator):

The Russian Scientific Foundation grant for research groups (2018-2020), (2014-2016), Grants from Programs of the Presidium of RAS (2009-2014), Grants from the Russian Foundation for Basic Research (1994, 1996, 1998, 2001, 2005, 2008, 2011, 2013 (OFI-m), 2015-2017, 2018-2020), the State Contracts under Federal Targeted Program (2006-2011), joint grant from the Ministry Counsel of RF and G. Soros International Scientific Foundation (1995), long-term grant from G. Soros International Scientific Foundation (1994), individual grant from G. Soros International Scientific Foundation (1993).

Publications: I have published 680 scientific works, including more than 300 peer-reviewed papers, 10 books and Chapters in books, more than 150 in Conference Proceedings, 15 Patents of Russian Federation.

Scientific indexes:

SCOPUS: 277 publications, 8528 citations, **Hirsh index 45**

Web of Science: 270 publications, 8447 citations, **Hirsh index 44**

List of most cited Russian researchers: (8597 citations)

http://www.expertcorps.ru/science/whoiswho/ci86

List of most cited Russian researchers for last 7 Years (**1337 citations**)

http://www.expertcorps.ru/science/whoiswho/ci7

List of Selected Publications by Professor N.G. Khlebtsov

Monographs and Book Chapters

1. Khlebtsov N.G., Maksimova I. L., Tuchin V. V., Wang L. Introduction to light scattering by biological objects. In: *Handbook of Optical Biomedical Diagnostics* / V.V. Tuchun, Ed., Bellingham, Washington, 2002, Ch. 1, pp. 31-167.
2. Khlebtsov N.G., Melnikov A.G., Bogatyrev V.A., Dykman L.A., Optical properties and biomedical applications of nanostructures based on gold and silver bioconjugates, In: *Photopolarimetry in Remote Sensing*, G. Videen, Ya.S. Yatskiv, M.I. Mishchenko (eds.), NATO Science Series, II. Mathematics, Physics, and Chemistry, V. 161, Kluwer Academic Publishers, Dordrecht, 2004, pp. 265–308.
3. Dykman L.A., Bogatyrev V.A., Shchyogolev S.Yu., Khlebtsov N.G. *Gold Nanoparticles. Synthesis, Properties, and Biomedical Applications*. Moscow: Nauka Publ., 2008. -319 pp (in Russian).
4. Khlebtsov N.G., Dykman L.A. Plasmonic Nanoparticles: Fabrication, Optical Properties, and Biomedical Applications. In: *Handbook of Photonics for Biomedical Scien*ce, Ed. by Tuchnin V.V., CRC Press, Boca Raton, 2010, Ch. 2, pp. 37-85.
5. Terentyuk G.S., Maksimova I.L., Dikht N.I., Terentyuk A.G., Khlebtsov B.N., Khlebtsov N.G., Tuchin V.V. Gold nanoparticle mediated laser therapy of cancer // Lasers for medical

applications / Ed. Jelinkova H.- Cambridge (UK): Woodhead Publ., 2013, - P. 659-703. ISBN 978-0-85709-237-3.

6. Khlebtsov N., Khlebtsov B. Plasmonic SERS substrates and probes. Saarbrücken: Lambert Academic Publ., 2016. ISBN 978-3-659-94141-2.
7. Lev Dykman, Nikolai Khlebtsov. Gold Nanoparticles in Biomedical Applications // CRC Press, Boca Raton and London, 2017. ISBN 978-1-138-56074-1.-322 pp.
8. Bucharskaya A.B., Maslyakova G.N., Terentyuk G.S., Navolokin N.A., Bashkatov A.N., Genina E.A., Khlebtsov B.N., Khlebtsov N.G., Tuchin V.V. Gold nanoparticle-based technologies in photothermal/photodynamic treatment: the challenges and prospects // In: *Nanotechnology and Biosensors*, Dimitrios P. Nikolelis, Georgia-Paraskevi N. (Eds.), Chapter 5, Elsevier, 2018
9. Dykman L.A., Khlebtsov N.G., Shchyogolev S.Y. Gold nanoparticles in bioanalytical techniques // In: *Nanoanalytics. Nanoobjects and Nanotechnologies in Analytical Chemistry* / Shtykov S. (Ed.), Berlin: De Gruyter (Verlag), 2018, pp. 55-86. ISBN: 978-3-11-054006-2
10. Cottat M., de Angelis M., Panfilova E., Khlebtsov N., Pini R., Matteini P. Label-free SERS detection of heme-proteins with porous silver nanocubes // In: *Plasmonics in Chemistry and Biology* / Marc Lamy de la Chapelle and Nordin Felidj (Eds.). Pan Stanford Publishing Pte. Ltd., 2019, Ch. 8, pp. 199-218. ISBN 978-981-4800-03-7

