

CRISTINA MASOLLER**PERSONAL INFORMATION**

Date and place of birth: 22/02/1963, Montevideo, Uruguay
 Nationality Italy and Uruguay
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EDUCATION

1999 PhD Physics, Bryn Mawr College, USA
 1991 Master Physics, Universidad de la República, Uruguay
 1989 Bachelor Physics, Universidad de la República, Uruguay

CURRENT POSITION

2018 – Full Professor, Physics Department, Universitat Politècnica de Catalunya (UPC), Spain

PREVIOUS POSITIONS

2009 – 2018 Associate Professor (Profesora agregada contratada), Physics Department, UPC, Spain
 2004 – 2009 Postdoctoral Researcher (Ramon i Cajal), Physics Department, UPC, Spain
 1986 – 2004 Teaching Assistant (1986 – 1993) / Assistant Professor (1993 – 2003) / Associate Professor (2003,2004), Instituto de Física, Facultad de Ciencias, Universidad de la República, Uruguay

FELLOWSHIPS AND AWARDS

2020 ICREA Academia Award. ICREA is a public institution whose main task is to attract and retain talent in Catalonia. The Academia Award, established in 2008, aims at fostering excellence in research done by tenured professors who work at public universities in Catalonia.
 2019 Visiting Professor at the Institut de Physique de Nice, Université Côte d'Azur, France (funding: Centre National de la Recherche Scientifique, CNRS)
 2015 ICREA Academia Award
 2016 Fellow of the Optical Society (OSA) for “*contributions in the area of nonlinear dynamics of optical systems*”. OSA is the largest scientific society in optics and photonic. The number of Fellows is limited to 10% of the total membership.
 2009 ICREA Academia Award

ON-GOING GRANTS AS PRINCIPAL INVESTIGATOR

2019 – 2022 Marie Skłodowska-Curie action (MSCA) Innovative Training Network (ITN) *Climate Advanced Forecasting of sub-seasonal Extremes* (CAFE)
 Web page: <http://www.cafes2se-itn.eu/>
 European Commission reference number: 813844
 2019 – 2021 *Complex dynamical systems and advanced data analysis tools*
 Ministerio de Ciencia, Innovación y Universidades, Spain
 Reference number: PGC2018-099443-B-I00

PREVIOUS GRANTS AS PRINCIPAL INVESTIGATOR (last 10 years)

2015 – 2019 MSCA ITN *Advanced Biomedical Optical Imaging and Data Analysis* (BE-OPTICAL)¹
 Web page: www.beoptical.eu
 European Commission reference number: 675512
 Coordinator: C. Masoller

¹ BE-OPTICAL was featured in the success stories section of the European Commission web page:
https://ec.europa.eu/research/infocentre/article_en.cfm?artid=45736

- 2016 – 2018 *Complex physical and biophysical systems: towards a comprehensive view of their dynamics and fluctuations*
Ministerio de Economía y Competitividad, Spain,
Reference number: FIS2015-66503-C3-2-P
- 2011 – 2015 MCSA ITN *Learning about Interacting Networks in Climate (LINC)*²
Web page: <https://climatelinc.eu/>
European Commission reference number: 289447
Coordinator: C. Masoller
- 2014 – 2016 *Semiconductor laser complex dynamics: from optical neurons to rogue waves*
Air Force Office of Scientific Research, European Office of Aerospace Research and Development (EOARD, USA)
EOARD reference number: FA9550-14-1-0359
- 2012 – 2014 *Spiking excitable semiconductor laser as optical neurons: dynamics, clustering and global emerging behaviours*
EOARD reference number: FA8655-12-1-2140
- 2010 – 2012 *Stochastic and nonlinear effects in semiconductor lasers*
EOARD reference number: FA8655-10-1-3075

TEACHING ACTIVITIES

2004 – to date Courses at Universitat Politècnica de Catalunya³

Introductory physics (*Mechanics, Waves, Electromagnetism*) for bachelor engineering programs of School of Industrial, Aerospace and Audiovisual Engineering of Terrassa (ESEIAAT)

Nonlinear systems, chaos and control in engineering for ESEIAAT bachelor degrees

Nonlinear time-series analysis for the bachelor degree in Mathematics of the School of Mathematics and Statistics, FME, and for several master degrees of ESEIAAT

Applications of photonics technologies for several ESEIAAT master degrees

Laser systems and applications for the Master in Photonics program jointly offered by UPC and three Catalan institutions (Universitat de Barcelona, Universitat Autònoma de Barcelona and Instituto de Ciencias Fotónicas, ICFO)⁴.

