Curriculum Vitae prof. Bernardo Spagnolo

Bernardo Spagnolo was born in Palermo, Italy, on October 3, 1950. Married with five children; Citizenship: Italian.

Language skills: Italian (native), English (fluent), French (good knowledge), Spanish (good knowledge) Russian (basic knowledge).

Degrees

- **PhD in Nuclear Engineering** (1976), University of Palermo, 110 cum laude, *theoretical and experimental thesis:* "*Theoretical Study of an X-band microtron and Realization of the Modulator for Magnetron*", National Laboratories of Frascati (Rome).
- **Master Degree in Physics** (1988), University of Palermo, 110 cum laude, *theoretical thesis*: "*Stochastic Approach to the Kinetics of a Phase Transition in Magnetic Systems*", Department of Physics, University of Rome *La Sapienza*.

Occupations – Academic Career

1974 - 1977, **CNEN fellowship** (Consiglio Nazionale per l'Energia Nucleare – National Council for Nuclear Energy), Frascati Laboratory (**Rome**).

1978 - 1981 CNR fellow (Consiglio Nazionale delle Ricerche – National Council for Research), **Palermo** University.

1981 - 2002 **Assistant Professor (Scientific Researcher) of Condensed Matter Physics**, **Palermo** University.

1991 - 2002 **Professor with contract**, **Palermo** University.

2002 – 2014 **Associate Professor of General Physics**, **Palermo** University.
2015 – 2017 **Associate Professor of Theoretical Physics**, **Palermo** University.
2018 - 2020 **Full Professor of Theoretical Physics, Palermo University.**
2019 - **Director of the International School on "*Nonequilibrium Phenomena*", Ettore Majorana Foundation and Center for Scientific Culture, Erice.**

2020 - **Member of the International Council of the Lobachevsky University of Nizhny Novgorod (UNN, Russia)**

2021 - **Member of the pool of International Reviewer of Russian Science Foundation (RSF)**, as **expert** commissioned by the **Russian International Affairs Council.**

2021 - **Adjunct Professor of Theoretical Physics, Palermo University.**

2022 - **Consultant to the Rector of Palermo University for Development Activities and International Cooperation with Russia.**

Visiting Scientist and Visiting Professor

- **Visiting Professor** at the "*Radiophysics Department*", **Lobachevsky State University of Nizhny Novgorod (UNN), Russia,** in **2001, 2002, and from 2005 to 2017, for short–term visits**.
- **Visiting Professor** at the "*Institut für Physik*", **Humboldt-University in Berlin, Germany,** from **26-30 April 2004.**
- **Sabbatical** at the "*Radiophysics Department*", **Lobachevsky State University of Nizhny Novgorod (UNN), Russia** from **2004 to 2005.**

- **Visiting Professor** at the "*Department of Physics*" and "*International Laser Center*", **Lomonosov State University of Moscow, Russia**, from **2004 to 2006**, **for short–term visits**.
- **Visiting Professor** at the "*Department of Physics*", Nicolaus Copernicus University, Torun, **Poland**, **1-6 April 2006**.
- **Visiting Professor** at the "*Max-Planck Institut fur Physik Komplexer Systeme*", Dresden, Germany, **3-12 July 2006**.
- **Visiting Professor** at the "*Marian Smoluchowski Institute, Jagellonian University*", Max Kak Institute for Complex Systems, Jagellonian University of Krakow, Krakow, Poland. Short-term visits in **September 2011 and 2012**.
- **Visiting Professor** at the **High School of Economics, Branch of Moscow University in Nizhny Novgorod (UNN), Russia, for an intensive course "From Physics to Finance"**, in December **2015**.
- **Visiting Professor** at the **Lobachevsky State University of Nizhny Novgorod (UNN), Russia, for two intensive courses "*Out of Equilibrium Statistical Mechanics*"**, and "***Physics of Complex Systems***" in May and December **2017.**
- **Visiting Professor** at the **Lomonosov Moscow University of Moscow (LMU), Russia, for two intensive courses "*Out of Equilibrium Statistical Mechanics*"**, and "***Physics of Complex Systems***" in May **2018.**
- **Visiting Professor** at the **Ural Federal University, Ekaterinburg, Russia,** 25-29 March **2019.**
- **Visiting Professor** at the **Lobachevsky State University of Nizhny Novgorod (UNN), Russia, for two intensive courses "*Out of Equilibrium Statistical Mechanics*"**, and "***Physics of Complex Systems***" in January - May **2019**, and September-November **2019.**

Memberships in National and International Societies, Institutions and Committees, and Positions

- **Associate member** of **National Group of Condensed Matter** – Consiglio Nazionale delle Ricerche (**CNR**) (1982 – 1992).
- **Associate member** of the **Istituto Nazionale di Fisica della Materia** (**INFM**) – National Institute of Condensed Matter (1993 – 2003).
- **Associate member** of the **Consorzio Nazionale Interuniversitario per le Scienze Fisiche della Materia** (**CNISM**) - National Interuniversity Consortium for the Physical Sciences of Matter, since 2006.
- **Associate member** of the **Istituto Nazionale di Fisica Nucleare** (**INFN**) – National Institute of Nuclear Physics, since **2014**.
- **Member** of the **Italian Physical Society**, since **1982**.
- **Member** of the **European Physical Society**, since **2005**.
- **Member** of the **American Physical Society**, since **2008**.
- **Member** of the **Italian Society for Statistical Physics**, since **2019**.
- **Member** of the **Advisory Scientific Committee for funding research projects**, Palermo University (1998-2001).
- ***Local Contact*** at the **Palermo University** of the **Italian Physical Society** (SIF), since 2009.
- **Member** of the **COST Network** of the **European Cooperation in Science and Technology, 2016-2018.**
- **Member of the Scientific Committee of the E. M. ARCES,** Palermo, Italy, since 2018.
- **Member of the Sicilian Center of Nuclear Physics and Condensed Matter (C. S. F. N. S. M. – Centro Siciliano di Fisica Nucleare e Struttura della Materia), 2019-2021.**
- **Member of the Presidential Council of the Italian Physics Society (2020 – 2022).**

- **Member of the International Council of the Lobachevsky University of Nizhny Novgorod (UNN, Russia), since 2020.**
- **Vice President of the Permanent Didactic Commission of the Italian Physics Society, since 2021.**
- **Member of the pool of International Reviewer of Russian Science Foundation (RSF).**
- **Consultant to the Rector of Palermo University for Development Activities and International Cooperation with Russia.**

FELLOW

- **Fellow of the American Physical Society** (APS) by the APS Council of Representatives – **Member the Forum on International Physics (FIP)**, since **2017.**

Awards and Recognitions

- **Outstanding Referees of the Physical Review and Physical Review Letters 2014**
- **Oustanding Referee of Chaos Soliton Fractals: The Interdisciplinary Journal of Nonlinear Science, and Nonequilibrium and Complex Phenomena**
  2014

  2015 – awarded November, 2015

  2017 - awarded December, 2017
- **Oustanding Referee of Physics Letters A**
  2015 – awarded May, 2015

  2018 – awarded January, 2018
- **Oustanding Referee of Physica A: Statistical Mechanics and Its Applications**
  2015 – awarded May, 2015

  2017 – awarded May, 2017
- **Oustanding Referee of Communications in Nonlinear Science and Numerical Simulation**
  2017 - awarded December, 2017
- **Oustanding Referee of Mechanical Systems and Signal Processing**
  2017 - awarded September, 2017
- **2017-Lecture at International Conference on Statistical Physics ΣΦ2017, Corfù-Greece 10-14 July 2017, sponsored by Elsevier – Chaos Solitons & Fractals**
- **American Physical Society - APS Fellowship**

  2017
- **Distinguished EPJ Referee**
  2019 – awarded 2019

- **Distinguished EPL Referee**
  2021 – awarded 2021

Evaluation of Research and Leadership

- **Selected** to contribute to the **evaluation** of the **CNISM** by **ANVUR** (National Agency for the Evaluation of University and Research)
- The **personal evaluation** of the "Valutazione della Qualità della Ricerca (VQR) 2004-2010 "Evaluation of Research Quality" was:

  a) 2004-2010 **excellent**.

  b) 2011-2014 **excellent**
- ***Scientific Leader*** of the ***Interdisciplinary Theoretical Physics Research Group*** at the Palermo University, ***https://sites.google.com/site/itpgunipa/home***

Member of the list of "Commissioners" that could be designated for the Evaluation Commission for the National Scientific Habilitation for Full and Associated Professors of Theoretical Physics of Fundamental Interactions 02/A2 (2018-2020). (26.10.2018).

Selection and University Committees

I have been in various committees for the assignments of fellowships, defenses of master and PhD thesis, admission to PhD courses, recruitments of assistant professors, both in Italy and abroad.

✓ Chairman of the Commissions of various competitions for post-graduate scholarships, research grants and evaluation of PostDoc positions at Palermo University (2002-2018). Member of Board of Examiners for the entrance exams and final exams for PhD in Physics (2010-2012).

✓ Chairman and Committee Member for Evaluation Committees for the position of full professor and associate professor in Theoretical and Experimental Physics of Fundamental Interactions 02/A2 and 02/A1, of Italian Universities (Bari, Napoli, Palermo, Salerno, Torino, Ca' Foscari Venezia, Napoli Univ. della Campania).

✓ Member of the Jury for the Young Scientist Award in Socio- and Econophysics 2020 of the German Physical Society.

Scientific and Technical Committees

• **Technical-scientific liaison committee for the new GSSI-SIF Agreement since 2021.**

National Scientific Habilitation

• ***Full Professor of Theoretical Physics of Condensed Matter*** **(11/12/2013)**.

• ***Full Professor of Applied Physics*** **(27/12/2013)**.

• ***Full Professor of Theoretical Physics of Fundamental Interactions*** **(08/01/2014)**.

