

# ASSYST

Complex Systems Society

Number 27, February 2012 | [www.assystcomplexity.eu](http://www.assystcomplexity.eu) | [www.cssociety.org](http://www.cssociety.org)

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## A Busy Programme

**A** new year, new challenges, a very busy programme. It is time to consider submitting an abstract to the next "European Conference on Complex Systems 2012", that will be held at the Université Libre de Bruxelles, between the 3rd and the 7th September. Following the ECCS conferences tradition, ECCS'12 will be the most important annual meeting for the Complex Systems community. See the new call in our pages.

Meanwhile, other events are reported in the newsletter, such the "Interdisciplinary Workshop on the Evolution of Social Norms" held at the Henley Business school last December, and announced like the "Workshop on Social Stigmergy", Lisbon, 3-4-5 February, and the "Exploring the Future in Complex Social Systems for Decision Making", University of Florence, 13th February.

This issue of the ASSYST/CSS newsletter includes other calls, announcements and news relevant to the community, including the all-important Reading Snippets.

Enjoy !

-- The ASSYST Team



Ants trail – Insect Stigmergy

## Call for Abstracts

# European Conference on Complex Systems 2012 – ECCS'12

3-7 September 2012 at Université Libre de Bruxelles

The program of ECCS 2012 extends over three days (Monday 3, Tuesday 4 and Friday 7 September). The two remaining days (Wednesday 5 and Thursday 6 September) are reserved for satellite events.

In addition to the Sunday 2 September opening lecture and the 8 keynote lectures, the main conference will feature 13 invited plenary talks and a total of 108 oral contributions taking place in 6 parallel sessions which will be structured around the six main Tracks. An additional 200 posters will be displayed in three poster sessions.

Authors are invited to submit an abstract through the conference website. Abstracts should consist of 2 to 6 pages (from 7,500 to 20,000 characters) written in English, and should provide a summary of the main results, include background and methods, as well as relevant references. The subject should draw on material that is either unpublished, whether submitted to a peer-reviewed Journal or not, or published not earlier than January 2011.

Abstracts are submitted via the easychair website. Authors who do not have an easychair account should sign up for an account (for identification purposes, make sure to use the same email address as the one used for the conference registration). Abstracts are submitted to one of the six conference main tracks. Submissions will be reviewed by independent track committees which form the program committee. Accepted abstracts will be selected either for oral communication or poster presentation. The most representative among the abstracts selected for oral presentations will be proposed for plenary sessions.

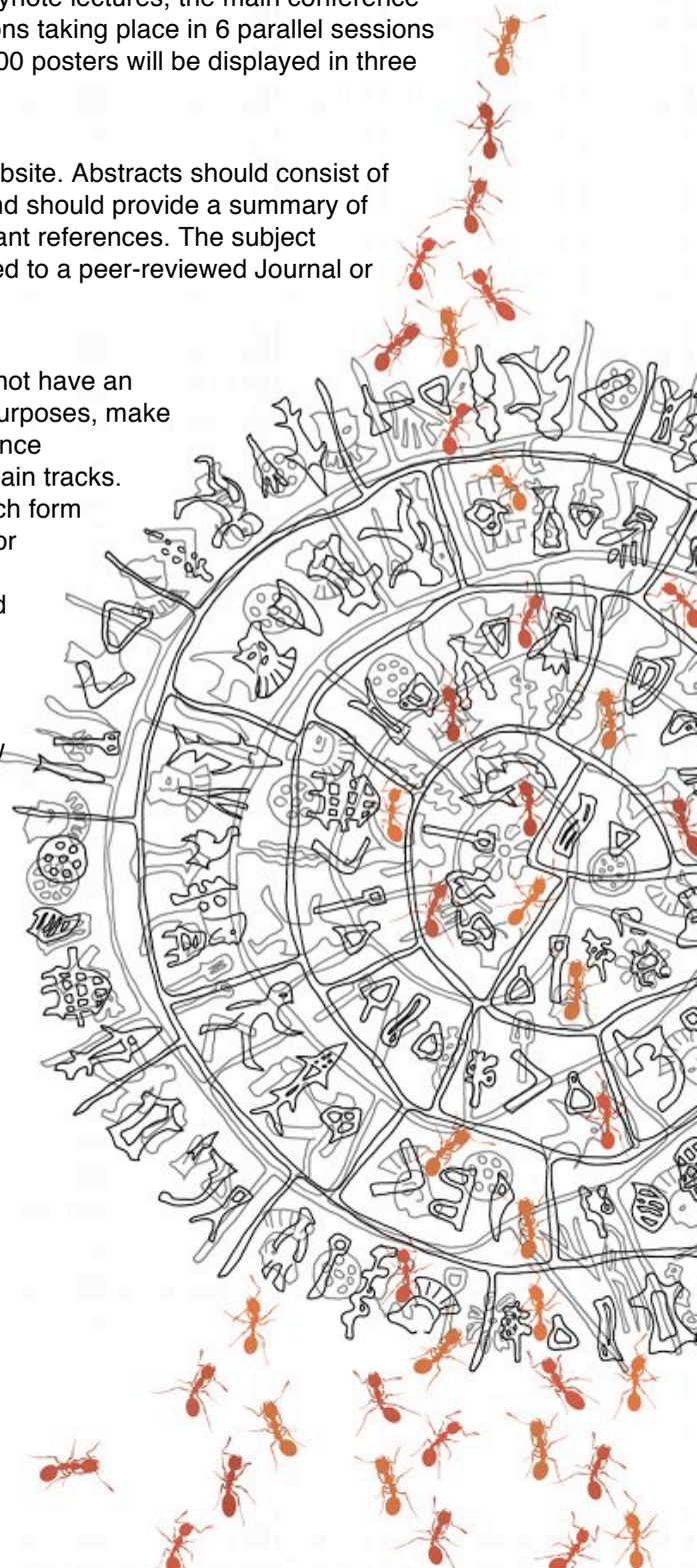
The deadline for submission of abstracts is 30 March 2012. Corresponding authors will be informed of the outcome of the review and selection process by 1 June 2012.

