

Nonlinear Dynamics, Psychology, and Life Sciences

ISSN 1090-0578

CALL FOR REVIEW ARTICLES

August, 2016

NDPLS is looking for a few good review articles on applications of nonlinear dynamics to psychology and the life and social sciences. Successful articles should include summaries of problems, research strategies and results, and original insights regarding possible directions for nonlinear science. They should also be attentive to the roles of attractors, bifurcations, chaos, self-organization, and other nonlinear formalisms, as appropriate, as defined in the journal's (www.societyforchaostheory.org/ndpls) purview. Review manuscripts should be prepared in the APA/NDPLS style, including the references in the text and reference list; instructions for authors appear on the journal web site.

Topic choices could be primarily substantive or methodological. Critiques of methodologies, if warranted, are important facets of review articles on primarily substantive topics, however. A successful review article should go beyond a simple summary of what has been said or done before; it should contain some original insights that have the potential to move the particular area of research forward. When composing the review, the pertinent literature base should be thoroughly represented and boundaries to the topic that is being reviewed should be specified. Authors should be mindful of reviews or special issues published already in NDPLS (and possibly other journals), relevant book chapters, and various special issues of NDPLS.

Reviews of any application area of nonlinear dynamics within the journal's purview are welcome, although we have a few suggestions. It is possible that some of the suggested topics could withstand more than one review that focus on different aspects of the phenomena.

1. *Ecological resilience*: The concept of resilience has drawn considerable attention in the contexts of sociotechnical systems and mental health, but what do we know about resilience in ecological systems? For instance, some important fisheries collapsed 20 years ago, but has there been any recovery? A similar question could be asked about brownfields. Are there rigorous and testable models coming that explain ecological resilience?

2. *"Emergence"* has become a popular concept both inside and outside of the sphere of nonlinear dynamical systems (NDS) research. How many different processes for emergence have been proposed, e.g., phase shifts, power laws, boundary dynamics? How have researchers separated bottom-up and top-down portions of the process empirically?

3. *Transients in cognitive time series*: In the classic notion, consciousness consists of a continuous flow of perceptions and ideas that have both external and internal origins. Attention can shift from one stimulus property to another and may be affected by load levels, bottlenecks, and cycling. What do we know about the nonlinear dynamics of attention stability, attention shifts, and transients? How are the transients reconciled in time series analysis?

4. *Network theory* has undergone considerable expansion in the last decade, although its roots can be traced to mathematical social psychology from the early 1950s. There are some important nonlinear constructs involved in some of the work, although the network literature seems to have taken on a life of its own. The potential review question is what nonlinear principles are in evidence, and how has the combination of network and NDS constructs enlightened our understanding of (pick one) neuroscience, attitude contagion, market behavior, political behavior, or economics?

5. *Biopsychosocial models*: Theories and empirical studies in cognitive, personality, and social psychology have all been advancing to include all three aspects of human behavior to varying degrees. The same seems to be true of behavioral economics to the point that some of it is now known as *neuroeconomics*. It would appear that complex systems thinking could play a large role in all these topic areas. What has been accomplished so far from the complex systems point of view and intrinsic nonlinear dynamics?

6. *System disintegration*: When a system undergoes

a phase shift, it often unravels one structure, or disintegrates, in order to re-organize. How can this process be induced to reshape the self-organization of the system effectively? Psychotherapy and organizational development would both appear to be situations where the process is meant to occur, but it could be happening in neurological and economic systems as well.

7. Network coupling: Loose coupling has advantages over tight coupling in network. This observation has been repeated often on an informal basis, but what is the origin of the observation, and how does the literature stand on demonstrating the effect? How has tight-vs-loose been assessed? What effects on system outcomes have been identified?

8. Multifractal structures: Multifractals are time series containing different structures that are operating at different time scales simultaneously. What methods of analysis have been viable for assessing them? What have we learned about systems - neural, human groups, organizations, etc. - that have multifractal structures?

9. Complexity matching: When two systems, e.g. individuals, groups, organizations, sociotechnical systems, start coordinating or synchronizing their

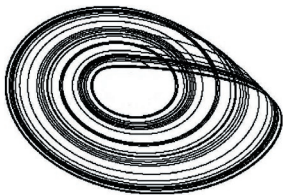
efforts and activities, the results allegedly turn out better if the two units exhibit similar levels of complexity. What aspects of their behaviors need to be reconciled for this generalization to be true? Complex in what way?

If you are interested in writing a review article, please send an e-mail to the Editor in Chief with an abstract (100-200 words) of what you plan to write, and an estimated time of arrival for the first reviewable draft. Based on the responses we receive, we can gauge whether it would be more advantageous to the authors, readers, and journal planning to publish the reviews individually or aggregate material into one or more special issues.

As always, NDPLS invites all the empirical, methodological, and theoretical studies that fall within our purview year round. We look forward to hearing from you at your soonest opportunity.

Best regards,

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Published by the

Society for Chaos Theory in Psychology & Life Sciences

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