CURRICULUM VITAE

David W. Tank

Personal

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Education

1976	B.S., Physics and Mathematics Case Western Reserve University (summa cum laude)
1979	Neurobiology Course, MBL, Woods Hole, MA
1983	Ph.D., Physics, Cornell University

Professional Experience

2001-	Professor of Molecular Biology and Physics, Princeton University
2001-	Consultant, Bell Laboratories, Lucent Technologies
1991- 2001	Director, Biological Computation Research Dept. Bell Laboratories, Lucent Technologies
1988- 1991	Distinguished Member of the Technical Staff AT&T Bell Laboratories
1983-1988	Member of the Technical Staff AT&T Bell Laboratories
1983	Postdoctoral Member of the Technical Staff AT&T Bell Laboratories
1992 -1997	Co-Director, Methods in Computational Neuroscience, Marine Biology Laboratory, Woods Hole, MA

Fellowships and Awards

1976	Morris Prize, CWRU
1978-79	Biophysics Fellowship Cornell U
1980-81	NIH Predoctoral Fellowship Cornell U.
1988	American Physical Society Fellow
1999	Bell Laboratories Fellow
2000	Fellow, American Academy of Arts and Sciences
2001	Member, National Academy of Sciences

Service Positions Held

Advisory Committee, McKnight Foundation (Technological Innovation in Neuroscience Awards)
Editorial Board: Journal of Computational Neuroscience
Editorial Advisory Board: Network Computation in Neural Systems

Professional Societies

Society for Neuroscience
American Physical Society
Biophysical Society

Research Publications

1. Tank, D.W., Wu, E.-S., and Webb, W.W., Enhanced molecular diffusibility in muscle membrane blebs: release of lateral constraints, J. Cell Biol. 92, 207-212 (1982).

2. Webb, W.W., Barak, L.S., Tank, D.W. and Wu, E.-S., Molecular mobility on the cell surface, Biochem. Soc. Symp. 46, 191-205 (1981).

3. Tank, D.W., Wu, E.-S., Meers, P.R. and Webb,W.W., Lateral diffusion of gramicidin C in phospholipid multibilayers: effects of cholesterol and high gramicidin concentrations, Biophysical Journal 40, 129-135 (1982).

4. Wu, E.S., Tank, D.W. and Webb, W.W., Unconstrained lateral diffusion of concanavalin A receptors on bulbous lymphocytes, Proc. Natl. Acad. Sci. U.S.A. 79, 4962-4966 (1982).

5. Tank, D.W., Miller, C. and Webb, W.W., Isolated-patch recording from liposomes containing functionally reconstituted chloride channels from Torpedo electroplax. Proc. Natl. Acad. Sci. U.S.A. 79, 7749-7753 (1982).

6. Tank, D.W., Huganir, R.L., Greengard, P. and Webb, W.W., Patch-recorded single channel currents of purified and reconstituted Torpedo acetylcholine receptor, Proc. Natl. Acad. Sci. U.S.A. 80, 5129-5133 (1983).

7. Tank, D.W. and Miller, C., Patch-clamped liposomes: recording reconstituted ion channels. In: Single Channel Recording, eds. Sakmann, B. and Neher, E. (Plenum Press, New York, 1983).

8. Tank, D.W., Fredericks, W.J., Barak, L.S. and Webb,W.W., Electric field-induced redistribution and postfield relaxation of low density lipoprotein receptors on cultured human fibroblasts, J. Cell Biol. 101, 148-157 (1985).

9. Gelperin, A., Hopfield, J.J. and Tank, D.W., The logic of Limax learning. In: Model Neural Networks and Behavior, Ed. A. I. Selverston (Plenum Press, New York, 1985).

10. Hopfield, J.J. and Tank, D.W., "Neural" computation of decisions in optimization problems, Biological Cybernetics 52, 141-152 (1985).

11. Tank, D.W. and Hopfield, J.J., Simple "neural" optimization networks: an A/D converter, signal decision circuit, and a linear programming circuit, IEEE Transactions on Circuits and Systems CAS33, 533-541 (1986).

12. Hopfield, J.J. and Tank, D.W., Collective computation with continuous variables, In: Disordered Systems and Biological Organization, E. Bienenstock, F. Fogelman Soulie, G. Weisbuch, Eds. (Springer-Verlag, New York, 1986).

13. Hopfield, J.J. and Tank, D.W., Computing with neural circuits: a model, Science 233, 625-633 (1986). (Reprinted in Japanese journal)

14. Ahmed, Z., Connor, J.A., Tank, D.W. and Fellows, R.E., Expression of membrane currents in rat diencephalic neurons in serum-free culture, Developmental Brain Research 28, 221-231 (1986) .

15. Tank, D.W. and Hopfield, J.J., Collective computation in neuronlike circuits, Scientific American Vol. 255 No. 12, 104-114 (1987). (Reprinted in Trends in Computing Vol. 1, Scientific American Press, 1988)

16. Tank, D.W. and Hopfield, J.J., Concentrating information in time: analog neural networks with applications to speech recognition problems. In: Proc. Intl. Conf. on Neural Networks, San Diego CA (1987).

17. Tank, D.W. and Hopfield, J.J., Neural computation by concentrating information in time. Proc. Natl. Acad. Sci. U.S.A. 84, 1896-1900 (1987).