Peer-review Journal papers:

1. Khlebtsov N.G., Bogatyrev V.A., Dykman L.A., Melnikov A.G. Spectral extinction of colloidal gold and its biospecific conjugates. *J. Colloid Interface Sci.*, **180**, 436-445, 1996.
2. Khlebtsov N. G., Dykman L.A., Krasnov Ya.M., Melnikov A.G. Extinction of light by colloidal clusters of gold and silver particles formed in slow and fast aggregation regimes. *Colloid J*. **62**(6), 765-779, 2000.
3. Khlebtsov N. G. An approximate method for calculating scattering and absorption of light by fractal aggregates. *Opt. Spectrosc.* **88**(4), 594-601, 2000.
4. Khlebtsov N.G., Orientational Averaging of integrated cross sections in the discrete dipole method. *Opt. Spectrosc.* **90**(3), 408-415, 2001.
5. Bogatyrev V. A., Dykman L. A., Krasnov Ya. V., Plotnikov V. K., Khlebtsov N. G. Differential light spectroscopy for studying biospecific assembling of gold nanoparticles with protein or oligonucleotide probes. *Colloid J*. **64**(6), 671-680, 2002.
6. Xu Yu-lin, Khlebtsov N. G. Orientation-averaged cross sections of an aggregate of particles. *J. Quant. Spectrosc. Radiat. Transfer* **78-80**, 1121-1137, 2003.
7. Khlebtsov N.G., Dykman L.A., Bogatyrev V.A., and Khlebtsov B.N. Two-layer model of colloidal gold bioconjugates and its application to the optimization of nanosensors. *Colloid J.* **65** (4), 508-517, 2003.
8. Khlebtsov N.G., Bogatyrev V.A., Dykman L. A., Khlebtsov B. N., Englebienne P. A multilayer model for gold nanoparticle bioconjugates: application to study of gelatin and human IgG adsorption using extinction and light scattering spectra and the dynamic light scattering method. *Colloid J*. **65**, 622-635, 2003.
9. Bogatyrev V. A., Dykman L. A., Khlebtsov B. N., and Khlebtsov N. G. Measurement of mean size and evaluation of polydispersity of gold nanoparticles from spectra of optical absorption and scattering. *Opt. Spectrosc.* **96**(1), 128-135, 2004.

10. Khlebtsov N. G., Bogatyrev V. A., Dykman L. A., Khlebtsov B. N., Krasnov Ya. M.. Differential light scattering spectroscopy: a new approach to studies of colloidal gold nanosensors, *J. Quant. Spectrosc. Radiat. Transfer* **89**(1-4) 133-142, 2004.

11. N.G. Khlebtsov. Optical models for conjugates of gold and silver nanoparticles with biomacromolecules, *J. Quant. Spectrosc. Radiat. Transfer* **89**(1-4) 143-152, 2004.

12. Khlebtsov N.G., Trachuk L.A., Melnikov A.G. The effect of the size, shape, and structure of metal nanoparticles on the dependence of their optical properties on the refractive index of a disperse medium, *Opt. Spectrosc*. **98**(1), 83-90, 2005.

13. Alekseeva A.V., Bogatyrev V.A., Dykman L.A., Khlebtsov B.N., Trachuk L.A., Melnikov A.G., Khlebtsov N.G. Preparation and optical scattering characterization of Au nanorods, and their application to a dot-immunogold assay, *Appl. Opt*. **44**(29), 6285-6295, 2005.

