AIRS

Associazione Italiana per la Ricerca sui Sistemi

Italian Systems Society

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Sesto Congresso Nazionale di Sistemica

Sixth National Conference on Systems Science

Verso una Sistemica post-Bertalanffy

Towards a post-Bertalanffy Systemics

PROGRAMMA DEI LAVORI

CONFERENCE PROGRAM

ABSTRACTS

Pontificio Ateneo S. Anselmo

Pontifical Athenaeum S. Anselmo

Piazza Cavalieri di Malta, 5
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http://www.santanselmo.org/

Venerdì 21 - Sabato 22 Novembre 2014

Friday 21st- Saturday 22nd November, 2014

(Con la sponsorizzazione di ARTEMIS NEUROSCIENCES, Roma)

(Sponsored by ARTEMIS NEUROSCIENCES, Rome)

INDICE / INDEX

E'possibile individuare una *prima* fase della Sistemica dedicata a superare il vecchio insostenibile paradigma meccanicistico, introducendo nuovi approcci teorici studiati, per esempio, dalla Teoria degli Automi, dalla Teoria delle Catastrofi, dalla teoria del Caos, dalla Teoria dei Controlli, dalla Cibernetica, dalla Teoria dei Giochi, dalla Dinamica dei Sistemi, dalla Psicologia della Gestalt, dalla Sociobiologia, dalla Teoria dei Sistemi Dinamici.
Questa fase può essere caratterizzata dal termine "Teoria Generale dei Sistemi", che è stato introdotto da **Ludwig von Bertalanffy** (1901-1972) con l'obiettivo di *generalizzare*, utilizzando alcuni concetti sistemici fondamentali, come quelli di interazione, interdipendenza generale, apertura e chiusura, organizzazione e omeostasi, nel quadro generale di un isomorfismo tra le diverse scienze e alla ricerca dell'unità della scienza. Questa fase è ancora in corso, mentre due importanti processi culturali e scientifici sono in corso da diversi anni:

- Dopo che la Sistemica ha introdotto e utilizzato il concetto di sistema e le proprietà correlate per superare le discipline classiche ancora *legate* a principi come il determinismo, la visione meccanicistica, l'assunzione sommativa e di linearità, la reversibilità, la ricerca di unicità ottimali e di punti di equilibrio, le singole discipline stesse hanno utilizzato in modi innovativi il concetto di sistema introducendo feconde innovazioni teoriche. Esempi sono forniti dai progressi in settori disciplinari quali la Fisica Teorica, la Biologia, le Neuroscienze, l'Economia Sperimentale e la Scienza delle Reti, essendo quest'ultima anche una possibile nuova versione della Sistemica grazie alla sua generalità. I concetti e gli approcci considerati da discipline che utilizzano approcci sistemici sono molto innovativi e *chiedono* la loro generalizzazione.
- Fenomeni considerati e chiamati in modi diversi, ma tutti legati alla complessità, all'auto-organizzazione e all'emergenza sono stati considerati da diverse discipline e con approcci diversi. Gli approcci finora utilizzati dalla Sistemica hanno invece tutti un carattere *post-riduzionista* in quanto incapaci di affrontare, per esempio, fenomeni di coerenza e coerenze multiple, strutture dinamiche, modelli multipli, non-omogeneità, non-equivalenze, livelli di distinguibilità, sistemi multipli, proprietà di invarianza di scala e leggi di potenza.

La prima Sistemica quindi risulta adeguata a trattare processi di acquisizione e mantenimento di *stesse* o poche proprietà sistemiche *fisse*. I sistemi complessi, al contrario, acquisiscono sempre nuove, molteplici, sovrapposte e spesso delocalizzate sequenze coerenti di proprietà.
Il convegno è dedicato a individuare, discutere e immaginare le possibili interrelazioni dei miglioramenti teorici disciplinari riconosciuti come aventi ruoli fondanti di una nuova Sistemica post-Bertalanffy in grado di affrontare i problemi della complessità *in modo generalizzato*, quando l'*interdisciplinarietà* consiste, per esempio, nella riformulazione disciplinare di problemi, come da algebrico a geometrico, da militare a politico, da biologico a chimico, e la *transdisciplinarità* nello studio di tali riformulazioni e delle loro proprietà. Esempi di nuovi aspetti introdotti da tali avanzamenti disciplinari teorici e studiati in diverse discipline sono:

1. Tra (la via di mezzo mesoscopica)
2. Equivalenza / non equivalenza
3. Ambiente
4. Individualità
5. Induzione di proprietà
6. Irreversibilità
7. Proprietà metastrutturali
8. Metodi e modelli per la costruzione di strategie
9. Reti
10. Coerenze multiple e dinamiche
11. Mutazione
12. Frattalità
13. Leggi di potenza
14. Non-separabilità
15. Non-causalità
16. Non invasività
17. Non-prescrivibilità
18. Ontologie, scenari e meta-modelli
19. Pre-proprietà
20. Propagazione
21. Teorie e concetti quantistici
22. Quasi proprietà
23. Simmetria
24. Quasiness
25. Dinamiche strutturali
26. Regimi strutturali di validità
27. Propagazione di proprietà sistemiche
28. Dinamica topologica
29. Transienti

It is possible to consider a *first* phase of Systemics devoted to overcome the old mechanistic views, introducing new theoretical approaches, studied, for instance, by Automata Theory, Catastrophe Theory, Chaos Theory, Control Theory, Cybernetics, Games Theory, Systems Dynamics, Gestalt, Sociobiology, and Theory of Dynamical Systems.
This phase can be characterized by the term "General System Theory", introduced by **Ludwig von Bertalanffy** (1901-1972) with the purpose to *generalize* by using some key systemic concepts such as the ones of interaction, general interdependence, openness and closeness, organization, and homeostasis in the general framework of the isomorphism between sciences and looking for the unity of science. This phase is still under way while two important cultural and scientific processes are taking place since several years:

- After Systemics used the concept of system and related properties to overcome classical disciplines still *tied* to principles like determinism, mechanistic view, summative assumption and linearity, reversibility, single optimum and equilibrium points, the disciplines themselves used in an innovative ways the concept of system by introducing theoretical improvements. Examples are given by advances in disciplinary domains such as Theoretical Physics, Biology, Neuroscience, Experimental Economics, and Network Science, being the latter even a possible new version of Systemics itself due to its generality. The concepts and approaches considered by the disciplines using systemic approaches are very innovative and ask for their generalisation.
- Phenomena considered and termed in different ways but all related to *complexity*, self-organisation and emergence were considered by different disciplines and using different approaches. Instead, all approaches considered by Systemics have a *post-reductionist* nature since they are unable to deal, for instance, with coherence and multiple coherences, dynamic structures, multiple models, non-homogeneity, non-equivalences, levels of distinguishability, multiple systems, power laws and scale-free properties.

