Society for Chaos Theory in Psychology & Life Sciences

NEWSLETTER

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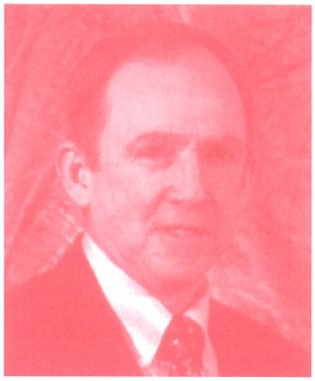
Fractal by J. C. Sprott

Dick Thompson Re-Elected SCTPLS President

Letter to our Membership from the President



I thank the Society membership for re-electing me to another term as President. My first term began at our 2009 conference in Milwaukee, and I look forward to the continuity of effort afforded by the second term that follows after our 2010 conference in San Marcos.

I still see many opportunities to create conditions that allow for the emergence of systemic growth in the Society's global contribution, membership and conference attendance. Our global mission through SCTPLS and our own humanity requires us to use our knowledge of NDS and our collective member intelligence to help resolve global issues. As a corporate body, SCTPLS has the knowledge, resources, skill sets, experience and ability to reshape the trajectory of human consciousness and, consequently, the future of humanity—and perhaps the earth. The window of opportunity is open. I encourage you to help us move through.

By taking on a global focus, building our membership and putting on "the" NDS related conference of the year (each year) we will begin to create a synergistic effect that may become a reinforcing loop for all the areas discussed above. I ask you as members to do four things when you receive this Newsletter.

- Submit a proposal to present your great work – see our Call for Abstracts in this issue
- Register for the conference—and bring a colleague – visit www.societyforchaostheory.org/conf/2010
- Invite colleagues to become SCTPLS members!
- Talk to me about how to make SCTPLS more valuable to you and others

This is going to be another outstanding year for SCTPLS and I want to thank you for the opportunity to serve in this capacity again

Dick Thompson
SCTPLS President and President-Elect

Announcing SCTPLS 2010 Conference Keynotes!

Featured Guest Speakers:
Robert Goldstone and Kevin Dooley (and a third to be announced!)

Kevin J. Dooley – Sunset Session Speaker

The Weed Organization: A Survival Guide for Businesses the Day after Tomorrow

As if managing a business wasn't complex enough already, the business environment in the future is likely to be more volatile because of resource shortages and changes to our physical and social environments. This talk examines the current state and the future of business and sustainability through the lens of complexity science. First, I shall describe how Wal-Mart in concert with other retailers and manufacturers is using a complexity-like approach to create a sustainable product index for all consumer goods. Second, I shall predict what may happen to businesses at the "transition" between Consumerism 1.0 and 2.0, using far-

from-equilibrium concepts. Third, I shall introduce the concept of the Weed Organization, a super-adaptive form of organizing that may come to dominate the future business landscape.

Kevin Dooley is a Professor of Supply Chain Management, and a Dean[1]s Council of 100 Distinguished Scholar, in the W. P. Carey School of Business at Arizona State University. Dr. Dooley is a world-known expert in the application of complexity science to help organizations improve. He has published over 100 research articles and co-authored an award winning book, Organizational Change and Innovation Processes. He has been awarded two patents concerning Centering Resonance Analysis, a novel form of network text analysis, and is co-founder and CEO of Crawdad Technologies, LLC, a provider of text analysis software for academics. Dr. Dooley has a Ph.D. in Mechanical Engineering, and a BSIE and MSIE from the University of Illinois. He has served as President and is currently a Trustee of the Society for Chaos Theory in Psychology and the Life Sciences.

Robert Goldstone - Banquet Keynote Speaker

The Group Consequences of Individual Strategies for Imitation and Innovation

Just as ants interact to form elaborate colonies and neurons interact to create structured thought, groups of people interact to create emergent organizations that the individuals may not understand or even perceive. To study the emergence of group behavior patterns, we have developed an internet-based experimental platform (for examples, see http://groups.psych.indiana.edu/ <http://groups.psych.indiana.edu/>) that allows groups of 2-200 people to interact with each other in real time on networked computers.

Using these technologies, I will describe experiments on how innovations are propagated within a group. One series of experiments explores how people attempt to solve simple problems while taking advantage of the developing solutions of other people in their social network. The results suggest that complete information is not always beneficial for a group, and that problem spaces requiring substantial exploration benefit from networks with mostly locally connected individuals.

In a second line of experiments, we study the dissemination of innovations in a networked group for a multi-dimensional search problem with many local minima. We find evidence for several strategies that determine imitation and innovation decisions based on: similarity, choice popularity, timing, and success.

In a third, real-world application area, I consider historical data on how U.S. parents name their children. We find that naming choices are influenced by both the frequency of a name in the general population, and by its "momentum" in the recent past in the sense that names which are growing in popularity are preferentially chosen. This momentum bias has itself been increasing over the course of 130 years. For each of these areas, I will describe agent-based modeling efforts at explaining empirically observed patterns of exploration and exploitation, bandwagon effects, population waves, and compromises between individuals using their own information and information obtained from their peers.

Since receiving his Ph.D. in psychology from University of Michigan, Robert Goldstone has been a professor in the Psychological and Brain Sciences Department and Cognitive Science Program at Indiana University. His research interests include concept learning and representation, perceptual learning, collective behavior, and computational modeling of human cognition. He was awarded two American Psychological Association (APA) Young Investigator awards in 1995 for articles appearing in Journal of Experimental Psychology, the 1996 Chase Memorial Award for Outstanding Young Researcher in Cognitive Science, a 1997 James McKeen Cattell Sabbatical Award, the 2000 APA Distinguished Scientific Award for Early Career Contribution to Psychology in the area of Cognition and Human Learning, and a 2004 Troland research award from the National Academy of Sciences. He was the executive editor of Cognitive Science from 2001-2005, associate editor of Psychonomic Bulletin & Review from 1998-2000, and associate editor of Cognitive Psychology and Topics in Cognitive Science from 2007-2010. He was elected as a fellow of the Society of Experimental Psychologists in 2004, and a fellow of the Cognitive Science Society in 2006. In 2006 he became a Chancellor's professor and Director of the Indiana University Cognitive Science Program.

