

# **Chaos, Solitons & Fractals: the interdisciplinary journal of Nonlinear Science, and Nonequilibrium and Complex Phenomena**

## *Aims & Scope*

*Chaos, Solitons & Fractals* aims to be a leading journal in the interdisciplinary field of Nonlinear Science, and Nonequilibrium and Complex Phenomena. It encourages the submission of articles on the following subjects in this field: dynamics; non-equilibrium processes in physics, chemistry and geophysics; complex matter and networks; mathematical models; computational biology; applications to quantum and mesoscopic phenomena; fluctuations and random processes; self-organization; social phenomena; and engineering. Contributions on both fundamental and applied studies are welcome.

## *Classification list (classifications required upon submission)*

- 10.00     Dynamics**
- 10.01     applications to mechanics of particles and systems
- 10.02     approximation methods
- 10.03     bifurcation theory
- 10.04     celestial mechanics
- 10.05     cellular automata
- 10.06     collective behaviour
- 10.07     computational methods in nonlinear dynamics
- 10.08     control of chaos
- 10.09     Hamiltonian systems
- 10.10     Lagrangian chaos
- 10.11     Lie groups
- 10.12     low-dimensional chaos
- 10.13     maps and coupled lattice maps
- 10.14     non-linear dynamics
- 10.15     non-linear ordinary differential equations
- 10.16     non-linear oscillations
- 10.17     non-linear partial differential equations
- 10.18     non-linear waves
- 10.19     PDE in hydrodynamics
- 10.20     perturbation theory
- 10.21     signal processing
- 10.22     solitons
- 10.23     space-time chaos
- 10.24     stability theory
- 10.25     symmetry breaking
- 10.26     symplectic mechanics
- 10.27     synchronization
- 10.28     vibrations

**20.00 Non-equilibrium processes in physics, chemistry and geophysics**

- 20.01 applications to astrophysics
- 20.02 applications to particle physics and cosmology
- 20.03 applications to other physics disciplines
- 20.04 coherent phenomena
- 20.05 complex matter and networks
- 20.06 critical phenomena
- 20.07 decay of particles
- 20.08 dynamical phase transition
- 20.09 granular matter
- 20.10 hydrodynamics
- 20.11 kinetic and transport theory
- 20.12 Lévy flight
- 20.13 microfluidics
- 20.14 non-equilibrium phase transition
- 20.15 non-equilibrium quantum field theory
- 20.16 non-equilibrium statistical physics
- 20.17 non-equilibrium/irreversible thermodynamics
- 20.18 seismic fluctuations and geophysical complexity
- 20.19 self-organized criticality
- 20.20 spin glasses
- 20.21 symmetry breaking
- 20.22 turbulence

**30.00 Complex matter and networks**

- 30.01 brain dynamics
- 30.02 complex matter
- 30.03 complex networks
- 30.04 complex systems
- 30.05 internet dynamics, e-mail communication
- 30.06 neural networks
- 30.07 neurophysiological processes
- 30.08 new materials synthesis

**40.00 Mathematical models**

- 40.01 approximation methods
- 40.02 cellular automata
- 40.03 dynamical systems
- 40.04 ergodic and mixing properties
- 40.05 ergodic theory
- 40.06 Kolmogorov-Sinai entropy
- 40.07 Lie groups
- 40.08 maps and coupled lattice maps
- 40.09 mathematical physics
- 40.10 non-linear ordinary differential equations

- 40.11 non-linear waves
- 40.12 non-linear partial differential equations
- 40.13 perturbation theory
- 40.14 Shanon entropy
- 40.15 signal processing
- 40.16 singularity theory
- 40.17 solitons
- 40.18 stability theory
- 40.19 symmetry breaking
- 40.20 synchronization

**50.00 Computational biology**

- 50.01 biodynamics
- 50.02 biological networks
- 50.03 biological systems
- 50.04 cognitive processes
- 50.05 computational biology
- 50.06 decision making
- 50.07 medicine
- 50.08 neural networks
- 50.09 neuroscience, brain dynamics

**60.00 Applications to quantum and mesoscopic phenomena**

- 60.01 applications to quantum information
- 60.02 nanotechnology
- 60.03 nonequilibrium quantum statistical mechanics
- 60.04 open quantum systems
- 60.05 quantum chaos
- 60.06 quantum decoherence
- 60.07 quantum dynamics
- 60.08 quantum measurement processes

**70.00 Fluctuations and random processes**

- 70.01 fluctuations in physics and biology
- 70.02 fractional calculus
- 70.03 kinetic and transport theory in physics and chemistry
- 70.04 Lévy processes
- 70.05 random signal processing
- 70.06 Shanon entropy
- 70.07 stable processes
- 70.08 stochastic control
- 70.09 synchronization
- 70.10 turbulence

**80.00 Self-organization**

- 80.01 complex matter
- 80.02 fractals
- 80.03 information theory
- 80.04 pattern formation
- 80.05 self-organized criticality
- 80.06 Shanon entropy

**90.00 Social phenomena**

- 90.01 applications to economics
- 90.02 environmental science
- 90.03 applications to social sciences
- 90.04 ecology
- 90.05 game theory

**100.00 Engineering**

- 100.01 applications to engineering
- 100.02 vibrations in engineering sciences