Whence the first Systemics is suitable to deal with process of acquisition and keeping of the *same* or few, fixed systemic properties. Complex systems, on the contrary, continuously acquire new, multiple, superimposed and often delocalized coherent sequences of properties.
The conference is devoted to both identify, discuss and figure out possible interrelations of theoretical disciplinary improvements recognised as having perspective founding roles for a new post-Bertalanffy Systemics able to deal with problems of complexity *in a generalised way* when *inter-disciplinarity* consists, for instance, of a disciplinary *reformulation* of problems, like from algebraic to geometrical, from military to political, from biological to chemical, and *trans-disciplinarity* is related to the study of such reformulations and their properties. Examples of new issues introduced by such theoretical disciplinary improvements and studied in different disciplines are:

1. Between (the middle way mesoscopic)
2. Equivalence / non-equivalence
3. Environment
4. Individuality
5. Induction of properties
6. Irreversibility
7. Meta-structural properties
8. Methods and models to build strategies
9. Networks
10. Multiple, dynamic coherence
11. Mutation
12. Non-separability
13. Fractality
14. Power laws
15. Non-causality
16. Non-invasiveness
17. Non-prescribability
18. Ontologies, scenarios and meta-models
19. Pre-properties
20. Propagation
21. Quantum theories and concepts
22. Quasi properties
23. Symmetry
24. Quasiness
25. Structural Dynamics
26. Structural regimes of validity
27. System propagation
28. Topological Dynamics
29. Transients

LE TEMATICHE

Il congresso vuole costituirsi come un *laboratorio virtuale* in cui le tematiche come quelle sopra delineate siano trattabili e declinabili trasversalmente e tuttavia dichiarate per convenienza in ambiti disciplinari di origine e maggiormente frequentati per qualsiasi motivo.
Si invita a presentare casi non solo leggibili secondo approcci del tipo delineato sopra ma ancora mancanti di soddisfacenti sistemazioni teoriche.
La strutturazione sotto proposta è quindi indicativa e da *popolare* di contributi che trovano affinità non lineari che gli autori dovranno comunque indicare esplicitamente.
I contributi potranno essere di varia natura come Applicativi, Filosofici, Gestionali, Modellistici, Posizionali, di rilevazione, Simulativi, Sperimentali e Teorici. Una sessione specifica sarà dedicata al delineare la nuova sistemica post-Bertalanffy.

1) La Network Science come la nuova Teoria Generale dei sistemi?
2) La Fisica quantistica come la nuova Teoria Generale dei sistemi?
3) Nuovi contenuti sistemici di approcci e problemi disciplinari
4) Emergenza dei sistemi sociali
5) La materia
6) Nuove forme di inter- e trans-disciplinarità
7) Studi su aspetti dei processi di emergenza
8) Modelli e simulazioni
9) Tematiche generali
10) Lineamenti di una nuova Teoria Generale dei Sistemi.

TOPICS

The Congress wants to establish itself as a virtual laboratory in which issues such as those outlined above are transversally treatable and yet declared for convenience in the disciplines of origin and most popular for any reason.
We invite the submission of cases not only representable by using approaches outlined above but still lacking satisfactory theorization.
The structure proposed below is therefore indicative and to be populated by contributions having non-linear affinities that, however, the authors will explicitly state.
The contributions can be of various kinds such as Applicative, Philosophical, Managerial, Model-oriented, Positional, Detection-oriented, Simulative, Experimental and Theoretical. A specific session will be devoted to outlining the new post-Bertalanffy Systemics.

1) The Network Science as the new General Theory of systems?
2) Quantum physics as the new General Theory of systems?
3) New systemic contents of disciplinary approaches and problems
4) Emergence of social systems
5) Matter
6) New forms of inter- and trans-disciplinarity
7) Studies of the emergence
8) Models and simulations
9) General themes
10) Outlines of a new General Theory of Systems

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Atti / Proceedings

Gli atti, con titolo da definirsi, saranno pubblicati da Springer.
Per gli atti dei congressi 2010, 2007, 2004 e 2002 vedi http://www.airs.it/AIRS/indexIT.htm
Proceedings will be published by Springer.
For the 2010, 2007, 2004 e 2002 proceedings see http://www.airs.it/AIRS/indexEN.htm

PROGRAMMA DEI LAVORI / *CONFERENCE PROGRAM*

21 Novembre / *November 21th*

09:00 – 10:30	Registrazione / Enrolment	
10:30 – 10:50	Apertura e benvenuto al Sesto Congresso dell'AIRS / Welcome to the Sixth Conference of the Italian Systems Society *G. Minati, Presidente dell'AIRS / AIRS President*	
10:50 – 11:30	Discorso del Rettore Magnifico del Pontificio Istituto S. Anselmo / Welcome and introduction by Rector of the Pontifical Athenaeum S. Anselmo	
11:30 – 11:50	Coffee break	
11:50 – 12:50	Opening Lecture: Quantum effects in linguistic endeavours *Fortunato Tito Arecchi - Professor Emeritus of Physics, Università degli Studi di Firenze and Scientific Associate of Istituto Nazionale di Ottica (INO)*	
13:00 – 14:00	Pranzo / Lunch	
14:15 – 15:15	**Session 1** **7) Studies of the emergence** **8) Models and simulations** *Chairman: G. Tascini*	**Session 2** **2) Quantum physics as the new General Theory of systems?** **5) Matter** *Chairman: G. Minati*
14:15 – 14:45	2. Cross Frequency Modulation, Network Information Integration and Cognitive Performance in Complex Systems *P.L. Marconi, P.L. Bandinelli, M.P. Penna, E. Pessa*	7. Towards the Study of New Nuclear Energy *U. Di Caprio, M.R. Abram*
14:45 – 15:15	21. Testing Different Learning Strategies on a Simple Connectionist Model of Numerical Facts Acquisition *S. Pinna, G. Fumera*	14. Decomposing Dynamical Systems *M. Giunti*
15:15 – 15:45	Coffee break	
15:45 – 17:15	**Session 1** **(continuation)** *Chairman: G. Tascini*	**Session 2** **(continuation)** *Chairman: G. Minati*
15:45 – 16:15	1. Dynamical Systems and Automata *M.R. Abram, U. Di Caprio*	16. For a Topology of Dynamical Systems *C .Mazzola, M. Giunti*
16:15 – 16:45	*Chairman: G. Minati* Presentation of the Associazione Italiana Medicina e Sanità Sistemica (ASSIMSS) *Italian Association for Systems Medicine & Healthcare* *C. Pristipino, President*	
16.45 – 17.15	*Chairman: M.P. Penna* Activity of the European Union for Systemics *G. Minati, new president-elect 2014-2017*	
20:00	**Social Dinner** Hostaria Luce, Via della Luce 44 - 00153 Roma Tel. +39 06 5814839 - Email: info@hostarialuce.it - www.hostarialuce.it	