CALL FOR ABSTRACTS

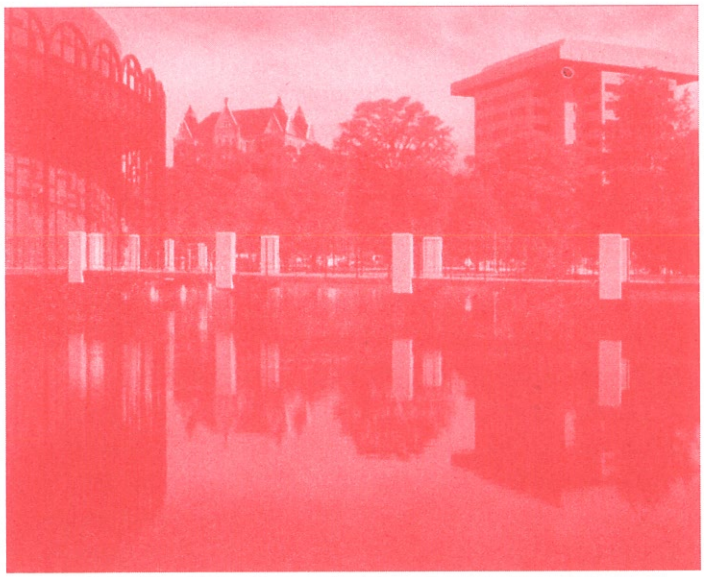
For the 20th Annual International Conference

Texas State University, San Marcos, TX USA July 22-24, 2010

We invite interested scholars to present and discuss recent developments in nonlinear dynamical system theory, which includes chaos theory, fractals, complex systems and related topics. Over the years, the annual conferences of the Society for Chaos Theory in Psychology & Life Sciences have inspired and supported scholars from an array of disciplines look at new ways to develop their theoretical and empirical work in an integrated approach to life sciences.

The Society for Chaos Theory in Psychology and Life Sciences is a multidisciplinary organization. The topics covered by the conference include applications of nonlinear dynamics theory and techniques to problems encountered in any area of the behavioral, social and life sciences including psychology, sociology, economics, econophysics, 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, dynamical diseases, or closely related constructs. The broad mixture of the disciplines represented here indicates that many bodies of knowledge share common principles.

The program will include workshops, invited addresses, symposia, panel discussions, a poster session, and sessions of individual papers. Advances in basic or applied research, developments in theory, reports of empirical results and methodological papers are all welcome. We continue to encourage all nonlinear scientists, including graduate students who might be finishing up a dynamical thesis or dissertation, to consider sharing their ideas through paper presentations, chairing a roundtable session, or by proposing other alternative presentation formats, such as posters, product demonstrations, short workshops, or debates around controversial topics.



Our meetings will be held at the inspiring facilities of Texas State University, San Marcos, TX USA. San Marcos is close to Austin TX and utilizes its airport. We will be using hotels proximal to the campus for lodging. Updates will be posted to the Lodging page of the conference web site.

Instructions for Abstracts

Abstracts should be between 150-250 words for posters, individual papers, short workshops and other alternative formats. The connection to nonlinear dynamics, chaos, complexity, fractals or related concepts should be clear to the reader. Include organizational affiliation and contact information on each speaker or author.

Abstracts should be between 150-250 words for individual papers, posters, short workshops and other alternative formats. Abstracts may be up to 500 words for symposia or panel discussion. For symposia, abstracts should reflect the content of EACH speaker's contribution. The format for a symposium is for all speakers to give presentations, followed by or interspersed with discussion. Symposia should present current research within a coherent theme defined by the title and abstract.

For experimental work, the background, aims and framework, methods and samples, results, conclusions and Implications should be clear to the reader. For theoretical work, the background, aims and framework, mode of inquiry, outcomes, conclusions and implications should be clear to the reader.

Abstracts for panel discussions should provide a brief overview of the topic, and indicate the relevant background of the panelist and sample questions they will address. The format for a panel discussion is an introduction to the topic and the speakers, after which the panelists address as series of questions or issues (rather than just giving a series of presentations).

Abstracts for workshops should present state-of-the-art information on techniques useful for conducting research or applications of nonlinear science in the behavioral, social and life sciences. They should be pedagogical in nature. Where applicable, the abstract should emphasize skills that attendees can expect to acquire.

For all abstracts: The connection to nonlinear dynamics, chaos, complexity, fractals or related concepts should be clear to the reader. Please stress what is the overall value added to the field (e.g. new method, new information, new perspective or issue, valuable confirmation of the present knowledge, adds clarity to present understanding). Each person submitting is limited to a maximum of two presentations as first author. It is acceptable to be a co-author on additional work submitted by others.

The deadline for submissions is April 30, 2010.
Early birds will receive acceptances after March 9th Abstract should be submitted electronically by visiting:
http://www.societyforchaostheory.org/conf/2010/cfp.html

Your SCTPLS 2010 Conference Committee
Dick Thompson, High Performance Systems | A. Steven Dietz, Texas State University | Constance Porter, St. Edwards University | Stephen J. Guastello, Marquette University | Sara Nora Ross, Antioch University McGregor and ARINA, Inc.

Four New, Exciting Pre-Conference Workshops!

These lively, half-day workshops are designed to teach useful skills and methods. Designed to meet learning objectives, they are great conference take-aways!

Jeffrey Goldstein – Complexity Science and Social Entrepreneurship within the Context of Social Innovation

The burgeoning arena of social entrepreneurship within the context of social innovation is one example of how public and private organizations can forge alliances to address the unique and pressing challenges facing both the domestic and global economic and social environments of the 21st century. However, at present, there is no recognizable theoretical underpinning to describe the systemic dimensions of the phenomenon in ways that can help those who are engaged in the field, theoretically and practically, to succeed. In this workshop we will look at how the sciences of complex systems offer promise in providing a more thorough understanding and grounding for the field. We will explore the following themes:

What are the dynamics of social entrepreneurship and how can they be understood using models coming out of complexity science, e.g., dynamical systems, catastrophe theory, and emergence?

What do we mean by social value creation in a systems sense, and how can it be measured? We will compare and contrast economic and social value creation approaches.

What are the nature and influence of institutional structures and patterns on social entrepreneurship dynamics? How can researchers and practitioners determine the likely impact of alternative policy interventions and how might government policy be used to shape social entrepreneurship dynamics?

How can collaborative efforts cut across different academic disciplines or fields in order to introduce new methods and approaches to these issues?

Note: Workshop text required! Participants may purchase the following mandatory workshop text online in advance or, at a significantly discounted price ($40), at the conference. To reserve a copy for purchase on-site, look for the book reservation option on the SCTPLS online registration page.

Goldstein, J. Hazy, J. & Silberstang, J. (2009). *Complexity science and social entrepreneurship: Adding social value through systems thinking*. Litchfield Park, AZ: ISCE Publishing.
Available for online purchase at
http://iscepublishing.com/catalog_detail.aspx?Value=60&AspxAutoDetectCookieSupport=1

Jeffrey Goldstein, Ph.D., is Full Professor at Adelphi University, New York, and also Associate Clinical Professor, Derner Institute for Advanced Psychological Studies also at Adelphi. Prof. Goldstein is an editor-in-chief of the journal Emergence: Complexity and Organization, is a trustee the journal Nonlinear Dynamics, Psychology, and Life Sciences, and the author or editor of many books including: Complex Systems Leadership Theory; Complexity and the Nexus of Leadership; ; Classic Complexity: From the Abstract to the Concrete; Emergence: Complexity and Organization (Annual Volumes 6, 7, 8, 9, 10); Flirting with Paradox: Creativity and Emergence in Complex Systems; The Unshackled Organization; as well as numerous scholarly articles and monographs dealing with complexity theory. He also consults to many public and private organizations.