Teaching

a) I read ***undergraduate courses***, at the Palermo University, on: **General Physics I** and **II**, **Physics and Statics**, **Physics of Complex Systems** and **Interdisciplinary Physics**, for **Bachelor**'s **Degree** in Electronic, Telecommunication and Information **Engineering**

b) I read ***postgraduate courses***, at the Palermo University, on:

1. **Statistical Physics**, *Post Graduate School SISSIS*;
2. **Calculus I and Probability**, *Master in Econophysics*;
3. **Physics of Complex Systems,** for **Master's Degree** in **Physics** and Telecommunication **Engineering;**
4. **Out of Equilibrium Statistical Mechanics**, **Physics of Complex Systems**, **Theoretical Physics**, *International PhD School of: a) Applied Physics, b) Physical Sciences.*

c) I read ***postgraduate course***, at the:

1. **High School of Economics, Branch of Moscow University in Nizhny Novgorod (UNN), Russia**, on "***Statistical Physics: From Physics to Finance*" (2015);**
2. **Lobachevsky State University of Nizhny Novgorod (Russia),** on "***Out of Equilibrium Statistical Mechanics***", and "***Physics of Complex Systems***" (2017);**
3. **Lomonosov State University of Moscow (Russia)** on "***Out of Equilibrium Statistical Mechanics***", and "***Physics of Complex Systems***" (2018).**
4. **Lobachevsky State University of Nizhny Novgorod (Russia),** on "***Out of Equilibrium Statistical Mechanics***", and "***Physics of Complex Systems***" (2019).**

International PhDs

➢ ***International Partner Institutions:*** **Palermo University, Lomonosov State University of Moscow, Lobachevsky State University of Nizhny Novgorod (Russia).**

- ➢ **Project Coordinator of International Ph.D. (2006-2010) titled "Stochastic Nonlinear Dynamics in Complex Systems".**
- ➢ **Vice-Coordinator of the International PhD in Applied Physics from the University of Palermo (2008-2010).**
- ➢ **Chairman of the International PhD in Applied Physics (2010-2017).**
- ➢ **Vice-Coordinator of the International PhD in Physical Sciences (2013-2020).**
- ➢ **Curriculum Coordinator of the International Curriculum "Statistical and Interdisciplinary Physics" of the Ph.D. in Physical Sciences (2013-2018).**

➢ ***International Partner Institutions:*** **Jagiellonian University in Krakow (Poland), Palermo University, Humboldt University.**

- ➢ **Italian partner in the International Doctorate in "Physics of Complex Systems" of the Jagiellonian University in Krakow, Poland (2010-2013).**

Research Activity

The research carried out by B. Spagnolo can be summarized in the following research lines:

- Experimental and theoretical research: Radiofrequency apparatus for low energy accelerators.
- Interaction of Radiation with Matter.
- Nonequilibrium Statistical Mechanics

➢ Recent research activity

The current research interests concern **Nonequilibrium Statistical Mechanics and Physics of Complex Systems:**

1. **Condensed Matter Physics:**
   a) **Nonlinear relaxation phenomena far from equilibrium with Gaussian and non Gaussian noise sources, Lévy flights;**
   b) **Noise-induced phenomena and relaxation dynamics in Josephson junctions and Spintronics;**
   c) **Open quantum systems, Majorana Fermions and quantum metrology. Topological Phase Transitions and Quantum Phase Transitions. Multiparameter quantum critical metrology.**

2. **Metastability and noise induced phenomena in Complex Systems:**
   a) **Noise enhanced stability;**
   b) **Stochastic resonance;**
   c) **Stochastic resonant activation.**

3. **Interdisciplinary Physics:**
   a) **Ecosystems: fish population dynamics, phytoplankton dynamics;**
   b) **Noise induced effects in biological systems: viral and bacterial dynamics, models of cancer growth, population dynamics, neuronal dynamics, polymer translocation;**
   c) **Escape times and hitting times in financial market models.**

➢ ***Main Research Projects***

- **National** principal investigator (PI) of the project **PAIS-INFM**: "*Nonlinear Relaxation Phenomena in Complex Systems (NRP)*" (1998-2000). **INFM - 24 k€.**
- **National** principal investigator of the **FORUM-INFM** project "*Noise Induced Effects in Sea Fish Population Dynamics*"(2000-2002). **INFM - 62 k€.**
- **International principal investigator** of the **International Cooperation** Project "*Noise Induced Phenomena in Physical and Biological Complex Systems*", between the Palermo University, the Lomonosov State University of Moscow and the Lobachevsky State University of Nizhny Novgorod (Russia), funded by the University of Palermo (2001-2003). **CORI1999 - 3,6 k€.**
- **International principal investigator** of the **International Cooperation** Project "*Noise Induced Effects in Complex Systems*", between the Palermo University and the Lobachevsky State University of Nizhny Novgorod (Russia) (2001-2005). **Cooperlink-MIUR - 7,7 k€.**
- **International principal investigator** of the **International Cooperation** "*Noise Induced Effects in Physical and Biological Complex Systems*", between the Palermo University, the Lomonosov State University of Moscow and the Lobachevsky State University of Nizhny Novgorod (Russia) (2002-2006). **Cooperlink-MIUR - 19,1 k€.**
- **Coordinator and International principal investigator** of the **INTAS-2001-00450** project "*Noise Induced Phenomena in Condensed Matter Physics and in Complex Systems*", between the Palermo University, the Humboldt University of Berlin, the Lomonosov State University of Moscow and the Lobachevsky State University of Nizhny Novgorod (Russia), **funded by the European Community** (2002-2004). **IC-INTAS EU - 60 k€.**
- **International principal investigator** of the **International Network** "*Stochastic Dynamics and Metastability in Physical and Biological Systems*", between the Lomonosov State University of Moscow and the Lobachevsky State University of Nizhny Novgorod (Russia) (2004-2009). **Cooperlink-MIUR - 21 k€.**
- **Principal Investigator of the Palermo Research Unit** of the national **PRIN-2005** project "*Noise Induced Phenomena in Threshold Complex Biological Systems*" (2006-2008). **PRIN - 49,4 k€.**

- **Coordinator of the International Inter-University Cooperation** "*Nonlinear Stochastic Dynamics in Complex Systems* **- *International PhD in Applied Physics*" between the Palermo University, the Lomonosov State University of Moscow and the Lobachevsky State University of Nizhny Novgorod (*Russia*)**, funded by MIUR (2006-2010) and by Palermo University (2011-2013). **Interlink-MIUR - 44 k€.**
- **Principal investigator** of the project "*Models of Stochastic Dynamics of Fish Populations of the Mediterranean Sea for the Management of Marine Resources*", within the Project **GEOGRID** (2006-2008) - **100 k€.**
- **Project Coordinator of International Cooperation**, "***International PhD Program in Applied Physics***" between the University of Palermo, the Lomonosov Moscow State University and the Lobachevsky Nizhny Novgorod State University (Russia), funded by the University of Palermo (2012-2015) - **24 k€.**
- **Principal investigator** of Scientific Projects "Programma Operativo Nazionale (PON)", ***National Operational Program* PON** (2012-2015) for a total of **410 k€**:
  - "*Development of a sustainable Sicilian fishing and competitive through technological innovation - A global stochastic model*" – **PESCATEC (2013-2015)**;
  - "*Integrated use of innovative technological approaches to improve the shelf-life and preserve the nutritional properties of food products – Theoretical innovative approach for shelf-life*" - **SHELF-LIFE (2013-2015)**;
  - "*Technologies for the ENERGy and energETIC efficiency – Cooperative up-conversion of rare earth* – **ENERGETIC (2013-2015).**
- **Project Coordinator of International Cooperation**, "***CoRI 2016***" between the University of Palermo and the Lobachevsky State University of Nizhny Novgorod (Russia), funded by the University of Palermo (2016-2017). **CORI 2016 - 2,7 k€.**
- **Project Coordinator of International Cooperation**, "***CoRI 2017***" between the University of Palermo and the Lomonosov Moscow State University (Russia), funded by the University of Palermo (2017-2018). **CORI 2016 - 3,36 k€.**
- **Coordinator of the International Project: "*Comprehensive research of fluctuation phenomena in multistable systems for development of new generations of memristor-based electronic devices and neuromorphic technologies of artificial intelligence*" funded by "**The Russian Federation Governmental Grant Council" through the Ministry of Education and Science of the Russian Federation, one of the winners of the open grant competition of the Government of the Russian Federation (2018-2022) - **90.000.000 Rubli - 1,250 M€.**
- **Principal investigator of the Project: International Conference on "*New Trends in Nonequilibrium Stochastic Multistable Systems and Memristors*" funded by "Office of Naval Research Global", United Kingdom** (2019). **ONR - 9,025 k€.**
- **Scientific Consultant of the Palermo Research Unit** of the ***National*** **PRIN-2020** project "*Advanced Analysis and Modeling of Acoustic Responses of Plants* **- *DAMATIRA***" (2022-2025). **PRIN - 705 k€; *Palermo Unit:* 206,4 k€.**

➢ ***Scientific Leader*** of the ***Interdisciplinary Theoretical Physics Research Group*** **(ITP-RG)** at the Palermo University, ***https://sites.google.com/site/itpgunipa/home***

The members of the ITP-RG are:

Bernardo Spagnolo	Full Professor	Palermo University
Davide Valenti	Associate Professor	Palermo University
Angelo Carollo	Assistant Professor,	Palermo University
		Int. PhD Lobachevsky N. Novgorod University
Claudio Guarcello	Assistant Professor,	Salerno University
		Int. PhD Lobachevsky N. Novgorod University