22 Novembre / *November 22nd*

9:15 – 12:45	**Session 3** **1) The Network Science as the new General Theory of systems?** **3) New systemic contents of disciplinary approaches and problems** *Chairman: P. L. Marconi*	
9:15 – 9:45	24. EPAS: Artificial Intelligent System for Assistance *G. Tascini*	
9:45 – 10:15	10. From Systemic Complexity to Systemic Simplicity: A New Networking Node Approach *R. Fiorini*	
10:15 – 10:45	18. Formal Concept Analysis in Statistical Hypothesis Testing *E. Nicotra, A. Spoto*	
10:45 – 11:15	Coffee break	
11:15 – 11:45	19. Emergence in Neural Network Models of Cognitive Processing *M.P. Penna, P.K. Hitchcott, M.C. Fastame, E. Pessa*	
11:45 – 12:15	22. Beyond Networks: Search for Relevant Subsets in Complex Systems *A. Roli, M. Villani, A. Filisetti, R. Serra*	
12:15 – 12:45	11. From Elementary Pragmatic Model (EPM) to Evolutive Elementary Pragmatic Model (E^2PM) *P. De Giacomo, R. Fiorini G.F. Santacroce*	
12:45 – 13:45	Pranzo / Lunch	
14:00 – 16:00	**Session 4** **4) Emergence of Social Systems** **6) New Forms of Inter- and Trans-disciplinarity** **7) Studies of the Emergence** *Chairman: M.P. Penna*	**Session 5** **9) General Themes** **10) Outlines of a new General Theory of Systems** *Chairman: E. Pessa*
14:00 – 14:30	6. Meaningful Complexity and Systemic Approach in Biology *M. Di Bernardo*	3. Theoretical Tools, Conceptual Distinctions and Epistemological Implications *L. Bich*
14:30 – 15:00	8. Changing Framework in Explaining Complex Dynamics: Convergences on Systemic Accounts from Two Different Case Studies *N. Di Stefano, M. Bertolaso*	17. General System(s) Theory 2.0: A Brief Outline *G. Minati*
15:00 – 15:45	5. Perceptions of Landscape-Observed and Observing Systems *V. Di Battista* ---	20. Phenomenology of Emergence in Music - Small Concert - *E. Pietrocini*
15:45 – 16:15	Coffee break	

22 Novembre / *November 22nd*

16:15 – 18:15	**Session 4** **(continuation)** *Chairman: M.P. Penna*	**Session 5** **(continuation)** *Chairman: E. Pessa*
16:15 – 16:45	26. Thinking Smart Cities with Focus on Emerging Identity Elements *V. Volpi, A. Opromolla, R. Grimaldi, V. De Cecio, M. Palatucci, C.M. Medaglia*	25. Fractal Self-Similarity. From Geometric Structures to Dynamical Coherent Dynamics *G. Vitiello*
16:45 – 17:15	12. Architecture and Systemics – a Difficult Romance *C. Fontana*	15. Enhancement in Mathematical Abilities: a System Approach. *M.L. Mascia, M. Agus, M.C. Fastame, A. Addis*
17:15 – 17:45	13. Emergences in social systems. Perceptual Factors, Affordances and Performances in Architecture *A. Cucurnia, G. Giallocosta*	23. The Effect of Written Approval on Pupils' Academic and Social Behavior: an Exploratory Study in a Northern Italian Middle School *D. Rollo, F. Sulla, M.A. Massarini, S. Perini*
17:45 – 18:15	4. Bank of Experiences: a Tool to Enhance Creativity, Enterprises and Countries *G. Romiti, V. Carrino, G. Bruno, M. Fois*	9. Organized White Collar Crime (OWCC) and Punishment : The Unvarnished Truth of a "Legislative Intention" *R. Peroncini*
18:15 – 18:30	Chiusura del Congresso / End of the Conference	

A B S T R A C T S

Opening Lecture:

QUANTUM EFFECTS IN LINGUISTIC ENDEAVOURS

Fortunato Tito Arecchi

Professor Emeritus of Physics, Università degli Studi di Firenze and
Scientific Associate of Istituto Nazionale di Ottica (INO)

Classifying the information content of neural spike trains, an uncertainty relation emerges between the bit size of a word and its duration. This uncertainty is ruled by a quantum constant whose numerical value has nothing to do with Planck's constant.
A quantum conjecture might explain the onset and decay of the memory window connecting successive pieces of a linguistic text. The conjecture here formulated is applicable to other reported evidences of quantum effects in human cognitive processes, so far lacking a plausible framework since no efforts to assign a quantum constant have been associated.

1.

DYNAMICAL SYSTEMS AND AUTOMATA

M.R. Abram, U. Di Caprio

State space is a powerful tool that gives e global and synthetic view of the possible evolutions of a dynamical system. It is also a main source for available information about the stability and the complexity of the system dynamics. In describing dynamical systems via space state, it is possible to condensate a large amount of information about the qualitative behavior of the system. In particular, given an initial condition, it is possible to know the evolution of the system. But managing state space is not an easy work, especially when dealing with nonlinear systems. For practical applications it is possible to associate to the dynamical system an automaton that describes the evolution of the system. This is a very general property by which a simpler discrete description of the dynamical system becomes possible. This discrete description, adequately instantiated, can suggest the strategy for grasping essential system information. This is essential in designing automation control systems. Some simple examples are reported.

2.

CROSS FREQUENCY MODULATION, NETWORK INFORMATION INTEGRATION AND COGNITIVE PERFORMANCE IN COMPLEX SYSTEMS

P.L. Marconi, P.L. Bandinelli, , M.P. Penna, E. Pessa

The higher cognitive processes cannot be explained by processes of sequential neural processing and new systemic approaches in the study of electroencephalographic correlates of cognition are presently proposed. As well the mental activity may be the result of a system integration of different network activities (brain networks, BNet), the mutual interaction between different frequency bands generates the phenomenon of cross-frequency modulation (CfM) that supports the synchronization and the coordination of the high-frequency activity of distant brain areas. In 8 subjects, aged between 20 and 51 years old, not suffering of any psychopathology or neurological disorders, EEG activity was recorded during the execution of a cognitive task in which they were asked to identify the non previously known criteria used by the computer to classify some presented images. The study of the Event Related Potentials (ERPs) has shown a longer latency in responses following an error. Independent EEG Components with a strong fit with a dipole model were identified and CfM of this component was computed either independently by the stimulus and related to the stimulus and to the subject response. The obtained results are consistent with the role of CfM in the functional activation of BNets and with the subject cognitive performance. Some simulations were carried out also. The presence of synchronization between neurons was facilitated by the presence of long range synaptic interactions, periodicity of the stimulus inputs, adaptation of the neuronal threshold and by presence of inhibitory synapses. In case of external discontinuous stimuli the scale-free networks are more likely to manifest a high frequency resonance phenomena coupled with by persistent low frequency oscillations. All these experimental data are supporting the role of CfM in the functional integration of complex networks and this model could be extended to other complex systems such as social networks.