Stephen J. Guastello – Catastrophe Theory and Its Applications

Catastrophe theory describes and predicts discontinuous changes of events. It is perhaps one of the earliest modes of nonlinear dynamics to cross into the social sciences with empirical supporting evidence. Catastrophe models range from simple to complex, and involve different configurations of attractors, repellors, saddles, bifurcations, and control variables. This workshop will cover basic principles, some classic applications, and the statistical procedures that anyone can use to test catastrophe models. Emphasis is placed on techniques that can be performed with popular and available software. Recommendations for experimental designs are also included.

Stephen J. Guastello is a Professor of Industrial-Organizational Psychology and Human Factors Engineering at Marquette University, Milwaukee WI. His published applications of catastrophe theory include work motivation, personnel selection, program evaluation, stress and human performance, occupational safety and health, leadership emergence, binge drinking among

college students, and diffusion of innovation. He has authored three books Chaos, Catastrophe, and Human Affairs (1995, Erlbaum/Taylor & Francis), Managing Emergent Phenomena (2002, Erlbaum/Taylor & Francis), Human Factors Engineering and Ergonomics: A Systems Approach (2006, Erlbaum/Taylor & Francis); and co-edited Chaos and Complexity in Psychology: The Theory of Nonlinear Dynamical Systems (with M. Koopmans and D. Pincus, 2009, Cambridge University Press). He is the founding Editor in Chief of SCTPLS' research journal, Nonlinear Dynamic, Psychology, and Life Sciences.

Dave Pincus – Nonlinear Dynamical Systems and Clinical Psychology

This workshop is designed for anyone interested in the application of nonlinear dynamical systems (NDS) theory to research applied topics in clinical psychology, from expert level clinicians and researchers to interested lay individuals who are new to NDS. The workshop will be divided roughly into research and experiential sections; with significant overlap between the two. The research-oriented section of the program will begin with a review of the current state of affairs within and among the various approaches to understanding personality and psychotherapy, relying upon four very broad categories: (1) Psychodyanmic; (2) Cognitive-behavioral; (3) Experiential; and (4) Family systems. Using self-organization and related NDS concepts, these approaches will be integrated within the more parsimonious model of biopsychosocial dynamics. The most up-to-date empirical evidence will be reviewed relating to topics such as: Discontinuous phase transitions underlying clinical improvements in psychotherapy, the fractal properties of interpersonal process and personality structure, and the use of NDS methods for investigating resilience and wellness. The experiential section of the program will focus upon the use of these NDS concepts to obtain deeper and more integrated understanding of the array of modern techniques in psychotherapy (e.g., process-comments, empathic understanding, mindfulness practices, paradox, desensitization, and cognitive interventions). The program will conclude with a special emphasis upon the use of less widely known deep, transformation imagery techniques including live clinical demonstrations of these techniques.

Dr. David Pincus began his career in 1991 as a youth and family therapist working in public mental health in Waukesha Wisconsin. It was there that he first began, without formal instruction, to apply Nonlinear Dynamical Systems (NDS) principles to his clinical work. 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. Throughout this training, he learned how to more formally translate NDS concepts into testable theory. 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." 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.

Sara Nora Ross – How Order is Constructed in the Process of Emergence & Decision Making: Fractals Through and Through

In this workshop, Ross reviews basics covered in her 2009 workshop, and builds on them to show—and invite participants to *experience how* and *to measure*—the kind of fractal dynamics that are building blocks of what emerges in "emergence" and in particular, in individual and group decision making. The workshop emphasis is on a detailed look at not only (a) the nonlinear transition dynamics that generate increased complexity, but also (b) how they nest fractally as we process information. These increases in complexity are directly related to adult and other kinds of development, as accounted for by the general, math-based theory known as the model of hierarchical complexity.

Every decision is the result of having performed one or more of these multiple transition steps. When decisions are more complex, there are nested fractals of information processing required. Some decisions are more "complete" than others, and to analyze this is a core skill for evaluating the adequacy of individual and collective decisions.

The workshop is relevant to anyone who wants to measure/analyze behaviors, whether in consulting or research. It is a must for those interested in such areas as "decision making under uncertainty." Workshop methods

include presentation, individual and group exercises, reflection, and discussion.

Sara Nora Ross, with an interdisciplinary Ph.D. in Psychology and Political Development, is on the graduate program faculty of Antioch University McGregor's Conflict Analysis and Engagement program, cocreator and coordinator of its new concentration in Civic Development and Systemic Transformation, and is founder and president of ARINA, the publisher of Integral Review journal. She has been studying the transition dynamics of increasing complexity in individuals, collectives, and their socio-political processes and structures for many years, and has published articles and chapters on these and related topics . She co-edited the special triple issue of World Futures: The Journal of General Evolution, 64(5-7) on hierarchical complexity and postformal thought. She discovered and continues to develop the fractal version of the model of hierarchical complexity, finding that the measurable orders of hierarchical complexity and their ubiquitous transition step dynamics evidence self-similar scaling properties in information-organizing entities at any scale of time or space. She believes understanding these dynamics plays a role in developing more adequate analyses and interventions that meet 21st century complexity.

Registration Information

SCTPLS will manage registration for the conference and pre-conference workshops. Participants and presenters make their lodging reservations at the nearby hotels of their choice. Lodging options will be included on the conference website and in the next newsletter.

Conference Rates for 2010*

Conference registration:

Regular members	$195
Student members	$145
Non-members	$280

Pre-Conference Workshops (4 hours each):

Regular	$145
Discount price, 2 workshops	$240
Students, each workshop	$ 95

*Fees include refreshments and the July 23 banquet.

We hope to see  ***you in San Marcos!***

Critical Dates

March 9 (Tuesday). Early-bird abstract submissions will receive a reply after this date.

April 30 (Friday). Call for abstracts closes.

May 15 (Saturday). All acceptances finalized by Program Chair.

June 1 (Tuesday). Students who have a paper accepted for presentation must be active members by this date in order to qualify for a Scholarship Conference Fee Waiver. www.societyforchaostheory.org/membership.html Qualifying students should contact Dr. Dick Thompson dick@hpsys.com if they are interested in this opportunity.

June 22 (Tuesday). All speakers must register by this date to remain on the program.

July 1 (Thursday). Cancellations of conference registration will be subject to a 25% service charge starting on this date.

July 8 (Thursday). Last day for early-bird conference registration. Cancellations of conference registration will be subject to a 50% service charge starting on this date.

July 15 (Thursday). Cancellations of conference registration will be subject to a 75% service charge starting on this date.

July 21 (Wednesday). We regret that we cannot offer any refunds for cancelled registrations received after this date.

July 21 (Wednesday). Arrive if attending morning workshop or starting the fun early!

July 22 (Thursday). On-site registration and workshops starting 8:30 AM. Sunset session with guest speaker.

July 23 (Friday). Conference day. Reception and banquet starting at 5:30. Guest speaker.

July 24 (Saturday). Conference day. Annual business meeting.