1986 – 2004 Courses at Instituto de Física, Universidad de la República, Uruguay

Introductory physics courses for the bachelor degree in physics, and advanced courses (Electromagnetic theory, Nonlinear optics) for the master and PhD degrees in physics.

SUPERVISION OF GRADUATE STUDENTS AND POSTDOCTORAL FELLOWS

PhD thesis supervised (PhD program of the Physics Department, UPC)⁵:

- 06/2011 J. Zamora Munt, *Nonlinear and stochastic dynamics of semiconductor lasers: modulation, transient dynamics and synchronization* (co-supervised with J. Garcia Ojalvo)
- 02/2014 S. Perrone, *Exploiting nonlinearity and noise in optical tweezers and semiconductor lasers: from resonant damping to stochastic logic gates and extreme pulses* (co-supervised with R. Vilaseca)
- 06/2014 A. Aragonés, *Experimental study of feedback-induced dynamics in semiconductor lasers: from symbolic analysis to subwavelength position sensing* (co-supervised with M. C. Torrent)
- 02/2015 I. Deza, *Climate networks constructed by using information-theoretic measures and ordinal time-series analysis* (co-supervised with M. Barreiro)

² A summary of LINC results can be found here: <https://cordis.europa.eu/article/id/156590-upskilling-young-researchers-to-help-tackle-the-complexities-of-climate-science>

³ Lecture notes can be found here: <http://www.fisica.edu.uy/~cris/teaching2.htm>

⁴ <https://photonics.masters.upc.edu/en>

⁵ The theses and related publications can be found here: <http://www.fisica.edu.uy/~cris/theses.htm>

- 06/2015 G. Tirabassi, *Disentangling climate interactions and inferring tipping points by using complex networks*
- 07/2015 T. Sorrentino, *Experimental and numerical study of the symbolic dynamics of modulated semiconductor lasers with optical feedback* (co-supervised with M. C. Torrent)
- 03/2017 C. Quintero-Quiroz, *Temporal correlations and dynamical transitions in semiconductor lasers with optical feedback* (co-supervised with M. C. Torrent)
- 04/2019 D. Zappala, *Hilbert analysis of air temperature dynamics*
- 12/2019 D. Halpaap, *Experimental study of speckle generated by semiconductor light sources: application in double pass imaging* (co-supervised with M. Vilaseca)
- 02/2020 P. Amil, *Machine learning methods for the characterization and classification of complex data*
- 02/2020 M. Masoliver, *Neuronal encoding and transmission of weak periodic signals*

Other supervision activities

Postdocs: C. Bonatto (2011), J.A. Reinoso (2015), L.C. Carpi (2016), C. Quintero (2017-2019).

Visiting students: several undergrad, master and PhD students have spent several months in our lab, and are co-authors of our publications: J. Ahuja, D. Bhiku, S. Borkar (India), T. Jin, C. Siyu (China), F. Arismendi, N. Rubido (Uruguay), F. Reyes (Mexico), M. Panozzo, C. Barcellona (Italy).

SCIENTIFIC ACTIVITIES

Biometric indicators (data from Web of Science)

H index: 33. Number of publications: 208. Citations: more than 4000.

