James Alexander Glazier

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Education

- *Physics* and *Mathematics* (B.A.) *magna cum laude*, Harvard College, Cambridge, MA (1984).
- Student, Les Houches NATO Summer School, Les Houches, France (summer 1986). "Chance and Matter."
- *Physics* (M.A.) University of Chicago, Chicago, IL (1987).
- *Physics* (Ph.D.) University of Chicago, Chicago, IL (1989).
  Thesis advisor Prof. Albert Libchaber. Thesis subject: Dynamics of Cellular Patterns.
- Student, Marine Biology Laboratory, Woods Hole, MA (summer 1991).
  "Neural Systems and Behavior."

Employment

November 2003 - Present	*Adjunct Professor*, School of Informatics, Indiana University, Bloomington, IN.
Aug. 2002 - Present	*Professor*, Department of Physics, *Adjunct Professor*, Department of Biology, *Director*, Biocomplexity Institute, Indiana University, Bloomington, IN.
Sept. 2001 - Aug. 2002	*Director*, Interdisciplinary Center for the Study of Biocomplexity, University of Notre Dame, Notre Dame, IN.
Sept. - Dec. 2000	*Visiting Scientist*, Laboratory of Physical Spectrometry, University of Grenoble, Grenoble, France.
May - Nov. 1999	*Visiting Full Professor*, Research Institute of Electrical Communication, Tohoku University, Sendai, Japan.
Fall 1997 - Sum. 2002	*Associate Professor*, Department of Physics, University of Notre Dame, Notre Dame, IN.
Fall 1992 - Fall 1997	*Assistant Professor*, Department of Physics, University of Notre Dame, Notre Dame, IN.

Fall 1991 - 1993	*JSPS/NSF Fellowship*, Research Institute of Electrical Communication, Tohoku University, Sendai, Japan.
Spring 1991	*Visitor*, Department of Physics, Trinity College, Dublin, Ireland.
1989 - 1994	*Consultant*, Department of Genetic Epidemiology, University of Utah, Salt Lake City, UT.
1989 - 1991	*Postdoctoral Researcher*, AT&T Bell Laboratories, Murray Hill, NJ.
Summer 1989	*Visiting Fellow*, University of Western Australia, Perth, Australia.
1985 - 1989	*Research Assistant* (Grainger Fellowship, 1988-1989), University of Chicago, Chicago, IL.

Fellowships and grants:

1. Whitaker Foundation, "Biocomplexity V: Multiscale Modeling in Biology," (8/1/03-10/31/03, $5,000).
2. NASA Glenn Research Center, NAG 2-1619: "Comparative Study of Morphogenesis at 1g and Simulated Microgavity," (4/1/03-3/31/06, $209,964).
3. Whitaker Foundation, "Symposium: The Role of Tissue Mechanics in Biological Responses to Mechanical Loading," (8/1/02-11/30/02, $10,000) PI Glen Niebur, co-PI Charles Turner.
4. National Science Foundation, Biological and Environmental Sciences, BES-0228966 "Symposium: The Role of Tissue Mechanics in Biological Responses to Mechanical Loading, Notre Dame, Indiana," (11/15/02-4/30/03, $10,000) PI Glen Niebur, co-PI Charles Turner.
5. National Science Foundation, Division of Materials Research, DMR-0089162 "Effects of Local Interfacial Flow Dynamics on Foam Drainage and Coarsening," (12/01/00-11/30/03, $359,958) co-PI Hsueh-Chia Chang.
6. National Science Foundation, Division of Integrative Biology, IBN-0083653, "BIOCOMPLEXITY - Multiscale Simulation of Avian Limb Development," (9/1/00-8/31/05, $2,999,320) co-PIs Jesus Izaguirre and Mark S. Alber.
7. NASA Glenn Research Center, NAG3-2366, "Diffusive Coarsening of Liquid Foams in Microgravity," (3/9/00-11/3/03, $290,000).
8. Department of Energy, DE-FGO299ER45785, "Fingering Instabilities, Collapse, Avalanches and Self Organized Criticality in Liquid Foams," (9/1/99-8/31/01, $163,386).
9. National Science Foundation, C.N.Pq. International Award, INT98-02417, "US-Brazil Cooperative Research: Cellular Patterns," (5/1/98-4/30/01, $15,750).

10. National Science Foundation, Japan Society for the Promotion of Science International Award, INT96-03035, "Complex Pattern Formation," (5/1/97-4/30/00, $49,575).
11. National Science Foundation, Academic Research Infrastructure Award, CTS96-01691, "Acquisition of Wide Bore Magnetic Resonance Imager," (11/1/96-12/31/00, $836,488).
12. National Science Foundation Young Investigator Award (1992-1997, $322,500).
13. American Chemical Society/Petroleum Research Fund, PRF #30773-AC9, "MRI Study of Three-Dimensional Liquid Foams," (9/1/96-8/31/99, $50,000).
14. American Chemical Society/Petroleum Research Fund (1994-1996, $20,000).
15. Brazil C.N.Pq. Fellowship (1994-1995, $21,260).
16. Ford Motor Company (1993-1995, $17,500).
17. Exxon Educational Foundation (1993-1995, $20,000).
18. NSF/JSPS Postdoctoral Research Fellowship (1991-1993, approx. $80,000).
19. Grainger Fellowship (1988-1989, approx. $18,000).
20. Phi Beta Kappa (1984).
21. Hoopes Award for academic excellence (1984, $1,500).

