# Didier Sornette

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Google Scholar h-index 101; i10-index 530 https://en.wikipedia.org/wiki/Didier\_Sornette

Personal: Born on 25 June 1957 in Paris 15, France, French citizen

# Education and academic positions

- Graduate from Ecole Normale Supérieure (ENS Ulm, Paris), in Physical Sciences (1977-81)
- Master thesis at University of Nice (1981)
- Research scientist of the CNRS (French National Center for Scientific Research) (1981-1990)
- PhD and Habilitation at University of Nice in Physical Sciences (10 September 1985)
- Post-Doc at Collège de France in the Condensed Matter Laboratory of Prof. P.G. de Gennes (Nobel prize in Physics, 1991) (1985-1986)
- Visiting professor : Canberra, Australie (1984); Ecole Polytechnique, Paris (1986-1990); Santa Barbara, CA (1992).
- Research director at CNRS in Physics, France (1990-2006)
- Professor-in-Residence part-time at the Department of Earth and Space Sciences and at the Institute of Geophysics and Planetary Physics, UCLA (Jan. 1996-June 1999)
- Professor of Geophysics and Earthquake Physics at UCLA (July 1999-Feb 2006)
- Concurrent Professor of East China University of Science and Technology (ECUST), Shanghai, China, May 2004-March 2009
- First SAG Visiting Professor at the Washington University in St. Louis, St. Louis, Missouri, USA; Systems Analysis Group (SAG)
- Professor at ETH-Zurich on the Chair of Entrepreneurial Risks (since March 2006)
- Professor of Physics associated with the Department of Physics (D-PHYS), ETH Zurich (since 2007)
- Professor of Geophysics associated with the Department of Earth Sciences (D-ERWD), ETH Zurich (since 2007)
- Professor of Finance at the Swiss Finance Institute (since 2007)
- Director of the Financial Crisis Observatory (www.er.ethz.ch/fco) (since 2008)
- Founding member of the Risk Center at ETH Zurich (June 2011) (www.riskcenter.ethz.ch)
- Honorary Professor of the East China University of Science and Technology, Shanghai, China (since 2009)
- Specially-Appointed Professor, World Research Hub Initiative, Tokyo Institute of Technology (Nov. 2016present) (http://www.wrhi.iir.titech.ac.jp/en/)
- External faculty member at the Complexity Science Hub Vienna (1 April 2017 ) (Josefstädter Strasse 39, 1080 Vienna, Austria, http://csh.ac.at)
- Chair Professor at SUSTech (Southern University of Science and Technology), Shenzhen, China and dean of the Institute of Risk Analysis, Prediction and Management, Academy for Advanced Interdisciplinary Studies, Southern University of Science and Technology, Shenzhen, 518055, China (since September 2019)

## **Industrial experience**

- Director of Research in the X-RS research & development company in Orsay, France (January 1988 -December 1995)
- Scientific advisor of the technical director of Thomson-Marconi Sonar company (now THALES) in Nice-Sophia Antipolis Technopolis, France (January 1984 - December 1996)
- Consultant for aerospace industrial companies, banks, investment and reinsurance companies (1991-present).
- Chief risk advisor at Bank of America in charge with supervising the new department on risk control in the Bank (January 1998 December 1998).
- External expert at Los Alamos National Laboratories and leader of the theoretical development in the project on Model Validation in the Nuclear Stewardship program of the USA (January 2003 December 2006)
- co-founder of Science and Finance (with Jean-Philippe Bouchaud) (April 1994) that later merged with Capital Future Management.
- co-founder (with Didier Darcet and Yann Ageon) and Director of Research at Insight Research LLC (January 1999), a firm developing alternative quantitative methods for investments, risk measures and asset allocations.
- president of the Board of Renaissance Investment Management (January 2005 December 2011)
- co-founder of Sentiment Studies GmbH (August 2013), an ETH Zurich spin-off focused on delivering advanced market indicators for dynamical risk management during volatile and bubble market regimes.
- co-founder of SIMAG (Systematic Investment Management AG; https://www.simag.com), a joint venture between Sentiment Studies GmbH ETH spin-off and Credit Suisse Wealth Management (Nov. 2017)
- member of the advisory board of TRINNACLE Capital Management (7 World Trade Center, Suite 4615 -New York, NY 10007, USA, trinnaclecapital.com) (since April 2019)
- member of the Lykke Research Hub Council (research.lykke.com) (since April 2019)

