

# Society for Chaos Theory in Psychology & Life Sciences

**NEWSLETTER**

**VOL. 19, No. 1**  
**OCTOBER, 2011**



# An Invitation to Participate



## 5<sup>TH</sup> INTERNATIONAL NONLINEAR SCIENCE CONFERENCE

University of Barcelona  
*Barcelona, Spain, March 15-17, 2012*

The International Nonlinear Science Conference (INSC), which is sponsored by SCTPLS in conjunction with a featured university, is the ideal venue for presenting original work applying nonlinear dynamics and related concepts to psychology and the life sciences. For 21 years, the Society and its conferences have been founded in the principles of interdisciplinary work, acknowledging the ubiquity of nonlinear dynamics across the behavioral, social, and life sciences. The conference is typically intimate in size with



**Jose Navarro Cid**  
**Conference Chair**

around 60-70 attendees representing psychology, biology, economics, business, physics, mathematics, and other scholars organized around a common interest in nonlinear dynamics. Attendance is typically broad geographically as well, with membership in SCTPLS representing each of the global continents. The program includes prominent keynote speakers, cutting-edge pre-conference workshops, symposia, individual sessions, and posters presentations.

This year will bring the 5<sup>th</sup> INSC to beautiful Barcelona, Spain. The dates for the conference are set for March 15-17, 2012. Our sponsoring institution will be the historic University of Barcelona – a fine destination for culture, tourism, and scientific progress. Now is the time to get your proposal ready for submission. Don't let the time slip up away! The call for submissions is now open along with some program details and other announcements. Further announcements and updates will be posted to this website as they develop.

It's also time to think about getting your organization to commit to sponsoring a student to attend the conference and present original or collaborative work. The INSC presents an ideal opportunity for someone just starting in the field.



**Barcelona. Palau de Les Heures**

The abstracts to the conference will be indexed in PsycEXTRA, produced by the American Psychological Association. A post-conference edition of the abstracts will be available in PDF on the SCTPLS web site (select CONFERENCES from the main menu). You can also find editions of abstracts from earlier conferences.

We look forward to seeing as many of you there as possible!

Warmest regards,  
Jose Navarro, Ph.D., Faculty of Psychology, University of Barcelona, Spain  
Dimitrios Stamovlasis, Ph.D., Faculty of Philosophy, University of Thessaloniki, Greece  
Stephen J. Guastello, Ph.D., Professor of Psychology, Marquette University, Milwaukee, WI USA  
David Pincus, Ph.D., Assoc. Professor of Psychology, Chapman University, Orange, CA USA and  
President, Society for Chaos Theory in Psychology & Life Sciences.

### **Aim and Topics of the INSC**

The principal aim of the **INSC** is to provide a scholarly environment conducive to promoting exchanges between an array of disciplines to facilitate research and related academic activities in collaboration with colleagues worldwide.

The topics covered by the conference include applications of *nonlinear dynamical systems theory* and techniques to problems encountered in any area of the behavioral, social and life sciences including psychology, sociology, economics, management sciences, anthropology, aesthetics, education, biology, physiology, ecology, neuroscience and medicine. One or more of the following nonlinear concepts must be an explicit part of the presentation: *attractors, bifurcations, chaos, fractals, solitons, catastrophes, self-organizing processes, cellular automata, agent-based models, network analysis, genetic algorithms and related evolutionary processes, econophysics, dynamical diseases*, or closely related constructs. The broad mixture of the disciplines represented here indicates that many bodies of knowledge share common principles.

Contributions from other disciplines such as computer science, mathematics and engineering are also welcome provided the main focus is an application of nonlinear science in the behavioral, social or biological sciences.

### **Submit Abstracts for papers, posters, and symposia through the INSC2012 website:**

<http://www.societyforchaostheory.org/insc/2012/>

*Deadline December 21, 2011*

"Early Bird" submissions will begin to receive responses after Nov. 15.

#### *Conference Committee*

**David Pincus**, SCTPLS President, **Jose Navarro**, Conference Chair, University of Barcelona;  
**Stephen Guastello**, Marquette University; **Dimitrios Stamovlasis**, Aristotle University

**Sponsored by**

**Faculty of Psychology, University of Barcelona, Spain  
and  
The Society for Chaos Theory in Psychology & Life Sciences**



#### **About Spain, and about sharing...**

*Dichosa edad y siglos dichosos aquellos a quien los antiguos pusieron nombre de dorados, y no porque en ellos el oro, que en este nuestra edad de hierro tanto se estima, se alcanzase en aquella venturosa sin fatiga alguna, sino porque entonces los que en ella vivían ignoraban estas dos palabras de tuyo y mío. En aquella santa edad todas las cosas comunes.*

M. de Cervantes, "Don Quijote"

## OUR INSC2012 KEYNOTE SPEAKERS



**Peter Allen**

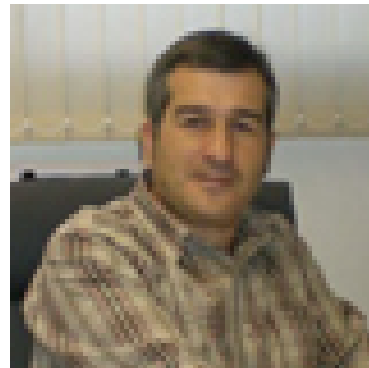
Complex Systems Research  
Cranfield School of Management, UK

### Complexity, Understanding and Evolution

In hard science a new theory must be capable of being falsified, and therefore must produce testable predictions, which can lead to genuine cumulative knowledge within the domain where repeatable experiments are possible. In complex systems however, our understanding is based on less severe selection criteria, as repeatable experiments and exactly comparable situations and histories never really occur. Living systems create a world of connected, co-evolved, multi-level structures which although temporally, sufficiently self-consistent to 'operate' for a time, will inevitably evolve, adapt and change over longer periods. We shall present a number of real-world examples where successful emergence and persistence of structure and organization requires not only elements that obey the current rules but also internal layers, elements and individuals who, while inhabiting the current structure, have their own ideas about how satisfactory it is, and the freedom to try new ideas. Complexity therefore leads to temporally stable, paradoxical systems that include heterogeneous elements and layers with multiple views and perspectives. Instead of a single knowledge and truth we will find diverse beliefs and habits. Of course, strategy can gain from the imagination and modelling of new possibilities, and an attempt to evaluate different options. But if such models are believed (e.g. climate change) then they can and do change the behaviour that is included within them and become part of the political reality as. We will briefly illustrate these ideas for problems of social, economic and environmental change as well as such technical issues as electricity distribution and Smart Grids.

