

Contents

Introduction

Michel Planat 1

Mathemagics (A Tribute to L. Euler and R. Feynman)

Pierre Cartier 6

Part I Classical and Quantum Noise

Thermal and Quantum Noise in Active Systems

Jean-Michel Courty, Francesca Grassia, Serge Reynaud 71

Dipole at $\nu = 1$

V. Pasquier 84

Stored Ion Manipulation Dynamics of Ion Cloud and Quantum Jumps with Single Ions

Fernande Vedel 107

1/f Fluctuations in Cosmic Ray

Extensive Air Showers

E. Faleiro, J.M.G. Gómez 125

Stochastic Resonance and the Benefit of Noise in Nonlinear Systems

François Chapeau-Blondeau 137

Time is Money

Marcel Ausloos, Nicolas Vandewalle, Kristinka Ivanova 156

Part II Noise in Oscillators, 1/f Noise and Arithmetic

Oscillators and the Characterization of Frequency Stability: an Introduction

Vincent Giordano, Enrico Rubiola..... 175

Phase Noise Metrology

Enrico Rubiola, Vincent Giordano..... 189

Phonon Fine Structure in the $1/f$ Noise of Metals, Semiconductors and Semiconductor Devices <i>Mihai N. Mihailescu</i>	216
The General Nature of Fundamental $1/f$ Noise in Oscillators and in the High Technology Domain <i>Peter H. Handel</i>	232
$1/f$ Frequency Noise in a Communication Receiver and the Riemann Hypothesis <i>Michel Planat</i>	265
Detection of Chaos in the Noise of Electronic Oscillators by Time Series Analysis Methods <i>C. Eckert, M. Planat</i>	288
Geometry and Dynamics of Numbers Under Finite Resolution <i>Jacky Cresson, Jean-Nicolas Dénarié</i>	305
Diophantine Conditions and Real or Complex Brjuno Functions <i>Pierre Moussa, Stefano Marmi</i>	324
<hr/>	
Part III Algebraic Randomness	
<hr/>	
Algebraic and Analytic Randomness <i>Jean-Paul Allouche</i>	345
From Symbolic Dynamics to a Digital Approach <i>K. Karamanos</i>	357
Algebraic Dynamics and Transcendental Numbers <i>Michel Waldschmidt</i>	372
Dynamics of Some Contracting Linear Functions Modulo 1 <i>Yann Bugeaud, Jean-Pierre Conze</i>	379
On the Modular Function and Its Importance for Arithmetic <i>Paula B. Cohen</i>	388
On Generalized Markoff Equations and Their Interpretation <i>Serge Perrine</i>	398