Luca Magazzù	Post-Doc,	Regensburg University
		Int. PhD Lobachevsky N. Novgorod University
Luca Leonforte	PhD Student	Palermo University
Duilio De Santis	Post-graduate Scholar Fellow	Palermo University
Giovanni Di Fresco	Post-graduate Scholar Fellow	Palermo University
Daniele Tumminello	Master Student	Palermo University
Dario Fasone.	Master Student	Palermo University
Elena Corvaia.	Master Student	Palermo University
Luciano Curcio	Ext. Coll.	Palermo University
Fabio Anzà	Ext. Coll. Post-Doc	California University
Alexander Dubkov	Ext. Coll. Full Professor	***Lobachevsky N. Novgorod University***

The ***ITP Research Group*** has two laboratories for theoretical researches, at the Dipartimento di Fisica e Chimica of Palermo University, and is involved in national and international research projects carried out in collaboration with National and International Research Institutions and Industries. Specifically the ***ITP-RG*** obtained research funds from the following institutions:

1) International Association for the promotion of cooperation with scientists from the New Independent States of the Former Soviet Union (INTAS-European Community);
2) European Structural and Investment Funds (ESIF) – Italian programmes - National Operational Programme for "Research and Competitiveness" 2007-2013 (NOP for R&C)-European Community;
3) National Research Council (CNR-Italy);
4) National Institute for the Physics of Matter (INFM-Italy);
5) Ministry of Education, University and Research (MIUR – Italy) – Interlink and Cooperlink Projects for the Internationalization of the University System and for the International Inter-University Cooperation;
6) ST-Microelectronics Catania (Italy);
7) University of Palermo - International Cooperation for high education and research Projects;
8) The Russian Federation Governmental Grant Council (Russia).
9) Ministry of Education, University and Research (MIUR – Italy) - PRIN.

Supervision of Undergraduate, Master, Graduates, PhDs and Post-Docs

➢ **2 undergraduate student:**

- Daniele Tumminello – Thesis: "**Physics Characteristics of Graphene and its Topological Properties**", (**2017**).
- Elena Corvaia - Thesis: "**High-Tc Superconductivity**", (**2022**).

➢ **6 master students:**

- Luca Leonforte

  Thesis: "**Topological Phase Transition in a two-dimensional Fermion System", (2018**).
- Giovanni Di Fresco

  Thesis: "**Quantum metrology in condensed matter: multiparameter estimation", (2021).**
- Duilio De Santis

  Thesis: **"Generation of Sine-Gordon breathers in long Josephson junctions", (2021).**

- Dario Fasone

  Thesis: **"Josephson junction as an Axion detector", (2022-23).**

- Daniele Tumminello

  Thesis: **"Graphene and High-Tc Superconductivity", (2022-23).**

- Elena Corvaia

  Thesis: **"High-Tc Superconductivity in Cuprates", (2022-23).**

➢ **13 graduate fellows:** Vincenzo Miceli, Fabrizio Patti, Alexei Safonov, Giuseppe Augello, Luciano Curcio, Stefano Spezia, Pasquale Caldara, Angelo La Cognata, Salvatore Zammito, Giovanni Denaro, Emanuele Lo Iacona, Marco Berritta, Fabio Anzà.

➢ **Thesis Supervisor, Scuola Superiore di Catania:** Dr. **Marco Berritta**, master's degree thesis entitled "*Effects of Noise Wideband Coherent dynamics in a Qubit in External Field*", August 2008 - April 2009.

➢ **16 PhD students**:

- **4** PhDs in Applied Physics: **Giovanni Bonanno**, **Alexei Safonov**, **Angelo La Cognata**, **Pasquale Caldara**;
- **12** PhDs, International PhD:
  - **a)** **n. 1 - International Ph.D. in Physics of Complex Systems, *Palermo University*, *Jagellonian University of Krakow* (Poland): Dr. Bartek Lisowski.**
  - **b)** **n. 7 - International Ph.D. in Applied Physics, *Palermo University*, *Lomonosov University of Moscow* and *Lobachevsky N. Novgorod University* (Russia):**
    Double PhD title: *"Ph.D. in Applied Physics" (Italy - Palermo) "Candidate of Science in Physics and Mathematics" (Russia - N. Novgorod and Moscow)*:
    Dr. **Stepan Igorevich Lebedenko**, Dr. **Giuseppe Augello**, Dr. **Yuriy Vladimirovich Ushakov**, Dr. **Aleksandrovich Dmitry Kulikov**, Dr. **Claudio Guarcello**, Dr. **Anna Sergeevna Zaitseva**, Dr. **Irina Alexandrovna Balakhnina**;
  - **c)** **n. 4 - International Doctorate in Physical Sciences, *Palermo University*, *Lomonosov University of Moscow* and *Lobachevsky N. Novgorod University* (Russia):**
    Double PhD title: *"Ph.D. in Applied Physics" (Italy - Palermo) "Candidate of Science in Physics and Mathematics" (Russia - N. Novgorod and Moscow)*:
    Dr. **Ekaterina Ivanovna Anashkina, Dr. Angelo Carollo,** Dr. **Anna Kharcheva,** Dr. **Mariia Koriazhkina.**

➢ **9 Post-Doc**: Dr. **Markus Cirone**, Dr. **Nikolai V. Agudov**, Dr. **Antonino La Barbera**, Dr. **Alessandro Fiasconaro**, Dr. **Davide Valenti**, Dr. **Nicola Pizzolato**, Dr. **Stefano Spezia**, Dr. **Roberto Stassi**, Dr. **Angelo Carollo**.

Editorial Activity

➢ ***Senior Editor – Editor***

- **Editor** of **Chaos, Solitons & Fractals**, Elsevier Ed. (**2015-2020**), **Chaos, Solitons & Fractals X**, Elsevier Ed. (**2018-2020**).
- **Senior Editor** for the ***Interdisciplinary Physics Section*** of **Cogent Physics**, Taylor & Francis Group (since **2014-2020**). This journal is indexed in **Emerging Sources Citation Index (ESCI)** a new index in the Web of Science™ Core Collection.
- **Academic Editor** of **Mathematical Problems in Engineering**, Hindawi Publishing

Corporation (since **2018**).

- ***Associated Editor – Editorial Board Member***
  - **Member of the editorial board of Physical Review E, American Physical Society (2019-2021).**
  - **Member of the editorial board of Entropy, Sections: Statistical Physics, Quantum Information, MDPI (2020-2021).**
  - **Associated Editor** of **Chaos, Solitons & Fractals**, Elsevier Ed. (**2014-2015**) and from **2021**.
  - **Member of the editorial board of Il Nuovo Cimento C - Colloquia and Communications in Physics, Italian Physical Society (**since **2020).**
  - **Editorial Board Member** of **Modern Problems of Statistical Physics**, Talam Ed., (**2002-2010**).

- ***Guest Editor***
  - **Guest Editor *Fluctuation and Noise Letters (2004-2005).***
  - **Guest Editor *International Journal of Bifurcation and Chaos (2006-2008).***
  - **Guest Editor *European Physical Journal B (2007-2008).***
  - **Guest Editor *Cogent Physics and Economics & Finance (2016-2017).***
  - **Guest Editor *Journal of Statistical Mechanics: Theory and Experiments (2019-2020).***
  - **Guest Editor Chaos, Solitons & Fractals**, Elsevier Ed. (**2020-2021**).

Peer reviewer

➢ ***Scientific Journals (99)***

Phys. Rev. Lett.	*Scientific Reports*	*PlosOne*	*New J. of Physics*
Phys. Rev. B	*Phys. Rev. E*	*Entropy*	*Nanomaterials*
Eur. Physics Letters	*Physics Lett. A*	*Chaos*	*Physica Scripta*
Phys. Rev. Applied	*Surface Science*	*Physica D*	*Cond. Matter*
Chaos Solit. Fractals	*J. Chem. Phys.*	*Physical Biology*	*Appl. Phys. Lett.*
J. Mathematics	*J. Stat. Physics*	*Appl. Mathematics*	*Nonl. Dynamics*
Fluct. Noise Lett.	*Indian J. Phys.*	*Chinese J. Physics*	*J. Applied. Phys.*
Ecol. Modelling	*Ecol. Complexity*	*Ecology Letters*	*SIAM J.Appl. Mat.*
J. Phys.: Cond. Mat.	*Chin. Phys. Lett.*	*Brazilian J. Physics*	*Biophys. Journal*
Physica B-Cond. Mat.	*Nukleonika*	*Disc.Con.Dyn.Sys.B*	*J. Nonlin. Dyn.*
Mod. Phys. Lett. B	*Eur. Phys. J. B*	*Eur. Phys. J.-Spec. Top*	*J. Frankin Inst.*
J. Phys. A: Math. Th.	*Advances Math. Phys.*	*Abstract Appl. Analysis*	*Sustainability*
Appl. Math. Model	*Clas. Quant. Gravity*	*Acta Math. Scientia*	*Econom. Model.*
Int. J. Circuit Th. Appl.	*Scientific World J.*	*Int. J. Mod. Phys. B*	*J. Biol. Phys.*
J. Theor. Biology	*Discr. Dyn. Nat. Soc.*	*Cent. Eur. J. Physics*	*Int. J. Bif. Chaos*
Proc. Royal Society A	*J. Quan. Elect. IEEE*	*Math. Probl. Eng.*	*NANO*
J. Comp. Methods in Phys.	*Int. J. Biomathematics*	*J. Comp. Electronics*	*Math. Bios. Eng.*
J. Stat. Mech.: Th. Exp.	*Mech. Sys. Sig. Proc.*	*Neur. Comp. Appl. J.*	*Atmosphere*
Math. Model. Nat. Phen.	*Comm. Theor. Phys.*	*J. Appl. Anal. Comp.*	*Physica A*
Com.Nonl.Sc.Num.Sim.	*Rad.Eff.Def.in Sol*	*npj Quant. Inf. Spr. Nat*	*Int. J. Optics*
J. Phys.B: A.Mo.Op.Phys.	*Phil.Mag.& P.M.Lett.*	*Int. J. Theor. Physics*	*Axioms*
Int. J. Comp. Math.	*Int. J. Theor. Phys.*	*J. Solid State Sci.Techn.*	*Energies*
Frontiers of Physics	*Eur. Phys. J. Plus*	*Frontiers Earth Science*	*Mathematics*

Crystals *J. Phys.: Complexity* *Applied Sciences* *Phyl. Trans. A*
Acta Mechanica Sinica *Fractal Fractional* *Physical Review Applied*

➢ ***Appeal***

Physical Review E

➢ ***Adjudicator***

Physical Review Letters, Physical Review B, Physical Review E, Physical Review Applied Journal of Physics A: Mathematical and Theoretical.