Service (since at ETH Zurich, 2006 to present)

- Member of the ETH Research commission (2007-2014)
- Member of the Board of the "Fondation d'entreprise SCOR pour la Science" (Enterprise foundation SCOR for science) (since October 2012) (SCOR is the fifth largest reinsurance company in the World).
- Expert to the Swiss Academy of Engineering Sciences (SATW) (since 21 Aug. 2013)
- Member of the IHS Markit Academic Advisory Governance executive board (IMAAG executive board) (since 2017) (4th Floor Ropemaker Place, 25 Ropemaker Street, London EC2Y 9LY. UK). IHS Markit Ltd is a London-based global information provider.

#### **Prizes and honors**

- Science et Défence French Young Investigator National Award (1985)
- Who's Who in Science and Engineering 1994
- 2000 Research McDonnell award: Studying Complex Systems, the Scientific Prediction of Crises http: //www.jsmf.org/grants/d.php?id=2000013
- Risques-Les Echos prize 2002 Predictability of catastrophic events: material rupture, earthquakes, turbulence, financial crashes and human birth, published in the Proceedings of the National Academy of Sciences USA, V99 SUPP1:2522-2529 (2002 FEB 19) (The journals Les Echos and Risques have decided to attribute each year a prize, for the most innovative publication of the previous year on the understanding of challenges associated with risk and its possible response, all disciplines taken together).
- Elected Fellow of the World Innovation Foundation (WIF) (6th February 2004)

- Distinguished fellow of the Institute of Advanced Study, Durham University, UK (October 2007-February 2008) http://www.dur.ac.uk/ias/
- Honorary Professor of the East China University of Science and Technology, Shanghai, China (since 2009)
- E. N. Lorenz Lecture of the American Geophysical Union (AGU), December 16, 2010.
- Ehrenfest Colloquium, Leiden, The Netherlands, 12 October 2011.
- AAAS Fellow (elected on 29 October 2013) for "scientifically or socially distinguished efforts on behalf of the advancement of science or its applications". (AAAS: American Association for the Advancement of Science). Citation: "You are being honored for pioneering and novel developments in the prediction of crises and extreme events in complex systems, with particular applications to risk assessment in economics and technology". Fellow induction ceremony in Chicago, 15 Feb. 2014.
- Member of the Swiss Academy of Engineering Sciences (Schweizerische Akademie der Technischen Wissenschaften, SATW), elected on November 2019, See https://www.satw.ch/
- Member of Academia Europaea (elected as a full member "class of August 2020")