3.

THEORETICAL TOOLS, CONCEPTUAL DISTINCTIONS AND EPISTEMOLOGICAL IMPLICATIONS

L. Bich

The aim of this paper is to present some system-theoretical notions - such as constraint, closure, integration, coordination, etc. - which have recently raised a renovated interest and have undergone a deep development, especially in those branches of philosophy of biology characterized by a systemic approach. The implications of these notions for the analysis and characterization of self-maintaining organizations will be discussed with the aid of examples taken from models of minimal living systems, and some conceptual distinctions will be provided. In the last part of the paper the epistemic implications of these ideas will be presented.

4.

BANK OF EXPERIENCES: A TOOL TO ENHANCE CREATIVITY, ENTERPRISES AND COUNTRIES

G. Romiti, V. Carrino, G. Bruno, M. Fois

In this paper we would like to propose a research made in collaboration during the second level Course in System Design of ISIA Roma. Bank of Experiences (BdEsp) is an employment agency that put creativity potentialities of engineers, designers, experts of marketing and business organization (and, more generally, professionals related to the "world of research in science and design" that are looking for job opportunities) in touch with companies looking for active collaborations for process or product innovation. BdEsp is a project of design management; maps of the system and infographics identify the visual aspect of the platform.

Fundamental purposes of the system are management and development of human resources that are the real value of the Bank.

Users join the BdEsp complying with the goals of civil economy that underlie the system. Thanks to this precondition the project is founded on the basic principles of system design.

Decisive point of the system is users's welcome. The goal of this phase is highlight work abilities and relation qualities of users.

Users complete an indicative format, based on their own skills and potential job position (the "experiences"), the system generates a dynamic diagram, which represents both current and future potentiality as connections with the "enterprises-territory". The graph can also highlight those skills that need an integration; in this case BdEsp suggests a training program developed in collaboration with companies and professionals, members that the Bank has already chosen for the role of tutor.

One of the goal of the system is continuous training, diffusion of systemic culture and the diffusion of cooperation value for collective wealth.

The Bank's workflow encourages teamwork, according to different relations related to the researches carried out and promoted by BdEsp.

Users through these relations can generate local interactions that determinate global behaviors.

System managers form users teams and recommend the aggregation with diversify profiles for generate heterogeneous team.

An important role is played by the figure of the "elective community" which, verifying his members' jobs through the attribution of "skill points", contributes to deepen his participants profiles.

Community and managers use "nodes of the system" that operate like regulation filter for quantitative and qualitative parameters. These nodes give feedback that helps manager regulate the

system and role of system's actor.
The project, like online and on earth platform, represents a rich soil of collaboration between companies and community, aiming at economic wellbeing.
Bank of Experiences create a complex network of cooperation in a open system viewpoint.
Maps of the system describe complexity of the project; these maps, coherently with evolution and growth principles of the system are based on a fractal figure. This figure has many different possibility of aggregations and reflects the conceptual aspect of the system.

5.

PERCEPTIONS OF LANDSCAPE-OBSERVED AND OBSERVING SYSTEMS

V. Di Battista

The definition of "landscape as perceived by the population", as introduced by the *Convention Européenne des Paysages* (CEP) in 2000, raises questions of systemic nature related to the interaction among observed and observing systems, people and knowledge, actors and users, configurations and denotations, multi-scale and multi-criteria evaluation methods. In the "perception of the landscape," the several involved disciplines should consider interactions among observing (people) and observed systems. But it does not occur.
The processes activated from both higher and lower levels of observation *do not talk to each other* and are often conflicting.
In the "perception of landscape" every observed system deeply interacts with the observing system. The result is a range of variability of interactions between perceptions and actions so wide and ever-changing, that does not seem operable. We study these problems in the case study of Casale Monferrato (hilly area of 523 sq km, 38 municipalities, 8 areas with UNESCO recognition, population of about 65,000 inhabitants).
There is a great difficulty in describing the "perception" of the landscape in simple terms, where non-comparable understanding and values arise from different "stakeholders" as well as from different disciplinary fields.
A further complication arises from the *non-intentionality* of agents acting on the landscape.
We envisioned a process to reduce these problems and improve self-regulation in the *unintentional project*, also in its relations with the *intentional* one. With this purpose in mind we figured out visibility analyses having comparable and measurable parameters to allow attributions of value necessary to develop further awareness-raising, direct perception and participative actions.
We acted on the relationship of visibility within the system: paths, number of users, time and frequency of usage in various modes. We also used measurable and compatible measurements: visual field, variety and coherence of characters, dominants and prevalent visual characteristics.
We considered a limited and well-specified field of observation and we considered the dominant aspects and characterised sub-areas.
This process evidenced *identity aspects* and allowed research related to the perception of values by inhabitants or visitors, in collaboration with municipalities.
The study revealed a widespread lack of knowledge of the places among residents, and confirmed a low level of perceived values.
In parallel we selected routes of higher visual quality or representative of the views at the various scales.
The process has the ambition of increasing knowledge, value awareness, communication and participation, that are needed to improve the *unintentional project* in progress.
We selected 6 routes (335 km of which 101 scenic), 12 access routes, 31 routes in historic towns, 29 pedestrian paths, 5 thematic routes, more than 500 points of interest, and 250 points of scenic view.

These recognitions of values ask now for an effective communication. This may take place through graphic communications (leaflets), indicators (posters, totem, QR codes and signs on the ground) and particularly the portal "Monferrato landscapes".
Suitable geo-referenced resources, readable on smart phones, offer maps, data, text and images.
It will allow to develop comments and dialogic interactions with different agencies, local associations and inhabitants; collect information concerning the users; evaluate concentrations and likings of visitors; build social maps along time etc.
We hope that the convergence of these approaches and methods, which could be easily generalized, will contribute to increase self-regulation within the continuous process of the *unintentional project*.

6.

MEANINGFUL COMPLEXITY AND SYSTEMIC APPROACH IN BIOLOGY

M. Di Bernardo

The understanding of processes of self-organization concerning living systems requires today a systemic and interdisciplinary approach. Taking our moves from recent studies within the framework of an extended theory of complexity, the present work is to consider the phenomena of the coupled processing and transformation of information in biological systems, highlighting the need to identify new measures of complexity (new axiomatic systems) with regard to the study of the mechanisms of natural information transmission.

7.

