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## EDUCATION

University of California, San Diego, Ph.D. in Physics, May 1999.

Tsinghua University, Beijing, China, M.S. in Physics, July 1994.

Tsinghua University, Beijing, China, B.S. in Physics, July 1990.

## PROFESSIONAL EXPERIENCE

Research Associate, Howard Hughes Medical Institute, February 2001 to present.

Postdoctoral Fellow, Massachusetts Institute of Technology, July 2000 to present.

Postdoctoral Researcher, University of California, San Diego, June 1999 to June 2000.

Assistant Lecturer, Tsinghua University, Beijing, China, September 1990 to June 1992.

## PROFESSIONAL MEMBERSHIP

American Physical Society, member.

Society for Neuroscience, member.

Sigma Xi - The Scientific Research Society, member.

## PROFESSIONAL ACTIVITY

Referee for Physical Review Letters, Physical Review E, IEEE Transactions on Neural Networks, Physics of Plasmas, and Physics of Fluids.

## INVITED TALKS

University of California at San Diego, Physics Department, April (2003). "Fast computation with spike sequence attractors in neural networks".

Indiana University, Physics Department, March (2003). "Fast computation with spike sequence attractors in neural networks".

Bell Laboratories, Murray Hill, March (2002). "Fast computation with spikes in recurrent neural networks".

The 41st Annual Meeting of the Division of Plasma Physics, The American Physical Society, Seattle, November (1999). "Theory of vortex crystal formation in two-dimensional turbulence".

Non-Neutral Plasma Physics III, Princeton, New Jersey, August (1999). "Characteristics of 2D turbulent flows that self-organize into vortex crystals".

## IN THE NEWS

Research News in Physics, Science, 280, 24 (1998).

Recent Advances and Issues in Physics, D. E. Newton, page 47, Oryx Press (2000).

APS News (American Physical Society Newsletter), January (2000).

Physics Update, Physics Today, January (2001).

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## PUBLICATIONS

- 1 D. Z. Jin, "A spiking neural network for recognizing spatiotemporal sequences of spikes", *Physical Review E*, accepted.
- 2 D. Z. Jin, V. Dragoi, M. Sur, and H. S. Seung, "The tilt aftereffect and adaptation-induced changes of orientation tuning in visual cortex", submitted.
- 3 H. Yu, B. Farley, D. Z. Jin, and M. Sur, "Common spatial relationships among the retinotopic and other feature maps in primary visual cortex", submitted.
- 4 D. Z. Jin, "Fast convergence of spike sequences to periodic patterns in recurrent networks", *Physical Review Letters*, 89, 208102 (2002).
- 5 D. Z. Jin and H. S. Seung, "Fast computation with spikes in a recurrent neural network", *Physical Review E*, 65, 051922 (2002).
- 6 C. C. Chow, D. Z. Jin, and A. Treves, "Is the world full of circles?", *Journal of Vision*, 2, 571 (2002).
- 7 D. Z. Jin and D. H. E. Dubin, "Point vortex dynamics within a background vorticity patch", *Physics of Fluids*, 13, 677 (2001).
- 8 D. H. E. Dubin and D. Z. Jin, "Collisional diffusion in a 2-dimensional point vortex gas", *Physics Letters A*, 284, 112 (2001).
- 9 D. Z. Jin and D. H. E. Dubin, "Characteristics of two-dimensional turbulence that self-organizes into vortex crystals", *Physical Review Letters*, 84, 1443 (2000).
- 10 D. Z. Jin and D. H. E. Dubin, "Theory of vortex crystal formation in two-dimensional turbulence", *Physics of Plasmas*, 7, 1719 (2000).
- 11 D. Z. Jin and D. H. E. Dubin, "Regional maximum entropy theory of vortex crystal formation", *Physical Review Letters*, 80, 4434 (1998).
- 12 D. Z. Jin and D. H. E. Dubin, "Characteristics of two-dimensional turbulence that self-organizes into vortex crystals", in *Non-Neutral Plasma Physics III*, AIP Conference Proceedings, 498, 85 (1999).
- 13 D. H. E. Dubin and D. Z. Jin, "2D collisional diffusion of rods in a magnetized plasma column with finite  $E \times B$  shear", in *Non-Neutral Plasma Physics III*, AIP Conference Proceedings, 498, 233 (1999).
- 14 D. Z. Jin and D. H. E. Dubin, "Two-dimensional vortex crystals", *Annals of the New York Academy of Sciences*, 848, 18 (1998).
- 15 C. F. Driscoll, D. Z. Jin, D. A. Schecter, and D. H. E. Dubin, "Vortex dynamics of 2D electron plasmas", *Physica C*, 369, 21 (2002).
- 16 C. F. Driscoll, F. Anderegg, D. H. E. Dubin, D. Z. Jin, J. M. Kriesel, E. M. Hollmann, and T. M. O'Neil, "Shear reduction of collisional transport: Experiments and theory", *Physics of plasmas*, 9, 1905 (2002).
- 17 C. F. Driscoll, D. Z. Jin, D. A. Schecter, E. J. Moreau, and D. H. E. Dubin, "Dynamics, statistics and vortex crystals in the relaxation of 2D turbulence", *Physica Scripta*, T84, 76 (2000).
- 18 C. F. Driscoll, D. A. Schecter, D. Z. Jin, D. H. E. Dubin, K. S. Fine, and A. C. Cass, "Relaxation of 2D turbulence to vortex crystals", *Physica A*, 263, 284 (1999).

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## RECENT ABSTRACTS

- 1 D. Z. Jin, V. Dragoi, M. Sur, and H. S. Seung, "The tilt aftereffect and adaptation-induced changes of orientation tuning in visual cortex", Society for Neuroscience Abstracts, 33rd Annual Meeting, Society for Neuroscience, New Orleans, (2003).
- 2 D. Z. Jin, "Fast convergence of spike sequences to periodic patterns in recurrent networks", Society for Neuroscience Abstracts, 32nd Annual Meeting, Society for Neuroscience, Orlando, (2002).
- 3 D. Z. Jin, "Fast computation with spikes in a recurrent neural network", Dynamical Neuroscience IX, 31st Annual Meeting, Society for Neuroscience, San Diego, 38 (2001).
- 4 D. Z. Jin and H. S. Seung, "Is spontaneous activity of cultured neurons driven by spontaneous synaptic release?", Society for Neuroscience Abstracts, 31st Annual Meeting, Society for Neuroscience, San Diego, 302 (2001).
- 5 D. Z. Jin, E. J. Moreau, D. H. E. Dubin, and C. F. Driscoll, "Influence of dynamics on relaxation of 2D turbulence: from minimum enstrophy states to vortex crystals", Bulletin of the American Physical Society, 44, 260 (1999).
- 6 D. Z. Jin and D. H. E. Dubin, "Characteristics of 2D turbulent flows that self-organize into vortex crystals", Bulletin of the American Physical Society, 43, 1806 (1998).
- 7 D. Z. Jin and D. H. E. Dubin, "Dynamics of vortex crystals", Bulletin of the American Physical Society, 42, 2056 (1997).
- 8 D. Z. Jin and D. H. E. Dubin, "Maximum entropy theory of vortex crystal formation", Bulletin of the American Physical Society, 41, 1605 (1996).

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## REFERENCES

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