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

M.S. Thesis Title and Advisor(s):

"Nonperturbative Mass Renormalization in 2+1 Scalar Yukawa Model"; Danışman: Prof. Dr. İ. Simenog

Ph.D. Dissertation Title and Advisor(s):

"Applications of Canonical Transformations and Nontrivial Vacuum Solutions to Flavor Mixing and Critical Phenomena in Quantum Field Theory"; Danışman: Prof. Dr. C.-R. Ji

4. **Academic Titles:**

Assistant Professorship : 2011
Associate Professorship : --
Professorship : --

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

1. Erhan ÖNEL, "Bilişim Sektöründe Duygusal Zeha ve Yönetim Bilgi Sistemleri", M.S. Thesis, Toros University (2014)
2. Kutluhan KİBRİT, "Gömüllü Sistemler ve Uygulamaları" , M.S. Thesis, Toros University (In progress)
3. Samet KAYA, "Felaket Kurtarma ve Yüksek Erişilebilirlik Senaryolarının İncelenmesi ve Uygulamaları" , M.S. Thesis, Toros University (In progress)
4. Nesrin KİBRİT, "Bilişim Suçları, Yöntemleri ve Zayıflık Tarama Sistemleri ile Türk Hukuk Sistemindeki Yeri" , M.S. Thesis, Toros University (In progress)

6. **Work Experience:**

Title	Organization	Year
Assistant Professor	*Toros University*, Department of Engineering, Mersin, Turkey	2011-current
Postdoctoral Fellow	*Columbia University*, Department of Statistics and Center for Theoretical Neuroscience, New York, NY, USA	2008-2010
Research Associate	*Janelia Farm Research Campus of Howard Hughes Medical Institute*, Ashburn, VA, USA	2006-2008
Research Associate	*Cold Spring Harbor Laboratory*, Cold Spring Harbor, NY, USA	2005-2006

Research Assistant	*North Carolina State University*, Department of Physics, Raleigh, NC, USA	2003-2004
Research Assistant	*Jefferson Laboratory*, Newport News, VA, USA	2003-2003
Teaching Assistant	*North Carolina State University*, Department of Physics, Raleigh, USA	2000-2003

7. Publications

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

1. Mishchenko Y. (2014) Oscillations in rational economies. *Plos ONE*, 9(2), e87820.
2. Rah J.-C., Bas E., Colonell J., Mishchenko Y., Karsh B., Fetter R., Myers E., Chklovskii D., Svoboda K., Harris T., Isaac J. (2013) Thalamocortical input onto layer 5 pyramidal neurons measured using quantitative large-scale array tomography. *Frontiers in Neural Circuits*, 7, 177.
3. 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 baskı öncesi, DOI: 10.1007/s11760-012-0419-9.
4. 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.
5. Rivera-Alba M., Vitaladevuni S., Mishchenko Y., Lu Z., Takemura S., Scheffer L., Meinertzhagen I., Chklovskii D., de Polavieja G. (2011) Wiring economy and volume exclusion determine neuronal placement in the Drosophila brain. *Current Biology*, 21, 2000-5.
6. Mishchenko Y. and Paninski L. (2011) Efficient methods for sampling spike trains in networks of coupled neurons. *Annals of Applied Statistics*, 5, 1893-919.
7. 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.
8. Mishchenko Y. (2011) Reconstruction of complete connectivity matrix for connectomics by sampling neural connectivity with fluorescent synaptic markers. *Journal of Neuroscience Methods,* 196, 289-302.
9. 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.
10. 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.
11. 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, 276-289.
12. Ji C.-R., Mishchenko Y., Radyushkin A. (2006) Higher Fock state contributions to the generalized parton distribution of pion. *Physical Review D*, 73, 114013.
13. 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.
14. 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.
15. 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.

16. 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.
17. Ji C.-R., Mishchenko Y. (2005) Time to space conversion in quantum field theory of flavor mixing. *Annals of Physics*, 315, 488.
18. 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.
19. Mishchenko Y., Ji C.-R. (2003) Molar mass estimate of dark matter from the dark mass distribution measurements. *Physical Review D*, 68, 063503.
20. Ji C.-R., Mishchenko Y. (2002) The general theory of quantum field mixing. *Physical Review D*, 65, 096015.
21. 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 in international refereed journals

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7.3. Presentations at international scientific meetings published in proceedings