Professional Society Membership:

American Physical Society, Materials Research Society, Society for Industrial and Applied Mathematics, Biophysical Society

Refereeing:

Board of Editors, *Nonlinearity.*

Referee for Journals: American Journal of Physics, Applied Optics, ASME Applied Mechanics Reviews, Developmental Dynamics, Europhysics Letters, IEEE Transactions on Circuits and Systems, International Journal of Solids and Structures, Journal of Cell Science, Journal of Physics Condensed Matter, Journal of Theoretical Biology, Philosophical Magazine Letters, Physics of Fluids, Physical Review E, Physical Review Letters, Nature.

Referee for Funding Agencies: Enterprise Ireland, National Science Foundation, American Chemical Society, Wellcome Trust, Israel Science Foundation, NASA, DOE, USCRDF.

Publications

Scientific:

1. "Structure of Arnold Tongues and the f(alpha) Spectrum for Period Doubling: Experimental Results," James A. Glazier, Mogens H. Jensen, Joel Stavans, and Albert Libchaber, *Physical Review A* **34**, 1621 (1986).
2. "Dynamics of the Two Dimensional Soap Froth," James A. Glazier, S. P. Gross, and Joel Stavans, *Physical Review A* **36**, 306 (1987).

3. "f(alpha) Curves: Experimental Results," James A. Glazier, Gemunu H. Gunaratne, and Albert Libchaber, *Physical Review A* **37**, 523 (1988).
4. "Quasiperiodicity and Dynamical Systems: An Experimentalists's View," James A. Glazier and Albert Libchaber, *IEEE Transactions on Circuits and Systems* **35**, 790 (1988). Reprinted in Hao Bai-Lin, *Chaos II*, (World Scientific, 1990), 299.
5. "Trajectory Scaling Functions at the Onset of Chaos: Experimental Results," Andrew L. Belmonte, Michael J. Vinson, James A. Glazier, Gemunu H. Gunaratne, and Brian Kenny, *Physical Review Letters* **61**, 539 (1988).
6. "Soap Froth Revisited: Dynamical Scaling in the Two Dimensional Froth," Joel Stavans and James A. Glazier, *Physical Review Letters* **62**, 1318 (1989).
7. "Chaos and the Analysis of Experimental Data," James A. Glazier, in *Nonlinear Dynamics*, proceedings of a conference in Bologna Italy, May 1988, (World Scientific, 1989), 250.
8. "Non-Ideal Effects in the Two-Dimensional Soap Froth," James A. Glazier and Joel Stavans, *Physical Review A* **40**, 7398 (1989).
9. "Coarsening in the Two-Dimensional Soap Froth and the Large-Q Potts Model: A Detailed Comparison," James A. Glazier, Michael P. Anderson and Gary S. Grest, *Philosophical Magazine B* **62**, 615 (1990).
10. "Ideal Two Dimensional Grain Growth," James A. Glazier, Gary S. Grest, and Michael P. Anderson, in *Simulation and Theory of Evolving Microstructures*, Michael P. Anderson and Anthony D. Rollett, editors, (The Minerals, Metals and Materials Society, Warrendale, PA, 1990), 41.
11. "Dispersive Chaos in One-Dimensional Traveling-Wave Convection," Paul R. Kolodner, James A. Glazier, and Hugh L. Williams, *Physical Review Letters* **65**, 1579 (1990).
12. "Interaction of Localized Pulses of Travelling-Wave Convection with Propagating Disturbances," Paul R. Kolodner and James A. Glazier, *Physical Review A* **42**, 7504 (1990).
13. "Dispersive Chaos," James A. Glazier, Paul R. Kolodner, and Hugh L. Williams, *Journal of Statistical Physics* **64**, 945 (1991).
14. "Interaction of Nonlinear Pulses in Convection in Binary Fluids," James A. Glazier and Paul R. Kolodner, *Physical Review A* **43**, 4269 (1991).
15. "Effects of Lattice Anisotropy and Temperature on Domain Growth in the Two-Dimensional Potts Model," Elizabeth A. Holm, James A. Glazier, David J. Srolovitz, and Gary S. Grest, *Physical Review A* **43**, 2662 (1991).
16. "Investigation of an Elementary Model for Magnetic Froth," Denis Weaire, F. Bolton, Pierre Molho, and James A. Glazier, *Journal of Physics: Condensed Matter* **3**, 2101 (1991).
17. "Modelling Grain Growth and Soap Froth Coarsening: Past, Present and Future," Denis Weaire and James A. Glazier, *Materials Science Forum* **94-96**, 27 (1992).
18. "Comparison of Soap Froth and Simulation of Large-Q Potts Model," S. Ling, Michael P. Anderson, Gary S. Grest and James A. Glazier, *Materials Science Forum* **94-96**, 39 (1992).
19. "The Kinetics of Cellular Patterns," James A. Glazier and Denis Weaire, *Journal of Physics: Condensed Matter* **4**, 1867 (1992).

