

**BIOGRAPHICAL SKETCH**

NAME	POSITION TITLE
Anna Yaroslavsky	Assistant Professor
eRA COMMONS USER NAME	

EDUCATION/TRAINING (Begin with baccalaureate or other initial professional education, such as nursing, and include postdoctoral training.)

INSTITUTION AND LOCATION	DEGREE (if applicable)	YEAR(s)	FIELD OF STUDY
Saratov State University, Saratov, Russia	Dip.Phys. (BS)	1990	Physics
Saratov State University, Saratov, Russia	Cand. Sc. (PhD)	1999	Biophysics

**A. Positions and Honors****Positions and Employment**

- 1990-1991 Research Fellow, Saratov Branch of Radioelectronics Institute of the Russian Academy of Sciences, Saratov, Russia
- 1992-1993 Invited Research Fellow, Biophysical Technology Group, University of Twente, Enschede, The Netherlands
- 1994-1998 Scientist, Department of Laser Medicine, Heinrich Heine University, Dusseldorf, Germany
- 1998-2000 Research Associate, Department of Molecular and Cellular Physiology, Louisiana State University Health Sciences Center, Shreveport, LA, USA
- 2000-2005 Instructor of Dermatology, Harvard Medical School, Boston, MA, USA
- 2000-2005 Assistant in Physics, Wellman Center for Photomedicine, Massachusetts General Hospital, Boston, MA
- 2005-present Assistant Professor of Dermatology, Harvard Medical School, Boston, MA, USA
- 2005-present Assistant Physicist, Wellman Center for Photomedicine, MGH, Boston, MA

**Honors**

- 1990 Diploma with Honors, Physicist, *summa cum laude*, Saratov, Russia
- 1992 Invited Research Fellow, Biophysical Technology Group, University of Twente, Enschede, The Netherlands
- 1996 Invited oral presentation at SPIE meeting. San Jose, CA. Yaroslavsky A.N., Yaroslavsky I.V., Goldbach T., Schwarzmaier H.-J. The optical properties of blood in the near infrared spectral range.
- 2003 Fellow, American Society for Lasers in Medicine and Surgery
- 2004 Invited oral presentation at Gordon Research Conference on Lasers in Medicine and Biology, Meriden, NH. Yaroslavsky AN. "New developments in the optical mapping of nonmelanoma skin cancers"
- 2004 Invited oral presentation at the Institute of Photonic Sciences, Barcelona, Spain, Yaroslavsky AN. "Optical Techniques for Skin Cancer Delineation"
- 2006 Invited oral presentation at the Sloan Kettering Cancer Center, New York, NY, USA, Yaroslavsky AN. "Towards in situ optical pathology"
- 2006 Invited oral presentation at Johnson & Johnson, Skillman, NJ, USA, Yaroslavsky AN. "Optical imaging for Dermatology"
- 2007 Invited oral presentation at ISDIS/AAD, Washington, DC, USA, Yaroslavsky AN. "Mapping Nonmelanoma Skin Cancers Using Multimodal Macro-Imaging"
- 2008 Invited oral presentation at the SPIE meeting. San Jose, CA. Yaroslavsky A.N. and Salomatina E. "High Contrast Imaging of Nonmelanoma Skin Cancers".
- 2008 Invited oral presentation at the Skin Diseases Research Center (SDRC) at Case Western Reserve University and University Hospitals Case Medical Center "Intraoperative Optical Guidance in Dermatology"

2008 Plenary oral presentation at the International Workshop on Optical technologies in Biophysics and Medicine, Saratov, Russia. Yaroslavsky AN. "Advanced optical techniques for enhancing specificity of skin cancers detection"

Service (National/International)

2004 National Institutes of Health, Bioengineering Research Partnerships (BRP) Review Committee, Reviewer.

2004- 2007 National Institutes of Health, SBIB Review Committee (Novel Imaging Technologies Study Section), Reviewer.