#### Teaching and Publications (http://www.er.ethz.ch/media/publications.html)

- Author and coauthor of more than 600 research papers in refereed international journals and more than 200
  papers in books and conference proceedings; editor of two proceedings of two international conferences;
- author of the textbook "Critical Phenomena in Natural Sciences, Chaos, Fractals, Self-organization and Disorder: Concepts and Tools," 432 pages, 87 figs., 4 tabs (Springer Series in Synergetics, Heidelberg, 2000); SECOND EDITION, 528 pages, 102 figs., 4 tabs, ISBN: 3540407545 (Springer Series in Synergetics, Heidelberg, 2004)
- author of the monograph "Why Stock Markets Crash (Critical Events in Complex Financial Systems), Princeton University Press, 464 pages, 165 illustrations, 21 tables, January 2003; translated in Japanese (PHP February 2004), translated in Russian, Vietnamese, Chinese.
- author (with Y. Malevergne) of the monograph "Extreme Financial Risks (From dependence to risk management)," (Springer, Heidelberg, 2005).
- author (with Y. Malevergne and A. Saichev) of the monograph "Theory of Zipf's law and beyond", Lecture Notes in Economics and Mathematical Systems, Volume 632, Springer (November 2009), ISBN: 978-3-642-02945-5
- Editor with Sergey Ivliev and Hilary Woodard, of Market Risk and Financial Markets Modeling, Proceeding of the conference "Perm Winter School" held in February, 2011 on Financial Market Risks (Springer)
- Editor with C. Kyrtsou of New Facets of Economic Complexity in Modern Financial Markets, European Journal of Finance (2011)
- Editor with G. Ouillon of the special issue of Eur. Phys. J. Special Topics on "Discussion and debate: from black swans to dragon-kings Is there life beyond power laws?" vol. 25 (1), pp.1-373 (2012)
- author (with D. Chernov) of the monograph "Man-made catastrophes and risk information concealment (25 case studies of major disasters and human fallibility)", Springer; 1st ed. 2016 edition (October 28, 2015) (342 pages)
- author (with W. Kröger and S. Wheatley of the monograph "New Ways and Needs For Exploiting Nuclear Energy", Springer (October 2018) (276 pages, 77 Illustrations)
- author (with Dmitry Chernov) of the monograph "Critical Risks of Different Economic Sectors (Based on the Analysis of More Than 500 Incidents, Accidents and Disasters)" Springer (2020)
- invited more than 600 times to present my work in international conferences and Universities worldwide.
- Direction of 37 completed PhD theses:
  - 1. Anne Sauron (13 April 1990): Lois d'échelles dans les milieux fissurés: Application à la lithosphère (Scaling laws in cracked media: application to the lithosphere);

- 2. Patrick Sebbah (12 Feb. 1993): Une nouvelle approche pour l'étude dynamique de la propagation et de la localisation des ondes (A new approach for the study of the dynamics of wave propagation and localisation);
- Fabrice Mortessagne (21 Oct. 1994): Dynamique et interférences géométriques dans les billards chaotiques. Application à l'acoustique des salles (Dynamics and geometric interferences in chaotic billiards. Application to room acoustics);
- 4. Guy Ouillon (Feb. 1995): Application de l'analyse multifractale et de la transformée en ondelettes anisotropes à la caractérisation géométrique multi-échelle des réseaux de failles et de fractures (Application of multifractal analysis and of anisotropic wavelet transform to the geometric multi-scale characterisation of fault and fracture networks);
