

Curriculum Vitae
WOODROW LEE SHEW

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Born Hamlin, West Virginia, United States of America, 20th of September, 1976

. o **EDUCATION** o .

1999 → **2004** Ph.D., Physics, University of Maryland
College Park, Maryland, USA
1994 → **1998** BA, Physics, College of Wooster
Wooster, Ohio, USA

. o **EMPLOYMENT** o .

2012 → **NOW** Assistant Professor, Physics, University of Arkansas
2006 → **2012** Postdoctoral fellow, Neuroscience, National Institutes of Health
2004 → **2006** Postdoctoral fellow, Physics, École Normale Supérieure de Lyon
2000 → **2004** Graduate research assistant, Physics, University of Maryland
2000 → **2004** Volunteer tutor, FOCUS-Beacon House, Washington D.C.
1999 → **2000** Graduate teaching assistant, Physics, University of Maryland
1998 → **1999** Laboratory technician, Physics, University of San Francisco
1994 → **1998** Laboratory technician, Physics, College of Wooster

. o **MEMBERSHIPS & HONORS** o .

2012 NIH Fellow Award for Research Excellence
2010 NIH Fellow Award for Research Excellence
NIH Postdoctoral Intramural Research Training Award
Society for Neuroscience since 2007
Centre Nationale de la Recherche Scientifique Postdoctoral Fellowship
École Normale Supérieur Postdoctoral Fellowship
National Science Foundation International Research Fellowship
American Physical Society since 2000
groups: Statistical and Nonlinear Physics, Biological Physics, Division of Fluid Dynamics

. o **PATENTS** o .

2008 *In situ monitoring and control of mixing processes*: Demande de brevet francais # 08 00682.

. o **EVENTS ORGANIZED** o .

2011 Minisymposium, SIAM - Applications of Dynamical Systems *Snowbird, UT*

2009 Hands-On School in Complex Systems, *Sao Paulo, Brazil*

· ◦ **INVITED PRESENTATIONS** ◦ ·

Optimized information processing in the cortex.

2011 APR SIAM - Applications of Dynamical Systems *Snowbird, UT*

2011 JAN Physics Colloquium, Ga Tech *Atlanta, GA*

2010 FEB Clinical Brain Disorders Branch Seminar, NIH *Bethesda, MD*

Eye, brain, and optical illusions.

2009 AUG Hands-On School in Complex Systems, *Sao Paulo, Brazil*

Neuronal avalanches and dynamic range of the brain.

2010 JAN Applied Math Seminar, Colorado University, *Boulder, CO*

2009 NOV Intntl Workshop: Synchronization and Multiscale Complex Dynamics in the Brain , Max Plank Institute *Dresden, Germany*

2009 SEP NIMH Scientific Retreat, *Gettysburg, PA*

2009 FEB Neurobiology Interest Group Seminar, NIH, *Bethesda, MD*

2009 JAN Physics Colloquium, Emory University, *Atlanta, GA*

2009 JAN Physics Colloquium, University of Texas, *Austin, TX*

2008 OCT MURI meeting, University of Maryland, *College Park, MD*

2007 NOV Physics Colloquium, University of North Carolina, *Chapel Hill, NC*

Simultaneous micro-electrode array recording and two-photon imaging.

2009 OCT Society for Neuroscience meeting, *Chicago, IL*

Dynamo experiments: bringing Earth's core into the lab.

2007 DEC Physics Colloquium, College of Wooster, *Wooster, OH*

Smart Particles.

2007 SEP MURI meeting, University of Maryland, *College Park, MD*

2007 MAY Physics Colloquium, Georgetown University, *Washington, D.C.*

Physical Mechanisms of Bubble Path Instability.

2006 SEP École Centrale, *Lyon, France*

2005 SEP Applied Dynamics Seminar, University of Maryland, *College Park, Maryland, US*

2005 JUN Hydrodynamics of Bubbly Flows workshop, *Leiden, Netherlands*

Liquid Sodium Model of Earth's Outer Core.

2005 JAN Universite Joseph Fourier, LGIT, *Grenoble, France*

- 2004 NOV University of Twente, *Enschede, Netherlands*
- 2004 OCT École Normale Supérieure de Lyon, *Lyon, France*
- 2004 MAY European Geophysical Union Meeting, *Nice, France*

. ◦ **INVITED REVIEWS** ◦ .