MGH/HMS Community Service (selected)

2002- present Education Committee, member, Wellman Center for Photomedicine, Massachusetts General Hospital/ Harvard Medical School

2005- present Organizing Committee of the Lester Wolfe Workshop, Massachusetts General Hospital/ Harvard Medical School/ Massachusetts Institute of Technology, member

**B. Selected Peer-reviewed Publications**

1. Yaroslavsky IV, **Yaroslavsky AN**, Otto C, Puppels GJ, Vrensen GFJM, Duindam H, Greve J. Combined elastic and Raman scattering of human eye lenses. *Exp Eye Res* 1994; 59:393-400.
2. Yaroslavsky IV, **Yaroslavsky AN**, Goldbach T, Schwarzmaier H-J. Inverse hybrid technique for the determination of the optical properties of turbid media. *Appl Opt* 1996; 35:6797-6809.
3. Yaroslavsky IV, **Yaroslavsky AN**, Tuchin VV, Schwarzmaier H-J. Effect of the scattering delay on time-dependent photon migration in turbid media. *Appl Opt* 1997;36:6529-38.
4. Schwarzmaier H-J, Yaroslavsky IV, **Yaroslavsky AN**, Fiedler V, Ulrich F, Kahn T. Treatment planning for MRI-guided laser-induced interstitial thermotherapy of brain tumors – the role of blood perfusion. *J M R I* 1998; 8 (1):121-7.
5. **Yaroslavsky AN**, Yaroslavsky IV, Otto C, Puppels GJ, Duindam H, Vrensen GFJM, Greve J, Tuchin VV. Water exchange in human eye lens monitored by the confocal Raman microspectroscopy. *Biophysics* 1998;43 (1):125-30.
6. **Yaroslavsky AN**, Yaroslavsky IV, Goldbach T, Schwarzmaier H-J. Influence of the Scattering Phase Function Approximation on the Optical Properties of Blood Determined from the Integrating Sphere Measurements. *J B M O* 1999; 4(01):47-53.
7. Willmann S, Terenji A, Busse H, Yaroslavsky IV, **Yaroslavsky AN**, Schwarzmaier H-J, Hering P. Scattering delay time of Mie scatterers determined from steady-state and time-resolved optical spectroscopy. *J Opt Soc Am A* 2000; 17:745-49.
8. Yaroslavsky I, **Yaroslavsky A**, Battarbee H, Sisson C, Rodriguez J. Self-calibrating distributed-source image reconstruction technique for diffuse optical tomography, *Trends Opt. Phot.*, 38: 487-9, 2000
9. Hammer M, **Yaroslavsky AN**, Schweitzer D. A scattering phase function for blood with physiological hematocrit. *Phys Med Biol* 2001; 46:65-69.
10. **Yaroslavsky AN**, Priezhev AV, Rodriguez J, Yaroslavsky IV, Battarbee H. Optics of blood. In: Tuchin V.V., ed. *Handbook on Optical Biomedical Diagnostics*. Bellingham, WA: SPIE Press, 2002; 169-216.
11. Yaroslavsky IV, **Yaroslavsky AN**, Rodriguez J, Battarbee H. Propagation of pulses and photon-density waves in turbid media. In: Tuchin V.V., ed. *Handbook on Optical Biomedical Diagnostics*. Bellingham, WA: SPIE Press, 2002; 217-264.
12. Rodriguez J, Yaroslavsky IV, **Yaroslavsky AN**, Battarbee H, Tuchin VV. Time-resolved imaging in diffusive media. In: Tuchin V.V., ed. *Handbook on Optical Biomedical Diagnostics*. Bellingham, WA: SPIE Press, 2002; 357-404.
13. **Yaroslavsky AN**, Schulze PC, Yaroslavsky IV, Schober R, Ulrich F, Schwarzmaier H-J. Optical Properties of Selected Native and Coagulated Human Brain Tissues *in vitro* in the Visible and Near Infrared Spectral Range. *Phys.Med.Biol.* 2002; 47:2059-073
14. **Yaroslavsky AN**, Neel V, Anderson RR. Demarcation of nonmelanoma skin cancer margins using multi-spectral polarized-light imaging. *J Invest Dermatol.* 121:259-266, 2003
15. Chan B.P., Amann C., **Yaroslavsky A.N.**, Title C., Smink D., Zarins B., Kochevar I.E., Redmond R.W.A. Photochemical Repair of Achilles Tendon Rupture in a Rat Model. *J Surg Res* 30: 2420-2424, 2004
16. **Yaroslavsky AN**, Neel V, Anderson RR. Fluorescence polarization imaging for delineating nonmelanoma skin cancers. *Optics Letters* **29**: 2010-2012, 2004