Post-conference Publication Opportunity

All presenting conferees are further invited to prepare their papers for review and possible publication in the Society's research journal Nonlinear Dynamics, Psychology, and Life Sciences. NDPLS is peer-reviewed and abstracted in PsycInfo (Psychological Abstracts), Medline (Index Medicus), JEL/Econlit, MathSciNet, and other important databases. NDPLS uses American Psychological Association (APA) style. Click JOURNAL on the SCTPLS web site to access Instructions for Authors.

All SCTPLS members receive NDPLS and the SCTPLS Newsletter as a benefit of membership. NDPLS accepts manuscripts all through the year, but please use September 1, 2010 as the target date for submitting conference-related papers; the journal would like to have as many articles based on conference presentations as possible ready for the same issue.

We really *do* want to see your work in NDPLS!

INSC Featured Speakers Announced

The 4th International Nonlinear Science Conference (INSC)

Palermo, Sicily, March 15-17, 2010

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.

Ah, the art! The history! Palermo!!

Paul van Geert

The Human Life Span as a Complex Dynamic System

Human development across the life span is a prime example of a complex dynamic system. Development and aging are processes of change involving the intertwining of a myriad of components, involving the person and its properties and the social and cultural environment in which the person lives. Dynamics range from the short-term processes of human action and interaction to the long-term processes of life-span development and the macro-processes of intergenerational cultural change and biological evolution. These time scales

interact in various ways. Part of the difficulty of understanding the life span as a complex dynamic system lies in the paradoxical combination of immediacy (one is the direct witness of one's own life) and the difficulty of scientific accessibility (the scientific study of the human life span is greatly hampered by the difficulty of collecting valid and reliable time-serial data). In this lecture I will present examples of theory building, empirical research and applied aspects of a complex dynamic systems view on human development.

Paul van Geert (1950) holds a doctoral degree from the University of Ghent (Belgium) and is a professor of developmental psychology at the University of Groningen in the Netherlands since 1985. He has had a pioneering role in the application of dynamic systems theory to a broad range of developmental areas, including early language development and second language acquisition; cognitive development in the context of learning-teaching processes; and social development including social interaction and identity. His main aim is to better understand the general nature of developmental dynamics, i.e., nature of the mechanism(s) that drive and shape a developmental process in an individual as the individual, given his or her biological properties and potentialities interacts with his or her actively explored environment. As an artist, Paul van Geert has had a life-long interest in the representation of people and close personal relationships. His current work consists of life-size representations of people, in the form of free-standing and moveable constructions.

Rolf Pfeifer

Self-organization, Embodiment, and Biologically Inspired Robotics

Robotics researchers increasingly agree that ideas from biology and self-organization can strongly benefit the design of autonomous robots. Biological organisms have evolved to perform and survive in a world characterized by rapid changes, high uncertainty, indefinite richness, and limited availability of information. Industrial robots, in contrast, operate in highly controlled environments with no or very little uncertainty. Although many challenges remain, concepts from biologically inspired (bio-inspired) robotics will eventually enable researchers to engineer machines for the real world that possess at least some of the desirable properties of biological organisms, such as adaptivity, robustness, versatility, and agility.

In this talk, I will introduce the concept of embodiment and follow up on its far-reaching implications, in particular how the physical dynamics of an agent's interaction with its environment is coupled with the information processing of the brain (or the brain dynamics). It is also argued that this coupling is fundamental for learning and for the development of cognition in general. All points will be illustrated with many examples from robotics, biology, and psychology.

Prof. Pfeifer is the director of the Artificial Intelligence Laboratory, Department of Informatics, University of Zurich. His recent book with Josh Bongard is entitled How the Body Shapes the Way we Think.

René Lefever

Deeply Gapped Vegetation Patterns and Desertification: A Topical Ostwald Ripening Process

Natural vegetation covers exhibiting landscape-scale regular spatial patterns have been reported for arid and semi-arid areas world-wide. Recent observations and theories show that such patterns are bound to low-productivity environments, can arise in the absence of environmental anisotropy and can originate by self-organization processes strictly intrinsic to the vegetation dynamics. The conditions of deeply gapped pattern formation and the conditions under which desertification takes place will be investigated more specifically. It will be shown that desertification may occur either as a local desertification process that does not affect pattern morphology in the course of its unfolding or as a gaps coarsening process after the emergence of a transitory, deeply gapped pattern regime. Ecological implications will be discussed. The results amend the commonly held interpretation associating vegetation patterns with a Turing reaction-diffusion type of instability. They provide a more unified understanding of vegetation self-organization within the broad context of matter order-disorder transitions.

Professor Lefever is member of the Department of Chemical Physics and Theoretical Biology, Faculty of Sciences, Université Libre de Bruxelles.

Rosario Nunzio Mantegna

Empirical Investigations of Economic and Social Complex Systems

Rosario Nunzio Mantegna is Applied Physics Professor and Head of the Observatory of Complex Systems at the University of Palermo, Italy. Mantegna is one of the founders of Econophysics, the application of Statistical Physics to the study of Economics. He is the author (together with Gene Stanley) of Introduction to Econophysics: Correlations and Complexity in Finance.
According to their book, statistical physics concepts such as stochastic dynamics, short- and long-range correlations, self-similarity and scaling, correlation-based networks can be used to model the global behavior of economic systems. Mantegna's current research is focused on the analysis and modelling of financial markets; econophysics, social systems, biomedical and biological complex systems. He is one of the initiators of the Jerusalem Declaration on Data Access, Use and Dissemination for Scientific Research, launched at the 5th European Conference on Complex Systems held in September 2008 in Jerusalem, Israel.

Vialle delle Scienza

Get Ready, Set, Go to the INSC!

Visit http://www.societyforchaostheory.org/insc/2010/.

Our meetings will be held at Aula Didattiche-1 on the campus of University of Palermo. The conference website links you to registration, lodging, travel, and sight-seeing information. Visit the site's hotels page for options and instructions for making your reservations through the Mandreucci Viaggi Travel Agency, who has organized the travel arrangements for the INSC. They can assist with air travel arrangements and sight-seeing opportunities. Local transportation maps are also shown on the hotel page.

Your INSC Conference Committee: Gaetano L. Aiello, University of Palermo, Chair; Dick Thompson, SCTPLS President; Stephen J. Guastello, Marquette University; Dimitrios Stamovlasis, Aristotle University

The 4th INSC is sponsored by
The Society for Chaos Theory in Psychology & Life Sciences and University of Palermo

Members' News

Xavier Bornas. I recently published the Book *Psicopatología y caos.* It is written in Spanish (a Catalan version is available also), but some members could be interested in the book (maybe to learn Spanish ☺). It's really difficult to find books about chaos and behavior disorders in Spanish! More information is here http://www.bubok.com/libros/16510/Psicopatologia-y-Caos. The link to the Catalan version is: http://www.bubok.com/libros/16327/Psicopatologia-i-Caos

Eystein Glattre. Book. Glattre, E., Nygard, J. F., & Skjerve, E. (2008). *Fundamental aspects of fractal epidemiology.* Oslo: Norwegian School of Veterinary Science.