TOWARDS THE STUDY OF NEW NUCLEAR ENERGY

U. Di Caprio, M.R. Abram

According to the traditional models, like e.g. the Standard Model (SM), the deuteron is formed by a proton plus a neutron. This formulation is not at all satisfactory and does not explain the mass and magnetic moment deficits, nor the experimental value of the strong interaction constant. Moreover, it is not consistent with the results of experiments of photodisintegration of the deuteron and lacks a fundamental milestone: how is it that the deuteron is stable, in spite of the noted instability of the neutron? Here we propose a radically innovative approach, i.e. a relativistic and dynamic model, according to which the deuteron is formed by three particles (two protons and an electron) that conveniently rotate round their center of mass. The model defines a stable bounded state that explains the observed values of the mass and magnetic moment as well as of the spin. In addition, it points out that the strong interaction is electromagnetic (the coupling constant has value $g_d = 14$, in accordance with experimental findings). The nuclear force is electromagnetic and it is counteracted by an inertial force (the centrifugal force). A nuclear reaction can be activated by breaking the deuteron with a photon having energy 193 MeV. Such value corresponds to a minimum of the measured cross-section.

8.

CHANGING FRAMEWORK IN EXPLAINING COMPLEX DYNAMICS: CONVERGENCES ON SYSTEMIC ACCOUNTS FROM TWO DIFFERENT CASE STUDIES

N. Di Stefano, M. Bertolaso

Starting from two different case studies – cancer explanatory theories and musical consonance and dissonance perception theories - we aim to show how different analytical aspects of complex phenomena can be grasped by apparently divergent accounts. Reaching a more adequate understanding of these phenomena thus needs an integrated systemic view in which every partial solution enlightens a particular aspect of the very same phenomenon. Such systemic viewpoint shifts the focus from different explanations to analytic dimensions that integrate the multidimensional phenomenology of our case studies: cancer pathology and music perception. Taking into consideration these dimensions means understanding the relationship between the systems and the environment in a discrete, continuous and embodied, i.e. context-dependent, way. To this purpose, we need to integrate the understanding activity through an authentic trans-disciplinary approach.

9.

ORGANIZED WHITE COLLAR CRIME (OWCC) AND PUNISHMENT: THE UNVARNISHED TRUTH OF A "LEGISLATIVE INTENTION"

R. Peroncini

"Assicuropoli" is a scandal that erupted in Genoa in October 1996. It concerns the high level of Insurance frauds in the Medical-legal-Insurance System and it constitutes an ideal setting to study collective mechanisms of democratic accountability. Ceteris paribus, comparisons between the Supply of Offences and the Law enforcement can be applied starting from the cognitive "Legislative Intention" that has regulated both trough the penal process. Moreover, due account will be taken of the political process which, since 2005, has been postponing, using the Law, the organizational change and social progress derived from the discovering in Genoa, through scientific proof of the "associative link" among "good persons"; i.e. the permanent link, also lasting more than the fulfillment of more than 2.400 crimes against Property, Public trust and Public order verified by the Judicial Police. So, the "Innocent" White Collar and the "Almighty" Legislator" should not be considered just a "single worker" or as a "charming ruler" that works alone for its own benefit without considering Legality and Sovereignty, but as the Living System composed by a mix of single persons, well organized, through coercive governments and oppressive leaders, in smaller units that operate inter-dependently to sustain the whole and imperceptible organism that, from Genoa to Rome, in 2008, has taken the name of "Organized White Collar Crime". This new form of "bad" Collective beings can be taken as an example of a separate entity, an "Open System", that depends on its legal and illegal environment to survive and interacts with its own sub-political systems to strengthen its public capability to limit the Judge in enforcing the Law. In Italy, only the "reason" of the Prosecutor's Office of Genoa and the Independence of the Judge have allowed Italian People not to become victims of this "smooth" strategy. For this reason, the transdisciplinary model used in Genoa to avoid this undesired effect was cancelled by Legislator and its Observer punished by "its" Government. Between 2001-today Politics didn't' want to enforce the Rule of Law; namely, the political will to limit Government, through fixed rules and announced beforehand, in all actions taken up against a superior individual. The paper wants to underline that OWCC, in a long lack of Law, is the continuous process of disvalues allocation pursued by a ruling class into the

Political System; i.e., all the elements constituting a democratic regime are placed in Italy, but relations between them and their single parts have never formed the coherent “System” wanted by Constituent Fathers. All this because, since 2001, powerful pressure groups have drawn geometry of crime and built Law enforcement decision making process, not by superior principles, but starting from the “bad” intentions such as the one that from Genoa is still using its various stages of legitimization to enforce Social Injustice and lead people to slavery.

10.

FROM SYSTEMIC COMPLEXITY TO SYSTEMIC SIMPLICITY: A NEW NETWORKING NODE APPROACH,

R. Fiorini

System antifragility can be developed quite easily by CICT Infocentric Worldview. Our main idea is to introduce a new networking node able to bind known information to the unknown one coherently. Unknown "environmental noise" or/and local "signal input" information can be aggregated to known "system internal control status" information, to provide a self-organizing landscape of self-structuring synthetic attractor points. This approach can be applied at any system scale: from single quantum system application development to full system governance strategic assessment policies and beyond. Application examples are presented. Expected impacts are multifarious and quite articulated at different system levels: at theoretic level, major one is that Biomedical Engineering ideal system categorization levels can be matched exactly to practical system modeling interaction styles, with no paradigmatic operational ambiguity and information loss. Furthermore, the present paper is a relevant contribute towards a new General Theory of Systems to show how homeostatic equilibria can emerge out of a self-organizing landscape of self-structuring attractor points.

11.

FROM ELEMENTARY PRAGMATIC MODEL (EPM) TO EVOLUTIVE ELEMENTARY PRAGMATIC MODEL (E^2PM)

P. De Giacomo, R. Fiorini G. F. Santacroce

The Elementary Pragmatic Model (EPM) is a high operative and didactic, versatile tool and new application areas are envisaged continuosly. Recently, EPM contributed to find a solution to the double-bind problem in classic information and algorithmic theory. This new awareness allowed to enlarge our panorama for neurocognitive system behaviour understanding. To cope with ontological uncertainty, it is possible to use two coupled irreducible information subsystems, based on an ideal asymptotic dichotomy: Information Reliable Predictability and Information Reliable Unpredictability. A natural operating point can emerge as a new Trans-disciplinary Reality Level, out of the Interaction of Two Complementary Irreducible Management Subsystems. It is possible to envisage an Evolutive Elementary Pragmatic Model (E2PM) able to profit by both classic EPM Self-Reflexive Functional Logical Closure and new evolutive Self-Reflective Functional Logical Aperture. This paper presents a relevant contribute to models and simulations offering an example of new forms of evolutive behaviour inter- and trans-disciplinarity modeling.

12.

ARCHITECTURE AND SYSTEMICS – A DIFFICULT ROMANCE

C. Fontana

Architecture is a complex idea in its own right. In architectural culture, systemic references are not new. Design theories, in Europe as well as in USA, have often referred to many concepts and more or less strictly linked to Systemics and to scientific domains such as Information theories and Cybernetics.
Quite often, such references have been a mere metaphorical suggestion or, expecially in the field of rational design, they mostly had heavy functional overtones.
Is it possible, today to find a more productive, non metaphorical use of such references to understand and design human settlements?