Peter Allen is the founder of the Complex Systems Research centre at the Cranfield School of Management,

UK. PhD in Theoretical Physics, was a Royal Society European Research Fellow 1969 - 71 and a Senior Research Fellow at the Universite Libre de Bruxelles from 1972 - 1987. He has written and edited several books (for example, *The SAGE Handbook of Complexity and Management* edited jointly with Steve Maquire and Bill McKelvey London, Sage, 2011) and published well over 200 articles in a range of fields including ecology, social science, urban and regional science, economics, systems theory, and physics. Currently he is the Editor in Chief of *Emergence: Complexity and Organization*.



**Albert Diaz-Guilera**

Full Professor at Departament de Física Fonamental  
University of Barcelona SPAIN

### Networks of Networks

**ABSTRACT:** Complexity spans over different scales, ranging from the atom to the large scale of the galaxies forming intricate geometric patterns. Complex emergent behavior can have different origins, but nowadays it is clear that beyond nonlinear interactions between units, a key role is played by the topology of interactions, forming networks of connections at all levels. Moreover, networks at different levels are interacting. In this talk we will review the different levels of description in living systems at which we find complex networks and show how they emerge at different scales and how they interact. This ranges from cellular scale by means of metabolic or gene regulatory networks to networks of individuals, like Facebook or Twitter, in our modern communicate society, or networks of interacting species in complex ecosystems.

Albert Diaz-Guilera got his degree in Physics at Universitat de Barcelona (1983). PhD in Science at Universitat Autònoma de Barcelona (1987) . Postdoctoral stays in Gorlaeus Laboratories (Leiden, The Netherlands) and "Centre de Physique de Solide" (Sherbrooke, Canada). His research is currently focused on general aspects of complexity, particularly in complex networks. Being by education a statistical physicist, his research

lines had been broadening to cover aspects in many different fields: biology, economy, social sciences, computer science, linguistics. Direct collaborations with scientists with different backgrounds have been possible by means of stays in different centers (Mathematics at Imperial College London, Chemical and Biological Engineering at Northwestern University, Ecologia UNAM, Potsdam Institute of Climatology, Potsdam Psychology, Sociology at ETHZ). Author of more than 70 articles in physics and interdisciplinary journals. He has given about one hundred of talks at conferences and research centers. Leader of the research group PHYSCOMP2, PI of projects from Catalan and Spanish Governments and EU. Coordinator of the Spanish network "Econosociofisica: Dinámica y fenómenos colectivos de sistemas socioeconómicos". Currently is Deputy Spokesperson of the Spanish node of the European Flagship initiative "FuturICT".



**David Pincus, Ph.D.**  
*Associate Professor of Psychology  
 Chapman University, Orange, CA*

**Complex Biopsychosocial Dynamics, Behavioral Medicine, and Psychotherapy**

ABSTRACT: Complexity science offers a new, broader paradigm for understanding and intervening in developmental processes within and across personality and social dynamics. This address will begin with a review of empirical results applying nonlinear dynamics to the understanding of relationship development and group dynamics, with an emphasis on understanding the functional roles of rigidity and flexibility in health. Noteworthy conclusions from this line of research are that relationship structures appear to be self-organizing and fractal, with higher complexity generally associated with health. Next, we will examine complementary evidence for self-organization in personality structure, again with complexity operating as an index of health. Finally, these lines of research will be integrated within a general model of self-organization in biopsychosocial resilience. The aim of this general model is to guide

future research applying nonlinear dynamics to health research, as well as to inform the development of novel interventions in psychotherapy and behavioral medicine.

Dr. David Pincus began his career in 1991 as a youth and family therapist working in public mental health in Waukesha Wisconsin. He obtained his M.S. and Ph.D. in Clinical Psychology at Marquette University, followed by a clinical postdoctoral fellowship at the University of California Davis Department of Psychiatry. Currently, Dr. Pincus is an assistant professor within the faculty of psychology in the school of health sciences at Chapman University, the director of The Francis L. Smith Community Clinic, and licensed psychologist in private practice. He is the author of the recent book applying NDS to imagery-based psychotherapies: *Imagery for Pain Relief: A Scientifically Grounded Guidebook for Clinicians*. He also served as a co-editor for *Chaos and Complexity in Psychology: The Theory of Nonlinear Dynamical Systems* (Cambridge Univ. Press). In addition, Dr. Pincus has produced numerous other publications (e.g., journal articles, book chapters, workbooks, and instructional videos) to diverse topic areas in clinical psychology. Informal, humorous, and personally engaging, his workshops aim to bridge the gap between rigorous principles of NDS science and clinical practices that may be useful to participants with various backgrounds and levels of training.



**Jorge Wagensberg Director,**  
*Science Museum of Barcelona  
 Barcelona, Spain*

**Individuals versus individualities:  
 A Darwinian Approach**

ABSTRACT: The idea that natural selection acts on many levels -and not only at the level of organisms or individual genes- is increasingly accepted among biologists. However, it is not easy to reconcile this idea with the strictly "individualistic" conception of the evolutionary process that has always characterised

Darwinian thought. In addition, the individuality of some forms of life is a vague concept and, therefore, it is controversial. This is the case of *Candidatus Magnetoglobus multicellularis* which discovery immediately inspired the following question: Does the concept of individuality have degrees? Alternatively, how far is this structure of prokaryotic cells from deserving to be called an organism? In this paper, we propose a new conceptual scheme based on an idea of individuality that is not limited to organisms and that makes sense in terms of Darwinian evolution. In this conceptual scheme, selection at levels above that of the individual-organism is interpreted as the evolutionary emergence of higher level individuality. This proposal may serve as a basis on which to construct an eventual hierarchical evolutionary theory.

