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EDUCATION

Ph.D. , Program in Applied Mathematics , University of Arizona, Tucson, AZ, Oct. 1994

M.S. , Program in Applied Mathematics, University of Arizona,Tucson, AZ, Dec. 1991

B.A. Magna Cum Laude, Math and Physics, St. Olaf College, Northfield, MN, May 1989

EMPLOYMENT

Staff Member, Theoretical Division, Los Alamos National Laboratory, Oct. 1997 - present

Senior Software Engineer, Digital Island/Exodus, Cable and Wireless, Aug. 2000 - Aug. 2002

Postdoctoral Research Associate, Los Alamos National Laboratory, Oct. 1994 - Sep. 1997

DOE Computational Science Graduate Fellow, University of Arizona, Sep. 1992 - Aug. 1994

Graduate Research Assistant, Los Alamos National Laboratory, Jun. 1991 - Aug. 1992

Research Assistant, University of Arizona, Aug. 1990 - May 1991

RESEARCH INTERESTS

Nonlinear dynamics, pattern formation in nonequilibrium systems, resonance in forced oscillatory systems, network dynamics, social and technological networks, internet data mining, epidemic modeling, commodity parallel Linux supercomputers

AWARDS AND ACTIVITIES

Editorial Board, SIAM Journal of Applied Dynamical Systems

Referee for *Physics Letters A*, *Physica D*, *Physical Review Letters*, *Physical Review E*

Member Society for Industrial and Applied Mathematics

Los Alamos Achievement Award for designing and building "Avalon", 1998

Los Alamos coordinator for DOE Computational Science Graduate Fellowship

Los Alamos Center for Nonlinear Studies Postdoc Award, 1997

DOE Computational Science Graduate Fellowship September 1992

Departmental Distinction, Mathematics, St. Olaf College, 1989

SELECTED RESEARCH PAPERS

[1] A. YOCHELIS, C. ELPHICK, A. HAGBERG, AND E. MERON. Frequency locking in extended systems: the impact of a Turing mode. Preprint: LA-UR-03-9066, 2004.

[2] B. MARTS, A. HAGBERG, E. MERON, AND A. L. LIN. Bloch-front turbulence in a periodically forced Belousov-Zhabotinsky reaction. To appear in Physical Review Letters, 2004.

[3] A. YOCHELIS, C. ELPHICK, A. HAGBERG, AND E. MERON. Two-phase resonant patterns in forced oscillatory systems. Preprint, LA-UR-03-5938. To appear in *Physica D*, 2004.

[4] A. L. LIN, A. HAGBERG, E. MERON, AND H. L. SWINNEY. Resonance tongues and patterns in periodically forced reaction-diffusion systems. *Phys. Rev. E*, 69:066217, 2004.

[5] A. HAGBERG AND E. MERON. Vortex-pair dynamics in anisotropic bistable media: a kinematic approach. *Phys. Rev. Lett.*, 91:224503–1, 2003.

[6] A. YOCHELIS, A. HAGBERG, E. MERON, A. L. LIN, AND H. L. SWINNEY. Development of standing-wave labyrinthine patterns. *SIADS*, 1(2):236–247, 2002.

[7] E. MERON, M. BÄR, A. HAGBERG, AND U. THIELE. Front dynamics in catalytic surface reactions. *Catalysis Today*, 70(4):331–340, 2001.

[8] A. L. LIN, A. HAGBERG, A. ARDELEA, M. BERTRAM, H. L. SWINNEY, AND E. MERON. Four-phase patterns in forced oscillatory systems. *Phys. Rev. E*, 62:3790–3798, 2000.

[9] A. HAGBERG AND E. MERON. Spiral wave nucleation. In *Interfaces, Pulses and Waves in Nonlinear Dissipative Systems. RIMS Project 2000: Reaction-diffusion systems: theory and application. Takao Ohta, ed.*, pages 66–71, RIMS, Kyoto, 2001.

[10] M. BÄR, A. HAGBERG, E. MERON, AND U. THIELE. Front propagation and pattern formation in anisotropic media. *Phys. Rev. E*, 62(1):366–374, 2000.

[11] A. HAGBERG, E. MERON, AND T. PASSOT. Phase dynamics of nearly stationary patterns in activator-inhibitor systems. *Phys. Rev. E*, 61(6):6471–6476, 2000.

[12] C. ELPHICK, A. HAGBERG, AND E. MERON. Phase front solutions and instabilities in forced oscillations. In *Equadiff 99 : Proceedings of the International Conference on Differential Equations Berlin, Germany 12 August 1999*, 2000.

[13] M. BÄR, A. HAGBERG, E. MERON, AND U. THIELE. Stratified spatiotemporal chaos in anisotropic reaction-diffusion systems. *Phys. Rev. Lett.*, 83:2664–2667, 1999.

