

CURRICULUM VITAE

1. **Full Name:** Yuriy Mishchenko
2. **Title:** Assistant Professor
3. **Education:**

Degree	Department	University	Year
B.S.	Physics	National Kiev University of Taras Shevchenko, Kiev, Ukraine	1999
M.S.	Physics	National Kiev University of Taras Shevchenko, Kiev, Ukraine	2000
Ph.D.	Physics	North Carolina State University, NC, USA	2004

4. **Academic Titles:**

Date of Assistant Professorship granted : 2011

Date of Associate Professorship granted :

Date of Professorship granted :

5. **Supervised M.S. Theses and Ph.D. Dissertations:**

5.1. M.S. Theses: 2

5.2. Ph.D. Dissertations

6. **Work Experience:**

Title	Organization	Year
Assistant Professor	<i>Toros University</i> , Department of Engineering, Mersin, Turkey	2011-current
Postdoctoral Fellow	<i>Columbia University</i> , Department of Statistics and Center for Theoretical Neuroscience, New York, NY, USA	2008-2010
Research Associate	<i>Janelia Farm Research Campus of Howard Hughes Medical Institute</i> , Ashburn, VA, USA	2006-2008
Research Associate	<i>Cold Spring Harbor Laboratory</i> , Cold Spring Harbor, NY, USA	2005-2006
Research Assistant	<i>North Carolina State University</i> , Department of Physics, Raleigh, NC, USA	2003-2004
Research Assistant	<i>Jefferson Laboratory</i> , Newport News, VA, USA	2003-2003
Teaching Assistant	<i>North Carolina State University</i> , Department of Physics, Raleigh, USA	2000-2003

7. **Publications**

7.1. Articles published in international refereed journals (SCI & SSCI & Arts and Humanities)

1. Mishchenko Y. (2013) A function for fast computation of large discrete Euclidean distance transforms in three or more dimensions in Matlab. *Signal, Image and Video Processing*, online ahead of print, DOI: 10.1007/s11760-012-0419-9.
2. Mishchenko Y., Paninski L. (2012) A Bayesian compressed-sensing approach for reconstructing neural connectivity from subsampled anatomical data, *Journal of Computational Neuroscience*, 33(2), 371-88.
3. Rivera-Alba M., Vitaladevuni S. N., Mishchenko Y., et al. (2011) Wiring economy and volume exclusion determine neuronal placement in the *Drosophila* brain, *Current Biology*, 21, 2000-5.
4. Mishchenko Y. and Paninski L. (2011) Efficient methods for sampling spike trains in networks of coupled neurons. *Annals of Applied Statistics*, 5, 1893-919.
5. Mishchenko Y., Vogelstein J., Paninski L. (2011) A Bayesian approach for inferring neuronal connectivity from calcium fluorescent imaging data. *Annals of Applied Statistics*, 5, 1229-61.
6. Mishchenko Y. (2011) Reconstruction of complete connectivity matrix for connectomics by sampling neural connectivity with fluorescent synaptic markers. *Journal of Neuroscience Methods* 196, 289.