Jorge Wagensberg, Doctor of Physics, is professor of Irreversible Process Theory at the University of

Barcelona. He not only investigates and disseminates science, but is also a dynamic promoter of the debate of ideas, which has achieved him Catalonia's National Prize for Scientific Thought and Culture, among other awards. He is the director of Metatemas collection and responsible for the Scientific and Environmental Area of the "la Caixa" Foundation, after having directed the scientific museum CosmoCaixa, a reference for science museums around the world. He is the author of a dozen books and of many works of investigation on thermodynamics, mathematics, biophysics, microbiology, paleontology, entomology, scientific museology, and the philosophy of science, as well as of journalistic articles on a number of different topics.

## **CALL FOR PAPERS:**

### **Special Issue of *Nonlinear Dynamics, Psychology, and Life Sciences* on *Organizational Dynamics***

*NDPLS* is actively searching for manuscripts for a special issue to be entitled, "Organizational Dynamics."

Empirical studies are sought that create new insights into organizational dynamics in industry or other work organizations, and supply chains, at the organizational group, or project level of analysis. Potential papers could include topics such as:

- Organizational learning and nonlinear dynamics
- Contingency and complexity
- Institutional dynamics and economics
- Adaptation in emergency problem solving
- Organizational development and business strategies
- Organizational change
- Agent-based modeling of organizations
- Small group dynamics
- Consumer behavior and complexity
- Diffusion of innovations within and between organizations
- Individual work behavior
- Person-machine systems and networks.

The purview of the journal is critical to the inclusion of articles: *Nonlinear Dynamics, Psychology, and Life Sciences* publishes papers that augment the fundamental ways we understand, describe, model, and predict nonlinear phenomena in psychology and the life and social sciences. One or more of the following

nonlinear concepts must be an explicit part of the exposition: attractors, bifurcations, chaos, fractals, solitons, catastrophes, self-organizing processes, cellular automata, genetic algorithms and related evolutionary processes, neural networks, agent-based models. The broad mixture of the disciplines represented here indicates that many bodies of knowledge share common principles. By juxtaposing developments in different fields within the life and social sciences, the scientific communities may obtain fresh perspectives on those common principles and their implications. Because the journal is multidisciplinary in scope, each article should make an original contribution to at least one substantive area and, to the extent possible, illuminate issues beyond that area's boundaries.

Contributions to this special issue must be empirical. Empirical papers may include experimental observations, survey data, case studies, simulations, or analyses of real-world data. Articles will be reviewed by two or more experts in the relevant field.

*NDPLS* is published quarterly by the Society for Chaos Theory in Psychology & Life Sciences. Additional information for the preparation of articles for submission can be found on the journal's web site: [www.societyforchaostheory.org/ndpls/](http://www.societyforchaostheory.org/ndpls/).

The project is planned on the following schedule:

- Abstracts are requested prior to submission in

order to assist with the organization of the issue contents, and they are welcome any time before the paper submissions deadline. Send abstracts by e-mail to Dr. Stephen J. Guastello, [stephen.guastello@marquette.edu](mailto:stephen.guastello@marquette.edu) Editor in Chief, by Dec. 1, 2011.

- Full-text papers need to arrive by March 31, 2012. Manuscripts should be prepared in APA style. Key style points and small variations that are specific to the journal can be found in the Instructions for Authors on the journal web site.
- Reviews completed by May 30, or sooner to the extent possible.
- Revisions and final edits should be received by July 31, 2012.
- Publication in January, 2013.

We look forward to receiving your abstracts and papers. If you have any questions about the project, please do not hesitate to ask one of the editors below.

Sincerely,

Stephen J. Guastello, Ph.D., Editor in Chief,  
[stephen.guastello@marquette.edu](mailto:stephen.guastello@marquette.edu)

Special issue team:

Kevin J. Dooley, Ph.D., Arizona State University,  
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## News From Members

### From Abstract to the Amazeen Lab

By Ken Ware

[knwellness@bigpond.com](mailto:knwellness@bigpond.com)

The 21<sup>st</sup> SCTPLS International Conference held at Chapman University, Orange CA, 4<sup>th</sup> – 7<sup>th</sup> of August 2011 was the stage where I presented my unique findings which relate to previously unexplored nonlinear dynamics (chaotic tremors) that the human nervous displays under ideal conditions, and the relationship these tremors have to the physical and emotional stability of a person's system.

I was enormously rewarded when Dr. Polemnia Amazeen, Associate Professor of The Department of Psychology at ASU, who was one of the key note speakers for the conference, expressed her interest and enthusiasm to form a collaboration between ASU and myself, to definitively study these interesting, yet challenging phenomena. This was a tremendous relief after spending the last 25 years single handedly studying and appreciating the importance of the amazing nonlinear phenomenon, which I had witnessed time and again to be eliciting 'self-organizing' within the human nervous system. This reliable, emergent, 'self-healing' function apparently evolves the nervous system toward preferred states of health and wellness. The generous time that was allocated to me by the abstract selection panel for the conference enabled me to show a lot of the video footage of clients' systems exhibiting these dynamics to those attending. I felt great appreciation.

Coming from a remote community in Central Queensland, Australia, with no recognized scientific background, to present your life's work in front of some of the world best critical thinkers was by no means a 'walk in the park', so far as I was concerned. However I had all the while been sustainably encouraged and supported by SCTPLS conference planning committee including Professors Stephen Guastello, Dave Pincus and Gaetano Aiello. Their support was largely responsible for the confidence I needed for my big moment. It is an obvious virtue of the SCTPLS that people like me are encouraged and granted the opportunity to present their interesting work.