14. Khlebtsov N. G., Mel'nikov A. G., Bogatyrev V. A., Dykman L. A., Alekseeva A. V., Trachuk L. A., Khlebtsov B.N. Can the light scattering depolarization ratio of small particles be greater than 1/3? *J. Phys. Chem. B* **109** (28), 13578-13584, 2005.

15. Khlebtsov B.N., Melnikov A.G., Zharov V.P., Khlebtsov N.G. Absorption and scattering of light by a dimer of metal nanospheres: Comparison of dipole and multipole approaches, *Nanotechnology* **17**, 1437-1445, 2006.

16. Khlebtsov B.N., Khlebtsov N.G. Ultrasharp light scattering resonances of structured nanospheres: Effects of size-dependent dielectric functions. *J. Biomed. Opt*. **11**(4), 44002, 2006.

17. Alekseeva A. V., Bogatyrev V. A., Khlebtsov B. N., Mel'nikov A. G., Dykman L. A., Khlebtsov N. G. Gold nanorods: synthesis and optical properties. *Colloid J*. **68**(6), 661-678, 2006.

18. Zharov V, Galanzha E, Shashkov E, Khlebtsov N, Tuchin V. *In vivo* photoacoustic flow cytometry for monitoring circulating cells and contrast agents. *Opt. Lett*. **31**(24), 3623-3625, 2006.

19. Khlebtsov B.N., Zharov V.P., Melnikov A.G., Tuchin V.V., Khlebtsov N.G. Optical amplification of photothermal therapy with gold nanoparticles and nanoclusters. *Nanotechnology* **17**(20), 5167-5179, 2006.

20. Khlebtsov B.N., Dykman L.A., Bogatyrev V.A., Zharov V.P., Khlebtsov N.G. A solid-phase dot assay using silica/gold nanoshells. *Nanoscale Res. Lett.* **2**, 6-11 (2007).

21. Khlebtsov B.N., Khlebtsov N.G. Biosensing potential of silica/gold nanoshells: Sensitivity of plasmon resonance to the local dielectric environment. *J. Quant. Spectr. Radiat. Transfer* **106**, 154-169, 2007.

22. Khlebtsov B. N., Khlebtsov N. G. Multipole plasmons in metal nanorods: Scaling properties and dependence on the particle size, shape, orientation, and dielectric environment. *J. Phys. Chem. C* **111**(32), 11516-11527, 2007.

23. Zharov V. P., Galanzha E. I., Shashkov E. V., Kim J.-W., Khlebtsov N. G. , Tuchin V. V. Photoacoustic flow cytometry: principle and application for real-time detection of circulating single nanoparticles, pathogens, and contrast dyes *in vivo. J. Biomed. Opt*. **12**(5), 051503, 2007.

24. Maksimova I.L., Akchurin G.G., Khlebtsov B.N., Terentyuk G.S., Akchurin G.G., Ermolaev I.A., Skaptsov A.A., Soboleva E.P., Khlebtsov N.G., Tuchin V.V. Near-infrared laser photothermal therapy of cancer by using gold nanoparticles: computer simulations and experiment, *Medical Laser Applications* **22**, 199-206, 2007.

25. Khlebtsov N., Khlebtsov B., Khanadeev V., Mel'nikov A., Pylaev T. Depolarized light scattering spectra from gold nanorods and nanosphere clusters, *Extended Abstracts of 11th Elerctromagnetic and Light Scattering Conference*, De Havilland Campus, Hertfordshire Univ, 2008, pp. 349-352.

26. Kogan B., Andronova N., Khlebtsov N., Khlebtsov B., Rudoy V., Dement'eva O., Sedykh E., Bannykh L. Pharmacokinetic study of PEGylated plasmon resonant gold nanoparticles in tumor-bearing mice, *NSTI-Nanotech, Nanotechnology,* **2**, 65-58, 2008..

27. Khlebtsov N.G. Determination of size and concentration of gold nanoparticles from extinction spectra. *Anal. Chem*. **80**,6620-6625, 2008.

28. Khlebtsov B.N., Khanadeev V.A., Khlebtsov N.G.. Observation of extra-high depolarized light scattering spectra from gold nanorods. *J. Phys. Chem. C*. **112**(33), 12760-12768, 2008.