➢ ***Referee for the Evaluation of Universities, Research Institutes, National and International Project proposals, Full Professor Positions, PhD Theses and Book proposals***

- ***Research Quality Evaluation 2004-2010 of Italian Universities and Research Institutes Italian Ministry of Education, University and Research - National Agency for the Evaluation of University and Research MIUR-ANVUR.***
- ***Research Quality Evaluation 2011-2014 of Italian Universities and Research Institutes Italian Ministry of Education, University and Research - National Agency for the Evaluation of University and Research MIUR-ANVUR.***
- ***QS Global Academic Survey for World University Ranking, Ural Federal University (since 2019).***
- **International Reviewer, as expert commissioned by Russian Science Foundation for assessment of project proposals (**since **2021).**
- ***Referee for full professor position*** *(for prof. Martin Bier)**, North East Caroline University, USA (2016).***
- ***Referee for full professor position*** *(for prof. Juan Luis Cabrera),* ***Venezuelan Institute of Scientific Research (IVIC), Caracas, Venezuela (2017).***
- ***Reviewer for*** **Oxford University Press** on ***book proposals*** (*since **2020***).
- ***QS Global Academic Survey for QS World University Rankings of University of Catania, Italy (since 2021).***

➢ ***Evaluation of International Projects***

- "***INTAS Evaluator***" *for European Projects* **(2005-2006**).
- ***International Project proposal assessment expert for the Ministry of Education and Science of the Russian Federation*** **(2016).**
- ***Reviewer of Research proposal for Israel Science Foundation*** **(2017).**
- ***International Expert for the peer-reviewing process of technical and scientific projects. Reviewer of Research proposal for JSC "National Center of Science and Technology Evaluation (NCSTE)", Ministry of Education and Science, Almaty, Republic of Kazakhstan*** (since **2020).**
- ***Reviewer of Research proposal for the National Research, Development and Innovation Office (NRDI), Hungary* (2022).** ***Title of the proposal: "Noise diagnostics of atomic scale devices".***

➢ ***Evaluation of National Projects***

- ***Expert Evaluator MIUR projects FIRB "Futuro in Research" and PRIN (since 2010)***
- ***Expert Evaluator of the proposals funded by the University of Catania, projects FIR (since 2014)***

➢ ***Evaluation of PhD Theses***

- **Chinmoy Samanta**

  Thesis: "**Generalized Multi-State Problems in Quantum and Statistical Physics: Analytical, Semi-Analytical Method Development", (2022)**. Indian Institute of Technology Mandi, Kamandi, India.

Invitation to write review articles

- "**Mathematical Biosciences and Engineering" (2004)**.
- "**European Physical Journal B – Condensed Matter and Complex Systems** " (**2008**).
- "**Chaos Solitons & Fractals**" (**2017**).

Chairman of International Congresses

- **Chairman** of the **International Workshop** on **"Noise in Condensed Matter and in Complex Systems"** held at Città del Mare, Terrasini, Palermo, Italy July 26-29, **2004**. Sito web: http://gip.dft.unipa.it/workshop
- **Co-Chairman** of the **International Workshop** on **"Critical Phenomena and Diffusion in Complex Systems"** held at Nizhny Novgorod, Russia December 5-7, **2006**.
- **Chairman** of the **International Workshop** on **"Ecological Complex Systems: Stochastic Dynamics and Patterns"** held at Città del Mare, Terrasini, Palermo, Italy July 22-26, **2007**. Sito web: http://gip.dft.unipa.it/workshop_ECS_Pa07/
- **Chairman** of the **International Conference** on **"New Trends in Nonequilibrium Statistical Mechanics: Classical and Quantum Physics",** XVth Course of the **International School of Statistical Physics, Ettore Majorana Foundation and Centre for Scientific Culture** held at Erice, Italy 26-31 July, **2018**. Sito web: https://nesmcq18.sciencesconf.org
- **Co-Chairman** of the **International Workshop** on **"1937, Palermo: The discovery of technetium"**, in conjunction with the ceremony of the "EPS Historic Site" to recall the discovery of technetium by Emilio Segrè and Carlo Perrier, held at the Department of Physics and Chemistry, via Archirafi 36, Palermo, Italy February 18, **2019**.
- **Chairman** of the **International Conference** on **"New Trends in Nonequilibrium Stochastic Multistable Systems and Memristors",** XXth Course of the **International School of Statistical Physics, Ettore Majorana Foundation and Centre for Scientific Culture** held at Erice, Italy 18-21 October, **2019**. Sito web: https://nes2019.sciencesconf.org/
- **Co-Chairman** of the **International Conference** on ***"New Trends in Topological States of Matter and Nonequilibrium Statistical Mechanics"*, Ist Course** of the **International School of Nonequilibrium Phenomena, Ettore Majorana Foundation and Centre for Scientific Culture** held at Erice, Italy 9-15 October, **2023**. Sito web: **https://nes2021.sciencesconf.org**

Organization of International Congresses

- Organizing Committee of the **International Conference** on **"Fourth Quantum Thermodynamics Conference",** 7th Course of the **International School of Statistical**

Physics, Ettore Majorana Foundation and Centre for Scientific Culture held at Erice, Italy 8-13 May, **2016**. Sito web: http://qtd4.sciencesconf.org/

- Programme Committe of the **10-th Summer Solstice 2018 International Conference** on **"Discrete Models of Complex Systems",** 25-27 June **2018**, Gdańsk, Poland. Sito web: http://iftia.univ.gda.pl/solstice/SS2018/index.html
- Organizing Committee of the **International Conference** ΣΦ2020 on **"Statistical Physics", Chania-Crete, Greece, 13-17 July, 2020. http://www.sigmaphi.polito.it**
- **Organization and Scientific Programme Committees of the EPS Forum 2022, Paris 1-4 June 2022.**

Advisory International Scientific Committee

- **International Conference "Statistical Physics** ΣΦ2008**",** 14-18 July, **Chania, Crete, Greece 2008.**
- **2nd, 3rd, 4th, 5th, 6th, 7th, 8th, 9th, 10th, 11th, 12th Chaotic Modeling and Simulation International Conference - CHAOS2009, CHAOS2010, Chania, Crete, Greece 2009, 2010; CHAOS2011, Agios Nikolas, Crete Greece 2011; CHAOS2012, Athens, Greece 2012; (CHAOS2013), Istanbul, Turkey 2013; CHAOS2014, Lisbon, Portugal 2014. CHAOS2015, Paris, France 2015; CHAOS2016, London, UK 2016; CHAOS2017, Barcelona, Spain 2017; CHAOS2018, Roma, Italy 2018; CHAOS2019, Chania, Crete, Greece 2019; CHAOS2020, Florence, Italy 2020; CHAOS2021, Athens, Greece 2021.**
- **International Conference "Statistical Physics** ΣΦ2011**", Larnaca, Cyprus, 2011.**
- **24th Marian Smoluchowski Symposium on Statistical Physics: Fundamentals and Applications**, Zakopane, Poland **2011**.
- **International Conference "Statistical Physics** ΣΦ2014**", Rhodes, Greece 2014.**
- **International Conference "Statistical Physics** ΣΦ2017**", Corfu, Greece 2017.**
- **30th Marian Smoluchowski Symposium on Statistical Physics, *On the Uniformity of Laws of Nature*, Krakow, Poland, 2017.**
- **International Conference "Statistical Physics** ΣΦ2020**",** 13-17 July, **Chania, Crete, Greece 2020.**
- **33rd Marian Smoluchowski Symposium on Statistical Physics,** 3-4 December, **Krakow, Poland, 2021.**
- **VI Scientific School "Dynamics of Complex Networks and their Applications" – DCNA2022** of the **Baltic Forum: Neuroscience, Artificial Intelligence and Complex Systems BF-NAICS 2022,** 14-16 September, **Kaliningrad, Russia, 2022.**

Invitations for Seminars, Lectures and Colloquium (University Departments, Max Planck Institute and Summer Schools)

- Seminar at the Department of Physics, **Lomonosov State University of Moscow,** entitled "*Noise Induced Effects and Population Dynamics*" (02/09/01).
- Lecture at the "*Institut für Physik*", **Humboldt-University in Berlin,** entitled "*Noise Enhanced Stability: a short review*" (27/04/04).
- Lecture at the Department of Physics and International Laser Center, **Lomonosov State University of Moscow,** entitled "*Noise Induced Phenomena in Condensed Matter and Complex Systems*" (19 /11/2004).
- Seminar at the Graduate School of the **Department of Physics**, **University of Cagliari**, entitled "*Effects induced by noise and stochastic models in population dynamics*" (06/05/2005).

