Didier Sornette

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Education and academic experience

- 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 (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, 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 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)
- 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)

Industrial experience

- Director of Research in the X-RS research & development company in Orsay, France (1988-1995)
- Scientific advisor of the technical director of Thomson-Marconi Sonar company (now THALES) in Nice-Sophia Antipolis Technopolis, France (1984-1996)
- 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 (1998 until the fusion with Nationsbank).
- 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 (2003-2006)
- co-founder of Science and Finance (with Jean-Philippe Bouchaud) (1994) that later merged with Capital Future Management.

- co-founder and Director of Research at Insight Research LLC (1999), a firm developing alternative quantitative methods for investments, risk measures and asset allocations.
- president of the Board of Renaissance Investment Management (2005-2011)
- co-founder of Sentiment Studies GmbH (2013), an ETH Zurich spin-off focused on delivering advanced market indicators for dynamical risk management during volatile and bubble market regimes.

Service

- 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)

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.
- election to the rank of AAAS Fellow (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.

Teaching and Publications

- Author and coauthor of more than 550 research papers in refereed international journals and more than 170 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)
- invited more than 600 times to present my work in international conferences and Universities worldwide.
- Direction of 24 completed PhD theses: A. Sauron (1990), P. Sebbah (1993), F. Mortessagne (1994), G. Ouillon (1994), A. Johansen (1998), S. de Toro Arias (1998), C. Maveyraud (1998), G. Pommatau (1999), Y. Malevergne (Dec. 2002), M. Werner (Dec. 2007), J. Satinover (July 2008), T. Maillart (May 2010), W. Yan (August 2011), M. Hetzer (Sept. 2011); G. Harras (May 2012); A. Hüsler (Sept. 2012), Q. Zhang (Feb. 2013), Y. Wang (July 2013), R. Hisano (Aug. 2013), Zalán Forró (Feb. 2015), Susanne von der Becke (March 2015), Yavor Kamer (Oct. 2015), Dmitry Chernov)(Nov. 2015), Matthias Leiss (Jan. 2016)
- 17 current PhD candidates: Maroussia Favre (Human relational models, evolutionary roots of male risk taking behaviors), Tatyana Kovalenko (quantum decision theory), Shyam Nandan (earthquake prediction with physical models), Hyun-U Sohn (rational belief equilibrium theory and out-of-equilibrium extension for financial bubbles), Lucas Fivet (peak oil and game theory approach to strategy optimization), Diego Ardila (real-estate bubbles and reverse-engineering of financial markets with agent-based models), Spencer Wheatley (Hawkes self-excited processes and the endo-exo approach to financial markets), Guilherme do Livramento Demos (Sloppy directions in financial bubble calibration), Sandro Lera (Resilience of complex systems and dragon-kings), Dionysios Georgiadis (extreme events in electric networks), Ke Wu (self-excited models in finance and crises), Chaoran Liu (control and instability), Zhuli He (re-ABM), Michael Schatz (financial mathematics of bubbles), Ahmed Abdelrahman (econometrics of real estate bubbles), Ralf Kohrt (impact of dragon-riders and dragon-hunters on financial bubbles), Tobias Huber (Philosophy of finance and physics, dragon-king theory)
- Direction of 34 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-)

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/ccss-workshop2011/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/sigmaphi Twitter:@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
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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.

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).