- 5. Anders Johansen (Dec. 1997): Discrete scale invariance and other cooperative phenomena in spatially extended systems with threshold dynamics;
- 6. Samuel de Toro Arias (March 1998): Anderson localisation dynamics: a completely new analytical and numerical study of the trapping dynamics of electrons or light propagating in a disordered medium;
- 7. Claude Maveyraud (May 1998): Exploration numérique de la friction solide à grande vitesse de glissement par un code explicite 3D entièrement dynamique (Numerical exploration of solid friction at high sliding speed via a 3D explicit entirely dynamic code);
- 8. Gilles Pommatau (Feb. 1999): Endommagement et fatigue de céramiques piezo-électriques sous sollicitation électrique cyclique (Damage and fatigue of piezo-electric ceramics under electric cyclic stress);
- 9. Yannick Malevergne (Dec. 2002): Extreme Risks in Finance: Statistics, Theory and Portfolio Management;
- 10. Max Werner (Dec. 2007): On the Fluctuations of Seismicity and Uncertainties in Earthquake Catalogs: Implications and Methods for Hypothesis Testing;
- 11. Jeff Satinover (24 July 2008): Illusory and genuine control in optimizing games and financial markets;
- 12. Thomas Maillart (May 2010): Mechanisms of Internet Evolution and Cyber Risks;
- 13. Wanfeng Yan (29 August 2011): Identification and Forecasts of Financial Bubbles;
- 14. Moritz Hetzer (19 Sept. 2011): The evolution of fairness preferences, altruistic punishment, and cooperation;
- 15. Georges Harras (22 May 2012): On the emergence of volatility, return autocorrelation and bubbles in equity markets;
- 16. Andreas Hüsler (17 Sept. 2012): Biased Expectations in Non-Sustainable Financial and Economic Systems;
- 17. Qunzhi Zhang (25 Feb. 2013): Disentangling Financial Markets and Social Networks: Models and Empirical Tests;
- Yaming Wang (9 July 2013): Automatic reconstruction of fault networks from seismicity catalogs including location uncertainty;
- 19. Ryohei Hisano (20 Aug. 2013): Large scale empirical analysis of regularities and dynamics of markets;
- 20. Zalán Forró (24 Feb. 2015): Detecting Bubbles in Financial Markets: Fundamental and Dynamical Approaches;
- 21. Susanne von der Becke (9 March 2015): Liquidity Creation and Financial Instability;
- 22. Yavor Kamer (2 Oct. 2015): Magnitude frequency, spatial and temporal analysis of large seismicity catalogs: The Californian Experience;
- 23. Dmitry Chernov (9 Nov. 2015): Causes of Failures in Intra- and Inter-organizational Risk Information Transmission Before and During Major Disasters, Sector Differences in Risk Management;
- 24. Matthias Leiss (18 Jan. 2016): Financial market risk of speculative bubbles;
- 25. Spencer Wheatley (12 April 2016): Extending the Hawkes process, a general outlier test, and case studies in extreme risks;
- 26. Maroussia Favre (13 April 2016): Modeling social interactions and their effects on individual decision making.
- 27. Diego Ardila (11 Nov. 2016): Dynamic approaches to real estate bubbles: methods and empirical studies.
- 28. Shyam Nandan (20 January 2017), Towards Physics Based Epidemic Type Aftershock Sequence Models.