17. Yang MU, **Yaroslavsky AN**, Farinelli WA, Flotte TJ, Rius-Diaz F, Tsao SS, Anderson R.R. Long-pulsed Nd:YAG laser treatment for portwine stains. *JAAD* 52(3): 480-490, 2005
18. **Yaroslavsky AN**, Barbosa J, Neel V, DiMarzio C, Anderson RR. Combining multi-spectral polarized-light imaging and confocal microscopy for localization of nonmelanoma skin cancer. *J Biomed Opt* 10(1): 014011 2005.
19. Anderson RR, Farinelli W, Laubach H, Manstein D, **Yaroslavsky AN**, Gubeli III J, Jordan K, Neil GR, Shinn M, Chandler W, Williams GP, Benson SV, Dylla HF. Selective Photothermolysis of Lipid-Rich Tissues: a Free Electron Laser Study. *Las.Surg.Med.* 38(10):913-9, 2006
21. Salomatina E, Jiang B, Novak J, **Yaroslavsky AN**. Optical properties of normal and cancerous human skin in the visible and near infrared spectral range. *J Biomed. Opt.*, 11 (6),.064026, 2006
22. Chan BP, Hui TY, Chan CM, So K-F, Lu W, Cheung KMC, Salomatina E, **Yaroslavsky A**. Photochemical crosslinking for collagen-based scaffolds – A study on optical properties, mechanical properties, stability and haematocompatibility. *Tissue Engineering* 13(1), 2007.
23. **Yaroslavsky AN**, Salomatina EV, Neel V, Anderson R, Flotte T. Fluorescence Polarization of Tetracycline Derivatives as a Technique for Mapping Nonmelanoma Skin Cancers. *J. Biomed. Opt.* 12(1),014005, 2007.
24. Demidova-Rice TN, Salomatina E, **Yaroslavsky AN**, Herman IM, Hamblin MR. Low-level light stimulates excisional wound healing in mice. *Las. Surg. Med.* 39 (9), 716-22, 2007.
25. Al-Arashi M, Salomatina E, **Yaroslavsky AN** Multimodal Confocal Microscopy for the Detection of Nonmelanoma Skin Cancers. *Las. Surg. Med.* 39 (9), 706-15, 2007.
26. Salomatina E and **Yaroslavsky AN** Evaluation of the *in vivo* and *ex vivo* optical properties in a mouse ear model. *Phys. Med. Biol.* 53 2797-2807, 2008.
27. Tannous Z, Al-Arashi M, Shah S, and **Yaroslavsky AN** Delineating Melanoma Using Multimodal Polarized Light Imaging. *Las.Surg.Med.* 41, 10-16, 2009
28. Salomatina E, Muzikansky A, Neel V, and **Yaroslavsky AN**, "Multimodal optical imaging and spectroscopy for the intraoperative mapping of nonmelanoma skin cancer. *Accepted to the J. Appl. Phys.*
29. Yang M.F., Tuchin VV, and **Yaroslavsky AN**, "Principles of Light-Skin Interactions", In: Baron E., ed. *Light-Based Therapies for Skin of Color*. Springer-Verlag, Medicine, UK, 2009.

**Patents:**

- U.S. Patent 7,289,205 Yaroslavsky et al. Fluorescence polarization imaging device and methods.
- U.S. Patent (pending) Yaroslavsky et al. Polarized light imaging devices and methods. 03/18/03
- U.S. Patent (pending). Yaroslavsky et al. Device and method for wide-field high-resolution imaging. 06/30/06
- U.S. Patent (pending). Yaroslavsky et al. High-contrast high-resolution imaging of skin cancer. 09/17/07

**C. Research Support**Ongoing Research Support

R21/R33; 1R21 CA1124986-01 (PI. A. Yaroslavsky)

5/23/07 – 4/30/11

Towards *in situ* optical pathology of nonmelanoma skin cancers

The goal of this project is to develop a multimodal optical imaging technique and validate it for diagnosing and delineating nonmelanoma skin cancers

CIMIT (PI. A. Yaroslavsky)

03/01/07 – 03/31/09

Wide-field High-Resolution Imaging of Nonmelanoma Skin Cancers

The goal of this project is to develop wide-field high-resolution imaging technology for the detection of nonmelanoma skin cancers.

Completed Research Support

1R01 EB002423-01 (PI. A. Yaroslavsky)

9/20/03-8/31/07

Optical Mapping of Non-Melanoma Skin Cancers

The goal of this project is to develop a practical way to detect skin cancer margins and guide tumor excision surgery using non-invasive optical imaging techniques.