7. Mishchenko Y. (2010) On optical detection of densely labeled synapses in neuropil and mapping connectivity with combinatorially multiplexed fluorescent synaptic markers. *PLoS ONE* 5(1): e8853.
8. Mishchenko Y., Hu T., Spacek J., Mendenhall J., Harris K., Chklovskii D. (2010) Ultrastructural analysis of hippocampal neuropil from the connectomics perspective. *Neuron* 67, 1009.
9. Mishchenko Y. (2009) Automation of 3D reconstruction of neural tissue from large volume of conventional serial section transmission electron micrographs. *Journal of Neuroscience Methods* 176, 276.
10. Ji C.-R., Mishchenko Y., Radyushkin A. (2006) Higher Fock state contributions to the generalized parton distribution of pion. *Physical Review D* 73, 114013.
11. Mishchenko Y. (2006) Remedy for the fermion sign problem in the diffusion Monte Carlo method for few fermions with antisymmetric diffusion process. *Physical Review E* 73, 026706.
12. Bakker B., DeWitt M., Ji C.-R., Mishchenko Y. (2005) Restoring the equivalence between the light-front and manifestly covariant formalisms. *Physical Review D* 72, 076005.
13. Mishchenko Y., Ji C.-R. (2005) A novel variational approach for quantum field theory: example of study of the ground state and phase transition in nonlinear sigma model. *International Journal of Modern Physics A* 20, 3488.
14. Mishchenko Y., Ji C.-R. (2005) Exploring properties of dark and visible mass distribution on different scales in the Universe. *International Journal of Modern Physics A* 20, 3124.
15. Ji C.-R., Mishchenko Y. (2005) Time to space conversion in quantum field theory of flavor mixing. *Annals of Physics* 315, 488.
16. Capolupo A., Ji C.-R., Mishchenko Y., Vitiello C.-R. (2004) Phenomenology of flavor oscillations with nonperturbative effects from quantum field theory. *Physics Letters B* 594, 135.
17. Mishchenko Y., Ji C.-R. (2003) Molar mass estimate of dark matter from the dark mass distribution measurements. *Physical Review D* 68, 063503.
18. Ji C.-R., Mishchenko Y. (2002) The general theory of quantum field mixing. *Physical Review D* 65, 096015.
19. Ji C.-R., Mishchenko Y. (2001) Nonperturbative vacuum effect in the quantum field theory of meson mixing. *Physical Review D* 64, 076004.

7.2. Other articles published in international refereed journals

1. Ji C.-R., Mishchenko Y., Shalaby A. (2004) Duality and canonical transformations in the scalar field theory. *Recent Research Developments in Physics*, vol. 5, 1487.

7.3. Presentations made at international scientific meetings and published in the proceedings

1. Y. Mishchenko "Fluorescent co-localization synaptic markers for connectome reconstructions", Proceedings of 8th FENS Forum of Neuroscience, Barcelona, Spain, July 14-18, 2012 (abstract published).
2. Y. Mishchenko and L. Paninski "Efficient methods for sampling spike trains in networks of coupled neurons", in Proceedings of COSYNE Conference, Salt Lake City, UT, USA, February 28 - March 01, 2011. (abstract published)
3. J. Vogelstein, T. Machado, Y. Mishchenko, A. Packer, R. Yuste and L. Paninski "Methods for in vitro neural circuit inference from population calcium imaging data", in Proceedings of COSYNE Conference, Salt Lake City, UT, USA, February 28 - March 01, 2010. (abstract published)
4. Y. Mishchenko, J. Vogelstein, L. Paninski "Statistical reconstruction of neural connectivity from the data produced using stochastically Cre/Lox guided fluorescent synaptic marker GRASP", in Proceedings of SfN Meeting, Chicago, USA, October 17-21, 2009. (abstract published)
5. J. Vogelstein, Y. Mishchenko, A. Packer, T. Machado, R. Yuste, L. Paninski, "Towards confirming neural circuit inference from population calcium imaging", in Proceedings of SfN Meeting, Chicago, USA, October 17-21, 2009. (abstract published)
6. Y. Mishchenko, "Using Brainbow and GRASP for detailed reconstruction of complete circuits with light microscopy", in Proceedings of COSYNE Conference, Salt Lake City, UT, USA, February 26 - March 03, 2009. (abstract published)
7. S. Vitaladevuni, Y. Mishchenko, A. Genkin, D. Chklovskii, K. Harris, "Mitochondria detection in electron microscopy images", in Proceedings of MIAAB 2008, New York, NY, September 06, 2008. (paper published)
8. Y. Mishchenko, J. Spacek, J. Mendenhall, K. Harris and D. Chklovskii, "Full electron microscopy reconstructions reveal organization of hippocampus neuropil at nanometer resolution", in Proceedings of SfN Meeting, Washington, DC, USA. November 15-19, 2008. (abstract published)