Selected publications as lead author (last 10 years)⁶

1. M. Barreiro, A. C. Martí, C. Masoller, “*Inferring long memory processes in the climate network via ordinal pattern analysis*”, *Chaos* 21, 013101 (2011).
2. A. Aragonese, S. Perrone, T. Sorrentino, M.C. Torrent, C. Masoller, “*Unveiling the complex organization of recurrent patterns in spiking dynamical systems*”, *Sci. Rep.* 4, 4696 (2014).
3. T. Sorrentino, C. Quintero-Quiroz, A. Aragonese, M. C. Torrent, C. Masoller, “*Effects of periodic forcing on the temporally correlated spikes of a semiconductor laser with feedback*”, *Optics Express* 23, 5571 (2015).
4. G. Tirabassi, R. Sevilla-Escoboza, J. M. Buldú, C. Masoller, “*Inferring the connectivity of coupled oscillators from time-series statistical similarity analysis*”, *Sci. Rep.* 5 10829 (2015).
5. J. A. Reinoso, M. C. Torrent, C. Masoller, “*Emergence of spike correlations in periodically forced excitable systems*”, *Phys. Rev. E* 94, 032218 (2016).
6. M. Masoliver, C. Masoller, “*Subthreshold signal encoding in coupled FitzHugh-Nagumo neurons*”, *Sci. Rep.* 8, 8276 (2018).
7. D. A. Zappala, M. Barreiro, C. Masoller, “*Quantifying changes in spatial patterns of surface air temperature dynamics over several decades*”, *Earth Syst. Dynam.* 9, 383–391 (2018)⁷.
8. C. Quintero-Quiroz, L. Montesano, A. J. Pons, M. C. Torrent, J. García-Ojalvo, C. Masoller, “*Differentiating resting brain states using ordinal symbolic analysis*”, *Chaos* 28, 106307 (2018).
9. J. Tiana-Alsina, C. Quintero-Quiroz, C. Masoller, “*Comparing the dynamics of periodically forced lasers and neurons*”, *New J. of Phys* 21, 103039 (2019).
10. P. Amil, M. C. Soriano, C. Masoller, “*Machine learning algorithms for predicting the amplitude of chaotic laser pulses*”, *Chaos* 29, 113111 (2019).
11. C. Barcellona, D. Halpaap, P. Amil, A. Buscarino, L. Fortuna, J. Tiana-Alsina, C. Masoller, “*Remote recovery of audio signals from videos of optical speckle patterns: a comparative study of signal recovery algorithms*”, *Opt. Express* 28, 8716 (2020)⁸.

⁶ Many of our papers have attracted the attention of the press (Agencia EFE, La Vanguardia, El País, El Periodico, El Mundo, Antena 3, etc.). More information can be found here: http://www.fisica.edu.uy/~cris/media_attention.htm

⁷ This work attracted press attention

<http://www.lavanguardia.com/local/terrasa/20180606/444155366309investigador-upc-terrasa-descubre-otra-perspectiva-estudiar-cambio-climatico.html>

⁸ This work attracted the attention of Agencia EFE (the main Spanish news agency)

<https://www.efo.com/efe/espana/destacada/convierten-en-imagenes-los-acordes-de-una-cancion-del-grupo-queen/10011-4300927>

12. M. Masoliver, C. Masoller, “Neuronal coupling benefits the encoding of weak periodic signals in symbolic spike patterns”, *Commun. Nonlinear Sci. Numer. Simulat.* 88, 105023 (2020).

Other important contributions

1. C. Masoller, “Anticipation in the synchronization of chaotic semiconductor lasers with optical feedback”, *Phys. Rev. Lett.* 86, 2782 (2001).
2. C. Masoller, “Noise-induced resonance in delayed feedback systems”, *Phys. Rev. Lett.* 88, 034102 (2002).
3. C. Masoller, “Distribution of residence times of bistable systems with time-delayed feedback driven by noise”, *Phys. Rev. Lett.* 90, 020601 (2003).
4. C. Bonatto, M. Feyereisen, S. Barland, M. Giudici, C. Masoller, J. R. Rios Leite, J. R. Tredicce, “Deterministic optical rogue waves”, *Phys. Rev. Lett.* 107, 053901 (2011).⁹
5. J. Zamora-Munt, B. Garbin, S. Barland, M. Giudici, J. R. Rios Leite, C. Masoller, J. R. Tredicce, “Rogue waves in optically injected lasers: origin, predictability, and suppression”, *Phys. Rev. A* 87, 035802 (2013).
6. A. Aragonese, L. C. Carpi, N. Tarasov, D. V. Churkin, M. C. Torrent, C. Masoller, S. K. Turitsyn, “Unveiling temporal correlations characteristic to phase transition in the intensity of fibre laser radiation”, *Phys. Rev. Lett.* 116, 033902 (2016).
7. T. A. Schieber, L. C. Carpi, A. Diaz-Guilera, P. M. Pardalos, C. Masoller, M. G. Ravetti, “Quantification of network structural dissimilarities”, *Nat. Comm.* 8, 13928 (2017).¹⁰
8. P. Amil, L. Gonzalez, E. Arrondo, C. Salinas, J. Guell, C. Masoller, U. Parlitz, “Unsupervised feature extraction of anterior chamber OCT images for ordering and classification”, *Sci.Rep.*9, 1157 (2019).¹¹
9. M. Marconi, C. Metayer, A. Acquaviva, J.M. Boyer, A. Gomel, T. Quiniou, C. Masoller, M. Giudici, J.R. Tredicce, “Testing critical slowing down as a bifurcation indicator in a low-dissipation dynamical system”, *Phys. Rev. Lett.* 125, 134102 (2020).