13.

EMERGENCES IN SOCIAL SYSTEMS. PERCEPTUAL FACTORS, AFFORDANCES AND PERFORMANCES IN ARCHITECTURE

A. Cucurnia, G. Giallocosta

Of the factors introducing emergences in social systems (here understood in keeping with systemic connotations), perceptual factors certainly represent interesting topics for architecture. They highlight the main assumptions typical of diverse disciplinary hypotheses and contexts, and relations with the requirements systems of users.
They point out the implications of requirements-based approaches to architecture design, even in relation to the hypothesis of perception as affordance. The latter, in particular, is discussed briefly highlighting the differences and key nexuses with further hypotheses, and with assumptions and developments of the requirements-performance based approach.

14.

DECOMPOSING DYNAMICAL SYSTEMS,

M. Giunti

Dynamical systems on monoids have been recently proposed as minimal mathematical models for the intuitive notion of deterministic dynamics. This paper shows that any dynamical system DS_L on a monoid L can be exhaustively decomposed into a family of mutually disconnected subsystems - the constituent systems of DS_L. In addition, constituent systems are themselves indecomposable, even though they may very well be complex. Finally, this work also makes clear how any dynamical system DS_L turns out to be identical to the sum of all its constituent systems. Constituent systems can thus be thought as the indecomposable, but possibly complex, building blocks to which the dynamics of an arbitrary complex system fully reduces. However, no further reduction of the constituents is possible, even if they are themselves complex.

15.

ENHANCEMENT IN MATHEMATICAL ABILITIES: A SYSTEM APPROACH

M.L. Mascia, M. Agus, M.C. Fastame, A. Addis

A body of literature evidences the importance of enhancement in the development of mathematical abilities. The most recent researches showed that infants are capable of discriminating different sets of numbers, so it is important to understand the role of the environment and educational system in the promotion and development of this potential. The main role in the enhancement in mathematical abilities is played by the interventions which support the development of these abilities in concomitance with their emergence. The present study has taken into consideration a number of variables in order to promote the best development of emerging skills and to prevent some difficulties related to the development of mathematical abilities. In this regard, the enhancement is the result of the combination of cognitive and metacognitive factors. Among the cognitive factors, as the literature shows, the visuo-spatial component has a very important role in the development of mathematical abilities. Also, the introduction of technological tools is useful to create a systemic approach in the development and enhancement in mathematical abilities. The main goal of the current study was to investigate the impact of a systemic intervention on the improvement of mathematical skills in 144 third graders of several schools located in Italy. Participants were subjected to the trainings (paper and/or multimedia) for enhancing numerical abilities and/or visuo-spatial abilities. Our findings evidence the positive effect of the different types of training for the empowerment of numerical abilities. In particular, the combination of computerised and pencil-and-paper versions of visuo-spatial and mathematical trainings are more effective than the single execution of the software or of the pencil-and-paper treatment. Our results show that, when properly stimulated, the subject's cognitive and metacognitive processes can support the improvement of individual skills. The enhancement tools are essential for school and families (they can use the same trainings). The design and the implementation of educational interventions with a systemic vision aimed at producing a cognitive enhancement that can be effective in the course of time.

16.

FOR A TOPOLOGY OF DYNAMICAL SYSTEMS

C .Mazzola, M. Giunti

Dynamical systems are mathematical objects meant to formally capture the evolution of deterministic systems. Although no topological constraint is usually imposed on their state spaces, there is *prima facie* evidence that the topological properties of dynamical systems might naturally depend on their dynamical features. This paper aims to prepare the grounds for a systematic investigation of such dependence, by exploring how the underlying dynamics might naturally induce a corresponding topology.

17.

GENERAL SYSTEM(S) THEORY 2.0: A BRIEF OUTLINE

G. Minati

In this article we present lists of concepts and approaches of Bertalanffy's pre-complexity General System Theory (GST) and concepts and approaches considered by post-Bertalanffy Systemics dealing with complexity. We also list examples of phenomena showing such complexity and sources or generators of complexity with special regard to social systems. Such lists should be considered as a list of contents for further, more exhaustive, possibly contradictory, studies as outlined in the conclusions.

18.

FORMAL CONCEPT ANALYSIS IN STATISTICAL HYPOTHESIS TESTING

E. Nicotra, A. Spoto

In the present research, we examined the solution of a "Hypothesis Testing for Paired Samples t-test" problem that can be ideally subdivided into four parts: (i) hypothesis generation and formal expression, (ii) calculation of the t value, (iii) identification of the correct critical t value for the acceptance-refusal of H0, and (iv) the assumption of the correct decision from the comparison between the calculated t and the critical t value.
Different response patterns for the problem were obtained. The derived structure represents a partial order. The relation between response patterns and the single elements of the main exercise can be well represented within the framework of the Formal Concept Analysis.
From the analysis of the response patterns of a sample of 114 students in a psychometrics course, we derived a Formal Context where the six parts of the "Hypothesis Testing for Paired Samples t-test" exercise were the formal attributes and the response patterns were the formal objects. In our sample only 25 out of the 26 possible response patterns were encountered.
A Logistic Model has been applied to develop a measure of the adequacy of each solution's pattern actually observed. The obtained results are discussed.

19.

EMERGENCE IN NEURAL NETWORK MODELS OF COGNITIVE PROCESSING

M.P. Penna, P.K. Hitchcott, M.C. Fastame, E. Pessa

This contribution is devoted to assess whether a basic hypotheses underlying the connectionist approach is firmly grounded and useful for the research activities concerning the Psychology. The hypothesis asserts that the observed macroscopic consequences of cognitive processing are nothing but collective effects emergent from the interactions between suitable microscopic units. The implementation of the above assertion is based on mathematical models making use of *artificial neural networks*. In this contribution we investigate whether: a) these models concretely exhibit emergent collective effects; b) these collective effects are characterized by the same features which we observe in behaviours produced by human mental processes. Our conclusion is that only particular models of this kind (not including Perceptrons) can give rise to emergent collective effects. Moreover, only the use of specific strategies and techniques of data analysis allows to use

the models themselves in a way useful to experimental psychologists. Our contribution discusses the application of our proposals to a specific case study in order to illustrate the nature of the difficulties encountered when dealing with a concrete implementation.

20.

PHENOMENOLOGY OF EMERGENCE IN MUSIC - PRESENTATION OF THE PROCESSES OF SYSTEMIC EMERGENCE IN THE CONTRAPUNTAL AND IMPROVIZATIONAL ASPECTS OF BAROQUE MUSIC.