All the accepted abstracts will be published in the online repository of the Complex Systems Society proceedings. Authors of accepted abstracts may submit full papers for inclusion in the online proceedings. Full paper submission is optional. The deadline for full paper submission is 21 September 2012.

## Main Tracks

- Foundations of Complex Systems
- Complexity, Information and Computation
- Prediction, Policy and Planning, Environment
- Biological Complexity
- Interacting Populations, Collective Behavior
- Social Systems, Economics and Finance

For more details visit <http://www.eccs2012.eu/>



# Interdisciplinary workshop on the evolution of social norms

By David Hales

**A** two day workshop exploring the evolution of social norms took place at the Henley Business school, Henley-on-Thames, UK, on the 15 and 16th of December 2011. Keynote talks were given by Marc Casson (University of Reading), Sharad Goel (Yahoo! Research) and Mason Porter (University of Oxford). In addition a further five talks were selected for presented based on submitted abstracts.

The workshop brought together researchers from academia and industry to discuss theoretical (development, influence of attitudes, etc.) and methodological issues (mathematical modelling of group dynamics, actor-based modelling, social-network analysis) concerning the evolution of social norms.

The main objective of the workshop was to help define a future research agenda exploring opportunities for cross-disciplinary research in this field.

During the workshop a number of "round table" brainstorming sessions focused on defining open research problems within the area particularly those requiring exchange between private sector R&D, academia and public sector / policy stakeholders. The well attended talks and discussions provoked an active debate covering a number of overlapping areas. The concept of social norms can be approached in different ways. Two broad approaches were evidenced during the workshop. Casson opened the workshop with a good summary of the first approach. Here the focus is on grounding social norms on rational economic behaviour and also including things such as leaders propagating norms to groups



and competition between, and imitation of, norms. This can be contrasted with, what might be described as, a more emergent kind of approach in which norms are seen to spontaneously emerge from simple forms of imitation and interactions. This latter approach tends to assume simplistic agents operating without reference to rational action, plans or goals. It could be argued that some of the recent fashionableness of the simplistic approach (at least within physics circles) relates to the ability to produce tractable models and empirical hypothesis (related to the "big data" coming from the new online networks).

The other keynote talks by Goel and Porter focused on structures found in data from social networks. Interestingly, these kinds of study produce what one would expect from good empirical work - more questions than answers, but clearer and testable hypotheses. Indeed, what is

evidenced is that many widely held assumptions about online social networks and how they operate may be far from true.

One major theme that emerged from the discussions was the role that models of social norms, and how they are mediated by technology, have particular relevance to issues in policy and public sector service delivery.