Book

Networks in Climate, by H. A. Dijkstra, E. Hernandez-Garcia, C. Masoller, M. Barreiro, Cambridge University Press 2019, ISBN 9781316275757. This book summarizes the results of the LINC project.

Book chapters

- J. I. Deza, G. Tirabassi, M. Barreiro, C. Masoller, “Large-scale atmospheric phenomena under the lens of ordinal time-series analysis and information theory measures”, in “Advances in Nonlinear Geosciences”, Editor: A. A. Tsonis (Springer, 2017).
- S. Barland, M. Brambilla, L. Columbo, B. Garbin, C. J. Gibson, M. Giudici, F. Gustave, C. Masoller, G. L. Oppo, F. Prati, C. Rimoldi, J. R. Rios, J. R. Tredicce, G. Tissoni, P. Walczak, A. M. Yao, J. Zamora-Munt, “Extreme events in forced oscillatory media in zero, one and two dimensions”, in *Nonlinear Guided Wave Optics: A testbed for extreme waves*, Editor: S. Wabnitz (IOPscience, 2017).

Patents

Image processing method for detecting glaucoma in subject. Patent number: WO2019116074-A1, Date: 20/6/2019, Inventors: P. Amil, E. Arrondo, C. Salinas, C. Masoller, U. Parlitz.

Method for anomaly detection using network analysis, involves representing multiple elements of a database as a graph, where each pair of elements are connected by a link that has associated the distance between the two elements. Patent number: EP3739475-A1, Date: 18/11/2020, Inventors: P. Amil, N. Almeida, C. Masoller.

INVITED LECTURES (Last 10 years¹²)

Conferences and workshops

12/2020 Conference on Complex Systems (CCS2020 online)

⁹ This work was featured in Research Highlights of Nature Photonics (DOI:10.1038/nphoton.2011.240) and in Optics and Photonics News (the journal of the Optical Society, Feb. 2012).

¹⁰ This work attracted press attention

<http://www.lavanguardia.com/vida/20170210/414219456801/crean-un-metodo-para-analizar-y-comparar-el-funcionamiento-de-redes-complejas.html>

¹¹ This work attracted press attention

<https://www.lavanguardia.com/vida/20190527/462505978127/investigador-crea-el-primer-mapa-tomografico-para-el-diagnostico-del-glaucoma.html>

¹² The slides of my presentations are available at <http://www.fisica.edu.uy/~cris/Conferences2.htm>

