A unifying approach in the study of complex systems:

the role of heterogeneity and the concept of time in models and data.

JUNE 13-15, 2018,

Scuola Superiores Sant'Anna
Piazza Martiri della Libertà, 33, 56127 Pisa PI

WORKSHOP
PROGRAM

DAY 1 – Wednesday 13th

(AULA 6 – Sede Centrale)

10:00 – Introductory presentation 1st day

Fabio Vanni – Institute of Economics, Scuola Superiore Sant'Anna (Italy)

10:15 **Evolutionary approach to complexity**

Paolo Grigolini – Center for non linear science, University of North Texas (USA)

10:45 **Time delays and space heterogeneity in neural activity**

Giacomo Ceccarelli – Dept. of Physics , University of Pisa

11:15 **From complex data to meaningful results: examples from physics to economics**

Matias Iglesias – Institute of Economics, Scuola Superiore Sant'Anna

11:45 **Lie evolution of differential operators and Fokker-Planck equation for non-Hamiltonian dynamical systems**

Marco Bianucci – Institute of Marine Sciences, CNR, La Spezia

BREAK

(AULA 3 – Sede Centrale)

15:00 **On the need of complex system approaches in macroeconomics**

Andrea Roventini – Institute of Economics, Scuola Superiore Sant'Anna

15:30   Entropy-based approaches for complex network analysis
         Fabio Saracco – IMT School for Advanced Studies, Lucca

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DAY 2 – Thursday 14th
         (AULA 8 – Sede Centrale)

09:00 – Workshop 2nd day presentation

09:30   Rationality and asset prices under belief heterogeneity
         Daniele Giachini – Institute of Economics, Scuola Superiore Sant'Anna

10:00   Biological rhythms and physiological sensory reaction
         Alessandro Pingitore – Institute of clinical physiology, CNR , Pisa

10:30   The order of causation and the role of asymmetries
         Alessio Moneta - Institute of Economics, Scuola Superiore Sant'Anna

11:00   Agent based models, synchronicity and switching; a novel route to chaos?
         Francesco Lamperti – Institute of Economics, Scuola Superiore Sant'Anna

11:30   Time delays and lags in economic models
         Mauro Sodini – Dept. of Economics and Management - University of Pisa

BREAK

14:30   The heterogeneous human perceptions of time from events
          Angelo Gemignani – Dept. of Psychophysiology, University of Pisa

15:00   Modeling Complex Systems: subordination of a network process
         David Lambert – Dept. of Physics and Mathematics, University of North Texas

15:30   Effects of non-simultaneous relations in a financial market network
         Fabio Vanni – Institute of Economics, Scuola Superiore Sant'Anna

16:00   The behavior of time averages of infinite observables and anomalous scaling of
         extreme events in infinite systems
         Stefano Galatolo – Dept. of Mathematics – University of Pisa

16:30   Rational expectations, beliefs heterogeneity and market dynamics
         Giulio Bottazzi – Institute of Economics, Scuola Superiore Sant'Anna

End of DAY 2

9:00 – Workshop 3nd day: **round-table discussions series**

9:30 **Self-organized temporal criticality, intelligence and cognition.**
Paolo Grigolini – University of North Texas (USA)

10:30 **Notions of causality in math. directed acyclic graphs, bayesian inference, and dynamical systems**
David Lambert – Dept. of Mathematics, University of North Texas (USA)

10:30 **Complexity measures of music**
April Pease – Dept. of Physics, University of North Texas (USA)

11:00 **The value of conflict in stable social networks**
Pensri Pramukkul – Faculty of Science and Technology, Chiang Mai Rajabhat University (Thailand)

BREAK

Skype -call Conference:

3:00 pm introductory talk

3:30 pm Rohisha Tuladhar (USA)

4:00 pm Joshua Correll (USA)

4:30 pm Korosh Mahmoodi (USA)

5:00 pm Mauro Bologna (Chile)

End of DAY 3