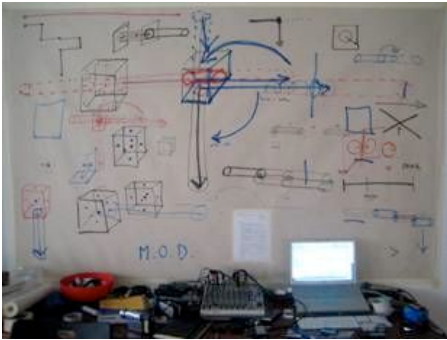
For those who are interested the presentation slides and videos of the talks will be made available on the ASSYST website soon.

The organising committee for the workshop was: Marina Della Giusta, School of Economics, University of Reading Rachel McCloy, School of Psychology, University of Reading Danica Vukadinovic Greetham, School of Mathematical and Physical Sciences, University of Reading Jeffrey Johnson, ASSYST and The Open University

### Workshop on Social Stigmergy

Lisbon, 3-4-5 February 2012

By João Fiadeiro



**W**e are so comfortable with the idea that there is some “author” behind events, some bright and inspired hand leading us the way, that we hardly accept the fact that something extraordinary and creative might happen in a collective, emergent and auto-organized way. However, when we look to nature we

see biological ecosystems, we see social collaboration phenomena such as Wikipedia, we understand that the most interesting and relevant events happen as a consequence of decisions taken by many “anonymous agents”, leaving signals in their environment, but where the overall result is independent of agents individual interests. What is really fascinating is that the “software” that we need for activating this mode of cooperation is already installed in our bodies. We just need to find it, tune it, activate it. This is what the Real-Time Composition method does. In the Complex Systems Science vocabulary, this signaling/cooperation process corresponds to the notion of “stigmergy”, word resulting from joining the greek words “stigma”

(mark, signal) and “ergon” (work, action).

#### Programme

3rd and 4th February - practice of RTC with the students from the Master and Doctoral Programme in Complexity Sciences (IUL and FCUL, Lisbon).

5th February - Data processing; discussion of graphical/textual ways of representing the experiments.

Organisation: João Fiadeiro and Jorge Louçã

Venue: Atelier RE.AL, Lisbon

### Groningen Center for Social Complexity Studies



**T**he university of Groningen as launched a new research center for Social Complexity Studies. How interactions between individual people or animals give rise to group phenomena such as the diffusion of

new behaviours, social networks, societal polarisation, crowd behaviours and spatial arrangements is the key question around which researchers from the GCSCS gather. Using empirical and simulation methodologies, we try to identify the processes that explain such phenomena, and if possible, identify managerial strategies.

The GCSCS serves as a platform connecting researchers at or affiliated with the University of Groningen working in the field of social complexity. The aim of the GCSCS is to provide high quality research and education, interacting actively with business, government and the public, and in particular to address the goal of stimulating cross-border research and education.

Within the GCSCS many topics are being studied, a.o.:

- Consumer behavior, market dynamics and innovation
- Dynamics of social organizations
- Task allocation in teams
- Social network dynamics
- Social structures and self-organisation in animal societies
- Opinion dynamics
- Social conflict
- Dynamics of crowds

Website: <http://www.rug.nl/gcscs/index>

## Innovative Public Policy and the Role of Complexity Science

By Sylvie Occelli

Recent economic events have deeply shaken the socioeconomic systems all over the world. As policy makers are being asked to provide remedies a growing concern is mounting about the fact that the approaches used so far simply are ineffective and do not work any longer. While the dissatisfaction about the so called standard model has been recently acknowledged also in an institutional arena[1], the feeling that a change of paradigm is needed to deal with human organizations and their behaviors has been around for some time by now.

Indeed over the last fifty years a number of epistemological, technological and cultural changes have occurred which have progressively dismantled many of the underlying axioms of conventional approaches to human activity systems, such as perfect rationality, equilibrium and linearity. As the system complexity features have become increasingly apparent, a flourishing number of studies have been carried out in different domains to investigate their building blocks and production processes. Scientists in physics, geography, computer science, sociology, economy and management, have engaged to provide insights into how human behaviors, organizations, social norms and cultural institutions encroach in and superimpose one another, generating novel organizational patterns and evolution paths. A policy activity which purports to give advantages to human systems' well being cannot neglect these novel features. Today societal transformations, such as those brought about by globalization, ICT impacts, sustainability and democratic progress, add further stimuli policy approaches cannot overlook. Concerns about efficiency, effectiveness and equity therefore need to be extended to include additional issues, such as citizen participation, ethics, peer-to-peer communication and responsibility in resource generation. As the complexity of policy design and management has to match the complexity detected in the human activity systems, it is increasingly apparent that the current policy production process shall change; it has to align itself with the transformations occurring in society but also engage in leveraging those more socially viable.