- SMALL CONCERT -

E. Pietrocini

According to the systemic perspective , it is possible to view the musical phenomenon in the light of those elements which characterize the dynamic process of Emergence; the non linear dimension, the level of complexity, the logical opening and the element of chaos. The musical event of an impromptu and improvised performance on the time space continuum, may represent the perceptible synasthetic process which both identifies and defines the observer/listener. The significance of the Emergence process and systemic coherence in the manifestation of an art form so directly linked to the idea of impermanence, finds an ideal representation through the realization of the origins of the creative process. To this end we will refer to the improvizational nature of Baroque music, as found in *Ciaccone*, *Passacagli* and *Ground*, but also to the vocal and instrumental production in closed and codified form with particular regard to the contrapuntal repertoire. Using the essential instruments of the *Basso Continuo*, the harpsichord and the bass viol, as well as the voice, the musical passages chosen will be reworked and performed in an impromptu manner. The resulting piece of music thereby constituting an original and unrepeatable composition, fruit of the improvization and interaction between musicians and their synergy with the public.

21.

TESTING DIFFERENT LEARNING STRATEGIES ON A SIMPLE CONNECTIONIST MODEL OF NUMERICAL FACTS ACQUISITION

S. Pinna, G. Fumera

The use of fingers for counting plays an acknowledged role in the development of early arithmetic skills. In this paper, the main question on which we will focus our attention is the following: *how does finger use in counting routines affects learning of arithmetical skills*?. We first analyze finger-using counting strategies from an algorithmic stance. Through this analysis it could be possible to inspect the relevant operations and the implicit knowledge necessary to perform that specific counting routine. Second, the algorithmic features of the finger-using counting routine will be simulated on a feed-forward back-propagation neural network designed to study the learning and retrieval of a set of basic number facts namely, the results of *single digit additions*. We tested the network on different learning strategies to check whether the strategy modeled on the finger counting routine gains any advantages. Moreover, we tested the net on the problem size effect for each of the learning strategies simulated. The results of the simulations show that the learning strategy based on the finger counting algorithmic features leads the net to a faster reduction of the

number of errors during the training phase and, interestingly, to reproduce the problem size effect. One of the main topics of *Systems theory* is the development of *nonlinear* models for the simulation of complex interactions between a system and its environmental conditions. In this paper we present a connectionist model of simple arithmetic in order to investigate if different learning strategies (seen as the *external* conditions of that model) may influence its performances independently of systemic properties.

22.

BEYOND NETWORKS: SEARCH FOR RELEVANT SUBSETS IN COMPLEX SYSTEMS

A. Roli, M. Villani, A. Filisetti, R. Serra

Networks are often used to represent the relations among the variables of a dynamical system. The properties of network topology are usually exploited to understand the organization of the system. Nevertheless, the dynamical organization of a system might considerably differ from its topological one. In this paper, we de-scribe a method to identify "relevant subsets" of variables. The variables belonging to a relevant subset should be strongly integrated and should have a much weaker interaction with the other system variables. Extending previous works on neural networks, an information-theoretic measure is introduced, i.e., the Dynamical Cluster Index, in order to identify candidate relevant subsets. The method solely relies on observations of the variables' values in time.

23.

THE EFFECT OF WRITTEN APPROVAL ON PUPILS' ACADEMIC AND SOCIAL BEHAVIOR: AN EXPLORATORY STUDY IN A NORTHERN ITALIAN MIDDLE SCHOOL

D. Rollo, F. Sulla, M.A. Massarini, S. Perini

There have been demonstrated effects of teachers' verbal approval on pupils' behaviour and academic achievement. Although much of the teachers' time is spent on marking pupils'work, not too much is known about the effect of written approval on pupils' academic and social behavior. Therefore, the aim of this exploratory study was to investigate the effect of written approval on pupils' academic performance and on-task behaviour. No effects have been demonstrated of written approval on pupils' academic performance, probably because of an overlap between approval and numerical grade functions. The effects of written approval on the increase of pupil's time on-task confirm the results of the literature on verbal approval.

24.

EPAS:
ARTIFICIAL INTELLIGENT SYSTEM FOR ASSISTANCE

G. Tascini

The paper introduces the emerging Complex Artificial Intelligent Systems, using computational reasoning, able to learn and experience the world through sensors and actuators. Artificial Intelligent Systems that are able to provide services very close to those of humans. Then the work describes the design of such a System, named EPAS, to support elderly in their problems: mobility, memory, leisure, health. A control software of EPAS, called MIND is conceived to recognize face and voice, interpret texts and human behaviour, learn environment and obtain a map, recognize 3D objects, drive EPAS, monitor health, remind and provide entertainment.

25.

FRACTAL SELF-SIMILARITY.
FROM GEOMETRIC STRUCTURES
TO DYNAMICAL COHERENT DYNAMICS

G. Vitiello

Under the conditions of constant magnetic field and harmonic scalar potential, electrodynamics appears to be isomorph to fractal self-similar structures and squeezed coherent states. Relevance of coherent states and electromagnetic interaction and ubiquity of fractals point to a unified vision of Nature.

26.

THINKING SMART CITIES
WITH FOCUS ON EMERGING IDENTITY ELEMENTS

V. Volpi, A. Opromolla, R. Grimaldi, V. De Cecio, M. Palatucci, C.M. Medaglia

In this paper we agree that the identity of a city is continuously redefined by emergent properties expressed through environmental transformation. So we identify and emphasize some elements that may help designers to appropriately consider the continuously changing state of a city. After the exploration and identification of codes and languages derived from collective actions, we identify and illustrate three examples in order to sustain our thesis: the re-semantization of specific city elements, the boundary conditions as source of system change, and the unconventional social behaviours as lurking soft protests. We conclude by sustaining that the *knitting* of the “traces” of the emergent properties is a precondition for the smart city design.

ASSOCIAZIONE ITALIANA MEDICINA E SANITÀ SISTEMICA (ASSIMSS)

Italian Association for Systems Medicine & Healthcare

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At present, the limitations of medical approaches do not allow to consider neither the variety nor the variability of the bio-psycho-socio-environmental context in a comprehensive view. This is today the main barrier for the required progress in all fields of medicine.
Systems thinking can help in overcoming these limitations because it allows a comprehensive approach of complex scenarios. Several innovative initiatives have been built with complex approaches to address specific medical needs from research to clinical applications and to health care systems management, accumulating considerable preliminary experiences. However, nowadays, these initiatives remain too much isolated and focused to enable the emergence of new systemic properties in medicine.
On this basis, to overcome the present medical and health-care sciences limitations, the Italian Association of Systems Medicine and Heath care (ASSIMSS) was created to inter-disciplinarily build a new perspective based on the epistemology of complexity to be applied in all the fields of medicine.