1. Y. Mishchenko "Reconstructing functional connectivity in complete neural populations by randomized sparse sampling", Proceedings of COSYNE Conference, Salt Lake City, UT, USA, Feb 27 – Mart 02, 2014. (abstract published)
2. Y. Mishchenko "Fluorescent co-localization synaptic markers for connectome reconstructions", Proceedings of 8th FENS Forum of Neuroscience, Barcelona, Spain, June 14-18, 2012. (abstract published)
3. Y. Mishchenko and L. Paninski "Efficient methods for sampling spike trains in networks of coupled neurons", Proceedings of COSYNE Conference, Salt Lake City, UT, USA, Feb 28 – Mart 01, 2011. (abstract published)
4. 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", Proceedings of COSYNE Conference, Salt Lake City, UT, USA, Feb 28 – Mar 01, 2010. (abstract published)
5. Y. Mishchenko, J. Vogelstein, L. Paninski "Statistical reconstruction of neural connectivity from the data produced using stochastically Cre/Lox guided uorescent synaptic marker GRASP", Proceedings of SfN Meeting, Chicago, USA, Sep 17-21, 2009. (abstract published)
6. J. Vogelstein, Y. Mishchenko, A. Packer, T. Machado, R. Yuste, L. Paniski, "Towards confirming neural circuit inference from population calcium imaging", Proceedings of SfN Meeting, Chicago, USA, Sep 17-21, 2009. (abstract published)
7. Y. Mishchenko, "Using Brainbow and GRASP for detailed reconstruction of complete circuits with light microscopy", Proceedings of COSYNE Conference, Salt Lake City, UT, USA, Feb 26 – Mart 03, 2009. (abstract published)
8. S. Vitaladevuni, Y. Mishchenko, A. Genkin, D. Chklovskii, K. Harris, "Mitochondria detection in electron microscopy images", Proceedings of MIAAB 2008, New York, NY, USA, Sep 06, 2008. (paper published)
9. Y. Mishchenko, J. Spacek, J. Mendenhall, K. Harris and D. Chklovskii, "Full electron microscopy reconstructions reveal organization of hippocampus neuropil at nanometer resolution", Proceedings of SfN Meeting, Washington, DC, USA, Nov 15-19, 2008. (abstract published)
10. Y. Mishchenko, A. Koulakov, D. Chklovskii, "Automated 3D reconstruction of neuronal circuitry from serial electron micrographs", Proceedings of SfN Meeting, Washington, DC, USA, Nov 12-16, 2005. (abstract published)
11. Y. Mishchenko, C.-R. Ji, "Exploring the properties of dark and visible mass distributions on different scales in the universe", Proceedings of DPF Meeting, Riverside, CA, USA, Aug 26-31, 2004. (abstract published)

12. 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", Proceedings of DPF Meeting, Riverside, CA, USA, Aug 26-31, 2004. (abstract published)
13. Y. Mishchenko, C.-R. Ji, "The general quantum field theory of avor mixing", Proceedings of SESAPS Conference, Auburn, AL, USA, Sep 31 – Nov 2, 2002. (abstract published)
14. Y. Mishchenko, C.-R. Ji, "Nonperturbative vacuum effect in meson mixing", Proceedings of SESAPS Conference, Charlottesville, VA, USA, Sep 4-6, 2001. (abstract published)

7.4. Books and book chapters

1. Mishchenko Y. (2009) *Nontrivial vacuum solutions in flavor mixing and critical phenomena.* Saarbrucken: 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.
4. Ji C.-R., Mishchenko Y., Shalaby A. (2004) Duality and canonical transformations in the scalar field theory. In S. G. Pandalai: Recent Developments in Physics, vol. 5, Transworld Research Network, pp1487-1510.

7.5. Articles published in (Turkish) national refereed journals

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7.6. Presentations at (Turkish) national scientific meetings published in proceedings

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7.7. Other publications

1. Mishchenko Y. (2014) The micron-scale structural organization of hippocampal area CA1 neuropil. *BioRxiv*, doi: 10.1101/003863.
2. Marblestone A., Daugharthy E., Kalhor R., Peikon I., Kebschull J., Shipman S., Mishchenko Y., Dalrymple D., Zamft B., Kording K., Boyden E., Zador A., Church G. (2013) Conneconomics: The Economics of Large-Scale Neural Connectomics. *BioRxiv,* doi: 10.1101/001214.
3. Mishchenko Y. (2008) Strategies for identifying exact structure of neural circuits with broad light microscopy connectivity probes. *Nature Precedings*; retrieved http://hdl.handle.net/10101/npre.2009.2669.2.

8. Projects

1. "Development of more efficient noninvazive brain-machine interfaces", TUBİTAK ARDEB 1001 Projesi (Turkey), Principal Investigator, 2014-2017.
2. "Founding of the Noninvazive Brain-Machine Interfaces Research Laboratory at the Engineering Faculty of Toros University", BAP Project, Toros University, Principal Investigator, 2013-2014.
3. "Constraining parameters of Dark Matter particles from observations of Dark Matter in high-speed collision galaxy clusters", APS ITGAP collaboration project (USA), Researcher, 2014.
4. "Measurements of the efficiency of solar panels (PV) and electronic devices (diod, transistor, LED)", BAP Project, Toros University, Researcher, 2013-2014.

9. Administrative Duties

(2012-2013) Department head, the Department of Computer and Software Engineering, Toros University
(2012-current) Department head, the Department of Computer Engineering, Toros University
(2012-current) Member of the Engineering Faculty's steering committee at Toros University

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. Taught Undegraduate and Graduate Classes

Academic Year	Semester	Course's name	Weekly hours		Number of Students
			Theory	Practice	
2013-2014	Spring	Java Programming (undergraduate)	2	2	20
		Internet and Web Programming (graduate)	3	0	6
	Fall	Physics I (undergraduate)	3	2	120
		Algorithms and Data Structures (graduate)	3	0	6
2012-2013	Spring	Physics II (undergraduate)	3	2	70
		Internet and Web Programming (graduate)	3	0	8
		Artificial Intelligence (graduate)	3	0	4
	Fall	Physics I (undergraduate)	3	2	70
		Algorithms and Data Structures (graduate)	3	0	15
		Artificial Intelligence (graduate)	3	0	15
	Summer	Physics II (undergraduate)	3	2	7
2011-2012	Spring	Physics II (undergraduate)	3	2	50
		Internet and Web Programming (graduate)	3	0	20
	Fall	Physics I (undergraduate)	3	2	50
		Algorithms and Data Structures (graduate)	3	0	10