Although there is plenty of evidence for this need, the ways by which policy activity have to transform (innovate itself !) raise challenging questions in a peer extended community, where both scientific and lay knowledge are involved, i.e.:

1. Enhancement of the capability in linking expectations, aims and outcomes of policy initiatives: policy makers are more and more required to have both an external point of view (understanding dynamics and features of the policy landscape) on problems and an internal perspective (re-aligning public organizations, improving social

participation, sharing information) to integrate a top-down and bottom-up perspective;

2. Innovative spur: policy effectiveness calls for innovative procedures, foresights in detecting criticalities and creativity in problem solving, while having to comply with (or modify) existing normative rules and practices;

3. Societal outcome: policy evaluation and accountability need to be reinterpreted within a learning process able to support also by means by ICT empowered networks, management and control, whereby the system is not a passive but an active recipient.

This Special Issue E:CO would like to take the challenge and be a catalyst for the many interdisciplinary research efforts which are already being undertaken to address these questions in the light of complexity science. In fact, all members of a peer extended community who care to improve policy activity for the sake of humanities progress should feel concerned. We therefore highly welcome contributions from the complexity science community as well as from other fields such as cybernetics, system theory, hard sciences, cognitive science, computer science, organization and management science, philosophy, political science, sociology and economics.

Contributions (max 20 pages) should be broad in scope and have both theoretical and practical relevance, with special attention to real world problems. Moreover, to be of interest to policy makers and appealing for an interdisciplinary audience, contributions dealing with general approaches and case study are both welcome. Formal and meta-models, as well as computer programs and simulations, meant to make it easier the understanding and communication of more abstract concepts are valued.

Dead lines:

1. Submission: June 15th, 2012 (please adhere to the submission guidelines at <https://emergentpublications.com/ECO/submissions.aspx>)
2. Revised version: October 30th, 2012; 3. Publication December 31st, 2012.

Please send all submissions to both Dr. Sylvie Occelli ([occelli@ires.piemonte.it](mailto:occelli@ires.piemonte.it)) and Dr. Simone Landini ([landini@ires.piemonte.it](mailto:landini@ires.piemonte.it)). If you intend to submit, please send an email, with a short abstract to Sylvie as soon as possible.

NOTES [1] See the statement by Jean-Claude Trichet at the 2010 Annual European Central Bank Conference. "As a policy maker during the crisis, I found the available models of limited help. In fact, I would go further: in the face of the crisis, we felt abandoned by conventional tools".

# Exploring the future in complex social systems for decision making

By Ferdinando Semboloni

February 13th , 2012 - Department of Urban and Regional Planning - University of Florence

The aim of the meeting is to discuss the interplay of three fields: complex systems, exploration of the future, and decision-making. Complex social systems are spontaneously organized, even though exploration of the future and decision-making are considered as conscious reflexive activities aiming at steering the system. Therefore the discussion will focus in the following relations:

- complex systems and exploration of the future;
- complex systems and decision-making;
- exploration of the future and decision-making.

We want to gather scholars from different fields: physics, mathematics, economics etc. to discuss these topics, both in theoretic and practical terms presenting case studies concerning the exploration of future for decision-making.

## Complex systems and exploration of the future

Social systems are reflexive, and capable of creating a description of themselves. This description is usually oriented to steer the system, and, for this reason, it tries to anticipate the future, or what one expects it may happen. But the uncertainty about the future is high, in complex systems, especially in periods of turbulence, and many are the possible futures that one may foresee.

The turbulence may be a symptom of a phase transition. According with the punctuated equilibrium theory the evolution of a system consists in long period of slow adaptation and short highly dynamic periods in which the crucial parameters overcome some



thresholds, and the system's behavior changes dramatically, in a way that is extremely difficult to forecast.

Predicting of the future is subject to a paradox: when the system is in a phase of linear evolution, the forecast is easy but not interesting, in turn, when the dynamics is accelerated due to the phase transition of the system, then the forecast becomes interesting but also highly difficult.