- Seminar at the **Department of Physics, University of Catania**, entitled "*Noise Induced Effects in Physical and Biological Systems*" (02/07/2006).
- Lecture at the ***Department of Physics*, Nicolaus Copernicus University, Torun (Poland)**, entitled "*Noise in Biological Systems: Phenomenology and Theoretical Models*" (03/04/2006)**.**
- Lecture at the ***Max-Planck Institut fur Physik Komplexer Systeme*, Dresden, Germany**, entitled "*Interdisciplinary Applications of Enhancement of Stability in Systems with a Metastable State*" (5/7/2006).
- **Key-Note Lecturer** at the 2nd **International Laser Graduate School** "*Modern Problems of Laser Physics*", held in Moscow 10 to 13 October 2006 organized by the **State University Lomonosov Moscow**.
- Seminar at the **Department of Physics**, **University of Catania**, entitled "*Transient Dynamics in Models of Interdisciplinary Physics*" (27/2/2008).
- Lecture at the 3rd edition of the **Summer School** for **Training of Teachers of Science** (SPAIS 2008) on "Complex Systems", entitled "*Effects Induced by Noise in Complex Systems*", Piano Torre Park Hotel, Isnello (Palermo) 15 – 19 July, 2008, **Palermo University**.
- Lecture at the **Department of Humanities of Palermo University**, entitled "***Some Considerations on Complexity***", Palermo 02/10/2013, as part of the **Seminar on Logic and Philosophy of Science** at the **University of Palermo**.
- Lecture at the **Department of Physics and Chemistry of Palermo University**, entitled "***Order out of disorder in complex systems***", Palermo **19/05/2016**, as part of the Cycles of Seminar on **Chaos, Complexity and Systemic: the Perspective of the Physicists** at the **University of Palermo**, included among the **210 events for the 210th anniversary of the founding of the Palermo University.**
- Lecture at the **Department of Physical Sciences of Messina University**, entitled "***Dissipative Dynamics in Out of Equilibrium Systems: Noise-Induced Effects and Metastability in Complex Systems***", Messina **26/05/2016**, as part of the **Seminar on Notes of Theoretical Physics** at the **University of Messina**, **Nineth Day with Theoretical Physics in Messina.**
- **Colloquium** at the **Max Planck Institute for Dynamics and Self-Organization**, entitled **"Nonlinear Relaxation Phenomena in Condensed Matter Metastable Systems", Göttingen, Germany,** 14 December **2016**.
- Lecture at the **Department of Physics and Chemistry of Palermo University**, entitled "***Interdisciplinary Theoretical Physics: Order out of disorder in complex systems***", Palermo **27/03/2017**.
- **Lecture** at the **Department of Humanities of Palermo University**, entitled "***Complexity and recent developments in condensed matter physics***", Palermo **05/04/2017**, as part of the **Seminar on Logic and Philosophy of Science** at the **University of Palermo**.
- **Seminar at the Residenza Universitaria Segesta,** entitled **"Understanding Complexity: Order out of disorder in interdisciplinary theoretical physics"**, Palermo **12/12/2018.**
- **Colloquium** at the **Institute of Mathematics and Computer Science, Ural Federation University,** entitled **"*Noise-driven Dynamics in Nonequilibrium Physical Systems*", Ekaterinburg, Russia 26 March 2019**.
- **Invited Lecture** at the **23rd Scientific Conference on Radiophysics, dedicated to the 100th anniversary of N.A. Zheleztsov, "Nizhny Novgorod State University. N.I. Lobachevsky",** entitled **"Metastability and Multistability: Understanding Stochastic Dynamics in Memristor Switching", Nizhny Novgorod, Russia 8 May 2019**.
- **Invited Lecture** at the **Department of Chemistry of Engineering Faculty, Buenos Aires University**, entitled "***Noise-driven Transient Dynamics in Out-of Equilibrium Condensed Matter Systems***", **Buenos Aires**, **Argentina** 03 July **2019**.
- **Invited Speaker** at the **round table** of the **Workshop "Palermo Periodic Table PaPt19", title: "Ethics of scientific work", Palermo** 15 November **2019.**

- **Seminar at the Department of Physics and Chemistry of Palermo University**, entitled **"Spontaneous Symmetry Breaking"**, Palermo **19/12/2019.**
- **Chairman of the special session "Stochastic multistable systems"** of the ***24th Scientific Conference*** on ***Radiophysics*** for the ***75th anniversary of the Radiophysical Faculty,*** **Nizhny Novgorod State University. N.I. Lobachevsky, Russia *Zoom*** platform, **26 May 2020**.
- **Seminar at the *Radiophysical Faculty,* Nizhny Novgorod State University. N. I. Lobachevsky, Russia**, entitled **"*Non-equilibrium phenomena and metastability in mesoscopic and quantum systems*"**, N. Novgorod – ***Zoom*** platform, 21 **October 2020.**
- **Theoretical Quantum Seminar at the Department of Physics and Chemistry of Palermo University**, entitled **"Noise-Induced Phenomena in Multistable Systems for Memristors"**, Palermo **9 April 2021.**
- Lecture at the **Department of Physics and Chemistry of Palermo University (DFIC)**, entitled "***Physics of Complex Systems: Research Activity of the Interdisciplinary Theoretical Physics Group***", within the Workshop "***The Computational Physics at the Department of Physics and Chemistry of Palermo University***", **14 May 2021**.
- **Chairman of the special session "Stochastic multistable systems"** of the ***25th Scientific Conference*** on ***Radiophysics*** for the ***76th anniversary of the Radiophysical Faculty,*** **Nizhny Novgorod State University. N.I. Lobachevsky, Russia *Zoom*** platform, **26 May 2021**.
- **Chairman of the special session "Stochastic multistable systems"** of the ***26th Scientific Conference*** on ***Radiophysics*** for the ***77th anniversary of the Radiophysical Faculty,*** **Nizhny Novgorod State University. N.I. Lobachevsky, Russia *Zoom*** platform, **17-24 May 2022**.
- **Chairman of the mini simposium "Complexity in Condensed Matter: memristive systems and networks for artificial and hybrid intelligence"** at the **VI Scientific School "Dynamics of Complex Networks and their Applications" - DCNA2022** of the **Baltic Forum: Neuroscience, Artificial Intelligence and Complex Systems BF-NAICS 2022,** 14-16 September, **Kaliningrad, Russia, 2022.**

Recent Invited Lectures at International Conferences (2001-2020)

I1 – "***Stability Enhanced by the External Noise in Nonautonomous Nonlinear Dynamical Systems***", **Topical Conference "Nonlinear Oscillations, Chaos and Information" of the International Conference on "Progress in Nonlinear Science**", **Nizhny Novgorod, Russia**, July 2-6, **2001**.

I2 – "***Role of the noise on the transient Dynamics of an ecosistem of interacting species*** ", **International Symposium on "*Slow Dynamical Processes in Nature*", Seoul, Korea**, November 25-27, **2001**.

I3 – **"*Noise Induced Phenomena and Spatio-Temporal Patterns in Population Dynamics*", National Conference on Physics of Matter – INFMeeting, Bari, Italy** 24-28 giugno **2002.**

I4 – "*Noise Induced Phenomena in Sea Fish Population Dynamics*", International Workshop on "Synchronization of Chaotic and Stochastic Oscillations", Saratov, Russia, September 22-28, **2002.**

I5 – **"*Noise Enhanced Stability*", Invited Plenary Lecture, *16th Marian Smoluchowski Symposium on Statistical Physics*: *Fundamental and Applications*, Zakopane, Poland**, September 6-12, **2003**.

I6 - ***"Escape Times in Fluctuating Metastable Potential and Acceleration of Diffusion in Peiodic Fluctuating Potential"*, International Conference on *New and Expectations in Thermostatistics,* NEXT2003, Cagliari, Italy**, 21-28 September **2003**.

I7 - "*Influence of noise induced effects and periodical driving on temporal characteristics of Josephson junctions*", **31st Workshop** of the International School of Solid State Physica "***Complexity, Metastability and Nonextensivity***", **Erice (Sicily)** 20-26 July **2004**.

I8 – "*Influence of noise sources on FitzHugh-Nagumo model in the presence of a strong periodical driving* ", FN05 SPIE, **Third International Symposium on Fluctuations and Noise: "Noise in Complex Systems and Stochastic Dynamics**", **Austin, Texas**, 23-26 May **2005**.

I9 – "*Noise in Biological Systems*", NWP-2005, **International Symposium on Topical Problems of Nonlinear Wave Physics**, **St. Petersburg-Nizhny Novgorod, Russia**, 2-9 August **2005**.

I10 – "Lifetime of metastable states and suppression of noise in Interdisciplinary Physical Models", Invited Lecture, "***Centennial Marian Smoluchowski Symposyum on Statistical Physics", 19th Marian Smoluchowski Symposium on Statistical Physics: Fundamental and Applications***, **Kraków, Poland**, 14-17 May, **2006**.

I11 – "*Interdisciplinary applications of enhancement of stability in systems with a metastable state",* Invited Lecture, *International Seminar and Workshop on* ***"Constructive Role of Noise in Complex Systems"***, **Dresden, Germany**, June 26 – July 21, **2006**.

I12 - "**Volatility effects on the escape time in financial markets models**", *International Workshop* ***"Critical Phenomena and Diffusion in Complex Systems"***, Nizhny Novgorod, Russia, 5-7 December **2006**.

I13 – "Enhancement of stability in systems with metastable states", *International Workshop* ***"Complexity, Metastability and Nonextensivity"***, *satellite conference of StatPhys23*, Catania, Italy, 1-5 July **2007**.

I14 – "Noise Effects in Biological Systems", **International Conference *"SR2008"*, Perugia, Italy**, 17-21 August **2008**.

I15 – "Cancer growth dynamics: stochastic models and noise induced effects", **International Conference on Noise and Fluctuations 2009 "ICNF2009",** Pisa, Italy, 14 – 19 June, **2009**.

I16 – "*Noise stabilization effects in models of interdisciplinary physics*", **Invited Plenary Lecture**, ***22th Marian Smoluchowski Symposium on Statistical Physics: Fundamental and Applications***, **Zakopane, Poland**, September 12-17, **2009**.

