Enrico Scalas

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http://arxiv.org/find/grp_physics/1/au:+Scalas_Enrico/0/1/0/all/0/1

Education:

1994: PhD in Physics, Physics in 2d, diffusion and growth of aggregates. Advisors: Andrea C. Levi and Alessandra Gliozzi.

1989: Degree in Physics, Dynamics of the gel-to-liquid crystal phase transition in lipid systems. Advisors: Andrea C. Levi and Alessandra Gliozzi.

Professional Experience:

1998 to present: Assistant Professor of Physics at Università del Piemonte Orientale, Italy.
November 2006: Visiting Professor at Division of Social Sciences, International Christian University, Tokyo, Japan.
2005 September to 2006 August: Senior researcher at the Multi-Agent Division of ISI, Turin, Italy.
November/December 2005: Visiting Professor at Department of Applied Mathematics, Research School for Physical Sciences and Engineering, Australian National University, Canberra, Australia.
1997-1998: Post-doc at INFM (Italian Institute for the Physics of Matter), Genoa, Italy.
1995-1997: Post-doc at the Physics Department, Genoa University, Italy.
1994-1995: Post-doc at the Institute of Physical Chemistry, Mainz University, Germany, in the group of Prof. Dr. Helmuth Möhwald.

Research activities:

Past research:

1990-1998:

Physical properties of surfactant monolayers at the air-water interface, with emphasis on phase transitions. This included experimental work at synchrotron radiation facilities.

Theory of diffusion in lattice-gas models of solid surfaces.

1998-2002:

Heavy-ion physics. This included experimental work at CERN.

Current research:

Anomalous diffusion and its applications to complex systems. This includes the application of Fractional Calculus and Continuous-Time Random Walks to Finance. Started in 1999, this research line has been very successful in two respects: it has given rise to a series of papers on the waiting-time properties in financial markets by other independent authors and to a long series of theoretical and empirical work.

Foundations of Statistical Mechanics. This includes activity on the Ehrenfest Urn model and investigations on the role of statistical equilibrium in Physics and Economics

Agent-based simulations in Physics, Finance and Economics. This includes the application and validation of large-scale simulations to complex systems in different scientific fields.

Biostatistics. This new research line includes research on the statistical performance of clustering algorithms.

Current research grants:

For 2009, he got a grant on Complex Systems, The budget of his group for 2009 is around 40,000 euro.

Some present and past academic co-workers:

Tomaso Aste at the Department of Applied Mathematics, Australian National University, Canberra, Australia.
Tiziana Di Matteo at the Department of Applied Mathematics, Australian National University, Canberra, Australia (at King's College, London, UK, starting from January 2009).
Ubaldo Garibaldi at IMEM-CNR, Genoa, Italy.
Guido Germano at the Institute of Physical Chemistry, Marburg University, Germany.
Rudolf Gorenflo at the First Mathematical Institute, Free University of Berlin, Germany.
Alejandro Raul Hernandez Montoya at Universidad Veracruzana, Xalapa, Mexico.
Jun-Ichi Inoue at Complex Systems Engineering, Graduate School of Information Science & Technology, Hokkaido University, Sapporo, Japan.
Taisei Kaizoji at Economics Division of Social Sciences, International Christian University, Tokyo, Japan.
Francesco Mainardi at the Physics Department, Bologna University, Italy.
Mark M. Meerschaert at the Department of Statistics and Probability, Michigan State University, USA.
Fabio Rapallo at DISTA, East Piedmont University, Italy.

René Schilling at the Institute for Mathematical Stochastics, Technical University Dresden, Germany.

Students

Among the students whom he has totally or partially advised there are:
Gilles Daniel, Market Risk Analyst, Emerging Markets, UBS Investment Bank, Zurich, Switzerland.
Giancarlo Mosetti, Quantitative Analyst at FMR Consulting, Voghera, Italy.
Marco Raberto, Assistant Professor, School of Science and Engineering, Reykjavik University, Iceland.
Bence Toth, Postdoctoral fellow at the Santa Fe Institute, Santa Fe, NM, USA.