Therefore we need an insight of the future in which parameters that are currently in use will be radically changed, such as after a disaster, or after an intense economic growth. As it has been said: "Any useful idea about the future should appear to be ridiculous". Instead of predicting the future we are thus forced to explore it, moving in a landscape in which many possibilities are open, and imaging scenarios totally different from the current situation, in order to minimize the surprises that uncertainties have in

store for us, as we meander into the future.

In addition, to explore the future we keep in mind that social systems are composed of sub-systems with different volatility. While for instance stock markets change very rapidly, the population dynamics is slow in comparison. When the relationships among these sub-systems are established one can easily utilize the trend of the slow evolving sub-systems, to help forecast of the whole systems. Furthermore, assuming that the fundamental economic laws remain unchanged, models with appropriate parameters could be used to ensure the internal consistency of the scenarios.

### Questions for the discussion:

How to explore the future in complex social systems? May models be utilized to generate scenarios with parameters, and rules of the dynamics consistently changed? What about the

utilization of distributed knowledge and crowd sourcing for generating scenarios?

## Complex systems and decision making

Complex social systems generate emergent phenomena, nonlinearity, and self-organization. Therefore planning or steering of such systems is considered as a hard task by scholars such as Hayeck. In his opinion the hidden order is the one that governs the economic and social phenomena, and, like Darwinian evolution, is a force which is hard to resist.

Nevertheless, social systems are reflexive, and capable of self-steering without a central controlling agency. Individuals and groups of individuals, usually make plans, so that the future and the evolution of the society is the results of the interplay of all these small and huge plans. Although politics has been specialized in steering society, it becomes just one of the planning centers in the society, because of the multi-centrality of the social structure.

In a multi-centered society the possibility of planning and steering paradoxically should rely its self-organized character, and in the heterogeneity of the interests at stake. The realization of a vision should take advantage of the self-organization to guide development, accompanying and orienting the evolutionary processes of society. Projects such as Swarm Planning, and Transition Management try to manage the transition to the sustainable development in this way. The heterogeneity of the interests should makes possible the organization of planning from the bottom. The intentions of the actors should be discussed and eventually integrated into the plan. So that the plan in progress, would be formed with a sort of crowd-sourcing, respecting established rules.

### Question for the discussion:

Which are the relations between self-organization and steering? Which are the relationships among the plans of individuals, groups of individuals,

firms, and politics? How the steering of the complex system emerges from conflict and collaboration?

## Exploration of the future and decision-making

Prediction and decision making are related by a paradox. Operating in the future, planning needs a prediction that, strictly speaking, can be obtained only if it has to do with a deterministic world, and if the deterministic laws are known. But if this were true, then the future would be entirely determined, leaving no room for planning. So a perfect planning and perfect foresight are mutually exclusive.

In addition, due to the complex character of social systems, a social prediction is reflexive: self-fulfilling or self-defeating. Predictions are thus able to alter the course of events, changing the behavior of single actors which will help or hinder prediction thus generating a cascade phenomenon.

The shift from prediction to exploration partially solve the problem, because the scenarios just describe possible futures. However the problem of the relation between knowledge and action still remains. From one hand scenarios have to push decision makers to do something other than that indicated by past experience, otherwise they are nothing more than interesting speculation. On the other hand the question is whether is the future merely an externality we must face, or is it something we can create. In this last occurrence, opportunities open up to us, that we might not see if we are so focused on reacting to external change. If our planning methodologies fail to take our ability to create the future into account we will miss those opportunities. Therefore we must incorporate into scenario planning, some means to account for our ability to create the future.

### Questions for the discussion:

How to include the risk in the exploration of the future? How the creationist approach to the future will affect the scenarios? Is the prediction a conscious attempt to influence the future evolution of the system?

## Crowdsourcing

The idea behind the wisdom of crowds is that a crowd of people, without knowing each others opinions, make better choices than selected experts. In the exploration of future (and in decision making too) people, whether individuals or stakeholders, play a crucial role.

### Questions for the discussion:

Which will be the role of people, firms, institutions etc. in the formation of the knowledge, and in exploring the future? What about wiki-planning a method to participate in the decision making concerning plans and projects.