20. “Global Fractal Dimension of Human DNA Sequences Treated as Pseudorandom Walks,” C. Berthelsen, James A. Glazier, and Mark H. Skolnick, *Physical Review A* **45**, 8902-8913 (1992).
21. “Simulation of Biological Cell Sorting Using a Two-Dimensional Extended Potts Model,” Franois Graner and James A. Glazier, *Physical Review Letters* **69**, 2013-2016 (1992).
22. “Coarsening in Two-Dimensional Soap Froths and the Large-Q Potts Model,” G. S. Grest, James A. Glazier, Michael P. Anderson, Elizabeth A. Holm, and David J. Srolovitz, *Materials Research Society Symposium* **237**, 101 (1992).
23. “Cellular Patterns,” James A. Glazier, *Bussei Kenkyu* **58**, 608-612 (1993).
24. “Simulation of the Differential Adhesion Driven Rearrangement of Biological Cells,” James A. Glazier and Franois Graner, *Physical Review E* **47**, 2128-2154 (1993).
25. “Grain Growth in Three Dimensions Depends on Grain Topology,” James A. Glazier, *Physical Review Letters* **70**, 2170-2173 (1993).
26. “Relation Between Volume, Number of Faces and Three Dimensional Growth Laws in Coarsening Cellular Patterns,” Denis Weaire and James A. Glazier, *Philosophical Magazine Letters* **68**, 363-365 (1993).
27. “Effective Multifractal Spectrum of a Random Walk,” Cheryl L. Berthelsen, James A. Glazier, and Sridhar Raghavachari, *Physical Review E* **49**(3), 1860-1864 (1994).
28. “Magnetic Resonance Images of Coarsening Inside a Foam,” Constantinos P. Gonatas, Arjun G. Yodh, John S. Leigh, James A. Glazier and Burkhard Prause, *Physical Review Letters* **75**, 573-576 (1995).
29. “The Energetics of Cell Sorting in Three Dimensions,” James A. Glazier, Richard C. Raphael, Franois Graner, and Yasuji Sawada, in *Interplay of Genetic and Physical Processes in the Development of Biological Form*, D. Beysens, G. Forgacs, F. Gaill, editors (World Scientific Publishing Company, Singapore, 1995) 54-61.
30. “Construction of Candidate Minimal-Area Space-Filling Partitions,” James A. Glazier and Denis Weaire, *Philosophical Magazine Letters* **70**, 351-356 (1994).
31. “Reconstructing Phylogeny from the Multifractal Spectrum of Mitochondrial DNA Sequences,” James A. Glazier, Sridhar Raghavachari, Cheryl L. Berthelsen, and Mark H. Skolnick, *Physical Review E* **51**, 2665-2668 (1995).
32. “Spatially Coherent States in Fractally Coupled Map Lattices,” Sridhar Raghavachari and James A. Glazier, *Physical Review Letters* **74**, 3297-3300 (1995).
33. “Quantitative Comparison between Differential Adhesion Models and Cell Sorting in the Presence and Absence of Fluctuations,” Jose Carlos M. Mombach, James A. Glazier, Richard C. Raphael, and Mark Zajac, *Physical Review Letters* **75**, 2244-2247 (1995).
34. “Three-Dimensional Magnetic Resonance Imaging of a Liquid Foam,” Burkhard Prause, James A. Glazier, Samuel Gravina and Carlo Montemagno, *Journal of Physics: Condensed Matter* **7**, L511-L516 (1995).
35. “Grain Growth from Homogeneous Initial Conditions: Anomalous Grain Growth and Special Scaling States,” Yi Jiang, Jose Carlos M. Mombach, James A. Glazier, *Physical Review E* **52**, 3333-3336 (1995).

36. “Thermal Turbulence in Mercury,” Tohru Takeshita, Takehiko Segawa, James A. Glazier and Masaki Sano, *Physical Review Letters* **76**, 1465-1468 (1996).
37. “Thermodynamics of Cell Sorting,” James A. Glazier, *Bussei Kenkyu* **65**, 691-700 (1996).
38. “Single Cell Motion in Aggregates of Embryonic Cells,” Jose Carlos M. Mombach and James A. Glazier, *Physical Review Letters* **76**, 3032-3035 (1996).
39. “Extended Large-Q Potts Model Simulation of Foam Drainage,” Yi Jiang and James A. Glazier, *Philosophical Magazine Letters* **74**, 119-128 (1996).
40. “High Rayleigh Number Turbulence in a Low Prandtl Number Fluid,” T. Segawa, Masaki Sano, Antoine Naert, and James A. Glazier, in *Flow at Ultra-High Reynolds and Rayleigh Numbers, A Status Report*, R. J. Donnelly and K. R. Sreenivasan editors (Springer Verlag, New York, NY, 1998), 247-257.
41. “Foam Drainage: Extended Large-Q Potts Model Simulation,” Yi Jiang and James A. Glazier, *Materials Research Society Symposium Proceedings* **463**, 307-312 (1997).
42. “First Steps Towards a Comprehensive Model of Tissues, or: A Physicist Looks at Development,” James A. Glazier and Arpita Uphadyaya, in *Dynamical Networks in Physics and Biology: At the Frontier of Physics and Biology*, D. Beysens and G. Forgacs editors (EDP Sciences/Springer Verlag, Berlin, Germany, 1998), 149-160
43. “Networks of Droplets Induce by Coalescence: Application to Cell Sorting,” Daniel A. Beysens, Gabor Forgacs and James A. Glazier, in *Dynamical Networks in Physics and Biology: At the Frontier of Physics and Biology*, D. Beysens and G. Forgacs editors (EDP Sciences/Springer Verlag, Berlin, Germany, 1998), 161-169.
44. “Possible Cooperation of Differential Adhesion and Chemotaxis in Mound Formation of Dictyostelium,” Yi Jiang, Herbert Levine and James A. Glazier, *Biophysical Journal* **75**, 2615-2625 (1998).
45. “Hysteresis and Avalanches in Two-Dimensional Foam Rheology Simulations,” Yi Jiang, Pieter J. Swart, Avadh Saxena, M. Asipauskas and James A. Glazier, *Physical Review E* **59**, 5819-5832 (1999).
46. “Waves in Diffusively Coupled Bursting Cells,” Sridhar Raghavachari and James A. Glazier, *Physical Review Letters* **82**, 2991-2994(1999).
47. “Magnetic Resonance Imaging of Structure and Coarsening in Three-Dimensional Foams,” Burkhard Prause and James A. Glazier, *Preprint* (1999).
48. “Stochastic Simulation of Benign Avascular Tumor Growth using the Potts Model,” Emma Stott, N. F. Britton, James A. Glazier and Mark Zajac, *Mathematical and Computer Modelling* **30**, 183-198 (1999).
49. “Evidence against ‘Ultrahard’ Thermal Turbulence at Very High Rayleigh Numbers,” James A. Glazier, Takehiko Segawa, Antoine Naert and Masaki Sano, *Nature* **398**, 307-310 (1999).
50. “Foams Out of Stable Equilibrium: Cell Elongation and Side Swapping,” F. Florence Elias, Cyrille Flament, James A. Glazier, Franois Graner and Yi Jiang, *Philosophical Magazine B* **79**, 729-751 (1999).
51. “Bursting in Neurons with Fast and Slow Inhibition,” Sridhar Raghavachari and James A. Glazier, *Preprint* (1999).