I17 – "*Relaxation phenomena in classical and quantum systems*", **Invited Lecture**, *International Conference* **"*Statistical Physics* ΣΦ2011",** 11-15 luglio, Ayia Napa, **Cyprus**, **2011**.

I18 – "*The bistable system: an archetypal model for complex systems*", **Invited Plenary Lecture**, *24th Marian Smoluchowski Symposium on Statistical Physics*: *Fundamental and Applications*, **Zakopane, Poland**, September 17-22, **2011**.

I19 – "*Regularity of Spike Trains and Harmony Perception in a Model of the Auditory System*", **Invited Lecture** al ***XXIII Sitges Conference*** *on Statistical Mechanics* "***Understanding and Managing Randomness in Physics, Chemistry and Biology***", **Sitges**, **Barcelona, Spain**, 4-8 June, **2012**.

I20 – "*Fluctuations and nonlinearity in classical and quantum systems*", Invited Plenary Lecture, *XVIIth National Conference on "****Statistical Physics and Complex Systems****"*, **Parma, Italia,** 20-22 June, **2012**.

I21 – "*Environmental noise and nonlinearity in biological and physical systems*", Invited Plenary Lecture, *3rd International Workshop on* "***Statistical Mechanics and Dynamical Systems***", **Turunc/Marmaris, Turkey**, 27 August-2 September, **2012**.

I22 – "*Spike train statistics for consonant and dissonant musical accords and Regularity of spike trains and harmony perception in a model of the auditory system*", **Invited Lecture**, ***12th Granada Seminar*** *on Computational and Statistical Physics* "**Physics, Computation, and the Mind — Advances and Challenges at Interfaces**", La Herradura, **Granada, Spain**, September 17-21, **2012**.

I23 - ***"Nonlinear Relaxation and Environmental Noise in Biological Systems"*****, Invited Lecture**, "***Italian National Conference on Condensed Matter Physics***", **Milano, Italia**, 9-13 September, **2013**.

I24 – "*Noise-induced Effects in Nonlinear Relaxation of Condensed Matter Systems*", Invited Lecture all'*International Conference* **"*Statistical Physics* ΣΦ2014",** 7-11 luglio, **Rhodes, Greece**,

2014.

I25 – "*Environmental Noise and Nonlinearity in the Brain and beyond*", **Invited Lecture** al ***IV International Workshop*** "**Complex Collective Dynamics: Brains and beyond**", August 31 – September 4, Anacapri, **Capri, Italia**, **2015**.

I26 – "*Mean First hitting time in the dynamics of financial markets: a measure of stability*", **Invited Lecture** al ***II International Conference*** "**Modern Econometric Tools and Applications – EC2015**", September 24-26, HSE, **Nizhny Novgorod, Russia**, **2015**.

I27 - "*Nonlinear relaxation phenomena in three different systems of condensed matter*", **Invited Lecture** al "***Italian National Conference on Condensed Matter Physics***", ***FisMat2015***, September 9-13, **Palermo, Italia**, **2015**.

I28 - "*Nonlinear Relaxation Phenomena in Metastable Condensed Matter Systems*", **Invited Plenary Lecture** ***XXV Sitges Conference*** *on Statistical Mechanics* "***Nonequilibrium Phenomena in Confined Systems***", **Barcelona, Spain**, 6-10 June, **2016**.

I29 - "*Nonequilibrium Phenomena in Metastable Systems*", **Invited Lecture** ***XXI National Conference on Statistical Physics and Complex Systems***, **Parma, Italy**, 27-29 June, **2016**.

I30 – "*Stabilization by dissipation and resonant activation in quantum metastable systems*", **Invited Lecture** **14th Granada Seminar. Quantum Systems In and Out of Equilibrium**: **Fundamentals, dynamics and applications**, **Granada, Spain** 20-23 June, **2017.**

I31 - "*Transient Dynamics in Condensed Matter Complex Systems*", **Invited Lecture** at the **Summer Solstice 2017, 9th International Conference on Discrete Models of Complex Systems, Catania, Italy, 21-23 June, 2017.**

I32 – "Driven Quantum Metastable States: stabilization by dissipation and resonant activation", **Invited Lecture** at **SigmaPhi 2017 International Conference "Statistical Physics ΣΦ2017", Corfu, Greece, 10-14 July, 2017. Lecture sponsored by Elsevier – Chaos Solitons & Fractals.**

I33 – "Mesoscopic and Metastable Quantum Systems", Invited Plenary Lecture at the **30th Marian Smoluchowski Symposium on Statistical Physics *On the Uniformity of Laws of Nature*, Kraków, Poland, September 3-8, 2017.**

I34 – "Noise-induced Phenomena in Multistable Classical and Quantum Systems", Invited Plenary Lecture at the **1st MEM-Q International Workshop "*Nanoelectronic Memristive Devices for Quantum and Neuromorphic Computing*", Kurchatov Institute, Moscow, Russia, May 14-16, 2018.**

I35 – "Environmental Noise and Nonlinearity in Biological Systems ", Invited Lecture at the **The First CISAS Biomathematics Workshop, Palermo, Italy, - 12 October 2018.**

I36 – "Multistability and Metastability: Understanding Stochastic Dynamics in Condensed Matter", *Invited Plenary Lecture* at the **2nd MEM-Q International Workshop "*From ReRAM and Memristors to new Computing Paradigms*", Rethymno, Crete, Greece, October 28-31, 2018.**

I37 – "Understanding Stochastic Dynamics in Condensed Matter: Metastability and Multistability", Invited Lecture at the **3rd International Scientific Conference "Science of the Future" and 4th All-Russian Youth Scientific Forum "Science of the Future - Science of the Young", Sochi, Russia, 14-17 May 2019.**

I38 – "*Noise-driven Dynamics in Far-from-equilibirum Systems*", **Invited Talk** ***XXVI Sitges Conference*** *on Statistical Mechanics* "***New Trends in Statistical Physics – 50 years of the Sitges Conference***", **Sitges, Spain**, 27-31 May, **2019**.

I39 – "Out of equilibrium systems: noise-driven dynamics and metastability", *Invited Plenary Lecture* at the **XIV All-Russian Scientific Conference of Young Scientists** on "**Nanoelectronics, Nanophotonics and Nonlinear Physics**", **Saratov, Russia**, 17-19 September, **2019**.

I40 - "***Non-equilibrium phenomena and metastability in mesoscopic and quantum systems***", **Invited Talk** at the **24th Scientific Conference on Radiophysics,** for the ***75th anniversary of the Radiophysical Faculty,*** **Nizhny Novgorod State University N.I. Lobachevsky, Russia, *Zoom*** platform, **26 May 2020**.

I41 - "***Physics of Complex Systems: Multistability, Nonequilibrium Phenomena and Environmental Noise***", **Invited Talk** at the **25th Scientific Conference on Radiophysics,** for the ***76th anniversary of the Radiophysical Faculty,*** **Nizhny Novgorod State University N.I. Lobachevsky, Russia, *Zoom*** platform, **26 May 2021**.

I42 - "***Noise-driven Dynamics and Relaxation Phenomena in Multistable Systems***", **Invited Talk** at the **Forty years of Stochastic Resonance - SR40, Perugia (Italy) 12 - 15 September 2021**.

I43 – "***Nonlinear Relaxation Phenomena in Complex Metastable Systems***", **Invited Lecture** at the **4th International Scientific Conference "Science of the Future" and 6th All-Russian Youth Scientific Forum "Science of the Future - Science of the Young", Moscow, Russia, 17-20 November 2021.**

I44 - "***Statistical Physics for Complexity***", **Invited Talk** at the **26th Scientific Conference on Radiophysics,** for the ***77th anniversary of the Radiophysical Faculty,*** **Nizhny Novgorod State University N.I. Lobachevsky, Russia, *Zoom*** platform, **17 May 2022**.

I45 - "**Noise Driven Phenomena in Complex Systems: from Dark Matter to Memristors I**", ***Invited Plenary Talk*** at the **16th International Conference on Nanostructured Materials NANO2022, Sevilla, Spain**, 6 - 10 June, **2022**.

I46 – "**Noise Driven Phenomena in Complex Systems: from Dark Matter to Memristors II**", ***Invited Plenary Talk*** at the **16th International Conference on Nanostructured Materials NANO2022, Sevilla, Spain**, 6 - 10 June, **2022**.

I47 – "**Complexity in Condensed Matter: JJ and dark matter, quantum and memristive systems", *Invited Plenary Talk*** at the the mini simposium **"Complexity in Condensed Matter: memristive systems and networks for artificial and hybrid intelligence"** of the **VI Scientific School "Dynamics of Complex Networks and their Applications" - DCNA2022** at the **Baltic Forum: Neuroscience, Artificial Intelligence and Complex Systems BF-NAICS 2022,** 14-16 September, **Kaliningrad, Russia, 2022.**

Publications

*5 volumes of "**Special and Topical Issues**", **205** publications in international journals: **198** (**peer-reviewed, ISI**), **7** (Journals with International Editorial Boards); **70** Proceedings, **7** Book chapters, **3** Educational publications.*

➢ ***The 10 most cited articles. Source Web of Science Thomson Reuters, updated June 2022. The most cited articles with n. citations > 100: 12***

1. R. N. Mantegna and B. Spagnolo, "*Noise Enhanced Stability in an Unstable System*", Phys. Rev. Lett.**76**, 563-566 (1996). **275** citations.
2. A. A. Dubkov, B. Spagnolo, and V. V. Uchaikin, "*Lévy flights Superdiffusion: An Introduction*", Intern. Journ. of Bifurcation and Chaos, Vol. **18**, No. 9, 2649 - 2672 (2008). **204** citazioni. **Highly Cited since 2014-2015-2016-2017-2018.**
3. N. Agudov and B. Spagnolo, "*Noise enhanced stability of periodically driven metastable states*", Phys. Rev. E **64,** 035102(R) (2001). **170** citations.
4. A. A. Dubkov, N. V. Agudov and B. Spagnolo, "*Noise enhanced stability in fluctuating metastable states* ", Phys. Rev. E **69**, 061103 (7) (2004). **168** citations.
5. B. Spagnolo, D. Valenti, A. Fiasconaro, *"Noise in Ecosystems: A Short Review"*,

Mathematical Biosciences and Engineering **1**, 185-211 (2004). **139** citations.