## The Florentine area as case study

In the discussion, the Florentine area, among others, will be considered as case study. This area is now facing an uncertain future. The economic crisis has diminished many of the traditional activities performed by small firms. Although industrial activities are still present, the city's economy is largely based on the administrative activities and on services such as health care, and university, relying on public funding that the current crisis is likely to decrease consistently. The research sector is well developed but with few connections with the manufacturing activities. The tourist-related activities and the exhibition conference center, lack of efficient flight connections with the European cities. Moreover the limited extension of the expansion area, and an incremental urban politics resulted in a scattered urbanization which deprived the agricultural activities, while leaving a limited space for the strategic infrastructures such as the airport.

### Questions for the discussion:

Are politicians, holding their functions for five years, interested in long range scenarios? How conflicts arising from the need to protect the interests of different areas may be integrated into a shared vision of the future? Is town and country planning able to steer a complex system facing an uncertain future?

## Conferences

<http://www.assystcomplexity.eu/conferences.jsp>

### ICAART 2012

4th International Conference on Agents and Artificial Intelligence  
Vilamoura, Algarve, Portugal  
6 Feb 2012 to 8 Feb 2012

### ComplexNet 2012

3rd Workshop on Complex Networks  
Melbourne, Florida, USA  
7 Mar 2012 to 9 Mar 2012

### IWSOS 2012

Sixth International Workshop on Self-Organizing Systems  
Delft, The Netherlands  
15 Mar 2012 to 16 Mar 2012

### INSC 2012

5th International Nonlinear Science Conference 2012  
Barcelona, Spain  
15 Mar 2012 to 17 Mar 2012

### SESOC2012

4th International Workshop on Security and Online Social Networks  
Lugano, Switzerland  
19 Mar 2012 to 19 Mar 2012

### Evostar 2012

Evostar 2012  
University of Málaga  
11 Apr 2012 to 13 Apr 2012

### CI2012

Collective Intelligence 2012  
MIT, Cambridge, MA, USA  
18 Apr 2012 to 20 Apr 2012

### ISCRAM2012

The 9th International Conference on Information Systems for Crisis Response and Management  
Vancouver, Canada  
22 Apr 2012 to 25 Apr 2012

### SDM 12

The Twelfth SIAM International Conference on Data Mining  
Anaheim, California, USA  
26 Apr 2012 to 28 Apr 2012

### ICECCS2012

17th IEEE International Conference on Engineering of Complex Computer Systems  
Ecole Normale Supérieure, Paris - France  
18 Jul 2012 to 20 Jul 2012

### ECSS12

European Conference on Complex Systems 2012  
Université Libre de Bruxelles  
3 Sep 2012 to 7 Sep 2012

## Jobs

<http://jobs.cssociety.org>

### PhD

Two Marie Curie PhD positions in computational systems biology  
BioProcess Engineering Group Instituto de Investigaciones Marinas (C.S.I.C.) Spanish Council for Scientific Research  
C/Eduardo Cabello 6 36208 Vigo  
Spain - Thu 01 of Mar., 2012

### Teaching/Research Assistant

Maitre de Conférences en Physique Statistique des Systèmes Complexes  
CPT, Université d'Aix-Marseille  
France - Sun 01 of Apr., 2012

### Postdoc/Lecturer

Theoretical understanding of multi-scale dynamics of brain networks  
Italian National Institute for Nuclear Research  
Italy - Sat 01 of Dec., 2012

### UCD Research Fellow (2 yrs)

Prof. Dr. Petra Ahrweiler  
Innovation Research Unit – UCD Dublin  
<http://casl.ucd.ie/iru/>  
University College Dublin,  
Belfield,  
Dublin 4, Ireland

## Contributors to this edition:

Jane **Bromley**, João **Fiadeiro**, David **Hales**, Jeff **Johnson**, Jorge **Louçã**, Sylvie **Ocell**i, David MS **Rodrigues**, and Ferdinando **Sem**boloni.

### Story submission guidelines:

If you are a Complex System researcher/practitioner and want to share a success story about your work / research please submit it to [newsletter@assystcomplexity.eu](mailto:newsletter@assystcomplexity.eu).

The story should approximately 500 words (if you want to submit an extended story please contact us) and should be sent in TXT, ODT, RTF or DOC file formats.

