WEDNESDAY, JANUARY 5, 1994—CONFERENCE BEGINS
8:45 opening remarks—E. Dowell (Dean, School of Engineering, Duke University).

Chairman: R. BEHRINGER
9:00-9:45 H. Swinney* (U of Texas) Anomalous Diffusion and Levy Flights
9:45-10:05 D. del-Castillo-Negrete (U of Texas) Transition to Chaos in an Area Preserving Non-Twist Map
10:05-10:25 G. Metcalfe (Northwestern U) Lobe Transport near Reattachment Points
10:25-11:10 Poster Session 1

Chairman: D. SCHAEPFER
11:10-11:30 K. Coughlin (U of Montreal) Numerical Simulation of Turbulent Bursts
11:30-11:50 D. Gauthier (Duke U) Controlling Chaos in Fast Dynamical Systems
11:50-1:10 lunch

Chairman: L. HOWLE
1:10-1:55 D. Koditschek* (U of Michigan) Toward a Systems Theory for Coupled Oscillators in Robotics
1:55-2:15 I. Schwartz (Naval Res. Lab) Anti-Phase Switching in Globally Coupled Dynamical Systems
2:15-2:35 I. Kevrekidis (Princeton U) Catalysis on Microstructured Surfaces
2:35-3:20 Poster Session 2

Chairman: E. KOSTELICH
3:20-4:05 S. Morris* (U of Toronto) Spiral Defect Chaos in Gas Convection Experiments
4:05-4:50 S. Edwards* (Haverford Col.) (Forbidden) Symmetries in Nonlinear Surface Waves
4:50-5:10 W. van de Water (Eindhoven U of Technology) Averaging Dynamics in the Faraday Experiment
5:10-5:30 K. Pyragas (Semiconductor Physics Inst.) Continuous Control of Chaos

5:30-7:30 dinner

Chairman: H. GREENSIDE
7:30-8:15 M. Golubitsky* (U of Houston) Symmetry and Chaos: Patterns on Average
8:15-9:00 J. Gollub* (Haverford Col) Characterization of Chaotic Spatiotemporal Patterns
THURSDAY, JANUARY 6

Chairman: J. SOCOLAR
8:30-9:15 T. Powell* (UC Davis) Modelling Biology and the Ocean
9:15-10:00 B. Shaw* (Lamont-Doherty Earth Obs.) Modelling earthquakes
10:00-10:20 S. Pepke (UC Santa Barbara) Predictability in Self-Organizing Earthquake Fault Models

10:20-11:05 Poster session 3

Chairman L. VIRGIN
11:05-11:50 C. Castillo-Chavez* (Cornell U) Complex Pair-Formation Models with Simple Dynamics and Their Connections to Epidemiology
11:50-12:10 M. Ding (Florida Atlantic U) Controlling Chaos in a Temporally Irregular Environment
12:10-12:30 B. Yacobson (NC State U) Diffusion-Mediated Dynamics of Stressed Surfaces: Loopholes to Fracture

12:30-1:30 Lunch

chairman: R. PALMER
1:30-2:15 M. Mitchell* (Santa Fe Inst.) Cellular Automata to Perform Computations: Mechanisms and Impediments
2:15-3:00 G. Grinstein* (IBM) Coherent Periodic Oscillations
3:00-3:20 W. Chin (U of Maryland) Bifurcations to Chaos in Forced Impact Oscillators

3:20-4:05 Poster Session 4

Chairman: J. GUCKENHEIMER
5:10-5:30 A. Shil’nikov (Research Institute for Applied Mathematics and Cybernetics) Normal Forms and Lorenz Attractors
5:30-5:50 D. Sherwell (U of Witwatersrand) The Dynamical System Relating the Digits of Irrational Numbers

5:50-6:45 cash bar/reception
6:45-8:00 banquet

FRIDAY, JANUARY 7

Chairman: S. TEITSWORTH
8:30-9:15 P. Hohenberg* (AT&T Bell Labs) Noise and Chaos in Nonequilibrium Patterns
9:15-9:35 J. Boissonade (U of Bordeaux I) Dynamics of Turing Patterns—Monolayers Close to Onset
9:35-9:55 Z. Chen (Bryn Mawr Col.) Spatiotemporal Dynamics in the Transverse Patterns of a Laser