- 2011 “The critical cortex hypothesis”, W L Shew and D Plenz, *to appear in Journal of Physics: Condensed Matter*
- 2011 “The functional advantages of criticality in the cortex”, W L Shew and D Plenz, *to appear in The Neuroscientist*

. ◦ **PEER-REVIEWED PUBLICATIONS** ◦ .

- 2012 “Maximal variability of phase synchrony in cortical networks with neuronal avalanches”, H Yang, W L Shew, R Roy, and D Plenz *J Neurosci* **32** 1061
- 2011 “Predicting criticality and dynamic range in complex networks: effects of topology”, D Larremore, W L Shew, and J G Restrepo, *Phys. Rev. Lett.* **106** 058101
- 2011 “Multi-electrode array recordings of neuronal avalanches in organotypic cultures” D, Plenz, CV Stewart, WL Shew, H Yang, A Klaus, T Bellay *J. Vis. Exp.* **54**
- 2011 “Criticality and dynamic range in complex networks with varying topology”, D Larremore, W L Shew, E O Ott, and J G Restrepo, *to appear in Focus Issue of Chaos*
- 2011 “Maximized information capacity and transmission in balanced cortical networks with neuronal avalanches”, W L Shew, H Yang, S Yu, R Roy, and D Plenz *J Neurosci* **31** 55
- 2011 “Effects of network topology, transmission delays, and refractoriness on the response of coupled excitable systems to a stochastic stimulus” D Larremore, WL Shew, E Ott, and JG Restrepo *Chaos* **21**, 025117
- 2010 “Simultaneous multi-electrode array recording and two photon calcium imaging of neural activity”, W L Shew, T Bellay, and D Plenz *J Neurosci Meth* **192** 75
- 2009 “Neuronal avalanches imply maximum dynamic range in cortical networks at criticality”, W L Shew, H Yang, T Petermann, R Roy, and D Plenz *J Neurosci* **29** 15595
- 2009 “Des particules instrumentées pour une mesure de flux de chaleur illustration en convection de Rayleigh-Benard”, M Gibert, W L Shew, P Metz, Y Gastieul, J-F Pinton *Techniques de l’Ingenieur* Ref. RE134
- 2008 “Polymer and surface roughness effects on the drag crisis for falling spheres”, N Lyotard, W L Shew, L Bocquet, and J-F Pinton, *Euro Phys J B* **60** 469
- 2007 “Lagrangian temperature, velocity, and local heat flux measurement in Rayleigh-Benard convection”, Y Gastieul, W L Shew, F Chilla, B Castaing, and J-F Pinton, *Phys Rev Lett* **99** 234302
- 2007 “An instrumented tracer for Lagrangian measurements in Rayleigh-Benard convection”, W L Shew, Y Gastieul, M Gibert, P Metz, and J-F Pinton, *Rev Sci Instruments* **78** 065105
- 2006 “Dynamical model of bubble path instability”, W L Shew and J-F Pinton, *Phys Rev Lett* **97** 144508
- 2006 “Force measurements on a rising bubble”, W L Shew, S Poncet, and J-F Pinton, *J Fluid Mech* **569**, 51

- 2006** “Viscoelastic effects on the dynamics of a rising bubble”, W L Shew and J-F Pinton, *J Stat Mech* January, P01009
- 2005** “Liquid sodium model of geophysical core convection”, W L Shew and D P Lathrop, *Phys Earth Planet Int* **153**, 136
- 2003** “Lorentz force effects in magneto-turbulence”, D R Sisan, W L Shew, and D P Lathrop, *Phys Earth Planet Int* **135**, 137
- 2002** “Mechanically forced and thermally driven flows in liquid sodium”, W L Shew, D R Sisan, and D P Lathrop, *Magnetohydrodynamics* **38**, 121
- 2001** “Laboratory experiments on the transition to MHD dynamos”, D P Lathrop, W L Shew, and D R Sisan, *Plasma Phys and Controlled Fusion* **43**, 151-A160 Suppl 12A
- 1999** “Taming chaos with disorder in a pendulum array”, W L Shew, H Coy, and J F Lindner, *Am J Phys* **67**, 703