29. Khlebtsov B.N., Khanadeev V.A., Khlebtsov N.G. Determination of the size, concentration, and refractive index of silica nanoparticles from turbidity spectra. *Langmuir*. **24**(16), 8964-8970, 2008.

30. Akchurin G., Khlebtsov B., Akchurin G., Tuchin V., Zharov V., Khlebtsov N. Gold nanoshell photomodification under single nanosecond laser pulse accompanied by color-shifting and bubble formation phenomena. *Nanotechnology*, **19**, 015701 (1-8), 2008.

31. Khlebtsov B.N., Khlebtsov N.G. Enhanced solid-phase immunoassay using gold nanoshells: Effect of nanoparticle optical properties. *Nanotechnology*, **19**, 435703 (1-10), 2008.

32. Khlebtsov B.N., Khanadeyev V.A., Jian Ye, Mackowski D.W., Borghs G., Khlebtsov N.G. Coupled plasmon resonances in monolayers of metal nanoparticles and nanoshells. *Phys. Rev. B*., **77(**3), 035440 (1-14), 2008.

33. Khlebtsov N.G. Optics and biophotonics of nanoparticles. *Quantum Electronics*, **38**(6) 504-529, 2008.

34. Maksimova I.L., Akchurin G.G., Terentyuk G.S., Khlebtsov B.N., Akchurin G.G. Jr., Ermolaev I.A., Skaptsov A.A., Revzina E.M., Tuchin V.V., Khlebtsov N.G. Laser photothermolysis of biological tissues by using plasmon-resonance particles. *Quantum Electronics*, **38**(6) 536-542, 2008.

35. Khlebtsov B.N., Khanadeev V.A., Bogatyrev V.A., Dykman L.A., Khlebtsov N.G. Nanocrystals for biomedical diagnostics. *Nanotechnologies in Russia,* **3**(3-4), 31-33, 2008.

36. Khlebtsov B.N., Khanadeev V.A., Bogatyrev V.A., Dykman L.A., Khlebtsov N.G. Use of gold nanoshells in solid-phase immunoanalysis. *Nanotechnologies in Russia*, **3**(7-8), 50-63, 2008.

37. Terentyuk G.S., Maslyakova G.N., Suleymanova L. V., Khlebtsov B.N., Kogan B.Ya., Akchurin G. G., Shantrocha A.V., Maksimova I.L., Khlebtsov N.G., Tuchin V.V. Circulation and distribution of gold nanoparticles and induced alterations of tissue morphology at intravenous particle delivery. *J. Biophotonics,* **2**(2), 292-302, 2009.

38. Terentyuk G.S., Maslyakova G.N., Suleymanova L.V., Khlebtsov N.G., Khlebtsov B.N., Akchurin G.G., Maksimova I.L., Tuchin V. V. Laser induced tissue hyperthermia mediated by gold nanoparticles: towards cancer phototherapy. *J. Biomed. Opt*., **14** (2), 021016, 2009.

39. Burygin G.L., Khlebtsov B.N., Shantrokha A.N., Dykman L.A., Bogatyrev V.A., Khlebtsov N.G. On the enhanced antibacterial activity of antibiotics mixed with gold nanoparticles, *Nanoscale Res. Lett*., **4**, 794-801, 2009.

40. Khlebtsov B.N., Khanadeev V.A., Bogatyrev V.A., Dykman L.A., Khlebtsov N.G. The fabrication, stabilization, and optical properties of gold nanorods with silver shells. *Nanotechnologies in Russia*, **4** (7-8), 453-466, 2009.