52. “Diffusion and Deformations of Single Hydra Cells in Cellular Aggregates,” Jean Paul Rieu, Arpita Upadhyaya, James A. Glazier, Noryuki Bob Ouchi and Yasuji Sawada, *Biophysical Journal* **79**, 1903-1914 (2000).
53. “Bursts and Cavity Formation in Hydra Cell Aggregates: Experiments and Simulations,” Jose C. M. Mombach, Rita M. C. de Almeida, Gilberto L. Thomas, Arpita Upadhyaya and James A. Glazier, *Physica A* **297**, 495-508 (2001).
54. “Anomalous Diffusion in Two-Dimensional Hydra Cell Aggregates,” Arpita Upadhyaya, Jean Paul Rieu, James A. Glazier, and Yasuji Sawada, *Physica A* **293**, 549-558 (2001).
55. “Thermal Hard Turbulence in Mercury,” Takehiko Segawa, Antoine Naert, James A. Glazier and Masaki Sano, *Preprint* (2000).
56. “Current Status of Three-Dimensional Growth Laws,” James A. Glazier and Burkhard Prause, in *Foams, Emulsions and their Applications*, P. Zitha, J. Banhart and G. Verbist editors (Verlag MIT Publishing, Bremen, Germany, 2000), 120-127.
57. “Energy Landscape of 2D Fluid Foams,” Yi Jiang, Eric Jainaud, Cyril Flament, James A. Glazier and Francois Graner, in *Foams, Emulsions and their Applications*, P. Zitha, J. Banhart and G. Verbist editors (Verlag MIT Publishing, Bremen, Germany, 2000), 321-327.
58. “Embryonic tissues are viscoelastic materials,” Daniel Beysens, Gabor Forgacs and James A. Glazier, *Canadian Journal of Physics* **78**, 243-251 (2000).
59. “Cell Sorting is Analogous to Phase Ordering in Fluids,” Daniel A. Beysens, Gabor Forgacs and James A. Glazier, *Proceedings of the National Academy of Sciences (USA)* **97**, 9467-9471 (2000).
60. “Model of Convergent Extension in Animal Morphogenesis,” Mark Zajac, Gerald L. Jones, and James A. Glazier, *Physical Review Letters* **85**, 2022-2025 (2000).
61. “Ab Initio Derivation of Stress and Strain in Fluid Foams,” Yi Jiang, Marius Asipauskas, James A. Glazier, M. Aubouy and Francois Graner, in *Foams, Emulsions and their Applications*, P. Zitha, J. Banhart and G. Verbist editors (Verlag MIT Publishing, Bremen, Germany, 2000), 297-304.
62. “The Fractal Structure of the Mitochondrial Genomes,” Nestor Oiwa and James A. Glazier, *Physica A* **311**, 221-230 (2002).
63. “On Cellular Automaton Approaches to Modeling Biological Cells,” Mark S Alber, Maria A. Kiskowski, James A. Glazier and Yi Jiang, in *Mathematical Systems Theory in Biology, Communication, and Finance*, J. Rosenthal and D. S. Gilliam, editors (*IMA* **134**, Springer-Verlag, New York, 2002), 1-40.
64. “Multi-model simulations of chicken limb morphogenesis,” Rajiv Chaturvedi, Jesus A. Izaguirre, ChengBang Huang, Trevor Cickovski, Patrick Virtue, Gilberto Thomas, Gabor Forgacs, Mark Alber, George Hentschel, Stuart A. Newman, and James A. Glazier, in *Computational Science - ICCS 2003: International Conference Melbourne, Australia and St. Petersburg, Russia, June 2-4, 2003. Proceedings, Part III*, P. M. A. Sloot, D. Abramson, A. V. Bogdanov, J. J. Dongarra, A. Y. Zomaya and Y. E. Gorbachev editors (*LNCS Volume* 2659, Springer-Verlag, New York, 2003), 39-49.
65. “A texture tensor to qualify deformations,” Miguel Aubouy, Yi Jiang, James A. Glazier, and François Granner, *Granular Matter* **5**, 67-70 (2003).