My pre-conference dilemma: Although I had shown, with the aid of my trained assistants, tens of thousands of clients over the last 25 years in our 'wellness center' how to expose and exploit their systems' natural chaotic dynamics to recover; often from the types of physical-emotional diseases and disorders that modern medicine finds most difficult to treat, there was nothing in the text-books that even remotely described the phenomenon as such. The dilemma then rested in how to support any claim I made over the obvious enormous personal and social benefits to each client of the unique techniques I was using. The techniques were assisting clients to not only heal themselves at unprecedented time scales, but also assisting athletes to achieve at levels, that were far superior to their previous training methods. The fact was that the scientific communities had never seen chaotic neural dynamics emerge at such an evolved level before, especially with such intensity, and counter-intuitively, in response to the mild, non-threatening techniques I was using.

To have the techniques accepted into the mainstream as a credible, scientifically validated form of therapy was going to be a huge challenge, seeing that this appeared to be some form of 'magic' whereby the person had full control over the administration of the technique that was eliminating the need for medication and many other more invasive forms of intervention. Once an individual learns how to properly relax as they engage with the mild stimulus associated with the exercises they become more vulnerable, opening their nervous systems to allow energy and information to flow freely, in and out. Eventually, the chaotic tremor will emerge and spread, resonating throughout, regardless of the location of the applied afferent stimulus. As they perform their exercises at very slow speeds, their systems exhibit the specific nonlinear dynamics that are unique to each individual, based upon interactions between sensitive regions within their systems and the environment.

What I always found especially interesting was the unique dynamics that the persons system would display at each repetition, despite the fact that the stimulus remained the same. This colorful stream of continually changing neural activity demonstrated to me that the system was far from equilibrium while nested within a relatively homogeneous environment.

It occurred to me intuitively all those years ago that these dynamics had to be revealing something very important about the state of the nervous system. I learned to distinguish between the various forms of neural turbulences that would clearly divide healthy individuals from people who had physical-emotional disease or disorder, even when these disorders were not known to the individual. I found that random activity was indicative of disorder in the system and was always accompanied by higher order sensations of anxiety or fear which was unjustified given the non-threatening environment and mild stimulus. In fact, counter – intuitively, the milder the stimulus – the more significant was the effect on the systems of these individuals. What I eventually came to understand was that chaotic activity (because of its fractal qualities) was indicative of a healthy system that was 'spontaneously calibrated' to its environment. I had always adopted the approach that every fluctuation in biology is important and is revealing something about the system's journey through and within its environment. Biological fluctuation is the vapor trail of experience so to speak.

I knew nothing about chaos theory or nonlinear dynamics until the mid-nineties, several years after I first began to exploit the neural dynamics to rehabilitate

clients at my center. I stumbled upon James Gleick's book "Chaos: The Making of a New Science". Like many people who read this book, the penny suddenly dropped for me. I could see that this could be a way to eventually explain scientifically what this phenomenon was all about and be able to explain why people were recovering from serious physical and emotional diseases and disorders. I was apparently using techniques that brought about self-regulating neural dynamics. I did not have anyone to coach me so I had to do my best to make sense of everything in the book and relate it to the phenomenon. I was like a foreigner trying to learn English from pieces of paper I found in the street. By the mid-nineties I had optimized the techniques and the structured program that guides them. I have not had to alter one bit since then due to its reliability to produce such desirable results. After understanding what I could from James Gleick's "Chaos" and other authors on the subject, I became filled with the confidence that I had accidentally stumbled upon the phenomenon that had all of the qualities I read about in the literature and the program was enabling such dynamics to emerge and evolve and be played out on the big screen of the person's motor system to observe.

I tried in vain to impress recognized institutes with what I had discovered. This quickly proved to be a waste of time. I had only one response and that was to say that the tremor was associated to fatigue and was not worthy of investigating. This was not correct because the tremor would emerge right from the onset of the very mild stimulus. The person does not do anything prior that would cause fatigue. I then preferred just to keep doing what I was doing and I moved my center out of the private hospital to be able to reach more people. I kept up my faith that Chaos and dynamics would come to the rescue so I maintained my enthusiasm to understand the science.

I made a bold decision in 2010 to put in an abstract for the 4<sup>th</sup> International Nonlinear Dynamics Conference to be held in Palermo. I figured that if I was going to be rejected it is better that it comes from the top rather than from someone way down the food chain. I had nil experience in writing abstracts –not to mention presenting at science conferences. One of the greatest moments of my life came when I was notified that my abstract had been accepted.

I did okay for my first outing. I learned a lot and formed some rewarding relationships with like-minded people. I presented again at the 20<sup>th</sup> SCTPLS International held at Texas State University. I realized from these experiences



that I had to give up trying to satisfy the other disciplines like Neuroscience in my descriptions even though I liked to show off that I had good knowledge in this area. I went to the 21<sup>st</sup> SCTPLS International intent on letting the phenomenon speak for itself and to be less desperate to try to dazzle the audience with my maverick descriptions of the events. I trusted that the audience would see the connection between the very visible macro dynamics and the micro underlying kinetics for themselves.

I had enthusiastically attended Dr. Amazeen's Keynote Presentation the afternoon before I was presenting. I summoned up the courage to approach her at the dinner that night with the view of encouraging her to come to my presentation. I could see from her presentation that she had the science tools and theory that would assist me to explain my phenomenon. I initially spoke to her about the *sensitive tensegrity* model that I had brought with me to help explain and rationalize some of the similar dynamics that appear in the human nervous system and then went on to explain a little about the phenomenon I would be presenting the next day. Well, Dr. Amazeen did attend my presentations, after which she expressed that she felt that the phenomenon was something that was truly worth studying. I offered to go over to her lab at ASU for a week after the conference. It was during this period that Dr. Amazeen and the other members of the lab got to experience the phenomenon for themselves. Incidentally, it is difficult to administer the techniques to yourself without initial training - a bit like trying to tickle yourself. One never fully appreciates the phenomenon unless they experience its unbridled capacities themselves. After this visit, they committed to adhere to the program I had designed. I have since been back to the lab for longer period of time to help set the lab up to enable us to harvest the data we need for the study. Dr. Amazeen's post-graduate student will be visiting my center in Australia in October to collect samples from some of our more interesting clients. Dr. Amazeen's recognized skills in analyzing this very unique and information rich data will hopefully play host to many ground breaking papers.