## Contacts

### ASSYST - Action for the Science of complex Systems and Socially intelligent ICT

Web: <http://assystcomplexity.eu>  
RSS: <http://assystcomplexity.eu/rss.xml>  
Twitter: <http://twitter.com/assystcomplex>  
FriendFeed: <http://friendfeed.com/assystcomplex>  
Email: [newsletter@assystcomplexity.eu](mailto:newsletter@assystcomplexity.eu)

Feedback: <http://assystcomplexity.ideascale.com/>

### CSS – Complex Systems Society

Web: <http://cssociety.org>  
RSS: [http://cssociety.org/tiki-calendars\\_rss.php](http://cssociety.org/tiki-calendars_rss.php)  
Suggestions: <http://cssociety.org/suggestions>

The ASSYST project acknowledges the financial support of the **Future and Emerging Technologies** (FET) programme within the ICT theme of the Seventh Framework Programme for Research of the European Commission.



# Reading Snippets

## Conditional strategies and the evolution of cooperation in spatial public goods games

The fact that individuals will most likely behave differently in different situations begets the introduction of conditional strategies. Inspired by this, we study the evolution of cooperation in the spatial public goods game, where besides unconditional cooperators and defectors, also different types of conditional cooperators compete for space. Conditional cooperators will contribute to the public good only if other players within the group are likely to cooperate as well, but will withhold their contribution otherwise.

In arXiv <http://arxiv.org/abs/1201.5626>

## Clay Shirky: Why SOPA is a bad idea

What does a bill like PIPA/SOPA mean to our shareable world? At the TED offices, Clay Shirky delivers a proper manifesto -- a call to defend our freedom to create, discuss, link and share, rather than passively consume.

In Ted.com  
[http://www.ted.com/talks/defend\\_our\\_freedom\\_to\\_share\\_or\\_why\\_sopa\\_is\\_a\\_bad\\_idea.html](http://www.ted.com/talks/defend_our_freedom_to_share_or_why_sopa_is_a_bad_idea.html)

## Predator-prey dynamics in a uniform medium leads to directed percolation and wave-train propagation

The dynamics of birth death processes with extinction points that are unstable in the deterministic average description has been extensively studied, mainly in the context of the stochastic transition from the mean field attracting fixed point to the absorbing state. We here study the opposite case of a small perturbation from the zero population absorbing state. We show that such perturbations can grow beyond the mean field attracting fixed point and then collapse back to the absorbing state. Such dynamics can represent, for example, the fast growth of a pathogen and then its destruction by the immune system

In Physical Review E  
<http://pre.aps.org/accepted/E/8307bRefG921510297597f64c0d15bc7bf4021823>

## Experiments on oscillator ensembles with global nonlinear coupling

We experimentally analyze collective dynamics of a population of 20 electronic Wien-bridge limit-cycle oscillators with a nonlinear phase-shifting unit in the global feedback loop. With an increase in the coupling strength we first observe formation and then destruction of a

synchronous cluster, so that the dependence of the order parameter on the coupling strength is not monotonic. After destruction of the cluster the ensemble remains nevertheless coherent, i.e., it exhibits an oscillatory collective mode (mean field). We show that the system is now in a self-organized quasiperiodic state, predicted in Rosenblum and Pikovsky

In Physical Review E  
<http://pre.aps.org/abstract/PRE/v85/i1/e015204>

## Ancient Islamic architects created perfect quasicrystals

A researcher in the US reports to have found the first examples of perfect quasicrystal patterns in Islamic architecture. Her upcoming paper also describes how the designers were creating these geometric patterns from as early as the 12th century CE using nothing but rudimentary tools. It was not until the 1970s that academics began to develop mathematics that could explain these striking patterns seen in nature.

In Physicsworld  
<http://physicsworld.com/cws/article/news/48493>

## Social Media and the Emergence of Open-Source Geospatial Intelligence

The emergence of social media has provided the public with an effective and irrepressible real-time mechanism to broadcast information. The great popularity of platforms such as *twitter* and *YouTube*, and the substantial amount of content that is communicated through them are making social media an essential component of open-source intelligence. The information communicated through such feeds conveys the interests and opinions of individuals, and reveals links and the complex structure of social networks.

In GIS and Agent-Based Modeling  
<http://gisagents.blogspot.com/2012/01/social-media-and-emergence-of-open.html>

## The h-index, or the academic equivalent of the stag's antlers

Many scientists worry that theirs isn't big enough. Even those who sniff that size isn't everything probably can't resist taking a peek to see how they compare with their rivals. The truly desperate can google for dodgy techniques to make theirs bigger.

In The Guardian  
<http://www.guardian.co.uk/commentisfree/2012/jan/06/bad-science-h-index>