66. "A texture tensor to qualify deformations: the example of two-dimensional flowing foams," Marius Asipauskas, Miguel Aubouy, James A. Glazier, François Granner and Yi Jiang, *Granular Matter* **5**, 71-74 (2003).
67. "A Novel Mechanism for Mesenchymal Condensation during Limb Chondrogenesis in vitro," Wei Zeng, Gilberto L. Thomas, Stuart A. Newman and James A. Glazier, in *Mathematical Modelling and Computing in Biology and Medicine, 5th ESMTB Conference 2002,* V. Capasso editor (Società Editrice Esculapio, Bologna, 2003), 80-86.
68. "Improving the Realism of the Cellular Potts Model in Simulations of Biological Cells," Noriyuki Bob Ouchi, James A. Glazier, Jean-Paul Rieu, Arpita Upadhyaya and Yasuji Sawada, *Physica A* **329**, 451-458 (2003).
69. "Dynamics and topological aspects of a reconstructed two-dimensional foam time series using Potts Model on a pinned lattice," Igor F. Vasconcelos, Isabelle Cantat and James A. Glazier, *Journal of Computational Physics* **192**, 1-20 (2003).

Popular Write-Ups:

1. "Soap Bubbles Make Serious Physics," J. Maddox, *Nature* **338**, 293 (1989).
2. "Frothy Physics," F. Flam, *Science News* **136**, 72 (1989).
3. "Humble Froth Offers Clues to New Materials," M. W. Browne, *New York Times* **C1** (March 20, 1990).
4. Book Review of Chaos: the Making of a New Science, by J. Gleick, James A. Glazier and Gemunu H. Gunaratne, *Physics Today* **41**, 79 (February 1988).
5. "Probing the Interior of a Coarsening Foam," I. Peterson, *Science News* **148**, 68 (1995).
6. "Whipping up an Image of a Foam's Interior," I. Peterson, *Science News* **148**, 231 (1995).
7. "Physicists Advance Into Biology," J. Glanz, *Science* **272**, 646-648 (1996).
8. "At the End of Pfalsgraf there is Chaos: An Assessment of Proximate Cause in the Light of Chaos Theory," Edward S. Adams, Gordon B. Brumwell and James A. Glazier, University of Pittsburgh *Law Review* **59** (Spring), 507-555 (1998).
9. "The elusive 'ultimate state' of thermal convection," Joël Sommeria, *Nature* **398**, 294-295 (1999).
10. "Transitions Still to be Made," Philip Ball, *Nature* supplement to **402**, C73-C76 (1999).
11. "Biophysics: Science in Motion," Philip Ball, *Nature* **406**, 244-245 (2000).

Meetings Organized:

- *Biophysics Workshop*, "Biocomplexity I: Modeling Limb Development," University of Notre Dame, 2/24/01-2/25/01 (with Mark Alber).
- *Biophysics Workshop*, "Biocomplexity II: Structure and Function of the Cytoskeleton," University of Notre Dame, 11/9/01-11/12/01 (with Mark Alber).
- *Minisymposium*, "Towards a Comprehensive Modelling of Organogenesis," ECMTB 2002, Milan, Italy, 7/2/02-7/6/02 (with George Hentschel)

- *Biophysics Workshop*, “Biocomplexity III, Biomechanics,” University of Notre Dame, 11/7/02-11/10/02 (with Glen Niebur and Charles Turner).
- *Biophysics Workshop*, “Biocomplexity IV, Regenerative Medicine and Biology,” Indiana University, 5/14/03-5/18/03 (with David Stocum, Anton Neff, Anthony Mescher and Mark Alber).
- *Biophysics Workshop*, “Biocomplexity V, Multiscale Modeling in Biology,” University of Notre Dame, 8/13/03-8/17/03 (with Mark Alber and Yi Jiang).

Invited Lectures

On Biophysics:

1. Academia Sinica, Taipei, Taiwan, February 1992.
2. International Conference on Complexity, Kyoto University, May 1992.
3. University of Science and Technology of China, Heifei, PRC, June 1992.
4. Harbin Teacher’s University, Harbin, PRC, June 1992.
5. Conference on the Biology of Hydra, National Institute of Genetics, Mishima, Japan, October 1992.
6. AT&T Bell Laboratories, February 1993.
7. Rockefeller University, Physics Seminar, March 1993.
8. University of Notre Dame, Department of Biochemistry, April 1993.
9. University of Notre Dame, Department of Physics, April 1993.
10. Materials Research Society, December 1993.
11. Ecole Normale Superiore, Paris, France, January 1994.
12. N.E.C. Research Laboratories, Princeton, NJ, January 1994.
13. Ecole de Physique Theorique, Les Houches, France, February 1994.
14. University of Notre Dame, Department of Chemistry, February 1994.
15. James Frank Institute, University of Chicago, Chicago, Illinois, February 1994.
16. University of New Hampshire, Department of Physics, May 1994.
17. Instituto Superior Tcnico, Lisbon, Portugal, May 1994.
18. University of Barcelona, Barcelona, Spain, May 1994.
19. Rockefeller University, Physics Seminar, New York, NY, October 1994.
20. International Conference on Complexity, Kyoto University, Japan, July 1995.
21. NSF/IMM Workshop, Rockwell Science Center, Thousand Oak, CA, November 1995.
22. APS March Meeting, St. Louis, MO, March 1996.
23. Institute of Nonlinear Science, University of California, San Diego, La Jolla, CA, April 1996.
24. University of California, Irvine, CA, April 1996.
25. University of Houston, Department of Physics, April 1996.
26. University of Notre Dame, Department of Chemistry, April 1996.