- 12/2020 European Semiconductor Laser Workshop (ESLW 2020 online)
- 12/2019 XVII Instabilities and Nonequilibrium Structures, Universidad de Valparaiso, Chile
- 10/2019 XVI Latin America Workshop on Nonlinear Phenomena, La Paz, Bolivia (**plenary** talk)
- 10/2019 Workshop on Dynamical Methods in Data-based Exploration of Complex Systems, Max Planck Institute for Complex Systems, Dresden, Germany
- 08/2019 Workshop on Control of self-organizing nonlinear systems, Wittenberg, Germany
- 08/2019 30+ Years of Chaos, Synchronization and Physiology, in honor of Prof. U. Parlitz, Max Planck Institute for Dynamics and Self-Organization, Gottingen, Germany
- 07/2019 Conference on Perspectives in Nonlinear Dynamics (PNLD), International Center for Theoretical Physics – South American Institute for Fundamental Research (ICTP-SAIFR), Sao Paulo, Brazil
- 06/2019 Waves Côte d'Azur, Université Côte d'Azur, Nice, France
- 06/2019 50 Years of Excitable Media: From Theory to Applications, in honor of Prof. V. Krinski, Max Planck Institute for Dynamics and Self-Organization, Gottingen, Germany
- 05/2019 VIII Jornada de Complejitat, Barcelona, Spain
- 12/2018 International Symposium on Physics and Applications of Laser Dynamics (IS-PALD 2018), City University of Hong Kong, China (**keynote** talk)
- 11/2018 Dynamic Days Latin America and the Caribbean, Punta del Este, Uruguay (**plenary** talk)
- 07/2018 Workshop on Nonlinear Photonics, OSA Advanced Photonics Conference, Zurich, Switzerland
- 06/2018 Nonlinear Dynamics of Electronic Systems (NDES), Acireale, Sicily, Italy
- 05/2018 Encontro de Outono da Sociedade Brasileira de Física (EOSBF), Iguazu, Brazil
- 03/2018 Analysis and Modeling of Complex Oscillatory Systems (AMCOS), Universitat Pompeu Fabra, Barcelona, Spain
- 03/2018 Extremes 2018, Volkswagen Foundation, Hannover, Germany (invited tutorial and invited talk)
- 07/2017 Workshop on Nonlinear Wave Physics (NWP), Moscow, Russia
- 06/2017 Nonlinear Dynamics of Electronic Systems (NDES), Zerne, Switzerland (**plenary** talk)
- 06/2017 Recent Advances in Nonlinear Dynamics and Complex Structures: Fundamentals and Applications (RANDCoST, in honor of Prof. U. Feudel), University of Oldenburg, Germany
- 05/2017 Workshop on Computational Neuroscience and Optical Dynamics, Université Côte d'Azur, France
- 03/2017 Nonlinear Waves and Turbulences in Optics and Hydrodynamics, Weierstrass Institute for Applied Analysis and Stochastics (WIAS) Berlin, Germany
- 12/2016 XXI Conference on Nonequilibrium Statistical Mechanics and Nonlinear Physics (Medyfinol 2016), Valdivia, Chile
- 10/2016 Dynamics Days Latin America and the Caribbean, Puebla, Mexico (**plenary** talk)
- 10/2016 Workshop on Multistability and Tipping: From Mathematics and Physics to Climate and Brain, Max Planck Institute for Complex Systems, Dresden, Germany
- 09/2016 Advances in the collective behavior of complex systems (in honor of Prof. A. Pikovsky), University of Potsdam, Germany
- 08/2016 Workshop on Pattern Dynamics in Nonlinear Optical Cavities, Max Planck Institute for Complex Systems, Dresden, Germany
- 07/2016 Volga Neuroscience Meeting, St. Petersburg-Nizhny Novgorod, Russia
- 06/2016 Workshop on Nonlinear Dynamics in Semiconductor Lasers, Weierstrass Institute for Applied Analysis and Stochastics (WIAS), Berlin, Germany
- 05/2016 Workshop on Extreme Events and Rogue Waves, Bad Honnef, Germany
- 04/2016 Workshop on Critical and Collective Effects in Graphs and Networks, Moscow Institute of Physics and Technology, Russia
- 03/2016 Workshop on Generalized Network Structures and Dynamics, Mathematical Biosciences Institute, The Ohio State University, Columbus, Ohio, USA
- 12/2015 XV International Workshop on Instabilities and Nonequilibrium Structures, Universidad de Valparaiso, Chile
- 10/2015 Analysis of dynamic networks and data driven modeling of the climate (DyNeMo-Clim), Potsdam Institute for Climate Impact Research, Germany
- 05/2015 Short Thematic Program on Delay Differential Equations, The Fields Institute, Toronto, Canada
- 07/2014 Dynamics Days Asia Pacific 08 (DDAP 08), Chennai, India (**plenary** talk)
- 06/2014 Workshop on Abnormal Wave Events, Université Côte d'Azur, Nice, France
- 12/2013 XIV International Workshop on Instabilities and Nonequilibrium Structures, Viña del Mar, Chile
- 06/2013 XXXIII Dynamics Days Europe Madrid, Spain (**plenary** talk)