Jeffrey Goldstein. New book to be released mid-2010. Goldstein, J., Hazy, J., & Lichtenstein, B. B. (2010). *Complexity and the nexus of leadership: Leveraging nonlinear science to create ecologies of innovation.* New York: Palgrave Macmillan.

Stephen Greenspan. New book: Greenspan, S. (2010) *Annals of gullibility.* Westport, CT: Praeger

Barkley Rosser. New book. Rosser, J. B. Jr. (Ed.). (2009). *Handbook of research on complexity.* Northampton, MA: Edward Elgar.

Terry Marks-Tarlow (aka our "Opera Star"). I was contacted and asked to collaborate with a New York City composer named Jonathan Dawe who teaches at Julliard and puts fractals in his music. Jonathan was composing an opera derived from Vivaldi's Orlando Furioso, which has baroque themes with fractal seeds underneath that grow like cellular automata in complexity over time. The opera is based on an epic 15th poem by Ariosto that is very psychological and inspired many musicians and other artists over the centuries. Jonathan had read my book, *Psyche's Veil*, was feeling stuck on the libretto, and asked me to put fractals in the words. He had a narrative thread plucked from the original Italian libretto that captured the bare minimum of the story line. Jonathan wanted English fragments to grow over time and overtake the Italian by the end. I was thrilled at the invitation and agreed to help out without any idea how I would do so. But I figured that no matter what it would be okay, since Jonathan isn't in my field and if I failed, no one would know.

Much to my surprise, I came up with what seemed an elegant solution to the problem really quickly. I decided to use the Fibonacci numbers, not realizing they had recently played a "starring" role in the da Vinci Code. I initiated four different "Fibonacci bushes." One started with a single word; the second started with two words; the third with three, and the fourth with four. Then I used Jung/von Franz's archetype of number to dictate thematic content. One represents wholeness; two represents polarity/fight; three represents change/dynamics; four represents resolution/manifestation.

I treated the increasing segments like poetry, a kind of Haiku, and then color coded and seeded the themes through the various characters. I did five or six iterations and by the end of the opera had some really nice arias. I think the maximum had 62 words in it.

The story involves a man who goes crazy with unrequited love. My solution and contribution to the opera poured out very quickly. After doing so much technical writing, what fun to use language in a purely evocative fashion. When I finished, I thought I was submitting a first draft, but Jonathan loved it, and I haven't changed a word. If all goes through, the opera *Cracked Orlando* will premier in New York City in mid-October. There will be a ballet company attached too, called Company XIV (check out their rather wild repertoire at http://companyxiv.com/). I've also drawn some art work that may find its way into the program or poster, as shown here. I will own the rights to the libretto and am super excited! I will keep everyone posted on progress and dates and would love for anyone who can to join me at the event.

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Larry Liebovitch. From a recent Plexus Institute mailing... If you are fascinated by celestial spheres, earth's roundness, and circles in such art as the paintings of Russian master Vasily Kandinsky, read Natalie Angier's engaging story "The Circular Logic of the Universe"in the December 8 New York Times science section. Larry Liebovitch has studied heavenly orbs and human eyes, and Angier reports his observations on what makes things round. Liebovitch is a physicist, astronomer and complexity scholar who is associate dean for graduate studies and programs at the Charles E. Schmidt College of Sciences and professor at the Center for Complex Systems and Brain Sciences at Florida Atlantic University. Physics accounts for the roundness of some things, he says, but no one is really sure about the reason for the shape of human eyeballs.

Mike Radin. Before Christmas, I went skiing at the top of Mt. St. Anne in Quebec. The gondola took us there above the clouds as you can see [next page]. Beautiful!

Sea of clouds, from the top of Mt. St. Anne in Quebec
– Mike Radin

Hector Sabelli. Our group, the Chicago Center for Creative Development, continues its weekly seminar ongoing since 1979. This year has been a busy one.

I am currently writing two books in which several members of our Society are contributing chapters. One is *Medical Reasoning: physical priority and psychological supremacy in clinical care, science, and society*. Sabelli, H. et al., Nova Science. This project captured the attention of Dr. C. Torre, who, as head of the Board of Education in New Haven, will start next September a pilot program for teaching Medicine to high school students. The other is *The Creative Logic of Nature,* a book on physics, mathematics and logic which I am co-authoring with Louis H. Kauffman, Ph.D., an internationally recognized mathematician who is currently Professor in the Department of Mathematics, Statistics and Computer Science at the University of Illinois at Chicago. He is known for the introduction of the bracket polynomial and the Kauffman polynomial in knot theory, for his work in the interface of knots and physics and for his work in cybernetics and the mathematics of form and recursion.

Upcoming, these are some of my articles and a new chapter.

Sabelli, H., J. Thomas, L. Kovacevic, A. Lawandow, and D. Horan. (in press). Biotic dynamics of galactic distribution, gravitational waves, and quantum processes: A causal theory of cosmological evolution. In A. D. Wachter & R.J. Propst, *Black holes and galaxy formation.* Hauppauge, NY: Nova Science Publishers.

Sabelli, H. (in press). The biotic pattern of prime numbers. *Cybernetics and Systemics Journal.*

Kauffman, L. & Sabelli, H. (in press). Riemann's zeta function displays a biotic pattern of diversification, novelty, and complexity. *Cybernetics and Systemics Journal.*

Sabelli, H. (in press). Social theory beyond the collapse of communism and capitalism. *The International Journal of Interdisciplinary Social Sciences.*

Sabelli, H. (in press). Complex biotic patterns in the recordings from LIGO. *Complexity.*

Are ***other members*** up to some mighty interesting things, too? *Surely so!* Please send me your news items to share here with your colleagues! -- *Editor*

Want to know what members are thinking and writing about?
Looking for interaction with other members?

Visit and post to the SCTPLS Blog at
http://www.societyforchaostheory.org/blog/

Check out the SCTPLS forum and listserves used by members of the Society! Visit
http://www.societyforchaostheory.org/chaopsyc.html

Nonlinear News Announcements

Starting from January 1, 2010, the *International Journal of Bifurcation and Chaos* will be co-edited by Prof. Leon O Chua and Prof. G Ron Chen, and will be operated fully electronically. This is a monthly journal consisting of (a) Tutorials and Reviews, (b) Papers, and (c) Letters, mainly for the timely announcement of significant new results and discoveries (phenomena, algorithms, theorems, etc.).

Press Release: Active Hearing Process in Mosquitoes

From Joanne Fryer, University of Bristol

A mathematical model has explained some of the remarkable features of mosquito hearing. In particular, the male can hear the faintest beats of the female's wings and yet is not deafened by loud noises. The new research from the University of Bristol is published in January issue of the Journal of the Royal Society: *Interface.*

Insects have evolved diverse and delicate morphological structures in order to hear the naturally low energy of a transmitting sound wave. In mosquitoes, the hearing of acoustic energy, and its conversion into neuronal signals, is assisted by multiple individual sensory units called scolopidia.