6. A. Fiasconaro, B. Spagnolo, and S. Boccaletti, "*Signatures of noise-enhanced stability in metastable states*", Phys. Rev. E **72**, 061110(5) (2005). **132** citations.
7. R. N. Mantegna and B. Spagnolo, "*Stochastic Resonance in a Tunnel Diode*", Phys. Rev. Rap. Comm. E **49, R**1792-**R**1795 (1994). **128** citazioni.
8. R. N. Mantegna and B. Spagnolo, "*Experimental Investigation of Resonant Activation*", Phys. Rev. Lett. 84, 3025-3028 (2000). **124** citations.
9. D. Valenti, A. Fiasconaro and B. Spagnolo, "*Stochastic resonance and noise delayed extinction in a model of two competing species*", Physica A, **331**, 477-486 (2004). **115** citations.
10. A. Fiasconaro and B. Spagnolo, A Ochab-Marcinek and E. Gudowska-Nowak, "*Co-occurrence of resonant activation and noise-enhanced stability in a model of cancer growth in the presence of immune response*", Phys. Rev. E **74**, 041904(10) (2006). **105** citations.
11. A. La Cognata, D. Valenti, A. A. Dubkov, and B. Spagnolo, "*Dynamics of two competing species in the presence of Lévy noise sources*", Phys. Rev. E **82**, 011121 (9) (2010). **102** citations. **Selected** for the July 15, 2010 issue of **Virtual Journal of Biological Physics Research** http://www.vjbio.org.
12. B. Spagnolo, D. Valenti, C. Guarcello, A. Carollo, D. Persano Adorno, S. Spezia, N. Pizzolato, B. Di Paola, "*Noise-induced effects in nonlinear relaxation of condensed matter systems*", Chaos Solitons and Fractals **81**, 412-424 (2015). **100** citations.

https://doi.org/10.1016/j.chaos.2015.07.023

➢ **Journal Statistics and Bibliometric Indices as of 03 July 2022**

- **Web of Science (WoS)**

  WoS Researcher ID: F-6973-2014
  ***Hirsch factor 64 (03.07.22)*; Cumulative citations: 7691; H_{100}-index = 12 (# articles > 100 citations); I10-index 127.**

  Average citations per item:n 7691/198 = 38,84;

  Citations without self-citations: 5855;

- **Scopus**

  ***Scopus Author ID: 7003559874* (03.07.22)**
  ***Hirsch Index 63*; Cumulative citations: 7692 H_{100}-index = 11; I10-index 130.**

  Cited documents: 240

- **Google scholar statistics**

  ***Hirsch Index 69 (03.07.22)*; Cumulative citations: 9318 (5250 since 2017) I10-index 136 H_{100}-index = 24.**

Bernardo Spagnolo ORCID Connecting Research and Researchers **orcid.org/0000-0002-6625-3989**

➢ Highlights

Reviews by other Journals – Essential Science Indicators – Highly Cited Papers

Highlights Selected by Editors

1. New Scientist

The publication

- Giuffrida, D. Valenti, G. Ziino, **B. Spagnolo**, A. Panebianco, "***A stochastic interspecific competition model to predict Listeria monocytogenes behaviour in seasoning process under fluctuating environmental conditions***", European Food Research and Technology, **228**, *767 - 775* (**2009**). http://dx.doi.org/10.1007/s00217-008-0988-6

  has been reviewed by **New Scientist magazine**
  Mark Buchanan, vol. **2690**, pag. **22, 11 January 2009**: **"How bacterial warfare may lead to safer salami"**, http://www.newscientist.com/article/mg20126904.900-how-bacterial-warfare-may-lead-to-safer-salami.html.

2. Thomson-Scientific Essential Science Indicators

The publication

- **Bernardo Spagnolo**, Davide Valenti, Alessandro Fiasconaro, "***Noise in Ecosystems: A Short Review***", Mathematical Biosciences and Engineering **1**, 185-211 (**2004**),

  has been chosen as **"New Hot paper"** by **Thomson-Scientific *Essential Science Indicators*SM** (see interview 1/09/2006):
  http://www.esi-topics.com/nhp/2006/september-06-Spagnolo_Valenti_Fiasconaro.html

3. Focus PRL - PhysicsWorld – ScienceNOW - New Scientist - PHYSORG

Spotlighting exceptional research

The publication

- Yu.V. Ushakov, A.A. Dubkov and **B. Spagnolo**, "***Regularity of spike trains and harmony perception in a model of the auditory system***", **Physical Review Letters** vol. **107**, 108103 (4) (**2011**).

Selected as PRL Editor's Suggestion,

has been reviewed by the following scientific magazines:

- **Focus PRL** (2 sett. 2011), see Focus story: ***Sweet Music to your Nerves*** by **Michael Schirber, http://physics.aps.org/story/v28/st9;**
- **PhysicsWorld** (14 settembre 2011), see ***Physicists in tune with neurons*** by **Tushna Commissariat, http://physicsworld.com/cws/article/news/47171;**
- **ScienceNOW** (9 settembre 2011), see ***How the Ear Distinguishes Sweet Sounds From Sour Notes*** by **Kim Krieger**
  http://news.sciencemag.org/sciencenow/2011/09/how-the-ear-distinguishes-sweet-.html;
- **New Scientist** (19 settembre 2011), see **Why harmony pleases the brain** by **Lisa Grossman**
  http://www.newscientist.com/article/dn20930-why-harmony-pleases-the-brain.html;

- **PHYS-ORG.com** (Sep 12, 2011), see **Research team develops mathematical model to explain harmony in music** by **Bob Yirka** http://www.physorg.com/news/2011-09-team-mathematical-harmony-music.html;
- **AUDIOLOGY-TALK** (September 13, 2011), see **Scientists Link Rhythm of Neurons with Pleasing Sounds** at http://www.audiologytalk.com/news/news_show.php?id=154;
- **London Student**, **Londra** (Vol. 32, issue 3, dicembre 2011), **The Science of …MUSIC** by **David Simpson;**
- **To Vima – Science, Atene** (29 gennaio 2012), see **Ο λόγος της αρμονίας (The reason for the armony)** by **Lalina Fafouti** http://www.tovima.gr/science/article/?aid=440361&h1=true;
- **Mente e Cervello** (n. 83, novembre 2011), **Quella nota stonata** by **Tiziana Moriconi.**

4. Essential Science Indicators – Highly Cited Papers

The publication

A. A. Dubkov, **B. Spagnolo**, and V. V. Uchaikin, ***"Lèvy flights Superdiffusion: An Introduction"***, Intern. Journ. of Bifurcation and Chaos, Vol. **18**, No. 9, 2649 - 2672 (2008).

has been identified as a **"Higly Cited Paper" in Thomson-Scientific Essential Science Indicators, top cited papers over the past 10 years since 2014,** in **2015**, **2016, 2017,** and **2018,** because it received enough citations to place it in the **top 1%** of its academic field based on a highly cited threshold for the field and publication year**. Times Cited: 110; Average Citations/Year: 10.00.**

5. Highlights Selected by Editors

➢ A. L. Pankratov and B. Spagnolo, "*Suppression of Timing Errors in Short Overdamped Josephson Junctions*", Phys. Rev. Lett. **93**, 177001 (2004).
Selected for the **November 1, 2004** issue of **Virtual Journal of Applications of Superconductivity** http://www.vjsuper.org

➢ W. Ebeling and B. Spagnolo, *"Noise in Condensed Matter and Complex Systems"*, Fluctuation and Noise Letters, **5** (2), L159-L161 (2005).
Included in ***Solid State and Superconductivity Abstracts*** *database from* ***Cambridge Scientific Abstracts*** *(CSA),* ***2005.***

➢ Alexander A. Dubkov and Bernardo Spagnolo, "*Generalized Wiener Process and Kolmogorov's Equation for Diffusion Induced by Non-Gaussian Noise Source*", Fluctuation and Noise Letters, **5** (2), L267-L274 (2005).
Included in ***Solid State and Superconductivity Abstracts*** *database from* ***Cambridge Scientific Abstracts*** *(CSA),* ***2005.***

➢ Alessandro Fiasconaro and Bernardo Spagnolo, Anna Ochab-Marcinek and Ewa Gudowska-Nowak, "*Co-occurrence of resonant activation and noise-enhanced stability in a model of cancer growth in the presence of immune response*", Phys. Rev. E **74**, 041904(10) (2006).
Selected for the **October 15, 2006** issue of **Virtual Journal of Biological Physics Research** http://www.vjbio.org.

➢ A. La Cognata, D. Valenti, A. A. Dubkov, and B. Spagnolo, "*Dynamics of two competing*

species in the presence of Lévy noise sources", Phys. Rev. E **82**, 011121 (9) (2010). **Selected** for the July 15, 2010 issue of **Virtual Journal of Biological Physics Research** http://www.vjbio.org.

➢ S. Spezia, D. Persano Adorno, N. Pizzolato and B. Spagnolo, "*New insight into electron spin dynamics in the presence of correlated noise*", Journal of Physics: Condensed Matter **24**, 052204 (6pp) (2012).

Fast Track Communications. **Selected** for inclusion in **IOP Select, http://Select.iop.org**. **Selected** by **the editors** of **Journal of Physics: Condensed Matter** for inclusion in the exclusive "**Highlights of 2012**"collection. Papers are chosen on the basis of referee endorsement, novelty, scientific impact and broadness of appeal.