ASSIMSS is a non-profit, inter-disciplinary and inter-professional scientific society whose aim is to bring together all the interested professionals and associations in order to co-construct, promote, develop and disseminate a new scientific approach able to consider and include complexity in biomedical sciences, in the research, in therapeutic relationship, in health care organization and management, in health promotion, in the cure and in health-care. The overall main approach encompasses a bio-psycho-socio-environmental perspective to be applied at the epistemological, diagnostic, therapeutic and hygienistic levels.
Operational targets are: the new definition of medical knowledge, of its formation and dissemination in a systemic perspective; to design and implement original, participative and sustainable strategies, according to a bio-psycho-socio-environmental system; the new definition of quality, appropriateness, cost/efficacy, efficiency, prediction, personalization; novel medical ethics.
Practical instruments will be: working groups, a web-site, a national congress, a scientific interdisciplinary journal, a research section.

ASSIMSS operates:

1) by connecting the relevant existing cultural resources in the complexity and systemic medical field, with a special interest in epistemology and philosophy of science, in the generation and organisation of knowledge, in basic and clinical research, in clinical and specialist medicine, in interdisciplinary and inter-professional models, in diagnostic and therapeutic pathways, in patient-caring professional relationship, in counselling and health-care systems organization;
2) by organizing and promoting cultural activities in order to disseminate the ideas and the methods of Systems Medicine, with modalities which are coherent with the promoted approach;
3) by promoting scientific investigation through research and collaboration with other associations, societies and scientific bodies;
4) by defining models of development of professional know-how structured on complexity;
5) by the expressing official position statements, guidelines, recommendations;
6) promoting the implementation and the coordination of a complex approach to the medicine at the private or public level and collaborating at various levels of institutional management.

The expected result is the emergence of a new scientific medical culture whose axis will be the complex thinking, enabling the progress which is missing and impossible to achieve with the present epistemology.

ACTIVITY OF THE EUROPEAN UNION FOR SYSTEMICS (EUS - UES)

G. Minati

New President-elect 2014-2017

Evelyne Andreewsky (Died in 2007), PhD in Computer Science (Neurolinguistic Modelling), from Pierre & Marie Curie University, Paris VI, was Senior Researcher at the French National Research Institute I.N.S.E.R.M.
She was founder and honorary president of the Systems Science European Union (UES).

The Union, founded in 1988, aims at promoting European research and practice of systemics.
The EUS is a community of national scientific societies.
The EUS seeks to establish, through its network of companies, a favourable environment to the evolution of systemics (including its theoretical foundations, its methods and its implementation) and its diffusion, in particular by promoting transdisciplinary exchanges.

The activity of the UES

- 1st Congress: 3-6 October 1989 in Lausanne (Switzerland) organized by AFSCET (Association Française pour la Cybernétique Economique et Technique) with the support of the University of Lausanne, HEC-Inforg (Institute of Information and Organization).
- 2nd Congress: 5-8 October 1993 in Prague (Czech Republic) organized by the "Science and Information Systems" of Czechoslovakia and the College of Systemics of AFSCET with the support of the European Communities.
- 3th Congress: 1-4 October 1996 in Rome (Italy) organized by AIRS (Associazione Italiana per la Ricerca sui Sistemi) and ECONA (Interuniversity Center for Research on Cognitive Processing in Natural and Artificial Systems) with the support of the University of Rome "La Sapienza".
- 4th Congress: 20-23 September 1999 in Valencia (Spain) organized by the Society SESGE, with the support of "SECL Fundaciò Five Secles" of the University of Valencia and the Generalitat de Valencia.
- 5th Congress: 16-19 October 2002 in Crete (Greece) organized by the Greek Association of systemics (Hellenic Systems Society) together with a symposium of the European Association for Family Therapy and the support of national and local authorities.
- 6th Congress: 19-22 September 2005 in Paris (France) organized by AFSCET (Association Française de Science des Systèmes Cybernétiques, Cognitifs et Techniques)
- 7th Congress: 17-19 December 2008 in Lisbon (Portugal), organized by the Portuguese Association of systemic APOCOSIS (Associaçao portugesa de Complexidade Sistémica)
- 8th Congress: 19-22 October 2011 in Brussels, organized by S&O (Systèmes & Organisations) the Belgian affiliate. Congress' theme "Systemic approach of diversity: from knowledge to practise - from practise to knowledge".
- 9th Congress: 15-17 October 2014, in Valencia (Spain). Congress theme "Globalization and Crisis. Complexity and governance of systems".

PROPOSAL FOR A NEW UES

a) Introduction: the new scenario

The original purposes were to 1) sustain and aggregate international participation and support not yet established national systems societies, 2) encourage their establishment, and 3) consolidate national systems societies already active.
Since 1988 the scenario completely changed since systems research is not pioneering anymore, but, rather, used in a huge variety of disciplinary approaches like in Biology, Economics, Engineering, Mathematics, Medicine, Physics, and Psychology, being very difficult to find a problem where the concept of system is not used or does not apply.

- The UES must ask itself why authors should present and attend its congresses, publish with it?
- What does UES offer that others do not?
- What is special with the UES? What is their market?
- The usual market is now crowded!

b) The proposal

Taking count of the new scenario we think that the future activity of the European Systems Union should be not anymore concentrated on triennial heavy congresses.
We suggest future activities of the UES, non-academic institution, will be multidimensional, i.e.

- having medium level, high students, and educators in mind,
- focused on more frequent, flexible, lighter events like short meeting to discuss papers with authors;
- seminars organized, for instance, in universities, schools, and companies based both on venue and on-line participation; and
- professional issues.

The subjects, related to systemic issues and advanced topics like ones related to complexity, should be both:

- proposed by the UES asking member systems societies for organize the event and look for eventual interested institutions, and
- proposed by member systems societies or by any institution or individual proposing the theme directly to the UES.

Such events may act as lab for, instance, for

- presenting incomplete, on-going researches, proposals, works in progress, ideas, approaches and methodologies looking for systemic discussion;
- invite speakers presenting consolidated or researches in progress;
- discuss frontier or controversial topics.

A first attempt is the organisation of seminars.

- The first seminar was titled “The post-industrial societies dealing with complexity: knowledge to manage the knowledge society” September 20, Charleroi, Belgium and was very successful.
- The organization of the second seminar on “The research activity on architecture and social systems” is in progress.

The UES activity, in cooperation with other institutions, should be characterised by experimental openness when intelligent mistakes, i.e. requiring new knowledge to be confuted or conceptually opening new approaches, are scientifically and culturally more productive than contributions based on consolidated approaches having general consensus.
In this way the UES should act also as an incubator, think tank.
The UES should enable the permanent commissions and specialized research to:

- interact with external resources to select projects, guest speakers, identify opportunities, make suggestions ...
- particularly deal with disciplinary research, professional, academic sectors, educational, artistic, sporting and transdisciplinarity.

The mission of the President and the Secretary-General is to ensure systemic contents of the general work of the Organization.
The web page must be provided with information concerning the international systemics societies, short articles by different sectors, as well as references to current researches.

c) The next 2017 Congress is tentatively scheduled in Italy.