Editorial activity:

Web sites:

He has been or is a member of the editorial board of the following web sites devoted to Econophysics and to Fractional Calculus:

www.unifr.ch/~econophysics
www.fracalmo.org

Journals:

He is a member of the editorial board of the new *Journal of Economic Interaction and Coordination*: http://www.es-hia.org/magazine/ and he joined the Society for Economic Science with Heterogeneous Interacting Agents

He is an academic editor of the new open access Journal *PLoS ONE*: http://www.plosone.org/home.action

In September 2004, in Alessandria, he has organized a conference devoted to young researchers: the First Bonzenfreies Colloquium on Market Dynamics and Quantitative Economics. More details are available from the Colloquium home page: www.mfn.unipmn.it/~colloqui. He has been a guest editor of the special issue of Physica A devoted to this conference. The volume has been published as:

Physica A Volume 355, Issue 1, Pages 1-232 (1 September 2005)
Market Dynamics and Quantitative Economics; Selection of papers presented at the First Bonzenfreies Colloquium on Market Dynamics and Quantitative Economics,
09-10 September 2004
Edited by Enrico Scalas

He has been a guest editor of a second Physica A volume published in 2007:

Physica A Volume 383, Issue 1, Pages 1 – 169 (1 September 2007)
Proceedings of the 2006 edition of the Econophysics Colloquium and the Bonzenfreies Colloquium, 23-25 November 2006
Edited by Taisei Kaizoji, Akira Namatame and Enrico Scalas

Together with Taisei Kaizoji and Akira Namatame, he has been a guest editor of a special issue of the Journal of Economic Interaction and Coordination in which ten papers appear discussed at the 2006 Econophysics Colloquium which was held in Tokyo at the International Christian University (ICU) in November 2006.
Currently, the issue is available on-line: http://www.springerlink.com/content/120105/

Referee

He has been a referee for the following journals: Physica A, Physical Review E, International Journal of Physics A: Mathematical and Theoretical, European Journal of Physics B, Advances in Complex Systems, Journal of Economic Dynamics and Control, Journal of Economic Behavior and Organization, Quantitative Finance, Journal of Economic Interaction and Coordination, PLoS ONE.

Books

He is currently writing the chapters on continuous-time random walks of a four-author book on *Fractional Calculus Models and Numerical Methods* for World Scientific.

Together with Ubaldo Garibaldi, he is writing a book on *Finitary Probabilistic Methods in Econophysics* for Cambridge University Press.

Organization of conferences and workshops:

He has recently been a member of the Scientific and/or Organizing Committee of the following conferences:

Econophysics Colloquium, Canberra, Australia, 14 - 18 November 2005;
http://www.rsphysse.anu.edu.au/econophysics/index.php

Fractal 2006, Vienna, Austria, 12 – 15 February 2006;
http://www.kingston.ac.uk/fractal/.

Econophysics Colloquium 2006 and Third Bonzenfreies Colloquium, Tokyo, Japan, 23 – 25 November 2006;
http://subsite.icu.ac.jp/ssri/EconophysicsColloquium2006/EconophysicsColloquium.html

ESHIA School on Agent Based Models for Spatial Systems in Social Sciences and Economic Science with Heterogeneous Interacting Agents, La Londe les Maures, Var, France. 17 – 22 September 2007.
http://perso.univ-rennes1.fr/denis.phan/laLonde/

Econophysics Colloquium 2007 and Beyond, Ancona, Italy, 27 – 29 September 2007;
http://econophysics.econ.univpm.it/

Artificial Economics 2008, Innsbruck, Austria, 12-13 September 2008;
http://www.uibk.ac.at/ibf/ae08/

New Trends in Science and Technology, Ankara, Turkey, 03-04 November 2008;
http://ntst08.cankaya.edu.tr/index.html

3rd IFAC Workshop on Fractional Differentiation and its Applications, Ankara, Turkey, 05-07 November, 2008; http://fda08.cankaya.edu.tr/index.html

He is one of the directors of the 2009 edition of the Econophysics Colloquium held in Erice Sicily at the end of October http://pil.phys.uniroma1.it/~gcalda/EC2009/

He is organizing the 2010 edition of the ESHIA/WEHIA conference http://sites.google.com/site/eshia2010/home

Invited talks

Enrico Scalas is often invited as a speaker at conferences on Econophysics. On average, he attends five international meetings and conferences per year. Recent invited talks were presented at the following international meetings:

Econophysics: Trends & Challenges, Niels Bohr Institute, Copenhagen, Denmark, 08-09 May 2008.