The researchers have developed a simple microscopic mechanistic model of the active amplification in the Tanzanian mosquito species Toxorhynchites brevipalpis. The model is based on the description of the antenna as a forced-damped oscillator attached to a set of active threads (groups of scolopidia) that provide an impulsive force when they twitch. The twitching is controlled by channels that are opened and closed if the antennal oscillation reaches critical amplitude. The model matches both qualitatively and quantitatively with recent experiments: spontaneous oscillations, nonlinear amplification, hysteresis, 2:1 resonances, frequency response, gain loss due to hypoxia.

The numerical simulations also generate new hypotheses. In particular, the model seems to indicate that scolopidia located toward the tip of the Johnston's organ are responsible for the entrainment of the other scolopidia, and that they give the largest contribution to the mechanical amplification.

Dr Daniele Avitabile, Research Assistant in the Bristol Centre for Applied Nonlinear Mathematics in the Department of Engineering Maths, said: "The numerical results presented also generate new questions. In our description of the system, for instance, all threads have the same material properties, but their impact on the dynamics of the antenna varies according to the spatial location of the threads: intuitively, an external thread induces a much larger torque than an internal one.

"However, the true physiology of the threads is more complex, due to the curved arrangement of Johnston's organ, and further research into the effect of the subsequent mechanical variation of each thread needs to be carried out."

Other Conferences Coming Up!

Society for Research in Adult Development
25th Annual Adult Development Symposium

Philadelphia, March 9-10, 2010

Call for Abstracts Extended to February 10

Development is characterized by nonlinear dynamics, Human development does not stop at late adolescence, as Piaget believed. Research into further adult development in multiple domains of life is the hallmark of SRAD annual symposia. Help make nonlinear dynamics a not-to-be-ignored science in the adult development field! Submit your abstract today! Visit http://adultdevelopment.org/

18th Annual Winter Chaos Conference
Dynamical Systems Thinking in Science, Education, the Humanities, and Society

Tarpon Springs, Florida, March 19-21, 2010,

This conference has a tradition of informality both in style and substance that features open discussion and mutually respectful interactions among participants. It is open to metaphoric as well as formal explorations of systems/integrative thinking into science (including psychological, social, biological, mathematical, and logical disciplines), education, the humanities, society, and philosophy. We range over rather diverse subjects in philosophy, education, research, social applications, and theory. http://www.blueberry-brain.org/winterchaos/Winter%20Chaos%202010.html

Feature Article

Detractor – to be Considered

By Ken Ware

When the great fighter Ali said, "I float like a butterfly and sting like a bee," I am sure he did not realize that what he had said is like music to a chaos theorist. He liked to think of himself as someone who could, by "distracting" his opponent with random movement and dance along with a volley of pretenses and antics, "detract" from the real abilities of his opponents by "psyching" them out. He would then as he put it "sting like a bee." His random, unpredictable movements and gestures shifted at lightning speed into the perfectly balanced and highly orderly, well-rehearsed combinations of punches he was most feared for.

Of course we can observe this "psyching" out, up or down, in a wide variety of sports and a lot of planning often goes into this, mostly to give one team or one player a competitive advantage. The question is how does this affect the performance of the other team or player? The neurological conditioning that was established to execute a certain skill or effort has most likely taken years to develop along with the corresponding "bifurcations" and "attractor" landscape. I use the term attractor landscape in these cases to basically describe patterns of behavior—good, bad or indifferent—that any person is very familiar with themselves or are observed by others to be a familiar pattern of behavior of that person. The conditions at practice and training of course are very different from the actual competition. Training conditions are often quite predictable and are basically non-threatening, so all developments of the athlete's system mirror those particular environmental circumstances. However, a slight "change in the initial conditions," as is the case in competition, can prove to have an enormous effect as can "random intermittent" changes to conditions in motion. Unless the athlete has developed strategies to cater for as many possible changes that are likely to occur and are mentally prepared to respond effectively, they will most likely lose composure, anxiety levels will increase, and their fight or flight response (sympathetic nervous system) will dominate their physiological responses. Consequently, their system becomes more chaotic and "entropy" increases as they move further away from "homeostasis."

It is the "unknown or unpredictable circumstances" that occur during an event that have the potential to "detract" from the previously known skill and ability of the athlete. Sometimes these can be random and intermittent during a game and other times it can brought on by a surprise to an athlete in the very early opening minutes of a game. This can be not only because of what the other player is doing or not doing, it can also be because of what the crowd, fans, umpire or even the weather, to name a few, are doing or not doing. The "uncertainty principle" may then be expressed or represented in a highly emotional, negative manner. These transient experiences can then go on to have a long-lasting or even permanent effect if the athlete places a lot of importance (dwelling) on the experiences. This would coincide with a change in a previously well established "attractor landscape" and the necessary "bifurcations.. There are similarities to a person who suddenly finds religion or there is some other belief that strikes a chord with them and they abandon large portions of their previous patterns of behavior virtually overnight. This is another type of "detractor." In this sense the "detractor" has removed them from the path they were on.

An Imaginary "Detractor" Experiment

I invite you to consider an imaginary experiment where a metal plumb bob on a string is suspended from the middle of a rod. The rod is placed across the diameter of an upside down dome. The tip of the plumb bob is a marker that can trace the movement of the plumb bob onto the inside of the dome so that no matter where you moved the tip inside the dome it would always have enough contact but never too much to trace its path on the dome. The total length from where to sting comes out of the bottom of the rod to where the tip of the plumb bob touches the inside of the dome, therefore represents the inside radius of the dome. The plumb bob has basically "infinite degrees of freedom" or at least, many degrees of freedom. You then set the plumb bob in motion, in a straight line left to right. As you would expect, you would see a straight line drawn on the inside of the dome that corresponds to the line and height the

plumb bob achieved, with the plumb bob eventually coming to rest at the bottom center of the dome which is the "attractor."

You set the bob in motion again along the same path. This time with a powerful magnet you are holding in your hand, you tease the bob from the outside of the dome just slightly. This distracts the bob's path momentarily, however it returns to its left to right straight path "in time," eventually coming to rest at the bottom center of the dome. You can then see the path it followed with each point representing a particular point in space time of the "phase transition."

You set the bob in motion again. This time you are determined to really "detract" from the bob's ability to stay on its preferred path by randomly exposing the bob to sudden and random fields of magnetic energy coming in from outside the dome, at random locations, which are initiated as the bob comes close to a certain point inside the dome. There, your reflexes are such that you can quickly place the magnet slightly above where you predict the bob will reach with its own momentum, attracting the bob to a much higher area of the dome, which gives the bob more momentum on its way down from a higher position.

You could go on and play all sorts of games with the bob to see how long you can keep it moving. Regardless of your skills, you will obviously see an assortment of sketches on the canvas inside the dome: some wild and erratic, others appearing to have more flow but none of the sketches resemble the original path. However, it does not matter what game you play with this system: the bob will always return to the same location, the "attractor."