10:15-11:00 Poster session 5

Chairman: H. SWINNEY
11:00-11:45 J. Sethna* (Cornell U) Hysteresis and Hierarchies: Dynamics of Disorder-Driven First-Order Phase Transformations
11:45-12:05 Virginie Emsellem (ENS) An Experiment on Selection in Dendritic Growth

12:25-1:20 Lunch

Chairman: D. GAUTHIER
1:20-2:05 Y. Couder* (ENS) The Self-Organization of Fibonacci Spirals in Plants
2:05-2:25 A. De Wit (Stanford U) Chaotic Turing-Hopf Mixed Mode
2:25-2:45 D. Auerbach (U MD) Controlling Chaos in Extended Systems
2:45-3:05 J. Sommerer (Johns Hopkins U) Blowout Bifurcations

3:05-3:50 Poster Session 6

Chairman: P. HAFF
3:50-4:35 B. Hallet* (U of Washington) Self-Organization in Landscapes
4:35-5:20 B. Werner* (Scripps) Feedbacks in Models of Geomorphic Pattern Formation
5:20-5:40 P. Umbanhowar (U of Texas) Transition to Parametric Wave Patterns in a Vertically Oscillated Granular Layer
5:40-6:00 Y. Tu (Cal Tech) Rotating Thermal Convection
6:00-6:20 A. Hohl (Georgia Tech) Dynamical Hysteresis and Scaling Laws in Optical
Bistability
6:20-6:40 D. Egolf (Duke U) Variation of the Lyapunov Dimension Density near Two Nonequilibrium Phase Transitions

SATURDAY, JANUARY 8

Chairman: P. THOMPSON
8:30-9:15 S. Strogatz* (MIT) Superconducting Arrays as Integrable Systems
9:15-9:35 S. Kim (Pohang U of Science and Technology) Chaotic Dynamics in Small Josephson Junction Ladder Arrays
9:35-9:55 K. Wiesenfeld (Georgia Tech) Josephson Junction Arrays in Principle and Practice

10:15-10:35 break

Chairman: K. WIESENFELD
11:20-11:40 M. Kirby (Colorado State U) A Nonlinear Approach for Data Analysis and the Reduction of Dynamical Systems
11:40-12:00 P. Hammer (Naval Surface Warfare Center) Experimental Observation of On-Off Intermittency
12:00-12:20 T. Newell (Phillips Laboratory) Synchronizing Chaos by Occasional Proportional Feedback: The Case of Two Identical Diode Resonators

CONFERENCE CONCLUDES

*Invited Speaker
ARIZMENDI, Constancio M.  Invasion percolation interface roughening in porous media

BAXTER, William  Surface of a spinning bucket of sand

BERGMANN, Michael J.  Solitary-wave dynamics in extrinsic semiconductors under voltage bias

BLEICH, Michael  Relaxation oscillations in model sand piles

BRAIMAN, Yehuda (Yuri)  Stabilization of chaotic and neutral dynamics by means of weak periodic perturbations

CASEY, Michael  Computation dynamics in discrete time recurrent neural networks

CENYS, Antanas  Model for chaos-chaos intermittency

CHERNIKOV, Alexander A.  Diffusion in coupled web maps

DANKOWICZ, Harry  Looking for chaos: an alternative to Melnikov's method

DAS, Pranab K.  A bifurcation analysis of the four-dimensional generalized Hopfield neural network

DIONNE, Benoit  Time-periodic, spatially-periodic planforms in euclidean equivariant PDE

EGOLF, David A.  Dynamical complexity versus spatial disorder for two nonequilibrium phase transitions

FILATRELLA, Giovanni  Soliton dynamics in two-dimensional Josephson tunnel junctions

FOSTER, Andrew H.  Experimental study of cardiac conduction using nonlinear dynamics and chaos theory

FUNKE, Michael  Controlling low-dimensional chaos: determination and stabilization of unstable periodic orbits
GARCIA, Edelfredo
Deterministic cluster growth; The ARM method: a nonlinear dynamics approach for solving acid-base equilibrium problems; The box-scanning method: a surveillance test for self-similarity