- 29. Hyun-U Sohn (19 May 2017), Rational belief bubbles.
- 30. Guilherme do Livramento Demos (5 Sept. 2017), Information Geometry and the Dynamic Detection of Financial Bubbles and Crashes.
- 31. Tatyana Kovalenko (3 Oct. 2017), New risk management frameworks: from quantum decision theory to system resilience.
- 32. Lucas Fiévet (10 Oct. 2017), Nonlinear ensemble models to predict oil reserves and stock market returns in the presence of inherent uncertainty.
- 33. Sandro Lera (22 March 2018), Constrained Stochastic Processes in Complex Socio-Economic Systems.
- 34. Ke Wu (29 May 2018), Financial markets in natural experiments, field experiments, lab experiments and real life.
- 35. Richard Senner (10 October 2018), Following financial stocks and flows: Global imbalances, financial crises and crypto currencies.
- 36. Dionysios Georgiadis (15 July 2019), Enabling learning in resilient adaptive systems: from network fortification to mindful organising, PhD thesis at ETH Zurich and the Future Resilient Systems in the Singapore-ETH Center.
- 37. Michael Schatz (31 March 2020), Financial modeling of bubbles and crashes, PhD thesis at ETH Zurich
- 13 current PhD candidates:
  - 1. Rebecca Westphal (impact of dragon-riders and dragon-hunters on financial bubbles),
  - 2. Tobias Huber (Philosophy of finance and physics, dragon-king theory),
  - 3. Florian Ulmann (exchange rate band modelling, and economic modelling of the Swiss Sovereign fund)
  - 4. Alex Wehrli (Self-excited models of micro-structure of exchange rates)
  - 5. Jan-Christian Gerlach (started 1st May 2017) Calibration of financial bubble models and bubble diagnostics and forecasts
  - 6. Graciela Rojo (started 15 July 2017) Active faulting and extreme earthquake hazard estimation in California and Anatolia using seismicity-based mapping of brittle structures
  - 7. Sumit Kumar Ram (started 1st Sept. 2017) Complex system models
  - 8. Ali Ayoub, (started 1st Sept. 2018) Generic PSA and risk analysis method for nuclear and industrial safety
  - 9. Ran Wei (started 1st Sept. 2018) Non local rational expectation bubble models and beyond
  - 10. Giuseppe Maria Ferro (started 1st Oct. 2018) Quantum decision theory
  - 11. Dongshuai Zhao (started 1st March 2019) Financial bubbles and fundamental analysis
  - 12. Jianhong Lin (started June 2019) Networks
  - 13. Ming Chen (started 1st August 2019) Stochastic quantum decision theory
- Direction of 39 post-docs and senior researchers: J.V. Andersen (Denmark), P. Cowie (UK), J.-P. Desideri (France), L. Macon (France), F. Mortessagne (France), A. Sauron (France), P. Sebbah (France), C. Strong (USA), H.J. Xu (China), P. Jogi (UCLA), A. Johansen (denmark), G. Ouillon (France), S. Gluzman (Canada), M. Lee (UCLA); W.-X. Zhou (UCLA), P. O'Brien (UCLA); A. Helmstetter (UCLA); R. Dell'Aquila (ETH Zurich); R. Crane (ETH Zurich); D. Gilles (ETH Zurich); R. Woodard (ETH Zurich), H. Woodard (ETH Zurich), S. Reimann (ETH Zurich), M. Fedorovsky (ETH Zurich), Joërn Berninger (ETH Zurich), Vladimir Filimonov (ETH Fellow), Peter Cauwels (ETH Zurich), Michel Fuksa (Post doc visit Sept-Dec 2011), Dr. Sanadgol Dorsa (Aug. 2012-) Dr. Mika Kastenholz (June 2012-Feb. 2013), Claudia Mihai (May 2013-Oct. 2014), Donnacha Daly (Oct. 2013-Feb. 2015), Philipp Rindler (June 2014-May 2015), Sandra Andraszewicz (March 2016-Feb. 2017), Spencer Wheatlery (April 2016-), Jan Nagler (Feb. 2016-Jan.2017), Dmitry Chernov (Jan. 2017-), Dijana Tolic (Sept. 2018-Aug. 2019), Michael Schatz (1 April 2020)