In a complex living system, such as a human being, the effect the "detractor" has on the system can be that the "bob" may never return to its original "attractor" as it previously did in its inactive, motionless state. This experiment or game simply demonstrates the effect of a "detractor" on the system and the control the "detractor" can have over the system as an analogy to a sporting event or other life experiences. In real life, even events at a distance can "detract" from a person's ability to perform in their usual manner. For example, people watching the events of September 11 unfold on their televisions in Australia created feelings of uncertainty that disrupted them for some time after. The time that it takes for a person to recover from such upsets cannot be mathematically determined as in the "plumb bob" experiment above. Recovery relies on a host of physical and emotional remedies to re-calibrate the person to the tasks at hand or the "actual environment" they find themselves in and not to be so awkwardly sympathetic to the environment of others. Other types of events that you enjoy watching on television, like your favorite tennis player winning at Wimbledon, can pave the way for a great day as you share in the excitement of the fans who were actually there, but this usually doesn't last as long as the more traumatic events. And of course we need to consider that for a large number of fans watching the same event who were hoping for the other player to win, they definitely do not share your excitement. This highlights the enormous complications there are when dealing with human beings therapeutically whereas the same environmental stimulus or stress can produce a wild variety of response from one person to the next and are dependent on such variables as the desires and ambitions of individuals sitting in the same room, which can have opposing "attractors" "detracting" from one person but enhancing or reinforcing the others.

Integrated Application and Explanation

I have competed at an international level for many years (I even won a Mr. Universe competition in Italy in 1994) and have coached others to World champion status (One such lady is a practicing Psychologist who was entered into the Guinness book of records as "The strongest women in the world") and I received our Queens Australian Sports Medal in 2000 for the contribution I made to the development of the sporting culture in Australia. I have however always been interested in assisting everyday people to gain control over their lives through techniques that restore their physical/emotional stability, using all of the principles and practices that I have used for elite athletes and myself to perform at such high standards. These are based on the knowledge I have of chaos theory and nonlinear dynamics, the second law of thermodynamics relating to non equilibrium systems, in particular living systems, of course, and neurobiology, physiology, and psychology.

The simple and elegant technique I developed uses resistance exercises and machines that, by the subject initiating movement in a composed super-slow and relaxed manner—with the aid of a very mild stimulus (load/weight) and attention to posture to elaborate on the experience (this highlights the role posture plays in the functional metabolism of sensory input and appropriate reliable responses)—the subjects can witness their "sensitivity to the initial conditions" which

present 100% of the time as random and chaotic. The associated shaking and random bursts of neural activity that are sometimes quite violent are witnessed by the subject and anyone who is looking on, perhaps leaving one to ponder the "butterfly effect" of this. They notice that the more they try to relax the more uncontrollable and disturbing the shaking becomes. In short, their physical response to sensory stimulation is completely out of phase with their thoughts and desires to stay relaxed, allowing the subject to see in real time how their nervous system is responding to all sensory input, as all sensory input is integrated through the associations cortex. They can stop the shaking by tensing up protectively which is a posture they are usually more familiar with. This simply highlights the degree of inhibition the nervous system has formatted in an effort to protect the system it is attached to, to the point where it can become hyper vigilant and over protective which is more often the case than not in the average person these days. The degree of inhibition seen today in the average subject is far greater than what it was when I first started to experiment with this technique 20 or so years ago. Consequently the frequency and velocity of physical and emotional disorders are epidemic compared to what they were back then. Through coaching, the subject learns how to monitor and control arousal states and to progressively disinhibit the nervous system.

Neural inhibition obviously has an effect on metabolism and the system's ability to "make good" any disturbances to the system. The over-active sympathetic nervous system is responsible for continually bombarding cells and organs with stress hormones and other neurochemicals that have wholesale degenerative catabolic effects on the system. Relearning how to stay composed under pressure to remain in control is something that has to be accomplished first at small scales. Unless the subject can see and coordinately feel stability when a mild stimulus is applied, it is just a fantasy that it would be there at higher scales under more stress and with more speed. As time goes on the subject has recalibrated his or her neural lines of communication (flow) that now are more in proportion to the actual experience and have stopped overreacting to sensory stimulus.

This material was originally presented in a talk to Intending Creative Arts Students, Teachers and Nurses; Emerald, Queensland Australia. It was hosted by Gererations/Femnasium Healthy Life Centres; September 2009. Ken Ware's email: knwellness@bigpond.com.

Re-View Corner

The Re-View Corner invites members to pull up a chair, sit down, and take time to share what they are reading, learning from, experiencing, reacting to, and reviewing.

Still Seeking to Publish "Little Known Facts and Circumstances of the Society's Roots"

I still seek ongoing submissions to the newsletter feature titled as above! This feature is a sp(l)ace to cocreate our organizational memory by becoming (more) aware of our history and making it at the same time. Recollections galore are invited from members new and old, and especially from pioneers in the Society! -- *Editor*

The Nonlinear Dynamical Bookshelf

This feature depends on material people send to us. Thanks to all who do. If you find a new nonlinear book and would like to share the joy, please send the full citation with descriptive information to register@societyforchaostheory.org with the message heading "Nonlinear Bookshelf."

Boccaletti, S., Latora, V. & Moreno, Y., (Eds.). (2010). *Handbook on biological networks*. Singapore: World Scientific.

Networked systems are all around us. The accumulated evidence of systems as complex as a cell cannot be fully understood by studying only their isolated constituents, giving rise to a new area of interest in research — the study of complex networks. In a broad sense, biological networks have been one of the most studied networks, and the field has benefited from many important contributions. By understanding and modeling the structure of a biological network, a better perception of its dynamical and functional behavior is to be expected. This unique book compiles the most relevant results and novel insights provided by network theory in the biological sciences, ranging from the structure and dynamics of the brain to cellular and protein networks and to population-level biology.

Contents: *Networks at the Cellular Level:* The Structural Network Properties of Biological Systems *(M Brilli & P*

Lio); Dynamics of Multicellular Synthetic Gene Networks *(E Ullner et al.);* Boolean Networks in Inference and Dynamic Modeling of Biological Systems at the Molecular and Physiological Level *(J Thakar & R Albert);* Complexity of Boolean Dynamics in Simple Models of Signaling Networks and in Real Genetic Networks *(A Diaz-Guilera & R Alvarez-Buylla);* Geometry and Topology of Folding Landscapes *(L Bongini & L Casetti);* Elastic Network Models for Biomolecular Dynamics: Theory and Application to Membrane Proteins and Viruses *(T R Lezon et al.);* Metabolic Networks *(M C Palumbo et al.)*

Brain Networks: The Human Brain Network *(O Sporns);* Brain Network Analysis from High-Resolution EEG Signals *(F De Vico Fallani & F Babiloni);* An Optimization Approach to the Structure of the Neuronal layout of *C elegans (A Arenas et al.);* Cultured Neuronal Networks Express Complex Patterns of Activity and Morphological Memory *(N Raichman et al.);* Synchrony and Precise Timing in Complex Neural Networks *(R-M Memmesheimer & M Timme)*

Networks at the Individual and Population Levels: Ideas for Moving Beyond Structure to Dynamics of Ecological Networks *(D B Stouffer et al.);* Evolutionary Models for Simple Biosystems *(F Bagnoli);* Evolution of Cooperation in Adaptive Social Networks *(S Van Segbroeck et al.);* From Animal Collectives and Complex Networks to Decentralized Motion Control Strategies *(A Buscarino et al.);* Interplay of Network State and Topology in Epidemic Dynamics *(T Gross)*

--Publisher

Glattre, E., Nygard, J. F., & Skjerve, E. (2008). *Fundamental aspects of fractal epidemiology*. Oslo: Norwegian School of Veterinary Science.

