

CURRICULUM VITAE
Ekaterina A. Sergeeva, Ph.D.

PERSONAL DATA

Last Name: Sergeeva
First Name: Ekaterina
Middle Name: Alexandrovna
Date of Birth: 23 January 1978

Citizenship: Russian Federation
Place of birth: Nizhny Novgorod
Marital Status: Married

CONTACT INFORMATION

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PROFESSIONAL ACTIVITY

2010 – present: Senior Researcher, Institute of Applied Physics RAS, Nizhny Novgorod, Russia
2008 – present: Senior Teacher, N.I. Lobachevsky Nizhny Novgorod State University, Russia
2008 – 2010: Researcher, Institute of Applied Physics RAS, Nizhny Novgorod, Russia
2006: Visiting Researcher, RIKEN Brain Science Institute, Tokyo, Japan
2005, 2006: Visiting Lecturer, University of Oulu, Finland
2001 – 2008: Junior Researcher, Institute of Applied Physics RAS, Nizhny Novgorod, Russia
2000 – 2008: Teacher, N.I. Lobachevsky Nizhny Novgorod State University, Russia

PRINCIPAL INVESTIGATOR

2008-2010: Grant of the Russian Foundation for Basic Research "Noninvasive imaging of cells and biological tissues by means of multiphoton fluorescence microscopy"
2009-2010: Grant of the President of Russian Federation for support of young scientists "Potentialities of colloidal quantum dots for in vivo multiphoton microscopy imaging of biological tissue structure"
2011-2013: Grant of the Russian Foundation for Basic Research "Visualization of nanoparticles distribution in biological objects by means of linear and nonlinear optical biomedical imaging"

EDUCATIONAL ACTIVITIES

2008 – present: Lecture course "Optical Imaging in Neurobiology" (master students of physics department, biology department), N.I. Lobachevsky Nizhny Novgorod State University, Russia
2009 – present: Lecture course "General physics" (students of 1st and 2nd year of physics department, biology department), N.I. Lobachevsky Nizhny Novgorod State University, Russia

EDUCATIONAL BACKGROUND

2008 – Ph.D., Physics, Institute of Applied Physics RAS, Nizhny Novgorod, Russia
2005 – Student of Biophysics International Autumn School "Modern Biophysical Techniques for Human Health" (Romania)
2005 – Student of the International Graduate Summer School Biophotonics 2005 (Sweden)
2003 – Student of the Winter College on Biophotonics at the Abdus Salam ICTP (Italy)
2001 – 2004: Ph.D. Student of the Institute of Applied Physics RAS, Nizhny Novgorod, Russia
2001 – Master of Science, Physics, N.I. Lobachevsky Nizhny Novgorod State University, Russia
1999 – 2001: Master Student of N.I. Lobachevsky Nizhny Novgorod State University, Russia
1999 – Bachelor of Science, Physics, N.I. Lobachevsky Nizhny Novgorod State University, Russia
1995 – 1999: Student of N.I. Lobachevsky Nizhny Novgorod State University, Russia

HONORS AND AWARDS

2005 - Best Poster Prize of the International Autumn School "Modern Biophysical Techniques for Human Health"

2005 - Best Poster Prize of the International Graduate Summer School Biophotonics 2005

2001 - Diploma with Honors for achievements in studies, N.I. Lobachevsky Nizhny Novgorod State University, Russia

SCIENTIFIC SOCIETY MEMBERSHIPS

2003 – present: The International Society for Optical Engineering (SPIE).