- 09/2012 Workshop on Nonlinear Dynamics in Semiconductor Lasers, Weierstrass Institute for Applied Analysis and Stochastics (WIAS), Berlin, Germany
- 06/2012 International Conference on Delayed Complex Systems (DCS12), Palma de Mallorca, Spain

Invited seminars

- 12/7/2019 *Análisis de series de datos temporales con aplicaciones inter-disciplinarias*, Programa de Pós-Graduação em Ecologia e Conservação, Universidade Federal do Parana, Curitiba, Brazil
- 11/7/2019 *Symbolic information encoding by neuronal populations*, Colloquium of the Physics department, Universidade Federal do Parana, Curitiba, Brazil
- 28/3/2019 *¿Cómo extraer información de señales complejas? Estudiando el clima, el cerebro, y las olas gigantes*, Caixaforum Palma de Mallorca, Spain
- 7/2/2019 *Dynamics of FitzHugh Nagumo neurons under weak periodic external input*, Eugene Wigner Colloquium, Technical University Berlin, Germany
- 15/5/2018 *Investigating complex signals with nonlinear analysis tools*, Colloquium of the Physics Department, Facultad de Ingenieria, Universidad de la Republica, Montevideo, Uruguay
- 17/4/2018 *Network-based data analysis tools for complex biomedical signals*, EPSRC Centre for Predictive Modelling in Healthcare, University of Exeter, UK
- 29/1/2016 *Optical complexity investigated with nonlinear analysis tools*, XI Jornada de Recerca of UPC Physics Department, Institut d'Estudis Catalans, Barcelona, Spain
- 3/12/2015 *What have we learned about the Earth climate dynamics by using complex networks and nonlinear data analysis tools?* Coloquio del Departamento de Física, Facultad de Ciencias Exactas y Naturales, Universidad de Buenos Aires, Argentina
- 3/07/2015 *Neuronas opticas y pulsos extremos en laseres de semiconductor*, Centro de Investigaciones en Óptica, Leon, Mexico
- 15/10/2014 *Climate networks: what can we learn when we apply complex systems' tools to climate data?* Facultat de Física, Universitat de Barcelona, Spain
- 25/7/2014 *Symbolic patterns, clusters and hierarchies in spiking systems*, Department of Physics, Pondicherry University, India

Lectures at international schools

- 2013 – 2019 I have given lectures at several schools and training events organized by Marie-Curie Initial Training Networks: NETT (Nottingham, UK, 04/2013), LINC (Soesterberg, The Netherlands, 04/2013), BE-OPTICAL (Torun, Poland, 05/2017), CRITICS (Valladolid, Spain, 09/2017), CAFE (Tarragona, Spain, 11/2019).
- 02/2018 School on Nonlinear Time Series Analysis and Complex Networks, International Center for Theoretical Physics – South American Institute for Fundamental Research, Sao Paulo, Brazil
- 11/2013 School on Nonlinear Optics and Nanophotonics, ICTP-SAIFR, San Paulo, Brazil.

PROFESSIONAL ACTIVITIES

Editorial activity

- 2019 – 2021 Editor of *Chaos, Solitons & Fractals* (Elsevier), impact factor 2019: 3.764.
- 2018 – 2023 Member of the Editorial Advisory Board of the journal *Chaos* (AIP, IF 2018: 2.832).
- 2020 – 2022 Member of the Editorial Board of the journal *JPhys Complexity* (a new journal published by the Institute of Physics, covering all aspects of complex systems).