In this book, we briefly present a simple theory of complexity and the theoretical basis of fractal epidemiology as an extension of conventional epidemiology. In it we have defined improved design concepts, and new procedures and methods by which one can identify fractals, occurring within the frame of one's study, and their complexities, complexities in association, and complexities of complexities. We have modified conventional concepts of exposure, response, and study setting, and made them fit the dynamics of prospective studies, to be able to discover fractal aspects of the study and examine complexity-associations of exposure and response. By means of these tools epidemiologists will undoubtedly find lots of fractals and complexities hidden in their studies, as we have shown in previous papers. In Appendix we demonstrate how methods of this book also can be used to test esoteric hypotheses like the highly actual, climatologic hypothesis that there is a relationship between air CO_2 and air temperature.

In our opinion it is due time for epidemiologists to acknowledge the existence of irreducible complexities and take into consideration their great importance for the understanding and interpretation of scientific investigations and results. It is time for anti-reductionism in study planning, investigation, and realization of outcome. In the hope that this book might created interest for the fractal aspects of epidemiology a free copy will be sent – as far as the impression goes – to everyone who emails eystein.skjerve@veths.no, giving his/her name and postal address.

--the Authors

Jones, A. H. & Bozeman, J. (2009). *The boids and the bees: Guiding adaptation to improve our health, healthcare, schools, and society*. Litchfield Park, AZ: ISCE Publishing.

We are confronted with problems in virtually all of our major systems. Einstein said that "we cannot solve our problems on the same level of thinking we were on when we created them." We believe a fundamental fault underlying all these problems is the way we look at them. Our traditional method has been to analyze the system as if it were a machine to find the faulty elements and to fix them. We have done this with ailing ecosystems long enough to know that it doesn't work well. If it doesn't work here because of the complexity of the system how can we expect it to work on us or other equally, if not more, complex living systems? We are not machines. We can adapt and create in novel ways.

In *The Boids and the Bees* we, and other living systems are seen as the complex and adaptive systems that we are, which leads to a perceptual revolution. We are fighting a war with bacteria that we can't win. Seeing bacteria as adapting agents allows us to see how they adapt and opens other doors to end the war. Patients that are informed and empowered can lead our health care system to focus on prevention and health rather than illness and profits. Learning has been analyzed in the laboratory. Now we use the results of this analysis to teach our children; they become the lab-rats in the classroom. Seeing them as adaptive agents is the first step in correcting this dehumanizing error. How we adapt today will determine our tomorrows; and they can be optimized.

Meyers, R. A. (Ed.). (2009) *Encyclopedia of Complexity and Systems Science*. New York: Springer.
A major Springer Reference in 11 volumes, with 593 articles from over 600 contributors. The publisher has placed free content on the encyclopedia web page, and encourages visitors to browse its contents, download sample chapters and recommend this invaluable work to your library. 10370 pages, 4300 illustrations. The topical table of contents, list of articles and authors, and other goodies are linked from the encyclopedia web page http://www.springer.com/physics/complexity/book/978-0-387-75888-6

Major subject sections:
Agent Based Modeling and Simulation / Applications of Physics and Mathematics to Social Science / Cellular Automata, Mathematical Basis of / Chaos and Complexity in Astrophysics / Climate Modeling, Global Warming and Weather Prediction / Complex Networks and Graph Theory / Complexity and Nonlinearity in Autonomous Robotics / Complexity in Computational Chemistry / Complexity in Earthquakes, Tsunamis, and Volcanoes, and Forecasting and Early Warning of their Hazards / Computational and Theoretical Nanoscience / Control and Dynamical Systems / Data Mining and Knowledge Discovery / Ecological Complexity / Ergodic Theory / Finance and Econometrics / Fractals and Multifractals / Game Theory / Granular Computing / Intelligent Systems / Nonlinear Ordinary Differential Equations and Dynamical Systems / Nonlinear Partial Differential Equations / Percolation / Perturbation Theory / Probability and Statistics in Complex Systems / Quantum Information Science / Social Network Analysis / Soft Computing / Solitons / Statistical and Nonlinear Physics / Synergetics / System Dynamics / Systems Biology / Complex Dynamics of Traffic Management / Unconventional Computing / Wavelets

--Publisher

Richardson, K. A., Goldstein, J. A., & Allen, P. M. (Eds.). (2009). *Emergence, Complexity & Organization 2008 Annual, Volume 10*. Litchfield Park, AZ: ISCE Publishing.
Organizations of all kinds struggle to understand, adapt, respond and manipulate changing conditions in their internal and external environments. Approaches based on the causal, linear logic of mechanistic sciences and engineering continue to play an important role, given people's ability to create order. But such approaches are valid only within carefully circumscribed boundaries. They become counterproductive when the same organizations display the highly reflexive, context-dependent, dynamic nature of systems in which agents learn and adapt and new patterns emerge. The rapidly expanding discussion about complex systems offers important contributions to the integration of diverse perspectives and ultimately new insights into organizational effectiveness. There is increasing interest in complexity in mainstream business education, as well as in specialist business disciplines such as knowledge management. Real world systems can't be completely designed, controlled, understood or predicted, even by the so-called sciences of complexity, but they can be more effective when understood as complex systems. While many scientific disciplines explore complexity principally through abstract mathematical models and simulations, Emergence: Complexity & Organization explores the emerging understanding of human systems from both the 'hard' quantitative sciences and the 'soft' qualitative perspectives.

This 2008 Annual includes a series of four reproductions of classical papers in the fields of complexity and systems, each with critical introductions that explore their modern relevance: *The Meanings of 'Emergence' and Its Modes* by Arthur O. Lovejoy (originally published in 1927); *An Outline of General System Theory* by Ludwig von Bertalanffy (originally published in 1950); *Society as Complex Adaptive System* by Walter Buckley (originally published in 1968); *Is Adaptability Enough?* by Geoffrey Vickers (originally published in 1959).
http://iscepublishing.com/

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Be sure this isn't the last Society Newsletter you receive! And *please* be sure you don't miss the 2010 issues of our NDPLS journal!

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http://www.societyforchaostheory.org/membership.html

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