ACTIVITIES

2007, 2009, 2011 – Scientific Secretary of the Conference on Neuroimaging, International Symposium "Topical Problems of Biophotonics"

2009 – Member of organizing committee of the V International Conference on Current Problems in Optics of Natural Waters

2007 – Scientific Secretary of the IV International Conference on Current Problems in Optics of Natural Waters

2003, 2005 – Member of organizing committee of International Symposium "Topical Problems of Nonlinear Wave Physics"

SCIENTIFIC INTERESTS

Light propagation in highly scattering media

- Theory of light propagation in highly scattering media, application for biotissues
- Optical methods of biomedical diagnostics
- Effect of nanoparticles on light propagation in scattering media

Laser Scanning Microscopy (LSM)

- Confocal LSM of cells and biotissues
- Study of novel fluorophores
- Multiphoton fluorescence LSM

Optical Diffuse Tomography

Fluorescent Diffuse Tomography

Optical Coherence Tomography

SELECTED PUBLICATIONS

I. I. Fiks, M. Y. Kirillin, E. A. Sergeeva and I. V. Turchin, "Reconstruction of object location for diffuse fluorescence tomography on the basis of hybrid models of light scattering in biotissues," Radiophys. Quantum Electron. 54(3), 197-209 (2011)

N. Y. Ignat'eva, O. L. Zakharkina, V. A. Kamensky, E. A. Sergeeva and V. V. Lunin, "Thermal and non-thermal effects of nonablative IR laser irradiation of the collagen of annulus fibrosus tissues," Russ. J. Phys. Chem. A 85(9), 1670-1675

M. Kirillin, I. Meglinski, V. Kuzmin, E. Sergeeva and R. Myllyla, "Simulation of optical coherence tomography images by Monte Carlo modeling based on polarization vector approach," *Opt. Express* 18(21), 21714-21724 (2010)

E. A. Sergeeva, A. R. Katichev and M. Y. Kirillin, "Two-photon fluorescence microscopy signal formation in highly scattering media: theoretical and numerical simulation," *Quantum Electron.* 40(12), 1053-1061 (2010)

H. S. S. Sorvoja, T. S. Myllyla, M. Y. Kirillin, E. A. Sergeeva, R. A. Myllyla, A. A. Elseoud, J. Nikkinen, O. Tervonen and V. Kiviniemi, "Non-invasive, MRI-compatible, fiberoptic device for functional near-IR reflectometry of human brain," *Quantum Electron.* 40(12), 1067-1073 (2010)

E. A. Sergeeva, "Scattering effect on the imaging depth limit in two-photon fluorescence microscopy," *Quantum Electron.* 40(5), 411-417 (2010)

A. R. Katichev and E. A. Sergeeva, "Effects of absorption saturation in colloidal quantum dots as fluorophores for multiphoton fluorescence microscopy," *Opt. Spectrosc.* 107(6), 839-845 (2009)

L. S. Dolin, E. A. Sergeeva and I. V. Turchin, "Shadow noise in OCT images of biological tissues," *Quantum Electron.* 38(6), 543-550 (2008)

E. A. Sergeeva and A. I. Korytin, "Theoretical and experimental study of blurring of a femtosecond laser pulse in a turbid medium," *Radiophys. Quantum Electron.* 51(4), 301-314 (2008)

E. A. Sergeeva, M. Y. Kirillin and A. V. Priezhev, "Propagation of a femtosecond pulse in a scattering medium: theoretical analysis and numerical simulation," *Quantum Electron.* 36(11), 1023-1031 (2006)

I. V. Turchin, E. A. Sergeeva, L. S. Dolin, V. A. Kamensky, N. M. Shakhova and R. Richards-Kortum, "Novel algorithm of processing optical coherence tomography images for differentiation of biological tissue pathologies," *J. Biomed. Opt.* 10(6), 064024:1-11 (2005)

Grigory V. Gelikonov, Valentin M. Gelikonov, Sergey U. Ksenofontov, Andrey N. Morosov, Alexey V. Myakov, Yury P. Potapov, Veronika V. Saposnikova, Ekaterina A. Sergeeva, Dmitry V. Shabanov, Natalia M. Shakhova, Elena V. Zagainova, "Compact Optical Coherence Microscope", in *Handbook of Coherent Domain Optical Methods: Biomedical Diagnostics, Environment and Material Science*, Kluwer Academic Publishers, pp.345-362 (2004).

I. V. Turchin, E. A. Sergeeva, L. S. Dolin and V. A. Kamensky, "Estimation of biotissue scattering properties from OCT images using a small-angle approximation of transport theory," *Laser Phys. Lett.* 13(12), 1524-1529 (2003)