



CHAOS, SOLITONS & FRACTALS

An interdisciplinary journal of nonlinear science

AUTHOR INFORMATION PACK

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DESCRIPTION

Chaos, Solitons & Fractals aims to be a leading journal in the **interdisciplinary field of Nonlinear Science**. It encourages the submission of articles concerning the **fundamentals** of the following subjects: **dynamics; non-equilibrium processes in physics; complex matter and networks; computational biology; fluctuations and random processes; self-organization; social phenomena; technology.**

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AUDIENCE

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Nonlinear dynamics and Non-equilibrium processes in physics

Christophe Letellier, Université de Rouen, Saint-Etienne du Rouvray, France

Dynamical systems theory, especially on problems related to the characterization of chaotic attractor (topological approach), global modelling, observability, recurrence plots, synchronization, and networks; The application of "chaos theory" to various domains of biomedicine (heart variability, noninvasive mechanical ventilation, tumor growth)

Boris Malomed, Tel Aviv University, Tel Aviv, Israel

Nonlinear waves; nonlinear optics; solitons; Bose-Einstein condensates; pattern formation in dissipative media; nonlinear lattice dynamics

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Statistical physics; Complex systems; Evolutionary game theory; Cooperation; Network science; Data analysis; Cyclic dominance; Social systems; Stochastic processes

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Low dimensional systems; Forced systems; Coupled oscillators: synchronization and amplitude death

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Nonequilibrium Statistical Mechanics for Classical and Quantum Physical Systems, and Physics of Complex Systems in Interdisciplinary applications; Noise-induced phenomena in physical, biological and financial complex systems; Anomalous diffusion and Lévy flights; Transient dynamics in Josephson junctions; Spintronics

Trong Tuong Truong, University of Cergy-Pontoise, Cergy-Pontoise Cedex, France

Integrable systems - Solitons; Inverse Problems for Imaging - Radon transforms; Quantum Theory - Anyons and anharmonic oscillators

Sandro Vaienti, Centre de Physique Théorique, Marseille, France

Ergodic theory; Statistical properties of dynamical systems; Decay of correlations and limit theorems; Extreme value theory; Random dynamical systems

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Evolutionary game; Prey-predator dynamics; Disease spreading; Behavior epidemiology; Synchronization; Complex network (structure and dynamics); Social dynamics and online social network; System optimization and control; Metapopulation; Climate change research; Routing traffic; Traffic flow; Nonlinear and interdisciplinary physics

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Complex networks structure and dynamics; Complex systems; Social networks; Graph theory

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Ergodic Theory; Extreme Value Theory and applications to dynamical systems; Recurrence; Statistical and stochastic stability; Decay of correlations; Large deviations; Limiting laws; Point processes

Alexander Dubkov, Lobachevsky State University of Nizhni Novgorod, Nizhni Novgorod, Russian Federation

Noise-induced phenomena in complex dynamical systems Non-equilibrium thermodynamics and fluctuation-dissipation relations Anomalous diffusion, Levy flights and Levy walks Turbulence, fractals and scaling

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Integrable systems; Ordinary differential equations and special functions

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Theory of nonlinear dynamical systems and chaos modelling from observational data; Applications to environmental behaviors as observed in situ or from space, with a special focus on biosphere (vegetation, ecology, epidemiology) and hydrosphere (karstic springs, ground water, snow)

Jan Nagler, Max Planck Institut (MPI) für Dynamik und Selbstorganisation, Göttingen, Germany

Stochastic systems, with applications at the interface between physics, biology, sociology and economics, in particular phase transitions and tipping points, ergodicity breaking and estimation of risk in uncertain environments

Andrey Pankratov, Russian Academy of Sciences, Nizhny Novgorod, Russian Federation

Noise and fluctuations in dynamical systems and, in particular, in Josephson electronic devices

David Papo, University of Lille 3, Lille, France

Paolo Paradisi, National Research Council of Italy (CNR), Pisa, Italy

Tomaz Prosen, University of Ljubljana, Ljubljana, Slovenia

Quantum chaos; Many-body quantum dynamics; Open quantum systems; Non-equilibrium statistical mechanics and transport

Bruno Otávio Teixeira, Universidade Federal de Minas Gerais (UFMG), Belo Horizonte, Brazil

Davide Valenti, University of Palermo, Palermo, Italy

Non-Equilibrium Statistical Mechanics in classic and quantum physical systems: - stochastic processes and noise induced effects in nonlinear systems; - Josephson junctions; - dynamics of quantum

particles in bistable potentials; - models of Population Dynamics with applications to Complex Systems: spatio-temporal dynamics of phytoplankton in marine environment; bacterial growth; - noise effects and stabilizing role of fluctuations (volatility) in financial markets (Econophysics)

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ODEs; Hyperbolicity; Integrability

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