# Patents

- 1. J.-C. Anifrani, C. Le Floc'h, D. Sornette and B. Souillard (1994)
- Procédé de détermination prédictive de la charge à rupture d'une structure par émissions acoustiques (Method of predictive determination of the load at rupture for an arbitrary structure), numéro denregistrement national 94 01237

2. Riley Crane and Didier Sornette (2007)

"Searching with viral dynamics on social networks", United States Patent and Trademark Office, Application number 60/986,013, filing date 11/07/2007, confirmation number 9273.

The patent application (Technique for finding a content) was published by the international bureau under the number WO2009/059437. You can reference the application now with this number and under http://www.wipo.int/pctdb/en/ the text of the application can be searched.

- Bernhard Tellenbach, Didier Sornette, Thomas Maillart and Martin Burkhart (2009) Title: Detecting network traffic anomalies in a communication network, European Patent Office, Application number 09004024.7 - 2413, filing date 20.03.09, confirmation date 10.06.09. European Patent Office, 80298 Munich, Germany, tel: +49 (0)89 2399 - 0, fax: +49 (0) 89 2399 - 4465
- 4. Inventors: Dr. Ivan Osorio, Dr. A. Lyubushin; Dr. D. Sornette Seizure detection methods, apparatus, and systems using a wavelet transform maximum modulus algorithm, Assignee: Flint Hills Scientific, L.L.C. United States Provisional Application Serial No. 61/547,567, filed on October 14, 2011, to the United States Letters Patent 1000.279 (2113.012200), Filed: July 20, 2012, Serial No. 13/554,367, Ref.: 1000.279CONV1, WM Ref.: 2113.012500
- Inventors: Ivan Osorio, Alexey Lyubushin and D. Sornette Seizure detection methods, apparatus, and systems using an autoregression algorithm, Assignee: Flint Hills Scientific, L.L.C. Provisional Application to the United States Letters Patent 1000.282 (2113.012600) Filed: July 20, 2012, Serial No. 13/554,694
- Inventors: Ivan Osorio, Alexey Lyubushin and D. Sornette Seizure Detection Methods, Apparatus, and Systems Using a Short Term Average/Long Term Average Algorithm, Assignee: Flint Hills Scientific, L.L.C. Provisional Application to the United States Letters Patent 1000.282 (2113.0127000), Filed: July 26, 2012, Serial No.: 13/559,116
- Inventors: Ivan Osorio, Alexey Lyubushin and D. Sornette Apparatus and systems for event detection using probabilistic measures, Assignee: Flint Hills Scientific, L.L.C. Provisional Application to the United States Letters Patent 1000.283 (2113.012800) Filed: August 29, 2012, Serial No.: 13/598,339

#### **Conference organization and events**

- European secretary of the Mathematical Geophysics Committee of IUGG (International Union of Geodesy and Geophysics) (1994-2000)
- Chairman of the local organizing committee of the 20th International conference on Mathematical Geophysics of the IUGG, "Complex space-time geophysical structures", 19-25 june 1994, Villefranche-sur-mer (proceedings edited in a special volume of Nonlinear Processes in Geophysics vol.2, 1995)
- Co-organisor of the winter school "Scale Invariance and beyond", Les Houches, France, march 1997 (proceedings EDP Sciences and Springer, Berlin, 1997).
- co-Chairman of the local organizing committee of the 23th International conference on Mathematical Geophysics of the IUGG, "Extreme Earth Events", 19-24 june 2000, Villefranche-sur-mer
- co-chairman of IWIF1, the First International Workshop on Intelligence Finance, 13-14 Dec. 2004, Melbourne, Australia.
- Invited foreign participant to the Center of Excellence Project, Japan on "Interfaces of Advanced Economic Analysis", Kyoto University, Graduate School of Economics, Faculty of Economics, Kyoto, Japan (April, 2004)
- co-organizer of the CCSS International Workshop on Coping with Crises in Complex Socio-Economic Systems, ETH Zurich, June 8-12, 2009, https://www.soms.ethz.ch/workshop2009/
- co-organiser of the CCSS International Workshop on Coping with Crises in Complex Socio-Economic Systems, ETH Zurich, June 20-24, 2011 (http://www.ifb.ethz.ch/comphys/conferences/ccssworkshop2011/index)
- co-organizer of the Latsis Symposium 2012: Economics on the move: trends and challenges from the natural sciences, ETH Zurich, 12-14 September 2012.

- co-organiser of the workshop "New views on extreme events: Coupled Networks, Dragon Kings and Explosive Percolation", October 25-26, 2012 (Committee: Prof. Hans Herrmann (Chair), Prof. Dirk Helbing, Prof. Didier Sornette), organised by the ETH Risk Center in collaboration with industry and academia and hosted by Swiss Re (SwissRe Tüfi, Soodstrasse 52, Adliswil. Zurich, Switzerland).
- Member of the organising committee of Title: International Conference in Statistical Physics 2014 Acronym: SigmaPhi2014 Location: Sheraton Rhodes Hotel Date: 7-12 July 2014 Web Site: http://www.polito.it/sigmaphiTwitter:@SigmaPhiTweets
- co-organiser of the workshop "Risk and Rationality: Behavioral Views of Risky Decision Making", March 27-28, 2014 (Committee: Prof. Ryan Murphy, Prof. Didier Sornette), organised by the ETH Risk Center in collaboration with KPMG.
- Conference chairman of the International Conference on Econophysics, Asia-Pacific Econophysics Conference and NESS Special Session, East China University of Science and Technology, (Shanghai, May 31-June 2, 2014), with H. Eugene Stanley (Boston University, Boston), Yi-Cheng Zhang (Fribourg University, Fribourg).
- Chairman of the Workshop on 'Financial, Technological, Social and Political Bubbles', co-organized by Dr Monika Gisler and Prof. Didier Sornette, ETH Zurich and Lukas Gubler, Axpo Trading. Prime Tower Clouds, Maagplatz 5, Zurich, 26 March 2015
- Member of the organising committee of the Econophysics Colloquium 2015, Prague, the Czech Republic, 14-16 September 2015