Whilst there is so much to be discovered, revealed and modified in studying this phenomenon at various levels of scientific enquiry, the main goal remains to have the techniques recognized as a scientifically advanced form of therapy. We can then develop the course material for students to become one of a new breed of advanced therapist, who maintains a dynamical systems approach to physical-emotional rehabilitation and who have sound knowledge of the applied virtues of 'Complex Adaptive Systems' (CAS), 'Motor Systems Dynamics', 'Cognition – Action – Perception' dynamics and 'Chaos Theory'. I will be forever grateful to the SCTPLS abstract selection panel for granting me the opportunity to present my findings and the phenomenon at their prestigious conferences and for the amazing support and encouragement of the SCTPLS executive members in the lead up to my presentations. I believe that the study of the phenomenon will dramatically enhance scientific understanding of 'how things work' and the dynamics of physical-emotional disease and disorder along with the crisis remedy. Because of the interdisciplinary scope of our work, this data will likely apply to all other dynamical systems too of course. My firm statement based on my experience with the phenomena is – *that is you wish to make a change in a CAS, you have to go to the systems' most vulnerable regions to do so*. The elaboration of this knowledge through the literature will change the world view on human potential and our interactions with the environment.

How refreshing and appropriate that the collective wisdom of the SCTPLS created 'the initial conditions' to resonate the message.

Below are some links to the clips that were shown at the conference for those who may be interested.

<http://youtu.be/4wsd2Z64r1U>

<http://youtu.be/QZAlIAA7o7Q>

More about Dr. Amazeen's work is available through her home page: <http://amazeen.lab.asu.edu/home>

## Israeli Spring

By Glenda Eoyang, Ph.D.  
Human Dynamics Institute  
(Metro) Minneapolis, MN

On September 1, I arrived to see tent cities along every major boulevard in Tel Aviv. They arose spontaneously in response to an impulsive act of a single college student. She was struggling to make ends meet when her landlord raised the rent. Desperate, and expecting an eviction the following morning, she posted on Facebook: At 7:00 tomorrow morning, I will be evicted from my apartment because I cannot afford the rent. I will pitch a tent on Boulevard Rothschild, and there I will live. Within the hour, 60 others had responded to her note: Me, too. And they did, by the hundreds. Among them were middle-class professionals unable to buy homes, parents with young children to educate and care for, students hoping for meaningful work, elders worried about transportation and health care. Their concerns were diverse, their dialogue dissonant, but their desire for change was undeniable.

The French would call this a manifestation. Deep dissatisfaction and frustration of the Israeli people manifested itself as a widespread movement, literally, to the streets. At every street corner, bedraggled furniture was pulled into circles where the cool of the evening brought people to discuss their hopes, fears, and plans. The following Saturday, I joined 360,000 people marching to the center of Tel Aviv, demanding social justice. In cities all across Israel people marched. Reports told of 500,000 demonstrators, in a nation of only 7,000,000 inhabitants.

A week later, the day after I left Tel Aviv, 5,000 people met in round tables to dialogue about the challenges of life in Israel today. As a result of the demonstrations, nine councils of experts have been convened to explore concerns and recommend action to right the wrongs that had inspired the civil awakening. They focus on the wide variety of concerns expressed by demonstrators, including: health, economy, education, transportation, and land use.

It was difficult to get news of this emergent phenomenon outside of Israel. The nation's foreign affairs filled the airwaves and preoccupied the formal power structures around the world. In the meantime, within the community, individuals and groups began to express their frustrated hopes and personal and financial disappointments with the internal affairs of the State.

I don't know enough about the circumstances to comment on their messages, and I'm not a member of the community to earn my own say in the melee, but I do know that the demonstrations manifested some fundamental truths about the complex emergence of human systems dynamics.

The diversity of the movement gave it power. The press and members of the establishment said the group shouldn't even call itself a movement because it had no single vision or purpose. On the contrary, the diversity of concerns made it quite difficult to counter the claims. The government had no choice but to explore a complex response to such a diverse and unpredictable message.

The coherence of the movement gave it power. Within a tradition of radically diverse views and habits of assertive interaction, this movement brought people together with hope and joy. Even in the press of masses streaming into the square on Saturday night, people were smiling and greeting each other warmly. It seemed a bit like a massive block party of neighbors who knew and cared about each other.

Clarity of action engaged swift and coherent response. Put up a tent. Move into it. March with others. Meet for dialogue. At every point, though the message was complex, the invitations were simple. Anyone who wanted to be involved knew exactly how to do it.

The butterfly effect was not about the butterfly. The small "cause" that prompted the enormous response succeeded because it ignited a smoldering pattern of dissatisfaction. The environment already held the potential for the pattern that emerged, and the young woman and her Facebook note simply released the pattern to inspire action across the system.

Emergent change demanded action from both the powerless and powerful. The individual passion that initiated the movement could not, by itself, have sustained change over time. On the other hand, the power of political and policy infrastructures, which will be required for sustained change, were incapable of igniting the fires of passion for change. Transformative change required the sustained commitment of both the individual and the State.

Difference without dialogue is dead. None of the concerns voiced by the movement were surprising. Everyone knew that costs are rising and services are declining. Nothing happened until the dialogue began, and nothing will be resolved unless the dialogue

continues.