GARICA-PELAYO, Ricardo
Analytical treatment of the Lorentz gas

GILLS, Zelda
Control of chaos in a laser cavity with internal reflections

GLASSER, Benjamin J.
Time-dependent flows in fluidized beds

GROSU, Ioan
Controlling a hard duffing oscillator

GUNARATNE, Gemunu
Pattern formation in the presence of symmetries

GUZDAR, Parvez N.
2D nonlinear dynamics of four driven vortices

HART, Darlene
Nonlinear dynamics in an optical fiber

HASTINGS, Harold M.
A proof of the Williams conjecture (classification of subshifts of finite type)

HSU, Guan-Hsong
Toward optimal implementation of chaotic noise reduction algorithms

HUTH, John M.
Convection in electrochemical deposition

JIRSA, Viktork
A non-linear biophysical coupling for bistable coordination

JOHNSON, Mark E.
Computation and visualization of invariant manifolds

KADTKE, James B.
Chaotic vortex capture phenomena in extended systems

KAPLAN, Harvey
Cessation of Type I intermittency leads to multistable periodic island hierarchies

KHIBNIK, Alexander I.
Continuation techniques and interactive software for bifurcation analysis of OED’s and iterated maps
KOLODNER, Dalil  Comoving time averages of erratic traveling wave patterns

KOOK, Hyungtae  Periodic doubling in area-perserving maps

LAI, Ying-cheng  Extremely sensitive dependence on parameters in spatio-temporal chaotic dynamical systems; Crisis in chaotic scattering

LANSBURG, Adam S.  New types of waves in systems with O(2) symmetry

LOPEZ-PENA, Ramon  Recognition of temporal sequences of patterns using state-dependent synopses

LUDWIG, Francis  Adaptation of multiresolution feature analysis to three-dimensional atmospheric wind fields

LUSTFELD, Haus  Transition to intermittency in a one dimensional map

McCORMICK, William  New types of stationary and spatic temporal patterns in a reaction diffusion system

METCALFE, Guy  Lobe transport near reattachment points

MEZIC, Igor  Birkhoff’s ergodic theorem and statistical properties of chaotic dynamical systems

MOLTENO, Tim  Fast O(N) dimension estimation

MONTAKHAB, Afshin  Mode-locking and hysteresis in the globally coupled model of charge-density waves

MULDOON, Mark  Delay reconstruction for spatially extended systems

NICOL, Matthew J.  Symmetry of the asymptotic dynamics of maps commuting with compact Lie groups

NUNEZ, Noemi  Scalar tensor theories and chaos in cosmology

OERTER, Robert N.  The statistics of wavefunctions in quantum chaos
PANDO, Carlos L.  New instabilities in the CO2 laser; Critical exponents in a multidimensional laser system

PATTANAYAK, Arjendu K.  Semiclassical dynamics of fluctuations: Ostensible quantum chaos

PAYNE, Lorna  Unstable output velocity behavior of radio-emission plasma

PELSTER, Axel  Systematic elimination of irrelevant modes in nonlinear delay systems

PERALTA-FABI, Ramon  A stochastic (Markovian) approach to avalanches: Real piles and a cellular automation

PETROVICHEV, Boris A.  Stochastic dynamics of a charged particle in an inhomogeneous magnetic field and in a field of a wave packet

PLATT, Nathan  Effects of additive noise on on-off intermittency

PRITCHARD, Dean  Generalized redundancies for time series analysis

RAPPEL, Wouter-Jan  Phase dynamics near a parity breaking instability

REDDY, C. Chenna  Transition to low dimensional chaos in plasma current: experimental observation from Aditya Tokamak

PAK, Hyak  Effects of ambient gases on granular materials under vertical vibration

ROGERS, Jeffery  Frequency plateaus in nonlinear oscillator chains

ROY, Rajarshi  Experimental synchronization of chaotic lasers; Control of chaos in a laser cavity with internal reflections

SALVINO, Liming  Many vector fields approach
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Dynamical behavior of closed convective loops in square geometry

Controlling unstable states in reaction-diffusion systems modelled by time series

Nonlinear dynamics of EEG under radiation of millimeter waves

Ultrasonic doppler velocimetry in turbulent Couette-Taylor flow

Koualeuskaya-Painleve Machine

Spatiotemporal dynamics of rimming flows: experiments

Universal shape of turbulent structure functions

Onset and decay of oscillations in a salt-water system

Punctuated hamiltonian dynamics for forced 2D turbulence

Noise an nonlinear interactions in an Prbium doped fiber ring laser

Associative memory in a neural network with state-dependent synapses