New Trends in Science and Technology, Çankaya University, Ankara, Turkey, 03-04 November 2008.

3rd IFAC Workshop on Fractional Differentiation and its Applications, Çankaya University, Ankara, Turkey, 05 - 07 November, 2008.

Workshop on kinetic and macroscopic modeling for socio-economic and related problems Vigevano, Italy, 27-29 November 2008.

Workshop on Jump Processes - JUMPS 09, Technische Universität Dresden, Germany, 15-17 January 2009.

MAFIN '09 (First International Workshop on Managing Financial Instability in Capitalistic Economies), Reykjavik, Iceland, 3-5 September 2009.

Teaching:

Since 1998, he has introduced the elements of modern Statistical Mechanics in the curriculum of undergraduate Physics students at East Piedmont University.
From 1998 to 2002, he has taught a course of exercises on Condensed Matter Structure.
From 2003, he has taught an introductory course in modern statistical mechanics, based on the book of Julia M. Yeomans, Statistical Mechanics of Phase Transitions, Clarendon 1992. Moreover, since 2002, he has taught other two courses: an introductory course on measurement theory, probability and statistics for Materials Science students and an introductory course in Physics for Computer Science students.
In January 2003, he has taught an introductory course on semiconductor physics to French students at the IUT in Montluçon. He is currently teaching courses in Econophysics where he usually presents an introduction to stochastic processes and the valuation of derivatives.

Vision and mission

Enrico Scalas strongly believes in the quantitative effectiveness of probabilistic and statistical methods applied to exciting research fields which have often been the realm of qualitative, even if sophisticated, analyses and researches, including Biology, Economics, Finance and History. He has established an interdisciplinary research group working both empirically and theoretically on the full spectrum of complex systems.

Other activities

He has been a member of Amnesty International since 1982.
He is also a supporter of two Italian NGOs: Emergency (www.emergency.it) providing life support to civilian war victims through emergency surgery and CICAP (www.cicap.it), an Italian skeptical organization promoting science and rational thought.

Languages

Italian: mother tongue
English: good working knowledge in all the language aspects;
French: he can speak and read French;
German: he can speak and read German;
With the help of a dictionary, he can read and translate documents written in Spanish, Portuguese, Dutch, Swedish, Danish and Norwegian.

Enrico Scalas: List of publications

At present, Enrico Scalas is co-author of 88 published peer-review papers with 1212 citations as of November 13th, 2009. His Hirsch index *h* is 19.
[Only publications in peer-reviewed journals are considered].

Recent preprints and working papers are available from:

http://ideas.repec.org/e/psc89.html
http://arxiv.org/find/grp_physics/1/au:+Scalas_Enrico/0/1/0/all/0/1

2009:

[88] FERRARO S., MANZINI M., MASOERO A., SCALAS E. (2009). A random telegraph signal of Mittag-Leffler type. PHYSICA A-STATISTICAL MECHANICS AND ITS APPLICATIONS. Volume: 388 Issue: 19 Pages: 3991-3999. ISSN: 0378-4371 DOI: 10.1016/j.physa.2009.06.036.

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2008:

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STATISTICAL MECHANICS AND ITS APPLICATIONS Volume: 387 Issue: 25 Pages: 6385-6390 Published: NOV 1 2008. ISSN: 0378-4371.

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2007:

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boundary problems in diffusion processes with attractive and repulsive interactions. JOURNAL OF PHYSICS. A, MATHEMATICAL AND GENERAL. vol. 35, pp. 1575-1588 ISSN: 0305-4470.

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