[14] M. S. WARREN, A. HAGBERG, J. D. MOULTON, D. NEAL, AND J. K. SALMON. Avalon: champagne computing on a beer budget. Extended abstract, 1999.

[15] C. ELPHICK, A. HAGBERG, AND E. MERON. Multiphase patterns in periodically forced oscillatory systems. *Phys. Rev. E*, 59(5):5285–5291, 1999.

[16] A. HAGBERG AND E. MERON. Order parameter equations for front transitions: nonuniformly curved fronts. *Physica D*, 123:460, 1998.

[17] A. HAGBERG AND E. MERON. Propagation failure in excitable media. *Phys. Rev. E*, 57:299, 1998.

[18] C. ELPHICK, A. HAGBERG, AND E. MERON. A phase front instability in periodically forced oscillatory systems. *Phys. Rev. Lett.*, 80(22):5007–5010, 1998.

[19] A. HAGBERG AND E. MERON. Kinematic equations for front motion and spiral-wave nucleation. *Physica A*, 249:118, 1998.

[20] C. ELPHICK, A. HAGBERG, E. MERON, AND B. MALOMED. On the origin of traveling pulses in bistable systems. *Phys. Lett. A*, 230:33–37, 1997.

[21] A. HAGBERG, E. MERON, I. RUBINSTEIN, AND B. ZALTZMAN. Order parameter equations for front transitions: planar and circular fronts. *Phys. Rev. E*, 55(4):4450–4457, 1997.

[22] A. HAGBERG AND E. MERON. The dynamics of curved fronts: beyond geometry. *Phys. Rev. Lett.*, 78(6):1166–1169, 1997.

[23] A. HAGBERG, E. MERON, I. RUBINSTEIN, AND B. ZALTZMAN. Controlling domain patterns far from equilibrium. *Phys. Rev. Lett.*, 76:427–430, 1996.

[24] A. HAGBERG AND E. MERON. A mechanism for spatio-temporal disorder in bistable reaction-diffusion systems. *Nonlinear Science Today*, 1996.

[25] A. HAGBERG AND E. MERON. Oscillating reaction-diffusion spots. Technical report, Center for Nonlinear Studies, Los Alamos National Laboratory, 1996.

[26] D. HAIM, G. LI, Q. OUYANG, W. D. MCCORMICK, H. L. SWINNEY, A. HAGBERG, AND E. MERON. Breathing spots in a reaction-diffusion system. *Phys. Rev. Lett.*, 77(1):190–193, 1996.

[27] C. ELPHICK, A. HAGBERG, AND E. MERON. Dynamic front transitions and spiral-vortex nucleation. *Phys. Rev. E*, 51(4):3052–3058, 1995.

[28] A. HAGBERG AND E. MERON. From labyrinthine patterns to spiral turbulence. *Phys. Rev. Lett.*, 72(15):2494–2497, 1994.

[29] A. HAGBERG AND E. MERON. Pattern formation in non-gradient reaction-diffusion systems: the effects of front bifurcations. *Nonlinearity*, 7:805–835, 1994.

[30] A. HAGBERG AND E. MERON. Complex patterns in reaction-diffusion systems: a tale of two front instabilities. *Chaos*, 4(3):477–484, 1994.

[31] A. HAGBERG. Fronts and patterns in reaction-diffusion equations. PhD thesis, University of Arizona, 1994.

[32] A. HAGBERG AND E. MERON. Domain walls in nonequilibrium systems and the emergence of persistent patterns. *Phys. Rev. E*, 48:705–708, 1993.

PRESENTATIONS

Center for Nonlinear Studies, Los Alamos, NM, December 2003

SIAM Meeting on Dynamical Systems, Snowbird, UT, May 2001

Center for Nonlinear Dynamics, University of Texas at Austin, October 1999

SIAM Meeting on Dynamical Systems, Snowbird, UT, May 1999

Nonlinear Waves and Solitons in Physical Systems Meeting, Los Alamos, NM, May 1997

Program in Applied Mathematics, University of Arizona, Tucson, January 1997

Instituto Nazionale di Ottica, Florence, Italy, April 1997

Max-Planck-Institute for Complex Systems Physics, Dresden, Germany, March 1996

Fritz-Haber-Institute, Berlin, Germany, March 1996

Workshop on Domain Walls Near and Far from Equilibrium,
J. Blaustein Institute for Desert Research, Sede Boker, Israel, February 1996

Department of Chemical Engineering, Princeton University, Princeton, November 1995

Institute for Nonlinear Science, University of California, San Diego, November 1995

Applied Math Colloquium, University of New Mexico, Albuquerque, NM, October 1995

Santa Fe Institute, Santa Fe, NM, October 1995

Center for Nonlinear Studies, Los Alamos, NM, September 1995

Applied Math Department University of Colorado, Boulder, CO, March 1995

Computational Science Graduate Fellowship Conference, Minneapolis, MN, August 1993