We can surprise ourselves. As we streamed toward the city center on Saturday night, I was thrilled and moved to tears. The inequity they fought was miniscule when compared to that in my own country, but I could not imagine the America of today taking such action in support of social justice. I said as much to my friend who marched beside me, and she responded, "Six weeks ago, I did not see this potential for powerful action among the Israelis, either."

### **A graphical user interface for the nonlinear analysis of psychological and physiological signals.**

by Xavier Bornas, Miquel Noguera, Miquel Tortella-Feliu, Jordi Llabrés  
Neurodynamics and Clinical Psychology Research Group  
University of the Balearic Islands  
Spain

Life sciences researchers might not always be able to use nonlinear measures that are described in the literature almost exclusively in mathematical terms. In addition, many of these measures have to be picked up from a jungle-like growing body of technical papers and then programmed (e.g. in Matlab code) before being

usable with real data. In an effort to overcome these problems, we have developed a graphical user interface for the nonlinear analysis of psychological and physiological signals (e.g. self-reported mood or heart rate time series), GINAPS. Home subinterfaces, which are called from the home screen, include: *complexity* (including correlation dimension among other measures), *fractality* (detrended fluctuation analysis, fractal dimension...), *predictability* (Lyapunov exponents, entropy, multiscale entropy analysis...), and *synchronism* (especially suited for EEG analysis).

GINAPS runs on Matlab and it calls existing routines (e.g. TISEAN) when necessary. All these subinterfaces have been designed to be user-friendly, and many graphical representations are available for most of the included measures. Results can be saved in projects designed for specific studies with several participants or groups, and different experimental conditions. They can be exported to text files for further analysis with statistical packages like SPSS. Technical help files can be easily called from the menu bar of each measure; some literature references are included. If you are interested in using GINAPS with your data, please e-mail [xavier.bornas@gmail.com](mailto:xavier.bornas@gmail.com). We will send GINAPS and detailed information about how to start using it.

## **SCTPLS Business Meeting Minutes 2011**

### **Conference feedback**

Suggestions from the floor included the suggestion to change the format of future conferences to a single track, or two tracks maximum. Follow-up suggestions were made (1) to use more time during the three days of the conference, starting earlier on the first day and going longer on the third, in order to allow for fewer tracks; to shorten the session times to reduce track numbers and increase attendance in each talk; and (2) to run talks simultaneously with the workshop(s). It was also suggested that the use of more than one building for presentations was problematic (I as conference chair agreed, and explained the process within the university that led to this unfortunate need to use two buildings). It was also suggested that pitchers of water should be maintained at each speaker podium and that evening appetizers along with formal round-table sessions for research design would be a good addition to the

program. Some counter-suggestions were made (1) in support of the current talk-durations due to the complex and interdisciplinary nature of the material; (2) in support of the current format due to people's travel arrangements, uncertainty regarding conference volume (which was especially high this year), and the ability to group tracks based on common interests and themes, mitigating to some extent conflicts in attendance choices. I, in role as conference chair, made some comments regarding the limits to labor and financial resources to allow for some higher cost elements that occur at larger conferences, given that our working staff are all volunteers and the need to keep conference fees as affordable as possible. There was a discussion of the merits and problems with audio-recording each session for later access via the web. Pros included availability of content for conference attendees who were unable to attend a talk, wanted

materials post-conference, and availability for non-attenders. Cons included: costs, privacy needs of participants; logistical problems for web-management, and the possible disincentive for conference attendance. It was noted (1) that abstracts and presenter contact information is made available via the web-site for anyone who would wish to obtain conference slides directly from speakers post-conference; and (2) that anyone who wishes to record and distribute his or her talk and slides via these links may currently do so. It was suggested that the conference might benefit from adding some sort of formal opportunities within the schedule to meet with experts in various areas for one-on-one consultations, and that introductory methodology workshops would be helpful each year to prepare attendees to better absorb the conference material. Praise was provided for (1) the quality of the full-day methods workshop and the format of running the workshop unopposed, prior to the start of the rest of the conference program; (2) the high quality of conference material and breadth of that material. Research discussion and input track. Evening appetizers and round table practical research design talk. The use of two buildings was not good. My comments followed. Proposals were made to investigate the possibility of holding next year's conference in Philadelphia, PA, Cincinnati, OH, or New York City.

**Treasurers report** (see report)

**Announcement:**

The Fifth International Nonlinear Science Conference will take place March 15-17 in Barcelona Spain.

**Pub-com report** (see report)

**Nominations and Elections:**

I, David Pincus in role as president elect accepted a nomination to run for a second term. Steven Dietz accepted a nomination to run as a second candidate.

**New business:**

Continued discussion of audio-recording as described above. No new business.

*Submitted by David Pincus, SCTPLS President Elect on behalf of Sara Ross, SCTPLS Secretary in absentia.*

## **Publications Committee Report August, 2011**

The members of the committee are Stephen Guastello (Chair), Gaetano Aiello (Newsletter Editor), Kyle Findlay (blog editor), Terrill Frantz (web manager), David Pincus (NDPLS permissions editor), and Dick Thompson (ex-officio). The committee's purview includes the business of Nonlinear Dynamics, Psychology, and Life Sciences (beyond the purview of the editorial board), the SCTPLS Newsletter (beyond the purview of the Executive Committee), the web site, and miscellaneous publication activities.

**NDPLS**

The cover artwork for 2011 features a team of artists who specialize in fractal bubble images. The featured artist for the 2012 journal covers will be Susan Lowdermilk from Oregon.

The journal published a special issue on Medical Practice in October 2010 and a special issue on Creative Behavior in April 2011. A Call for Papers for a new special on Organizational Behavior is currently in the works.

Institutional subscriptions now stand at 42. A new promotional effort is needed at this time. The 2011 Citation Report for citations accumulated by the journal 2006-2010 is published on the web site and appears below. The Impact Factor is 2.111. We have received an announcement from Thomson Reuters that NDPLS will be abstracted in ISI data bases for inclusion in their next editions of Journal Citation Reports. The first Journal Citation Report should appear in 2012.