9. Y. Mishchenko, A. Koulakov, D. Chklovskii, "Automated 3D reconstruction of neuronal circuitry from serial electron micrographs", in Proceedings of SfN Meeting, Washington, DC, USA, November 12-16 2005. (abstract published)
10. Y. Mishchenko, C.-R. Ji, "Exploring the properties of dark and visible mass distributions on different scales in the universe", in Proceedings of DPF Meeting, Riverside, CA, USA, August 26-31 2004. (abstract published)
11. Y. Mishchenko, C.-R. Ji, "New approach to variational method for the quantum field theory: example of critical phenomena in 2+1 dimensional nonlinear sigma model", in Proceedings of DPF Meeting, Riverside, CA, USA, August 26-31 2004. (abstract published)
12. Y. Mishchenko, C.-R. Ji, "The general quantum field theory of flavor mixing", in Proceedings of SESAPS Conference, Auburn, AL, USA, October 31 - November 2 2002. (abstract published)
13. Y. Mishchenko, C.-R. Ji, "Nonperturbative vacuum effect in meson mixing", in Proceedings of SESAPS Conference, Charlottesville, VA, USA, November 4-6 2001. (abstract published)

7.4. International books and book chapters

1. Mishchenko Y. (2009) *Nontrivial vacuum solutions in flavor mixing and critical phenomena*. Saarbrücken: VDM Verlag.
2. Mishchenko Y., Ji C.-R. (2005) General formulation of flavor mixing in Quantum Field Theory. In O. Kovras (ed.): *Focus on Quantum Field Theory*. Nova Science Publisher, pp115-149.
3. Mishchenko Y., Ji C.-R. (2004) Distribution of mass in galaxy cluster CL0024 and the particle mass of dark matter. In J. Val Blain (ed.): *Progress in Dark Matter Research*. Nova Science Publisher, pp217-239.

7.5. Articles published in national refereed journals

7.6. Presentations made at national scientific meetings and published in the proceedings

7.7. Other publications

1. Mishchenko Y. (2013) Homeostasis and variability in cellular stochasticity of gene expression. *Submitted*.
2. Mishchenko Y. (2013) Oscillations in Rational Economies. *Submitted*.
3. Rah J. C., Bas E., Colonell J., Mishchenko Y. et al. (2013) Clustered thalamocortical input onto layer 5 pyramidal neurons detected using quantitative large-scale array tomography. *Submitted*.
4. Mishchenko Y. (2013) The impact of local neuropil organization on small-scale synaptic connectivity in hippocampal area CA1. *Submitted*.
5. Mishchenko Y. (2008) Strategies for recovering exact structure of neural circuits with broad light microscopy connectivity probes. *Nature Precedings*. Retrieved from <http://hdl.handle.net/10101/npre.2009.2669.2>.

8. Projects

1. "Founding of Non-invasive Brain-Machine Interfaces laboratory at the Engineering Faculty of Toros University", Scientific Research Projects Support Fund of Toros University, Budget: 10,000 TL

9. Administrative Duties

Member of the Faculty Management Council, Toros University, Engineering Faculty, 2012-current

Head of the Department of Computer Engineering, Toros University, Engineering Faculty, 2012-current

Head of the Department of Computer-Software Engineering, Toros University, Engineering Faculty, 2013-current

10. Memberships at Scientific and Professional Societies

- American Physical Society
- Society for Neuroscience
- Phi Kappa Phi Honor Society

11. Honors and Awards

- 2013 Science Academy's Yong Scientist Scholarship Award (BAGEP, TURKEY)
- 2010 Madison Who's Who Registry of Executives and Professionals (USA)
- 2002-2004 South-Eastern Universities Research Association/Jefferson Lab (SURA/JLAB) graduate fellowship (USA)
- 1994 III Place Diploma National Ukrainian Olympiad in Physics (UKRAINE)

12. Undergraduate and graduate courses taught in the last two years.

Academic Year	Semester	Course Name	Weekly Hours		Students Number
			Theory	Practice	
2012-2013	Güz	Fizik I	3	2	70
		Algoritmalar ve Veri Yapıları	3	0	15
		Yapay Zeka	3	0	15
	İlkbahar	Fizik II	3	2	70
		İnternet ve Web Programlama	3	0	8
		Yapay Zeka	3	0	4
2011-2012	Güz	Fizik I	3	2	50
		Algoritmalar ve Veri Yapıları	3	0	10
	İlkbahar	Fizik II	3	2	50
		İnternet ve Web Programlama	3	0	20

- **Note:** If present, courses taught during summer sessions can be listed in this table.