41. Khlebtsov N.G., Dykman L.A. Optical properties and biomedical applications of plasmonic nanoparticles. *J. Quant. Spectr. Radiat. Transfer*, **111**(1), 1-35, 2010.
42. Khlebtsov B., Khanadeev V., Khlebtsov N. Tunable depolarized light scattering from gold and gold/silver nanorods. *Phys. Chem. Chem.* Phys., **12**, 3210-3218, 2010.
43. Khlebtsov N.G. Anisotropic properties of plasmonic nanoparticles: Depolarized light scattering, dichroism, and birefringence. *J. Nanopho*tonics, **4**, 041587 (1-17), 2010.
44. Khlebtsov B.N., Khanadeev V.A. , Maksimova I.L. , Terentyuk G.S. , Khlebtsov N. G. Silver nanocubes and gold nanocages: their synthesis and optical and photothermal properties. *Nanotechnologies in Russia*, **5**(7–8), 454–468, 2010.
45. Khanadeev V. A., Khlebtsov B. N., Staroverov S. A., Vidyasheva I. V., Skaptsov A. A., Ileneva E. S., Bogatyrev V. A., Dykman L. A., Khlebtsov N. G. Quantitative cell bioimaging using gold-nanoshell conjugates and phage antibodies // J. Biophotonics, **4** (2), 74-83, 2011.
46. Khlebtsov N. G., Dykman L.A. Biodistribution and toxicity of engineered gold nanoparticles: a review of *in vitro* and *in vivo* studies // Chem. Soc. Rev., **40**, 1647-1671, 2011
47. Khlebtsov B., Panfilova E., Khanadeev V., Bibikova O., Terentyuk G., Ivanov A., Rumyantseva V., Shilov I., Ryabova A., Loshchenov V., Khlebtsov N. Nanocomposites containing silica-coated gold-silver nanocages and Yb-2,4-dimethoxyhematoporphyrin: Multifunctional capability of IR-luminescence detection, photosensitization, and photothermolysis // ACS Nano, **5** (9), 7077–7089, 2011.
48. Khlebtsov B.N., Khlebtsov N.G. On the Measurement of Gold Nanoparticle Sizes by the Dynamic Light Scattering Method. Colloid Journal, **73**, 118-127, 2011.
49. Khlebtsov B., Khanadeev V., Pylaev T., and Khlebtsov N. A new T-matrix solvable model for nanorods: TEM-based ensemble simulations supported by experiments. *J. Phys. Chem. C.* **115,** 6317–6323, 2011.
50. Pylaev T., Khanadeev V., Khlebtsov B., Dykman L., Bogatyrev V., Khlebtsov N.. Colorimetric and dynamic light scattering detection of DNA sequences by using positively charged gold nanorods and nanospheres: A comparative study. *Nanotechnology*, **22**, 285501 2011.
51. Dykman L., Khlebtsov N. Gold nanoparticles in biomedical applications: Recent advances and perspectives. *Chem. Soc. Rev*., **41**, 2256-2282, 2012.
52. Panfilova E., Shirokov A., Khlebtsov B., Matora L., Khlebtsov N. Multiplexed dot immunoassay using Ag nanocubes, Au/Ag alloy nanoparticles, and Au/Ag nanoboxes. *Nano Research*, **5**, 124-134, 2012.
53. Panfilovaa E. V., Khlebtsov B. N., Burov A. M., and Khlebtsov N. G. Study of Polyol Synthesis Reaction Parameters Controlling High Yield of Silver Nanocubes. *Colloid J*., **74**, 99–109, 2012.
54. Khlebtsov B.N., Panfilova E.V., Terentyuk G.S., Maksimova I.L., Ivanov A.V., Khlebtsov N.G. Plasmonic nanopowders for photothermal therapy of tumors. *Langmuir*, **28**, 8994-9002, 2012.
55. Khlebtsov B.N., Khanadeev V.A., Panfilova E.V., Pylaev T.E., Bibikova O.A., Staroverov S. A., Bogatyrev V. A., Dykman L. A., Khlebtsov N.G. New types of nanomaterials: powders of gold nanospheres, nanorods, nanostars, and gold–silver nanocages. *Nanotechnologies in Russia*, **8**, 209-219, 2013.
56. Khlebtsov N.G. *T*-matrix method in plasmonics: an overview. *J. Quant. Spectrosc. Radiat. Transfer*. **123**, 184-217, 2013.
57. Khlebtsov N**.**, Bogatyrev V**.**, Dykman L**.**, Khlebtsov B**.**, Staroverov S**.**, Shirokov A**.**, Matora L**.**, Khanadeev V**.,** Pylaev T**.**, Tsyganova N**.**, Terentyuk G**.** Analytical and theranostic applications of gold nanoparticles and multifunctional nanocomposites. *Theranostics*, **3**, 167-180, 2013.
58. Khlebtsov B**.**N., Tuchina E**.**S., Khanadeev V**.**A., Panfilova E**.**V., Petrov P**.**O., Tuchin V.V., Khlebtsov N**.**G. Enhanced photoinactivation of *Staphylococcus aureus* with nanocomposites containing plasmonic particles and hematoporphyrin. *J. Biophotonics*, **4**, 338-351 (2013).