Roberto Dieci has joined the NDPLS Editorial Board this year. Roberto is on the Faculty of Mathematics for the Social Sciences – Rimini, University of Bologna, Italy.

**NEWSLETTER**

The Newsletter is always looking for new feature articles from the members. Gaetano Aiello (the Newsletter editor) is also looking for images made by SCTPLS members that can be used on the covers of the Newsletter.

## WEBSITE

New items were added to Resources" page in the fall, 2010. We are continuing to include new materials. Members are encouraged to browse what is there already and contribute new tutorials, software links and instructions, videos, and other related material. Abstracts to the 2010 conference are now available on the web, and they are also abstracted in PsycEXTRA (APA). This process will continue for future conferences. Kyle Findlay is the new content editor of the SCTPLS Blog. The blog has been off-line for two months undergoing updates and repairs

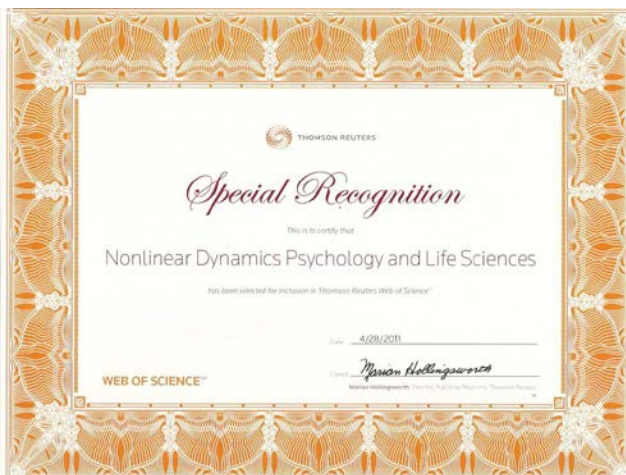
## BOOKS

The Society's latest book project, *Nonlinear Dynamical Systems Analysis for the Behavioral Sciences Using Real Data* (edited by Stephen J. Guastello & Robert A. M. Gregson) was published by CRC Press, div. Taylor and Francis in November, 2010 (copyright dated 2011). SCTPLS will receive one-third of the royalties.

## NDPLS Journal Citation Report 2011

(Compiled by Stephen Guastello & Henry Boeh, Marquette University).

The NDPLS Editorial Board and the Society for Chaos Theory in Psychology & Life Sciences are pleased to announce that *Nonlinear Dynamics, Psychology, and Life Sciences* has been accepted by Thomson Reuters for abstracting and indexing in *Social Sciences Citation Index*, *Journal Citation Reports/Social Sciences Edition*, and *Current Contents/Social and Behavioral Sciences*. The indexing will start with the 2009 volume year. We should anticipate their first citation report in 2012. Thomson Reuters reports that they only accept 10-12% of the journals that they review each year for inclusion. The inclusion of NDPLS in the *Web of Science* and related reports demonstrates our dedication to providing the most relevant and influential nonlinear dynamics content to our community. NDPLS is also indexed in *PsycINFO*, *MathSciNet*, *Medline*, *JEL/Econlit*, *ScienceDirect* and *Scopus*.



ISI's *Journal Citation Reports*, which are produced for some of the journals found in the *Web of Science* are now based on an exposure window of two years. The earlier thinking was that the average "half-life" of an article's influence was five years from the date it was published. The two-year system allows for more recent updates regarding a journal's influence with less influence of the past. A two-year sample is prone to greater temporal fluctuation than a five-year sample, however, and more so for relatively small-sized journals compared to large-sized journals. The two-year system is accompanied by a new index of the journal's half-life, which is meant to provide an individualized computation of a journal's long-run influence.

We are also maintaining our own citation vigilance system this year, which has been very informative and encouraging in the past, and is based on citation information available in ISI's *Web of Science*, which encompasses a multidisciplinary data base of nearly 12,000 scientific journals. We used the more traditional 5-year computational method, which is the number of citations of *NDPLS* articles that were published over a 5-year period divided by the number of articles published during that period. Thus for the 2011 report we counted the citations to *NDPLS* articles that were published in 2005-2010 that were cited in articles that were published in 2005-2009, plus any citations that we found for those articles at the time they were in press and not yet published in *NDPLS*. *NDPLS* published 108 articles during the years 2005-2009. We found 152 citations to those articles in *Web of Science* journals, plus 76 more citations in *NDPLS* 2005-2010. The total of 228 citations divided by 108 articles produces a current impact factor of 2.111.

The Impact Factor does not reflect citations to *NDPLS* articles that were originally published before 2005. Many of the earlier articles continue remain influential to works currently appearing in *NDPLS* and in other journals.

# Treasurer's Report

## 21st Annual International Conference of the Society for Chaos Theory in Psychology & Life Sciences

### August 6, 2011

This report summarizes the financial results for the Society for the fiscal year 2010 ending 31 March, 2011. The final net for this year was \$8100 before applying encumbrances, and \$577 after applying allocations for the next year. SCTPLS has been running at a modest surplus consistently since June 1994.

The two main areas of financial operation were the annual conference in San Marcos, TX (Line A, Table 1), and the membership-journal activities (Line D). A positive net was recorded for both areas. The total attendance at the 2010 annual conference in San Marcos was 45, which was a decrease compared to 2009. The attendance for the conference in Orange, CA was 80,

however, which represents a significant step forward. SCTPLS does not fund travel expenses for the Executive Committee members to the annual conference.

We received a payment after April 1 from a sponsor for the 4<sup>th</sup> INSC in Palermo, Sicily (Line C). The INSC benefitted greatly from sponsorships from the University of Palermo and regional organizations that defrayed some of the costs. The sponsorships were arranged by Gaetano Aiello, the INSC conference chair. The 5<sup>th</sup> INSC is now being organized for March 15-17, 2012 in Barcelona, Spain, with Jose Navarro Cid as the Conference Chair.