27. Laboratory of Experimental Hydrodynamics, Ecole Polytechnique, Paris, France, May 1996.
28. Institute for Nonlinear Studies, CNRS, Nice, France, May 1996.
29. Laboratoire Louis Neel, CNRS, Grenoble, France, June 1996.
30. Second Workshop on Theoretical and Computational Biology, LBNL, Berkeley, CA, August 1996.
31. University of Science and Technology of China, Physics Department, Hefei, Anhui Province, PRC, January 1997.
32. Universite P.M. Curie, Department of Physics, Paris, France, March 12, 1997.
33. NATO Winter Workshop, Dynamical Networks in Physics & Biology, Centre De Physique des Houches, Les Houches, France, March 19, 1997.
34. Myriad Genetics Corporation, Salt Lake City, Utah, April 28, 1997.
35. Hong Kong University of Science and Technology, Department of Physics, Hong Kong, PRC, July 28, 1997.
36. Academia Sinica, Department of Physics, Taipei, Taiwan, July 30, 1997.
37. Universidade Federal do Rio Grande do Sul, Porto Alegre, Brazil, September 25, 1997.
38. Fifth Latin American Workshop on Nonlinear Phenomena, Canela, Brazil, October 2, 1997.
39. Northwestern University, Evanston, Illinois, October 15, 1997.
40. Purdue University, West Lafayette, Indiana, December 4, 1997.
41. Indiana-Purdue University, Indianapolis, Indiana, January 29, 1998.
42. Ohio State University, Columbus, Ohio, February 4, 1998.
43. University of Pittsburgh, Department of Physics, Pittsburgh, PA, April 30, 1998.
44. Tohoku University, Research Institute of Electrical Communication, Sendai, Japan, May 19, 1998.
45. Tokyo University, Department of Physics, Tokyo, Japan, July 1, 1998.
46. Instituto Superior Technico, Department of Materials Engineering, Lisbon, Portugal, March 10, 1999.
47. International Workshop on Dynamics of Interfaces, Patterns and Domains '99, Los Alamos National Laboratory, Los Alamos, NM, April 22, 1999.
48. CIRCS, Northeastern University, Boston, MA, June 8, 1999.
49. Emory University, Department of Physics, Colloquium, Atlanta GA, February 4, 2000.
50. New York University, Department of Biology, New York, NY, February 10, 2000.
51. University of South Florida, Department of Physics, Tampa, FL, March 24, 2000.
52. Department of Biology, University of Utrecht, Utrecht, the Netherlands, June 14, 2000.
53. Workshop on "Models of Biological Motion," Collegium Budapest, Budapest, Hungary, June 19, 2000.
54. International Center for Complex Systems and Department of Physics, Universidade Federal do Rio Grande do Notre, Natal, Brazil, July 17, 2000.

55. Department of Statistical Mechanics and Department of Biophysics, University of Sao Paolo, Sao Paolo, Brazil, July 19, 2000.
56. Modelling Dictyostelium Morphogenesis, Symposium, Department of Theoretical Biology, University of Utrecht, Utrecht, Holland, October, 16, 2000.
57. From Physics to Biology, Symposium, Departments of Physics, Biology and Institute of Integrative Genomics, Princeton University, Princeton, NJ, October 21, 2000.
58. Laboratoire de Spectrometrie Physique, University Joseph Fourier, Grenoble, Grenoble, France, November 14, 2000.
59. International Conference on Dynamical Aspects of Complex Systems, from Cells to Brain, Sendai International Center, Sendai, Japan, November 30, 2000.
60. Laboratory of Complex Materials and Interfaces, Université de Marne la Vallée, Marne-la-Vallée, France, December 19, 2000.
61. Laboratoire de Physique des Solides, Universite Paris-Sud, Orsay, France, December 20, 2000.
62. Department of Physics Colloquium, Indiana University, Bloomington, IN, March 28, 2001.
63. Department of Physics Colloquium, Kent State University, Kent, OH, April 5, 2001.
64. Department of Biomathematics W. M. Keck Seminar in Computational Biology, University of California Los Angeles, Los Angeles, CA, April 19, 2001.
65. Wellcome Institute of Biological Sciences, University of Dundee, Dundee, Scotland, June 1, 2001.
66. Department of Physics Biophysics Colloquium, University of Illinois, Chicago, Chicago, IL, November 29, 2001.
67. Department of Physics Colloquium, Carnegie Mellon University, Pittsburgh, PA, January 22, 2002.
68. Department of Physics, Biophysics Seminar, Indiana University, Bloomington, IN, January 25, 2002.
69. Department of Physics, O. M. Stewart Colloquium, University of Missouri, Columbia, MO, February 18, 2002.
70. College of Engineering, Special Seminar, University of Missouri, Columbia, MO, February 19, 2002.
71. Department of Physics, Physics Colloquium, Washington University, St. Louis, MO, March 12, 2002.
72. ECMTB 2002, Milan, Italy, July 3, 2002.
73. GEOMES Workshop, Max Planck Institute, Dresden, Germany, October 16, 2002.
74. Department of Applied Mathematics, Max Planck Institute, Leipzig, Germany, October 21, 2002.
75. Department of Bioengineering, Rice University, Houston, TX, February 17, 2003.
76. Department of Physics, University of Houston, Houston, TX, February 18, 2003.
77. DARPA ReGenesis Concept Development Workshop, San Diego, CA, March 18, 2003.
78. Department of Physics Colloquium, IUPUI, Indianapolis, IN, March 27, 2003.

