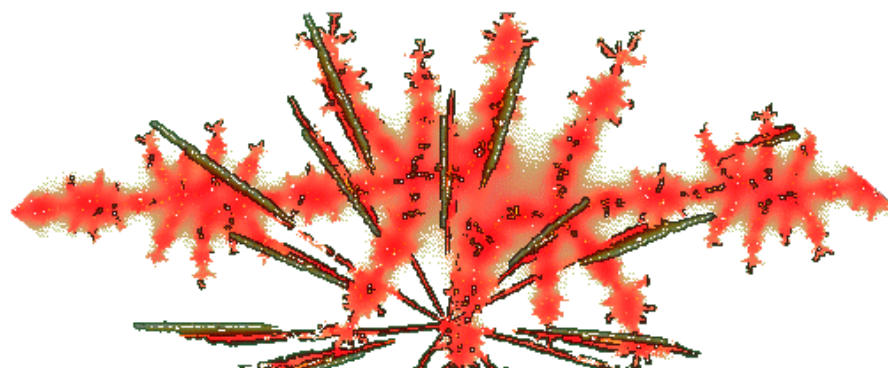*Coming Soon from*

Nonlinear Dynamics, Psychology, and Life Sciences

Nonlinear Economics and Social Science
A special issue in memory of John Barkley Rosser Jr.

Roberto Dieci, *University of Bologna*, and **Ugo Merlone,** *University of Torino, Guest Editors*

John Barkley Rosser Jr. (1948-2023), was widely known and respected for his outstanding contributions in the field of nonlinearity and complexity in economics and social science. His contributions to nonlinear economics were expansive, ranging from finance, to macroeconomics, ecological economics, behavioral economics, and other aspects of environmental science. He was also a long-time member of SCTPLS and a member of the *NDPLS* editorial board, and SCTPLS president from 2021 until early this year.

Overview: Economic and social systems are complex time-evolving systems, intrinsically dynamic and nonlinear. Nonlinearities and discontinuities arise naturally in several theoretical and applied contexts in macroeconomics and finance, spatial and environmental economics, social and behavioral science. While linear dynamic models might serve as useful tools to approximate phenomena that are supposed to evolve towards equilibrium conditions - which is often the case under strong assumptions of homogeneity, rationality, and unlimited computational abilities of economic agents, as well as in the absence of 'market failures' - a number of real-world phenomena, including speculative bubbles and financial distress, regime changes, and even social and institutional evolution, cannot be fully understood without explicitly considering hetero-geneity, bounded rationality and learning, social interaction, and the role of psychological phenomena and behavioral factors in individuals' decision making.

Moreover, many structural features of the broader economic-social-environmental landscape are intrinsically nonlinear, often discontinuous, characterized by interdependencies, amplification mechanisms and increasing complexity. Due to such features and factors, economic and social systems may evolve into a permanent chaotic regime that reflect patterns that differ profoundly from their linear approximation near a supposed equilibrium solution. A proper understanding of such evolving social, economic and environmental contexts requires an interdisciplinary approach and a wide spectrum of mathematical concepts and methods, ranging from the qualitative theory of nonlinear dynamical systems (including bifurcation analysis and chaos theory) to evolutionary games, from catastrophe theory to agent-based modelling techniques, from concepts and principles of behavioral science and economic psychology to nonlinear econometric techniques.

This special issue is aimed at contributing to the broad array of topics dealing with nonlinear and discontinuous phenomena in social, economic and environmental contexts, with theoretical papers, simulation studies, and empirical investigations. Areas and topics of particular interest include (not an exhaustive list):

Evolutionary economics
Ecological-economic dynamics
Structural change and growth
Speculative bubbles, crashes, and financial crises
Social interaction and learning
Economic complexity

Game theory, principles and applications
Agricultural economics
Socio-spatial economics
Multiple basin systems
Inflation and unemployment

Special Issue:

The Dynamics of Resilience and Adaptive Responses to Traumatic Stress

Adam Kiefer, *University of North Carolina, Chapel Hill,* **David Pincus,** Chapman University, and **Bernard Ricca,** *University of Colorado, Colorado Springs***, Guest Editors**

Overview: The dynamic nature of adaptive responses to stress is an important characteristic of social, psychological, physiological, and ecological systems. Resilience is defined by the system's ability to resist and maintain, or recover, overall functioning during and after stress. Linear and reductionist approaches have been fruitful in laying some groundwork for understanding resilience. For example, there exists some solid understanding of isolated biological mechanisms, individual personality traits, or general characteristics of a social environment that are correlated with better resilience. Similarly, linear measures of behavioral responses to stressors have been examined to approximate

system responses prior to, during, and after periods of stress. However, such linear and reductionist approaches cannot account for the wide variety of complex system responses over time – which may include patterned recurrence, nonlinear dynamics, discontinuous shifts, and irreversible responses, each of which may be useful in better understanding resilience in real-world systems as a temporal and a structural process. Examples of these responses include mental health responses in response to mass disasters, war, occupational, or personal trauma; organizational responses to changes in personnel, worker burnout processes, and other adjustments in workload or management practices; performance in high-stress first-responder or service member environments; and injury prevention and health recovery following acute injury. Thus, understanding resilience as a response process, and elucidating the specific dynamics that underlie resilience is an important aspect of helping people and systems adjust and adapt to changing circumstances. The purpose of this special issue is to deepen our understanding of resilience in both theoretical and applied contexts, with approaches that consider stress as negative or that highlight potential positive roles (e.g., hormesis, post-traumatic growth, and antifragility) of stressors both welcomed.

This special issue is aimed at contributing to the broad array of topics dealing with nonlinear, discontinuous, and irreversible phenomena associated with resilience in social, physiological, psychological, and environmental contexts with theoretical papers, simulation studies, and empirical investigations. Areas and topics of particular interest include (not an exhaustive list):

Post-trauma recovery or growth
Physical health, functioning, and performance
Psychological health, functioning, and performance
Social and organizational functioning in response to stress
Fostering resilience, training, and other forms of prevention or intervention

Non-perturbative approaches to identifying resilience
Examinations of factors that underlie resilience
Modeling the dynamics of response trajectories
Development of dynamic response profiles
Self-organizing and emergent processes

Further information about the forthcoming issues can be found on the journal's web site: https://www.societyforchaostheory.org/ndpls

Ad Hoc Reviewers for 2022

The NDPLS Editorial Board sincerely thanks the following scholars who reviewed manuscripts that were received in 2022:

Natalia Belagué
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