Prof. Henrik J. Jensen (Department of Mathematics, Imperial College London).
Since 1992 Prof. Jensen has lead a research group in complexity in the Mathematical Physics section of the Mathematics Department at Imperial College London. In particular he is interested in dynamics and evolution of complex system, with a special interest in the dynamics of superconducting vortices and models of biological evolution. His work on the magnetic relaxation in type II superconductors lead to the conclusion that non-equilibrium slow glassy dynamics is of crucial importance to the interpretation of a large number of experimental situations. At the theoretical level intermittent logarithmically slow time dependence (describable in terms of record dynamics) was recently found by Jensen's group in the so-called Tangled Nature model of evolutionary ecology, and models of magnetic relaxation in superconductors, and related to dynamics in spin-glasses. Together with Paolo Sibani he has recently finish the book *Stochastic Dynamics of Complex Systems* (Imperial College Press). On invitation by Cambridge University Press he wrote the first book on *Self-Organized Criticality* with a focus on technical aspects.
http://www2.imperial.ac.uk/~hjjens/

Prof. Kim Christensen (Department of Physics, Imperial College London).
Prof. Christensen works in the field of complex systems with an emphasis on far-from-equilibrium phenomena. He was the co-inventor of the Olami-Feder-Christensen (OFC) model of earthquakes widely discussed in the literature. The OFC model is derived from the two-dimensional Burridge-Knopoff model of earthquakes. His and his coauthors' experimental study of granular flow, showing that scale-free behavior may emerge as long as friction dominates, has been published in *Nature*. They also invented a simple one-dimensional granular model that plays the role of an "Ising model" for a large universality class, including possibly the one-dimensional spring-block version of the Burridge-Knopoff model. Moreover, analysis of real earthquake data has revealed that the distribution of waiting times obeys a simple unified scaling law also reported in *Scientific American*'s news scan, June 2002. He has also led the research that showed that rain events are analogous to a variety of non-equilibrium relaxation processes in nature such as earthquakes and avalanches by having a scale-free distribution of rain event sizes, also featured in *New Scientist* News column, May 2002. Finally, he has co-authored a book entitled *Complexity and Criticality* published by Imperial College Press.
http://www.cmth.ph.ic.ac.uk/people/k.christensen/

Dr. Marián Boguñá (Departament de Física Fonamental, Universitat de Barcelona).
Dr. Boguñá works in the field of Complex Networks. He has contributed to the understanding of the structural properties of networks at the fundamental level –with works on percolation, clustering in networks, etc.-- and the effects that topological characteristics may have on the behavior of dynamics taking place on them --epidemic spreading, reaction-diffusion processes, etc. At this respect, he is well known for his work on the development of random graphs models with hidden variables or the effect of degree correlations on epidemic spreading. During the last five years, Dr. Boguñá's research interests have focused on the application of these fundamental knowledge to real systems and, in particular, to the Internet and its most fundamental dynamics, routing information or, more generally, unsupervised navigation of complex networks. This has led to the development of a new class of network models embedded in complex (hyperbolic) geometries that, quite surprisingly reproduce real networks extremely well. Even more surprising is the fact that the very same class of models also explains the topology and evolution of the causal structure of our Universe. He has published his results in *Nature, Nature Communications, Nature Physics,* and *PNAS.* He got the Outstanding Referee award of the *American Physical Society* in 2008 and the ICREA Academia award in 2011.
http://complex.ffn.ub.es/~mbogunya

Dr. Gunnar Pruessner (Department of Mathematics, Imperial College London).
Dr. Pruessner works in the field of non-equilibrium physics and its applications in biological and man-made systems. Applications range from surface and crystalline growth to scaling in ecotones. He applies field theoretical techniques extensively, as well as large scale numerics. The main focus of his research is complexity and self-organized criticality (SOC) with the objective to bring to bear the most successful technique of statistical mechanics, namely renormalized field theory. He was able to relate the largest universality class in SOC to the well studied quenched Edwards-Wilkinson equation, establishing rigorously for the first time an intimate link between traditional non-equilibrium critical phenomena and SOC. Very extensive computer simulations of the most robust and solid model in SOC, the Manna Model, provide further evidence for universality and the existence of an epsilon-expansion. Recently he completed a 500 page monograph on SOC published by Cambridge University Press. In 2009 he was chosen as an outstanding referee for *Physical Review* and *Physical Review Letters* by the *American Physical Society*.
http://www2.imperial.ac.uk/~pruess

Dr. M. Ángeles Serrano (Departament de Física Fonamental, Universitat de Barcelona).
Dr. Serrano is Ramón y Cajal research associate at the University of Barcelona. She obtained her PhD in Theoretical Physics and later she also obtained a master degree in Mathematical Finance. After four years of professional career in the private sector as IT consultant and mutual funds manager, she returned to academy in 2004. Dr. Serrano is an expert on the field of complex networks, including both theoretical aspects and applications to a wide variety of real systems from an interdisciplinary approach. At the theoretical level, she has focused on the study of the structure of complex networks (percolation, correlations, hidden metric spaces and node similarity measures) and of spreading and diffusive processes on random networks; the analysis of real systems includes economic networks, information technology systems like the Internet and the WWW, and biological networks in the cell. The results of her research are summarized in a number of works including book chapters, conference proceedings and articles in major peer reviewed international scientific journals. Currently, she is actively involved in teaching, advising and research supervision, and participation in diverse committees, including that of `complexitat.cat`. In 2009, she obtained the Outstanding Referee award of the *American Physical Society*.
https://sites.google.com/site/marianserranom

Dr. Antonio Turiel (Institut de Ciències del Mar, CSIC).
Dr. Turiel is the Head of Physical Oceanography Department of ICM and works in the empirical modelization of turbulence, specially applied to the case of ocean turbulence at the mesoscale and submesoscale. He developed specialized algorithms for singularity analysis of real, digitized, noisy signals, what has lead to the theoretical foundations of the Microcanonical Multifractal Formalism (MMF), a new view on multifractal systems which goes beyond the classical characterization by global average variables (structure functions) and allows to characterize the local multiscaling behavior (singularity exponents) at each point of a given realization of a multifractal system. The application of MMF has open new applications in the analysis of remote sensing of the ocean, such as the derivation of ocean currents from snapshots of scalar variables such as sea surface temperature, or the fusion of different scalars to fill data gaps and to reduce noise. The scope of application of MMF goes well beyond turbulent flows, including stock market prices, water temperature, speech records or image processing. This research has led also to the registration of one patent. Dr. Turiel also maintains an influential blog on the energy crisis, in Spanish (`http://crashoil.blogspot.com.es`), and is preparing a popular book.
http://www.icm.csic.es/oce/en/content/turiel

Invited Speaker: Prof. Stefan Thurner. Theoretical physicist and economist. Professor for Science of Complex Systems at the Medical University of Vienna, external professor at the Santa Fe Institute. He has worked on fundamental physics (topological excitations in quantum field theories, alternative entropy formulations), applied mathematics (wavelet statistics, fractal harmonic analysis, diffusion processes), complex systems (network theory, evolutionary systems), life sciences (heart beat dynamics, gene regulatory networks, cell motility, bioinformatics), econophysics (price formation, banking regulation, systemic risk) and lately in social sciences (opinion formation and bureaucratic inefficiency). This work has received broad interest from the media such as the *New York Times, BBC world, Nature, New Scientist,* and *Physics World*. He is Austrian delegate at the COST action initiative and holds 2 patents. He has also been active in quantitative financial consulting for financial institutions, mainly for automated trading strategies.
http://www.complex-systems.meduniwien.ac.at/people/sthurner