## Journal board membership

- Member of the editorial board of the Society of Economic Science with Heterogeneous Agents (ESHIA) (http://www.es-hia.org) and of its official journal, the Journal of Economic Interaction and Coordination (JEIC) (Springer www.springer.com/Journal/11403)
- Member of the Global Advisory Board of Human Dignity and Humiliation Studies (http://www.humiliationstudies.org/)
- Member of the advisory board of the Interdisciplinary Centrum for Complex Systems (IZKS) of the University of Bonn, Germany (2006-present)
- Associate editor of Nonlinear processes in geophysics (1994-1995), Journal de Physique I & II France (1996-1997), European Physical Journal B (1998-2000) and of the Journal of Geophysical Research (Solid Earth) (1997-2000).
- Associate Editor for the journal of Quantitative Finance (2001-present); member of the editorial board of the International Journal of Modern Physics C (computational physics) (2005-present) and of the Journal of Economic Interaction and Coordination (JEIC) (2006-present), Associate Editor for Chaos, Solitons and Fractals (2010-present), Associate Editor for the European Journal of Finance (2010-present), member of the advisory board of the International Journal of Portfolio Analysis & Management (IJPAM) (2011-present), Associate editor of the Journal of Investment Strategies (2012-present), Member of the Editorial board of the Journal of Network Theory in Finance (JNTF) (2014-present)
- Member of the Editorial Board of the International Journal of Terraspace Science and Engineering (IJTSE) published by World Scientific (April 2009-present)
- Editorial board member of the Springer Series in Synergetics Series (2001-present)
- Editorial board member of the Springer Understanding Complex Systems Series (Jan. 2007-present)
- Editorial board member of SpringerBriefs in Complexity (Jan. 2007-present)
- Member of the Scientific Committee on Risques-Les Cahiers de l'Assurance, 9 rue d'Enghien, 75010 Paris, France (2002-present)
- referee for the National Science Foundation, in Geophysics, Physics and Mathematical sciences, referee for the UK research council, for the Israelian Science Foundation, the Swiss National Science Foundation, and for the French Research Minister, referee of many professional journal such as European Physical Journal, Journal of Physics A, Europhysics Letters, Physics Letters, Physical Review Letters, Physical Review E, Geophysical Research Letters, Journal of Geophysical Research, Annales Geophysicae, Journal of the Acoustical Society of America, Acta Acustica, Risk Magazine, Tectonophysics, Bulletin of the Seismological Society of America, International Journal of Modern Physics, Quantitative Finance, etc

- Membership: American Geophysical Union; American Physical Society; American Association for the Advancement of Science; Seismological Society of America; American Finance Association.
- Member of the editorial board of Quantitative Finance and Economics (QFE) (http://www.aimspress.com/journal/QFE)

# Research

- The Financial Crisis Observatory is a scientific platform aimed at testing and quantifying rigorously, in a systematic way and on a large scale the hypothesis that financial markets exhibit a degree of inefficiency and a potential for predictability, especially during regimes when bubbles develop. http://www.er.ethz.ch/fco/index
- Center for the prediction of social, commercial and marketing success, by combining information stemming from the dynamical responses to endogenous versus exogenous shocks of large databases.
- Prediction of crises and extreme events in complex systems and risk management, with applications to social systems (financial crashes, economic systemic recessions, cyber risks) and natural systems (earthquakes, rupture, epileptic seizures, immune system collapse).