79. Center for Nonlinear Dynamics, Department of Physics, University of Texas, Austin, TX, April 21, 2003.
80. Department of Mathematics, University of Minnesota, Minneapolis, MN, April 24, 2003.
81. Department of Physics, Princeton University, Princeton, NJ, April 28, 2003.

On Chaos:

1. University of Chicago, High Energy Physics Lunch Seminar (with Brian Kenny), 1986.
2. University of Chicago, J.F.I. Colloquium (with Brian Kenny), 1987.
3. AMOCO Corporation, Naperville, Illinois, Amoco Research Center Colloquium, April 1988.
4. University of Western Australia, Department of Geophysics Seminar, July 1989.
5. University of Western Australia, Department of Computer Science Seminar, July 1989.
6. University of Western Australia, Advanced Undergraduate Seminar Series, July 1989.
7. University of Tasmania, Hobart, Australia, Australian Institute of Physics Public Lecture, July 1989.
8. University of New South Wales, Sydney Australia, Department of Mathematics, August 1989.
9. University of Utah, Salt Lake City, Utah, October 1989.
10. Academia Sinica, Taipei, Taiwan, February 1992.
11. University of Science and Technology of China, Heifei, PRC, June 1992.
12. Harbin Teacher's University, Harbin, PRC, June 1992.
13. Myriad Genetics Corporation, Salt Lake City, Utah, November 1993.
14. University of Barcelona, Department of Physics, Barcelona, Spain, May 1994.
15. XIII Max Born Symposium, Wroclaw, Poland, May 26th, 1999.
16. Tohoku University, Research Institute of Electrical Communication, Sendai, Japan, November 17th, 1999.

On Cellular Patterns:

1. University of Chicago, Chicago, Illinois, U. of Illinois/U. of Chicago meeting, 1987.
2. Los Alamos National Laboratory, Los Alamos, New Mexico, Center for Nonlinear Studies Colloquium, December 1987.
3. Gordon Conference on Physical Metallurgy, Meriden, New Hampshire, July 1988.
4. AT&T Bell Laboratories, Murray Hill, NJ 1989.
5. University of Western Australia, Perth, Australia, Department of Physics Seminar, July 1989.
6. Canterbury University, Christchurch, New Zealand, Department of Physics Seminar, August 1989.
7. Cornell University, Ithaca, New York, LASSP Solid State Seminar, October 1989.

8. TMMMS Meetings, Indianapolis, Indiana (presented by G.S. Grest), October 1989.
9. American Physical Society General Meeting, Anaheim, California, March 1990.
10. Exxon Research and Engineering, Annandale, New Jersey, September 1990.
11. University of Massachusetts, Amherst, Department Colloquium, September 1990.
12. University of Pennsylvania, Philadelphia, Pennsylvania, February 1991.
13. Pennsylvania State University, University Park, Pennsylvania, February 1991.
14. Purdue University, West Lafayette, Indiana, February 1991.
15. Notre Dame University, South Bend, Indiana, February 1991.
16. Emory University, Atlanta, Georgia, March 1991.
17. Trinity College, Dublin, May 1991.
18. International Conference on Grain Growth and Recrystallization, Rome, Italy (presented by Denis Weaire) 1991.
19. Academia Sinica, Taipei, Taiwan, February 1992.
20. University of Science and Technology of China, Heifei, PRC, June 1992.
21. Harbin Teacher's University, Harbin, PRC, June 1992.
22. Department of Physics, Tohoku University, Sendai, Japan, July 1992.
23. G.I.R.I.T. Laboratory, Sendai, Japan, August 1992.
24. Loyola University, Chicago, IL, February 1994.
25. Foams Euroconference, Renvyle, Ireland, March 1994.
26. University of Barcelona, Barcelona, Spain, May 1994.
27. NSF/IMM Workshop, Rockwell Science Center, Thousand Oaks, CA, November 1995.
28. Gordon Conference on Foams, Plymouth, NH, August 1996.
29. Dow Chemical Company, Freeport, TX, April 1996.
30. Second Euroconference on Foams, Arcachon, France, May 1996.
31. University of Chicago, Department of Physics, September 1996.
32. Department of Materials Engineering, Instituto Superior Technico, Lisbon, Portugal, May 1997.
33. Clarkson University, Department of Physics, Pottsdam, NY, July 7, 1997.
34. Tohoku University, Research Institute of Electrical Communication, Sendai, Japan, July 23, 1997.
35. Academia Sinica, Department of Physics, Taipei, Taiwan, July 30, 1997.
36. Sandia National Laboratories, Albuquerque, New Mexico, August 6, 1997.
37. Tsukuba University, Institute of Applied Physics, Tsukuba, Japan, July 6, 1998.
38. Japan Fine Ceramics Center, Nagoya, Japan, July 7, 1998.
39. Tohoku University, Research Institute of Electrical Communication, Sendai, Japan, July 8, 1998.
40. Chuo University, Department of Physics, Tokyo, Japan, July 10, 1998.
41. Centro Brasiliero de Pesquisas Fsicas, Rio de Janiero, Brazil, August 7, 1998.