**Table 1. Financial results for FY 2010.**

| Project  | <i>Net Income</i> |
|--|-------------------|
| A. 2010 Conference in San Marcos   | \$5003            |
| B. Advance receipts less deposit on 2012 Conference in Orange CA   | 1130              |
| C. INSC conference in Palermo  | 800               |
| D. Membership fees, institutional subscriptions, book sales, minus expenses. Include encumbered amount for advance membership fees brought forward from FY09 | 2623              |
| E. Donations to special funds  | 250               |
| F. Advertising   | (882)             |
| G. Royalties, permissions, special sales   | 1801              |
| H. Interest on accounts  | 3095              |
| I. General finance and accounting office   | (2000)            |
| <b>Net before encumbrances</b>   | <b>\$8100</b>     |
| J. Donations to special funds (same as E)  | (250)             |
| K. Membership fees for 2011-12 and later years received before 4-1-11  | (3643)            |
| L. 2011 Conf revenue received before 4-1-11 (same as B)  | (1130)            |
| M. Encumbrance for advertising and 2011 conference deposits  | (2500)            |
| <b>Final net</b>   | <b>\$577</b>      |

Line D contains receipts from membership fees, institutional subscriptions to *NDPLS*, individual book sales, minus expenses to produce the journal and *Newsletter*, produce the annual art poster, purchase books that are resold at the annual conference, and related membership operations. Our membership

currently stands at 201 active members as of August 6, 2011.

Line E: The Society established two special funds in April 2004. The Student Scholarship Fund provides for waivers of conference registration fees for student members who have a technical presentation accepted

for the annual conference. The International Hardship Fund provides for reductions in conference registration fees for members who have a technical presentation accepted for the annual conference and who have made a reasonable claim for hardship; travel from a currency-impaired country is the primary example of hardship addressed by the fund program. Other than the qualifications described above, applicants are given awards on a first-come first-served basis to the extent that resources allow. The funds were expended at the end of the 2009 conference; new donations were received since then, and the current balance will be expended for the 2011 conference.

Line G: Royalties, permissions, and special sales were up this year because of royalties from *Chaos and Complexity in Psychology*. Royalties are subject to rapid decays over time, so the forecast for this category of

income is back to normal for next year.

Line H: Interest on accounts: This amount is down \$400 since last year. Bank interest rates have fallen, and we see the effect each time we renew a certificate of deposit. In response, the Trustees are opening an investment account with Morgan Stanley Dean Witter to invest in A-level bonds and similar quality vehicles in an effort to bolster investment income. About 25% of our assets will be allocated to this project.

SCTPLS has no outstanding debts in the form of bank or other loans, bonds, or accounts payable in excess of 60 days.

*Submitted by:*

Stephen Guastello, Ph.D.

Treasurer and CFO for SCTPLS

## Nonlinear Dynamical Bookshelf

**Chen G., & Huang, Y. (2011). *Chaotic Maps: Dynamics, Fractals, and Rapid Fluctuations*. San Rafael, CA: Morgan & Claypool.** This book consists of lecture notes for a semester-long introductory graduate course on dynamical systems and chaos taught by the authors at Texas A&M University and Zhongshan University, China. There are ten chapters in the main body of the book, covering an elementary theory of chaotic maps in finite-dimensional spaces. The topics include one-dimensional dynamical systems (interval maps), bifurcations, general topological, symbolic dynamical systems, fractals and a class of infinite-dimensional dynamical systems which are induced by interval maps, plus rapid fluctuations of chaotic maps as a new viewpoint developed by the authors in recent years.

**Luo, A. C. J. (2011). *Global transversality, resonance, and chaotic dynamics*. Singapore: World Scientific.** This unique book presents a different point of view on the fundamental theory of global transversality, resonance and chaotic dynamics in n-dimensional nonlinear dynamic systems. The methodology and techniques presented in this book are applicable to nonlinear dynamical systems in general. This book provides useful tools for analytical and numerical predictions of chaos in nonlinear Hamiltonian and dissipative systems. All theoretical results are strictly proved. However, the ideas presented in this book are less formal and rigorous in an informal and lively manner. The author hopes the initial ideas may give some inspirations in the field of nonlinear dynamics. With physical concepts, the author also used the simple,

mathematical language to write this book. Therefore, this book is very readable, which can be either a textbook for senior undergraduate and graduate students or a reference book for researches in nonlinear dynamics.

**Portugali, J. (2011). *Complexity, cognition, and the city*. New York: Springer.** Aims at a deeper understanding of urbanism, while invoking, on an equal footing, the contributions both the hard and soft sciences have made, and are still making, when grappling with the many issues and facets of regional planning and dynamics. In this work, the author goes beyond merely seeing the city as a self-organized, emerging pattern of some collective interaction between many stylized urban "agents" – he makes the crucial step of attributing cognition to his agents and thus raises, for the first time, the question on how to deal with a complex system composed of many interacting complex agents in clearly defined settings. Accordingly, the author eventually addresses issues of practical relevance for urban planners and decision makers. The book unfolds its message in a largely nontechnical manner, so as to provide a broad interdisciplinary readership with insights, ideas, and other stimuli to encourage further research – with the twofold aim of further pushing back the boundaries of complexity science and emphasizing the all-important interrelation of hard and soft sciences in recognizing the cognitive sciences as another necessary ingredient for meaningful urban studies.



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### **CONTENTS THIS ISSUE:**

**Invitation and Call for abstracts:**  
**5th International Nonlinear Science Conference**  
News from Members  
Report from 2011 Business Meeting  
Nonlinear Dynamical Bookshelf

*Gaetano L. Aiello, Editor*

*Stephen J. Guastello, Production Editor*

*Front and back cover*

*photos by Andrea Guastello*

*Coming Soon -- Watch for Announcements*

**22nd Annual Int'l SCTPLS Conference**