18. Tank, D.W., Sugimori, M., Connor, J.A. and Llinas, R.R., Spatially resolved calcium dynamics of mammalian Purkinje cells in cerebellar slice, Science 242, 773-777 (1988).

19. Hopfield, J.F., Tank, D.W., Greengard, P. and Huganir, R.L., Functional modulation of the nicotinic acetylcholine receptor by tyrosine phosphorylation, Nature 336, 677-680 (1988).

20. Hopfield, J.J. and Tank, D.W., Neural architecture and biophysics for sequence recognition. In: Neural Models of Plasticity--Theoretical and Empirical Approaches, Eds., Byrne, J. and Berry, W.O. (Academic Press, New York, 1989).

21. Gelperin, A., Tank, D.W. and Tesauro, G., Olfactory processing and associative memory: cellular and modeling studies. In: Neural Models of Plasticity--Theoretical and Empirical Approaches, Eds. Byrne, J. and Berry, W.O. (Academic Press, New York, 1989).

22. Delaney, K.R., Zucker, R.S., and Tank, D.W., Calcium in motor nerve terminals associated with posttetanic potentiation. J. Neuroscience 9 (10), 3558-3567 (1989).

23. Tank, D. W., What details of neural circuits matter?, Sem. in Neurosci.1: 67-79 (1989).

24. Regehr, W.G., Pine, J., Cohan, C.S., Mischke, M.D. and Tank, D.W.,Sealing cultured invertebrate neurons to embedded dish electrodes facilitates long-term stimulation and recording, J. Neuroscience Methods 30: 91-106 (1989).

25. Regehr, W.G., Connor, J.A. and Tank, D.W., Optical imaging of calcium accumulation in hippocampal pyramidal cells during synaptic activation. Nature 341, 533-536 (1989).

26. Regehr, W.G. and Tank, D.W., Postsynaptic NMDA receptor-mediated calcium accumulation in hippocampal CA1 pyramidal cell dendrites. Nature 345, 807-810 (1990).

27. Gelperin, A. and Tank, D.W., Odor-modulated collective network oscillations of olfactory interneurons in a terrestrial mollusc. Nature 345, 437-440 (1990).

28. Tank, D.W., Computations performed by oscillatory dynamics in invertebrate and vertebrate olfactory systems. In "Computational Neuroscience" short course syllabus, Published by the Society for Neuroscience, (1990).

29. Ogawa, S., Lee, T.M., Kay, A. and Tank, D.W., Brain magnetic resonance imaging with contrast dependent on blood oxygenation. Proc. Natl. Acad. Sci. U.S.A. 87, 9868-9872 (1990).

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31. Regehr, W.G. & Tank, D.W., Selective fura-2 loading of presynaptic terminals and nerve cell processes in mammalian brain slice. Journal of Neuroscience Methods 37, 111-119 (1991).

32. Delaney, K.R., Tank, D.W. and Zucker, R.S., Presynaptic calcium and serotonin-mediated enhancement of transmitter release at crayfish neuromuscular junction. J Neuroscience 11, 2631-2643 (1991).

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34. Unnikrishnan, K.P., Hopfield, J.J. and Tank, D.W., Speaker-independent digit recognition using a neural network with time-delayed connections. Neural Computation 108-119 (1991).

35. Regehr,W.G. and Tank, D.W., The maintenance of LTP at hippocampal mossy fiber synapses is independent of sustained presynaptic calcium. Neuron 7, 451-459 (1991).

36. Delaney, K.R. & Tank, D.W., Calcium-dependent and calcium-independent enhancement of transmitter release at the crayfish neuromuscular junction studied with fura-2 imaging. Annal. N.Y. Acad. Sci. 635, 452-454 (1991).

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53. Tank, D. W., Gelperin, A., and Kleinfeld, D., Odors, Oscillations, and Waves: Does it all Compute?, Science 265, 1819-810, (1994).

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66. Svoboda, K., Tank, D.W., Stepnoski, R., and Denk, W., *In vivo* imaging of dendritic calcium dynamics, In: Imaging Neurons: A Laboratory Manual. R. Yuste, F. Lanni, A. Konnerth, Eds., (Cold Spring Harbor Laboratory Press, Cold Spring Harbor, NY, 2000).

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73. Helmchen, F. , Fee, M., Tank, D.W. and Denk, W., A miniature head-mounted two-photon microscope: high resolution brain imaging in freely moving animals. Neuron 27, 11-20 (2001).

74. Goldman, M.S., Kaneko, C.R., Major, G., Aksay E., Tank, D.W., Seung, H.S., Linear regression of eye velocity on eye position and head velocity suggests a common oculomotor neural integrator. J Neurophysiol 88, 659-665 (2002).

75. Helmchen, F., Tank, D.W., Denk, W., Enhanced two-photon excitation through optical fiber by single-mode propagation in a large core. Appl Opt 41, 2930-2934 (2002).

Patents

1. Patent No. 4,719,591: Optimization network for the decomposition of signals. (Jan., 1988; with J.J. Hopfield).

2. Patent No. 4,937,872: Neural computation by time concentration. (June,1990; with J.J. Hopfield).