Project reviewer

- 2020 Expert monitor for FET-Open programme / European Commission / Brussels.
- 2009 – 2020 Project reviewer for Calls Juan de la Cierva, Ramon y Cajal, National and Regional projects / Ministerio de Ciencia e Innovación / Spain
- 2012 – 2018 Project reviewer for Calls FP7-PEOPLE-2012-IEF-IIF-IOF, FP7-PEOPLE-2013-IEF-IIF-IOF, H2020-MSCA-IF-2015, H2020-MSCA-IF-2016, H2020-MSCA-IF-2018 / Research Executive Agency (REA), European Commission / Brussels.
- 2018 Member of the interdisciplinary panel of experts in the International Research Agenda PLUS programme (IRAP PLUS 2018) / Foundation for Polish Science / Poland.
- 2018 Expert monitor for Centres for Mathematical Sciences in Healthcare / Engineering and Physical Sciences Research Council (EPSRC) / UK.
- 2013 – 2018 Project reviewer and expert monitor for individual research proposals and collaborative research centres / German Research Foundation (DFG) / Germany

Journal reviewer

Nature Physics, Nature Communications, Physical Review Letters, Scientific Reports, Plos One, EPL, New Journal of Physics, Physical Review A, Physical Review E, Physical Review Research, Physics Letters A, Physica A, Physica D, Chaos, Optics Letters, Optics Express, Optics Communications, IEEE Journal of Quantum Electron., IEEE Journal of Selected Topics in Quantum Electronics, Photonics Technology Letters, Applied Physics Letters, Earth systems dynamics, Geophysical Research letters, etc.

Professional society memberships

2009 – to date Member, the Optical Society (fellow since 2016)
 2009 – to date Individual member of the European Physical Society (EPS)
 2010 – to date Founding Member of Catalan complexity network (Complexitat.cat)
 2015 – to date Member of the Spanish network for the study of dynamics and synchronization of complex networks (Ibersinc)

Organization of scientific meetings

07/2019 Conference on *New trends in biomedical imaging and data analysis*, Max Planck Institute for Dynamics and Self-Organization, Gottingen, Germany (final conference of ITN BE-OPTICAL) / Co-organizer / 50 participants
 04/2018 Workshop on *Predicting transitions in complex systems*, Max Planck Institute for Complex Systems, Dresden, Germany / Co-organizer / 120 participants
 02/2018 School on *Nonlinear Time Series Analysis and Complex Networks in the Big Data Era*, International Center for Theoretical Physics – South American Institute for Fundamental Research (ICTP-SAIFR), San Paulo, Brazil / Co-organizer / over 100 participants (MSc, PhDs, postdocs)
 05/2017 Symposium on *Data-driven approaches for distinguishing direct from indirect interactions in networks*, SIAM Conference on Dynamical Systems, Snowbird, Utah, USA, May 2017 / Co-organizer / 30 participants
 06/2016 Symposium on *Advanced time-series analysis: novel tools for the study of complex systems*, Dynamics Days Europe, Corfu, Greece / Co-organizer / 30 participants
 04/2015 Conference on *Complex Networks and Climate Variability*, Vienna, Austria (final conference of ITN LINC collocated with EGU Annual meeting) / Co-organizer / 50 participants
 07/2014 *Advanced Study Group on Optical rare events: A challenge in Laser Dynamics*, Max Planck Institute for Complex Systems, Dresden, Germany / Member / 4 participants
 11/2013 School on *Nonlinear Optics and Nanophotonics*, ICTP-SAIFR, San Paulo, Brazil / Co-organizer / over 100 participants (Master, PhD students and postdocs)
 2003– 2013 Six ‘Rio de la Plata’ Workshops on *Laser Dynamics and Nonlinear Photonics*, Uruguay, every two years / Main organizer / 40 – 60 participants

Member of programme committees

- International committee, Latin American Workshop on Nonlinear Phenomena (LAWNP) Arica, Chile, October 2007; San Luis Potosi, Mexico, October 2011; Carlos Paz, Argentina, October 2013; Cartagena, Colombia, September 2015; La Paz, Bolivia, November 2019
- Programme committee, Applications of nonlinear optics, CLEO EUROPE 2019, Munich, Germany
- Programme committee, Semiconductor Lasers and Laser Dynamics, SPIE Photonics Europe 2020, Strasbourg, France
- Programme committee, Nonlinear Optics and its Applications, SPIE Photonics Europe 2020.
- International advisory committee, International Symposium on Physics and Applications of Laser Dynamics (IS-PALD) 2019, Metz, France
- Programme committee member, European Semiconductor Laser Workshop, Madrid, September 2015
- Member of Topic Committee on Nonlinear Physics, 26th IUPAP International Conference on Statistical Physics, STATPHYS 26, Lyon, France, July 2016
- Programme committee, Experimental Chaos and Complexity Conference, Madrid, June 2018
- Programme committee, Congreso de Física Estadística (FisEs'18), Madrid, Spain, October 2018
- Programme committee, Int. Conf. on Network Science (NetSci), Paris, June 2018; Rome, July 2020
- Programme committee, Int. Conf. on Complex Networks and Their Applications, Lyon, France, 2017; Cambridge, UK, December 2018; Lisbon, Portugal, December 2019; Madrid, Spain, December 2020