➢ Giovanni Denaro, Davide Valenti, Bernardo Spagnolo, Gualtiero Basilone, Salvatore Mazzola, Salem W. Zgozi, Salvatore Aronica, Angelo Bonanno, "*Dynamics of Two Picophytoplankton Groups in Mediterranean Sea: Analysis of the Deep Chlorophyll Maximum by a Stochastic Advection-Reaction-Diffusion Model*", Plos One **8** (6), e66765 (2013). Among the ***top 25% most cited PLOS ONE articles*** (June **2017**).

Patents

➢ 1. Yakimov, Gorshkov, Filatov, Antonov, Antonov, Klyuev, Spagnolo, Способ оценки энергии активации ионов кислорода в филаменте мемристора/ The method of estimating the activation energy of oxygen ions in the memristor filament Application №2019136089 from **08.11.2019.**

➢ 2. Safonov, Agudov, Dubkov, Gorshkov, Belov, Morozov, Shamshin, Spagnolo, Устройство для переключения мемристора/ Device for memristor switching, Application №2019140967 from **10.12.2019.**

➢ 3. Safonov, Agudov, Dubkov, Gorshkov, Belov, Morozov, Shamshin, Spagnolo, Способ управления работой мемристора и устройство для его осуществления/ Method for controlling memristor and device for its implementation, Application №2019140968 from **10.12.2019.**

➢ **Varia**

➢ Top Italian Scientist Physics: **40 (rank), H-index 69** (Google Scholar)

Rank: 23 - Scientist: Bernardo Spagnolo - **H-Index: 63**

➢ Biographycal Profile

- Biographycal profile insert into the Marquis's *Who's Who in the Science and Engineering*, since 2004.
- Biographycal profile insert into the Marquis's *Who's Who in the World*, since 2008.
- Biographycal profile insert into the *Whos's Who in the International Science and Commonsense Association*, since 2014.
- **Prabook - World Biographical Enciclopedia** - since **2018** https://prabook.com/web/bernardo.spagnolo/13743

➢ Nomination of Dr. Sergio Ciliberto for the **Friedel-Volterra Award 2020,** Société Française de Physique & Società Italiana di Fisica (SIF) joint award.

➢ Prolusion: “Oreste Maggio: the figure and work in the school”, 23 January 2017 at the State Scientific High School "Stanislao Cannizzaro", Palermo, for the dedication of the Physics Classroom of the Scientific High School “S. Cannizzaro” to prof. Oreste Maggio.

Palermo, 03/07/2022 **Prof. Bernardo Spagnolo**

List of Publications of Prof. Bernardo Spagnolo

➢ Volumes of International Journals and Proceedings (Special and Topical Issues)

E1. Werner Ebeling and Bernardo Spagnolo Guest Editors, **Special Issue of Fluctuation and Noise Letters** on “***Noise in Condensed Matter and in Complex Systems***”, International Workshop Città del Mare (Terrasini), Palermo, Italy 26-29 July 2004.
Fluctuation and Noise Letters 5 (2), L159 – L349 (2005).

E2. Alexander A. Dubkov and Bernardo Spagnolo Guest Editors, **Special Issue of International Journal of Bifurcation and Chaos** on “***Critical Phenomena and Diffusion in Complex Systems***”, International Workshop Niznhy Novgorod, Russia 5-7 December 2006.
International Journal of Bifurcation and Chaos 18 (9), 2487 - 2880 (2008).

E3. Astero Provata, Igor Sokolov and Bernardo Spagnolo Guest Editors, **Topical Issue of European Physical Journal B** on “***Ecological Complex Systems***”, International Workshop Città del Mare (Terrasini), Palermo, Italy 22-26 July 2007.
European Physical Journal B 65(3), pp. 307 - 467 (2008).

E4. Bernardo Spagnolo Guest Editor, **Special Issue of JSTAT** on “***New Trends in Nonequilibrium Statistical Mechanics: Classical and Quantum Systems***”, XVth Course of the **International School of Statistical Physics, Ettore Majorana Foundation and Centre for Scientific Culture** held at Erice, Italy 26-31 July, **2018**.

Journal of Statistical Physics: Theory and Expriments, in press (2019-2020).

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E5. Bernardo Spagnolo Guest Editor, **Special Issue of Chaos Solitons & Fractals** on “***Memristors and Nonequilibrium Stochastic Multistable Systems***”, *papers presented at the conference* “***New Trends in Nonequilibrium Stochastic Multistable Systems and Memristors (NES2019)***”, XXth Course of the **International School of Statistical Physics, Ettore Majorana Foundation and Centre for Scientific Culture** held at Erice, Italy 18-21 October, **2019**.
Chaos Solitons & Fractals, in press (2020-2021).

https://www.journals.elsevier.com/chaos-solitons-and-fractals/call-for-papers/memristors-and-nonequilibrium-stochastic-multistable-systems

➢ Publications in “*peer-reviewed journals*” (ISI)

P1. B. Spagnolo, “*Simple Pulse Generator for a Powerful Modulator*”, Rev. Sci. Instrum. **51**, 1134-1136 (1980). **doi.org/10.1063/1.1136360**

P2. G. Ferrante, L. Lo Cascio and B. Spagnolo, “*Laser-assisted symmetric charge transfer in atomic collisions*”, J. Phys. B: At. Mol. Phys. **14**, 3961-3976 (1981).

doi.org/10.1088/0022-3700/14/20/020

P3. B. Spagnolo, “*Simple Radio-Frequency Apparatus for an X-band Microtron*”, Rev. Sci.

Instrum. **53**, 534-536 (1982). **dx.doi.org/10.1063/1.1137008**

P4. S. Bivona, B. Spagnolo and G. Ferrante, "*Charge Transfer in the presence of a Magnetic Field*", J. Phys. B: At. Mol. Phys. **17**, 1093-1106 (1984).

https://doi.org/10.1088/0022-3700/17/6/021

P5. S. Ciuchi, F. de Pasquale, P. Monachesi and B. Spagnolo, "*Size Effects in Phase-Transition Kinetics*", Phys. Rev. B **38**, 2596-2602 (1988).

P6. S. Ciuchi, F. de Pasquale, P. Monachesi and B. Spagnolo, "*Kinetics of Ordered Phases in Finite Spin Systems*", Physica Scripta vol. **T 25**, 156-160 (1989).

P7. P. Barrera, S. Ciuchi and B. Spagnolo, "*Generating Function for a Multiplicative Noise with Group Analysis*", J. Phys. **A**: Math. Gen. **26**, **L**559-**L**565 (1993).

P8. S. Ciuchi, F. de Pasquale and B. Spagnolo, "*Nonlinear Relaxation in the presence of an Absorbing Barrier*", Phys. Rev. E **47,** 3915-3926 (1993).

P9. R. N. Mantegna and B. Spagnolo, "*Stochastic Resonance in a Tunnel Diode*", Phys. Rev. Rap. Comm. E **49, R**1792-**R**1795 (1994).

P10. R. N. Mantegna and B. Spagnolo, "*Stochastic Resonance in a Tunnel Diode in the Presence of White or Colored Noise*", Nuovo Cimento D **17**, 873-881 (1995).

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P11. R. N. Mantegna and B. Spagnolo, "*Noise Enhanced Stability in an Unstable System*", Phys. Rev. Lett.**76**, 563-566 (1996).

P12. S. Ciuchi, F. de Pasquale, B. Spagnolo, "*Self Regulation Mechanism of an Ecosystem in a Non-Gaussian Fluctuation Regime*", Phys. Rev E **54**, 706-716 (1996); https://doi.org/10.1103/PhysRevE.54.706.

P13. E. Lanzara, R. N. Mantegna, B. Spagnolo and R. Zangara, "*Experimental Study of a Nonlinear System in the Presence of Noise: The Stochastic Resonance*", Am. J. Phys., **65** (4), 341-349 (1997).

P14. R. N. Mantegna and B. Spagnolo, "*Probability distribution of the Residence Times in Periodically Fluctuating Metastable Systems*", Intern. J. of Bifurcation and Chaos, Vol. **8**, No. 4, 783-790 (1998). https://doi.org/10.1142/S0218127498000577

P15. R. N. Mantegna and B. Spagnolo, "*Numerical Simulation of Resonant Activation in a Fluctuating Metastable Model System*", J. Phys. IV France **8**, 247-251 (1998).

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P26. A. Fiasconaro, D. Valenti and B. Spagnolo, "*Role of the initial conditions on the enhancement of the escape time in static and fluctuating potentials* ", Physica A, **325/1-2**, 136-143 (2003). https://doi.org/10.1016/S0378-4371(03)00192-4

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P40. B. Spagnolo, D. Valenti, A. Fiasconaro, "*Transient Behavior of a Population Dynamical*

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P52. A. Fiasconaro, B. Spagnolo, and S. Boccaletti , "*Signatures of noise-enhanced stability in metastable states*", Phys. Rev. E **72**, 061110(5) (2005).

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P69. K. G. Federov, A. L. Pankratov and B. Spagnolo, "*Influence of length on the noise delayed switching of long Josephson junctions*", Intern. Journ. of Bifurcation and Chaos, Vol. **18**, No. 9, 2857 - 2862 (2008).

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P71. B. Spagnolo and D. Valenti, "*Volatility Effects on the Escape Time in Financial Market Models*", Intern. Journ. of Bifurcation and Chaos, Vol. **18**, No. 9, 2775 - 2786 (2008). https://doi.org/10.1142/S0218127408022007

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This paper has been identified as a "Highly Cited Paper" in Thomson-Scientific Essential Science Indicators, top cited papers over the past 10 years since 2014, and in **2015**, **because it received enough citations to**

place it in the top 1% of its academic field based on a highly cited threshold for the field and publication year. Times Cited: 59; Average Citations per Year: 6.56

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Palermo, 03/07/2022

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