

## **Statistical Mechanics at the 45th Parallel: Université d'Ottawa, October 4–5, 1991**

### **SESSION I.1**

**Chairperson:** Hong Guo (McGill)

**Invited Speaker:** Per Bak (Brookhaven National Laboratories)  
Self Organized Criticality

### **SESSION I.2**

**Chairperson:** Rashmi Desai (Toronto)

**Invited Speaker:** Geoff Grinstein (IBM Thomas J. Watson Research  
Center)  
Scale Invariance in Classical Non-Equilibrium Systems

### **SESSION C.1**

**Chairperson:** Martin Grant (McGill)

**Papers C1.1–C1.9**

### **SESSION C.2**

**Chairperson:** Gabor Forgacs (Clarkson)

**Papers C2.1–C2.9**

### **POSTER SESSION**

**Papers P.1–P.20**

**SESSION C.3**

**Chairperson:** Gary W. Slater (Ottawa)

**Papers C3.1–C3.9**

**SESSION I.3**

**Chairperson:** Béla Joós

**Invited Speaker:** Zoltan Racz (Eötvös and Clarkson Universities)

Phase Transitions in Non-Equilibrium Steady States

**CONTRIBUTED PAPERS****Session C.1**

C1.1 K. R. Elder (McGill)

Dynamics of Directional Eutectic Growth

C1.2 J. Wang (McGill)

Critical Dynamics of the 2D Ising Model with Glauber Dynamics

C1.3 L. Jorgenson (McGill)

Simulation Study of Three-Dimensional Dendritic Growth

C1.4 M. C. Sagui and R. C. Desai (Toronto)

Instability Driven Phase Separation in a Binary Mixture of Surfactants at Water Air Interface

C1.5 M. Laradji (McGill)

Lattice Model of Microemulsions

C1.6 G. S. Bales and R. J. Gooding (Queen's)

Interfacial Dynamics of First-Order Phase Transitions Involving Strain: Autocatalytic Twin Production

C1.7 G. Forgacs (Clarkson)

Generic (Physical) and Genetic Mechanisms in the Production of Biological Form and Pattern

C1.8 J. R. Morris (Cornell) and R. J. Gooding (Queen's)

Exact Thermodynamics and Heterophase Fluctuations of a Symmetry Breaking First-Order Phase Transition

C1.9 I. S. Graham (McGill)  
Numerical Study of a Model of the Glass Transition

### Session C.2

C2.1 G. W. Slater and C. Villeneuve (Ottawa)  
Self-Trapping and Anomalous Diffusion of DNA–Streptavidin Complexes  
During Gel Electrophoresis

C2.2 A. Somoza and R. C. Desai (Toronto)  
Tilt Order in Langmuir Monolayers

C2.3 S. Lacelle (Sherbrooke)  
What is a Typical Dipolar Coupling Constant in a Solid?

C2.4 G. Vidali (Syracuse)  
High Order Commensurate Phases of Metal Overlayers on Metal Sub-  
strates: New Experimental and Theoretical Results

C2.5 S. Teitel (Rochester)  
Structure of a Dense Vortex Line Liquid in a Model High  $T_c$  Super-  
conductor

C2.6 Z.-M. Hu and B. C. Eu (McGill)  
Modified Padé Approximant and the Equation of State

C2.7 Y. Shapir (Rochester)  
Some Exact Results for Lattice Electrons Tunnelling in a Magnetic Field

C2.8 C. M. Van Vliet (Montreal)  
New Interpretation of Correlated Diffusion Noise in  $\beta$  and  $\beta'$  Aluminas

### Session C.3

C3.1 P. Masiar (Toronto)  
Reactive Lattice Gas Automata

C3.2 C. Doering (Clarkson)  
Fluctuations and Correlations in a Diffusion-Reaction Process

C3.3 H. H. Gan and B. C. Eu (McGill)  
Theory of the Dynamic Structure of Sheared Simple Fluids

- C3.4 I. L'Heureux (Ottawa)  
Dissipative Structures in an Acoustoelectric System
- C3.5 L. Glasser (Clarkson)  
Examination of a Chaotic System
- C3.6 H. Kaplan (Syracuse)  
Consequences of the Constant Jacobian Determinant of the Hénon Map
- C3.7 M. Grmela (Ecole Polytechnique)  
Approach of Fast to Slow Time Evolution: Thermodynamics of Driven Systems
- C3.8 B. Watson (St. Lawrence, NY), S. Lovejoy, A. Davis, and D. Schertzer  
Transport in Multifractal Media

### POSTER SESSION

- P.1 E. Corvera (McGill)  
Permeability of Lipid Bilayers
- P.2 M. Lacasse (McGill)  
Application of a New MCRG Method to Critical Dynamics
- P.3 J. Yao (McGill)  
Analytic and Numerical Study of Ostwald Ripening
- P.4 R. Thomson (McGill)  
Modelling of Barkhausen Noise in Stressed Magnetic Materials
- P.5 F. Drolet (McGill)  
A Model for Eutectic Crystallization
- P.6 K. Mao and B. C. Eu (McGill)  
Relativistic Kinetic Theory and Irreversible Thermodynamics
- P.7 K. Howes (McGill)  
Spinodal Decomposition in Two-Dimensional Fluids
- P.8 B. Morin (McGill)  
Dynamics of an Order–Disorder Transition

- P.9 N. Provatas (McGill)  
Surface Effects in Explosive Crystallization
- P.10 G. Soga (McGill)  
Modelling of Pattern Formation in the Visual Cortex
- P.11 T. Sun (McGill)  
Study of Models of Driven Interfaces
- P.12 A. B. Davis, S. Lovejoy (McGill), and D. Schertz  
Numerical Studies of Transporting Multifractal Media
- P.13 R. Lutz and L. J. Lewis (Montreal)  
On the Stability of Point Defects in Amorphous Materials
- P.14 J. M. Lin and L. J. Lewis (Montreal)  
Some Applications of *Ab-Initio* Molecular Dynamics Methods
- P.15 Y. Lépine (Montreal)  
Monte Carlo Path Integral Investigation of the Polaron
- P.16 B. Luce (Clarkson)  
Coherent Structures in the Generalized Ginzburg–Landau Equation
- P.17 A. Middleton and O. Biham (Syracuse)  
Mode Locking in AC Driven Charge Density Waves
- P.18 M. Golea and M. Marchand (Ottawa)  
In Search of Occam’s Razors for Neural Networks
- P.19 B. Joós (Ottawa), M. S. Duesbery, and N. D. Shrimpton  
Heat Capacity of a Monolayer at Melting
- P.20 P. Piercy (Ottawa), K. de Bell, and H. Pfnür  
Lattice Gas Models for Order–Disorder Behaviour of the Adsorption System O/Ru (001)