59. Khlebtsov B. N., Khanadeev V. A., Panfilova E. V., Inozemtseva O. A., Burov A. M., Khlebtsov N. G. A simple Mie-type model for silica-coated gold nanocages. *J. Quant. Spectrosc. Radiat. Transfer*, **121**, 23-29, 2013.
60. Pylaev T. E., Volkova E. K., Kochubey V.I., Bogatyrev V.A., Khlebtsov N. G. DNA detection assay based on fluorescence quenching of Rhodamine B by gold nanoparticles: the optical mechanisms. *J. Quant. Spectrosc. Radiat. Transfer*, **131**, 34-42, 2013
61. Panfilova E.V., Khlebtsov B.N., Khlebtsov N.G. Synthesis and optical properties of poly(*N*-isopropylacrylamide) nanogel containing silver nanoparticles. *Colloid J*., 73, 333-338 (2013).
62. Tsvetkov M.Yu., Khlebtsov B.N., Khanadeev V.A., Bagratashvili V.N., Timashev P.S., Samoylovich M.I., Khlebtsov N.G. SERS substrates formed by gold nanorods deposited on colloidal silica films. *Nanoscale Res. Lett*., **8**, 250 (1-9), (2013).
63. Khlebtsov B. N., Khanadeev V.A., Tsvetkov M.Yu., Bagratashvili V.N., Khlebtsov N.G. SERS Substrates Based on Self-Assembled PEGylated Gold and Gold–Silver Core–Shell Nanorods. *J. Phys. Chem. C*, **117** (44), 23162–23171, 2013.
64. Tsyganova N.A., Khairullin R.M., Terentyuk G.S., Khlebtsov B.N., Bogatyrev V.A., Dykman L.A., Erykov S.N., Khlebtsov N.G. Penetration of pegylated gold nanoparticles through rat placental barrier. *Bulletin Exp. Biol. Med.,* **157** (3), 383-389 (2014).
65. Dykman L.A., Khlebtsov N.G. Uptake of engineered gold nanoparticles into mammalian cells. *Chem. Rev*., **114** (2), 1258-1288 (2014).
66. Terentyuk G., Panfilova E., Khanadeev V., Chumakov D., Genina E., Bashkatov A., Tuchin V., Bucharskaya A., Maslyakova G., Khlebtsov N., Khlebtsov B. Gold nanorods with hematoporphyrin-loaded silica shell for dual-modality photodynamic and photothermal treatment of tumors in vivo. *Nano Research*, **7** (3), 325-337 (2104).
67. Khlebtsov B.N., Khanadeev V.A., Khlebtsov N.G. Extinction and extra-high depolarized light scattering spectra of gold nanorods with improved purity and dimension tunability: direct and inverse problems. *Phys. Chem. Chem. Phys*., **16**, 5710-5722 (2014).
68. Khlebtsov B.N., Khanadeev V.A., Ye J., Sukhorukov G.B., Khlebtsov N.G. Overgrowth of gold nanorods by using a binary surfactant mixture. *Langmuir*, **30** (6), 1696–1703 (2014).
69. Khanadeev V. A., Khlebtsov B. N., Klimova S. A., Tsvetkov M. Yu., Bagratashvili V. N., Sukhorukov G. B., Khlebtsov N. G. Large-scale high-quality 2D silica crystals: dip-drawing formation and decoration with gold nanorods and nanospheres for SERS analysis. *Nanotechnology*, **25**, 405602 (1-13) (2014).
70. Khlebtsov B., Khanadeev V., Panfilova E. Khlebtsov N. Improved size-tunable synthesis and SERS properties of Au nanostars. *J. Nanopart. Res*., **16** (10), 2623 (2014).
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