PhD juries (last 10 years)

- Jordi Tiana Alsina, UPC, Spain, 2011 (Supervisors: J. García Ojalvo and M. C. Torrent)
- Dhiraj Kumar, UPC, Spain, 2011 (Supervisor: Francesc Rocadenbosch)
- Werner Coomans, Vrije Universiteit Brussel, Belgium, 2012 (Supervisors: J. Danckaert and L. Gelens)
- Belen San Cristobal, UPC, Spain, 2013 (Supervisors: J. García Ojalvo and J. M. Sancho)
- A. Karsaklian dal Bosco, Supélec, Metz, France, 2013 (Supervisors: D. Wolfersberger, M. Sciamanna)
- Nicolas Rubido, University of Aberdeen, UK, 2014 (Supervisors: M. S. Baptista and C. Grebogi)
- Alfredo Campos Mejia, Centro de Investigaciones en Optica, Mexico, 2015 (Supervisor: A. Pisarchik)
- Neus Oliver, Universitat de les Illes Balears, Spain, 2015 (Supervisor: Ingo Fischer)
- Enrico Ser Giacomo, Universitat de les Illes Balears, Spain, 2015 (Supervisor: E. Hernandez-García)
- Alessandro Barardi, UPC, Spain, 2016 (Supervisor: Jordi Garcia Ojalvo)
- Daniel Malagarriga i Guasch, UPC, Spain, 2016 (Supervisors: A. Pons, J. Garcia Ojalvo, A.E.P. Villa)
- Gaetan Friart, Universite Libre de Bruxelles, Belgium, 2017 (Supervisors: T. Erneux, G. Verschaffeit)
- Maciej Jedynek, UPC, Spain, 2017 (Supervisors: J. Garcia Ojalvo, A. Pons)
- Arindam Saha, Carl Von Ossietzky Universitat Oldenburg, Germany, 2018 (Supervisor: U. Feuldel)
- G. García-Pérez, Universitat de Barcelona, Spain, 2018 (Supervisors: M. A. Serrano, M. Boguñá)
- Axel Dolcemascoco, Université Côte d'Azur, France, 2018 (Supervisor: Stephane Barland)
- Songkun Ji, Bangor University, UK, 2019 (Supervisor: Yanhua Hong).
- Estefanía Estévez Priego, Universitat de Barcelona, Spain, 2019 (Supervisors: J. Soriano, D. Tornero).
- Olivier Spitz, Universite Paris-Saclay, France, 2019 (Supervisor: Frederic Grillot)
- Jeremy Vatin, Supélec, Metz, France, 2020 (Supervisors: M. Sciamanna, D. Rontani)

Prize juries (last 10 years)

- Member of the IUPAP C17 Young Scientists Prize committee (2013, 2015, 2017)
- Member of the Adolph Lomb Medal Committee, Optical Society (OSA, 2017, 2018)
- Member of the Erdos-Renyi Prize Committee in network science (2018, 2019)
- Member of the J. Wagensberg Prize Committee, Catalan complexity network (2019, 2020)

Other juries (last 10 years)

- Expert evaluator for W2 Professorship (Technische Universität Berlin, Germany, 2015)
- Member of the jury for Habilitation à Diriger des Recherches (HDR, Université Paris Sud, 2015)
- Member of the jury for the selection of three Full Professors in the Department of Condensed Matter Physics, Universitat de Barcelona (internal promotion program, February 2020)
- Member of the jury for the selection of a Full Professor in UPC Physics Department (internal promotion program, Autumn 2020).