42. Universidade Federal do Rio Grande do Sul, Department of Physics Colloquium, Porto Alegre, Brazil, August 11, 1998.
43. Universidade Federal So Paolo, Department of Statistical Physics, Sa Paolo, Brazil, August 14, 1998.
44. University of Science and Technology of China, Department of Physics, Hefei, PRC, December 17, 1998.
45. Fudan University, Department of Physics, Shanghai, PRC, December 22, 1998.
46. Los Alamos National Laboratory, Center for Nonlinear Systems Colloquium, Los Alamos, NM, January 27, 1999.
47. Department of Mechanical Engineering, Massachusetts Institute of Technology, Cambridge, MA, June 7th, 1999.
48. New York University, Department of Physics, Colloquium, New York, NY, February 10th, 2000.
49. Eurofoam 2000, Technical University, Delft, Delft, the Netherlands, June 7, 2000.
50. Leiden University, Department of Physical and Macromolecular Chemistry, Leiden, the Netherlands, June 13, 2000.
51. National Polytechnic Institute of Grenoble, Department of Physical Engineering and Mechanics of Materials, Grenoble, France, October 12, 2000
52. University of Lyon, Claude Bernard, Department of Materials Physics, Lyon, France, 10/13/00.
53. University of Paris VI/VII, Jussieu, Joint Condensed Matter, Biophysics Seminar, Paris, France, November 11, 2000.
54. Laboratoire de Physique, Ecole Normale Superieure de Lyon, Lyon, France, December 14, 2000.
55. Department of Physics, University of South Florida, March 23, 2001.
56. Interdisciplinary Center in Nonlinear Science, Northwestern University, Evanston, IL, December 7, 2001.
57. Plasticity 2002, Aruba, January 7, 2002.
58. Eurofoam 2002, Manchester, England, July 9, 2002.
59. Foams and Minimal Surfaces, Isaac Newton Institute, Cambridge, England, August 6, 2002.
60. GEOMES Conference, Max Planck Institute, Dresden, Germany, October 22, 2002.

On Turbulence:

1. Workshop on Convective Turbulence, Institute for Theoretical Physics, University of California, Santa Barbara, Santa Barbara, CA, March 31, 2000.
2. Department of Materials Engineering, Instituto Superior Technico, Lisbon, Portugal, May 24, 2000.
3. Department of Physics Colloquium, Universidade Federal do Rio Grande do Sul, Porto Alegre, Brazil, July 11, 2000.
4. Center for Nonlinear Science, Los Alamos National Laboratory, Los Alamos, NM, August 24th, 2000.

5. Laboratory of Geophysics and Industry, Joint Fluid Mechanics and Magnetohydrodynamics Seminar, Grenoble, France, September 28, 2000.

Personnel

Visitors:

Prof. Jose Mombach	March 1994 - April 1995
Dr. Emma Stott	August 1997 - November 1997
Dr. Florence Elias	March 1998 - May, 1998
Dr. Simon Cox	October 1999 - December 1999
Prof. Rita de Almeida	November 1999 - January 2000
Prof. Nestor Oiwa	November 1999 - February 2001
Deilson de Melo Tavares	September 2000 - January 2001
Isabelle Cantat	October 2002 - November 2002
Manuel Balaguera	November 2002 - Present

Postdoctoral Fellows:

Dr. Constantinos Gonatas	June 1993 - January 1994
Dr. Claudia Mohr	September 1995 - August 1997
Dr. Igor Veretennikov	September 1996 - September 2002
Prof. Gilberto Thomas	September 2000 - October 2002

Ph.D. Students:

Cheryl Berthelsen, Ph.D.	June, 1993	University of Mississippi (co-supervised with Mark Skolnick)
Yi Jiang, Ph.D.	November, 1998	Los Alamos National Laboratories
Sridhar Raghavachari, Ph.D.	June, 1999	Brandeis University
Burkard Prause, Ph.D.	May, 2000	Max-Planck Institute, Tübingen
Arpita Uphadhyaya, Ph.D.	May, 2000	Massachusetts Institute of Technology
Mark Zajac, Ph.D.	August, 2002	Co-supervised with Prof. G. Jones
Marius Asipauskas		NASA Glenn Research Laboratory
SengKai Wong	Current	Indiana University, Bloomington
Cheng Cui	Current	Indiana University, Bloomington
Zheng Wei	Current	Indiana University, Bloomington
Dragos Amarie	Current	Indiana University, Bloomington
Wendy Zhang	Current	Indiana University, Bloomington
Kun Chen	Current	Indiana University, Bloomington

Undergraduate Students:

Mike Bradshaw	June 1993 - August 1994
Richard Raphael	June 1993 - December 1998
Deborah Denton	June 1994 - August 1994
Daniel Eklund	June 1994 - August 1995
Wendy Strech	May 1995 - August 1995
Richard Waltz	January 1996 - August 1996
Richard Hasty	June 1998 - August 1998
Kimberly Uchman	June 1998 - August 1998

Jeff Doucette	May 1999 - August 1999
Robert Lillis	May 1999 - September 1999
Brian Foley	May 1999 - September 1999
Candice Bookwalter	
Austin Gerig	
Carrie Williams	
Justin Robinson	
David Landy	June 2001 - September 2001
Ronan Lynch	June 2001 - September 2001
Karl Fedje	May 2001 - August 2001
Troy Anderson	May 2002 - August 2002
Christopher Lloyd	May 2002 - August 2002
Gabriel Benman	May 2003 - Present

High School Students:

John Clark	June 1994 - August 1994
Jeff Doucette	March 1996 - April 1996
High Carell	March 1997 - August 1997
Buko Abele	May 1999 - August 1999
Greg Harris	March 2001 - April 2001
Medardo Rosario	May 2001 - July 2001

References available upon request.