Cristina Masoller, PhD

Associate Professor
Departament de Física
Universitat Politècnica de Catalunya
Colom 11, Terrassa 08222, Barcelona
Spain

Office: (34) 937398507
cristina.masoller@upc.edu
Cristina.masoller@gmail.com
Skype: masoller

http://www.fisica.edu.uy/~cris

ResearcherID: M-3696-2014
ORCID: 0000-0003-0768-2019
Google scholar: http://scholar.google.com/citations?user=esTS9GsAAAAJ
wikipedia: https://es.wikipedia.org/wiki/Cristina_Masoller

Place and date of birth: Montevideo, Uruguay, 22/2/1963
Citizenship: Uruguayan and Italian

Research Interests

- Dynamics of semiconductor lasers, optical rogue waves, optical instabilities and chaos.
- Neuronal excitability, models of spiking neurons, ISI correlations.
- Complex networks and data analysis: climate networks, nonlinear time series analysis.

Education

BSc (1989) MSc (1991) in Physics from Universidad de la República, Uruguay.
PhD (1999) in Physics from Bryn Mawr College, Pennsylvania, USA.

Scientific Vita

2009 – to date: Associate Professor, Universitat Politecnica de Catalunya.
2004 – 2009 "Ramon i Cajal" Researcher, Universitat Politecnica de Catalunya
2003 – 2004 Associate Professor, Universidad de la República, Uruguay
1999 – 2004 Several postdoctoral research stays in France, Spain and U.K.
1993 – 2003 Assistant Professor, Universidad de la República, Uruguay.
1986 – 1993 Teaching Assistant, Universidad de la República, Uruguay.

Honors and Awards

2015 Elected Fellow of the Optical Society (OSA).
2015 ICREA Academia Award, Institució Catalana de Recerca i Estudis Avançats
2014 Four research trams (sexenios) recognized by AQU Catalunya (periods: 1990-1995, 1996-2001, 2002-2007, 2008-2013).
2010 Acreditació de Recerca Avançada de L'Agència per a la Qualitat del Sistema Universitari de Catalunya (AQU Catalunya Professor Habilitation).
2009 ICREA Academia Award, Institució Catalana de Recerca i Estudis Avançats
2008 Program I3, Certificación de Trayectoria Investigadora Destacada, Agencia Nacional de Evaluación y Prospectiva (ANEP), Madrid, Spain 23/10/2008.

2015 ICREA Academia Award, Institució Catalana de Recerca i Estudis Avançats
2015 Fellow of the Optical Society (OSA)

Teaching Experience

At Universitat Politecnica de Catalunya

2004 –to date: Escola Tècnica Superior d'Enginyeries Industrial i Aeronàutica de Terrassa (ETSEIAT): Physics I: Statics and Dynamics; Physics II: Oscillations, Waves and Thermodynamics, Physics III: Electromagnetism; Nonlinear systems, chaos and control in engineering.

2007 –to date BCN Master in Photonics (UB, UAB, UPC, and ICFO): Electromagnetic Waves (2007-2009 -discontinued), Computing in Photonics (2010-2013 -discontinued), Laser Systems and Applications (2012-to date).

At Universidad de la Republica, Uruguay

1986–2003 Graduate and undergraduate courses (Introductory physics, electromagnetic theory, nonlinear optics).

Research Grants

a) Principal Investigator

2007–2009: *Nonlinear dynamics of novel types of semiconductor lasers*
Air Force Office of Scientific Research, European Office of Aerospace Research & Development (EOARD), USA
Reference number: FA9550-07-1-0238.

2010–2011: *Stochastic and nonlinear effects in semiconductor lasers*
EOARD, Reference number: FA8655-10-1-3075.

2012–2013*: Spiking excitable semiconductor laser as optical neurons: dynamics, clustering and global emerging behaviors*
EOARD, Reference number: FA8655-12-1-2140.

2014–2015: *Semiconductor laser complex dynamics: from optical neurons to rogue waves*
EOARD, Reference number: FA9550-14-1-0359.

2011–2015: *Marie Curie Initial Training Network: Learning about Interacting Networks in Climate* (LINC) www.climatelinc.eu LINC flyer.
Research Executive Agency
Reference number: FP7-PEOPLE-2011-ITN-289447.
ITN Coordinator: Cristina Masoller

2015–2019: *MSCA Innovative Training Network: Advanced Biomedical Optical Imaging and Data Analysis (BE-OPTICAL)*. Beoptical.eu
Research Executive Agency
Reference number: H2020-675517.
ITN Coordinator: Cristina Masoller

2015-2017: *Sistemas físicos y biofísicos complejos: hacia una visión global de su dinámica y fluctuaciones*
Ministerio de Economia y Competitividad, Spain
Reference number: FIS2015-66503-C3-2-P (MINECO/FEDER)

b) Participation in research grants

2009–2011: *Ondas de luz en medios lineales y nonlineales en el espacio*
Ministerio de Ciencia e Innovación, Reference number: FIS2008-06024-C03-02
Principal Investigator: Kestutis Staliunas

2010–2012: *Nonlinear and stochastic dynamics in physical and biophysical systems*
Ministerio de Ciencia e Innovación, Reference number: FIS2009-13360-C03-02
Principal Investigator: José María Sancho Herrero

2013–2015: *Stochasticity in Nonlinear Complex Systems*
Ministerio de Economía y Competitividad, Reference number: FIS2012-37655-C02-01.
Principal Investigator: Jordi García Ojalvo

2012–2016: *Marie Curie Initial Training Network Neural Engeniering Transformative Technologies (NETT)*.
Research Executive Agency, Reference number: FP7-PEOPLE-2011-ITN-289146.
Principal Investigator: Jordi García Ojalvo, ITN coordinator: S. Coombes (Nottingam, UK)

2015-2017: Ibersinc: Research Network funded by the Spanish Government FIS2015-71929-REDT

Supervised PhD Theses (PhD program on Applied and Computational Physics, UPC)

1. TITLE: Nonlinear and stochastic dynamics of semiconductor lasers: modulation, transient dynamics and synchronization
   STUDENT: Jordi Zamora Munt
   YEAR: June 2011 (co-supervisor: J. Garcia-Ojalvo)
2. TITLE: Exploiting nonlinearity and noise in optical tweezers and semiconductor lasers: from resonant damping to stochastic logic gates and extreme pulses
   STUDENT: Sandro Perrone
   YEAR: February 2014 (co-supervisor: R. Vilaseca)
3. TITLE: Experimental study of feedback-induced dynamics in semiconductor lasers: from symbolic analysis to subwavelength position sensing
   STUDENT: Andres Aragoneses
   YEAR: June 2014 (co-supervisor: M. C. Torrent)
4. TITLE: Climate networks constructed by using information-theoretic measures and ordinal time-series analysis
   STUDENT: Ignacio Deza
   YEAR: February 2015 (co-supervisor: M. Barreiro)
5. TITLE: Disentangling climate interactions and inferring tipping points by using complex networks
   STUDENT: Giulio Tirabassi
   YEAR: June 2015
6. TITLE: Experimental and numerical study of the symbolic dynamics of modulated semiconductor lasers with optical feedback
   STUDENT: Taciano Sorrentino
   YEAR: July 2015 (co-supervisor: M. C. Torrent)

Ongoing:

TOPIC: Temporal correlations and dynamical transitions in semiconductor lasers with optical feedback.
STUDENT: Carlos Quintero-Quiroz
START: January 2014 (co-supervisor: M. C. Torrent)

TOPIC: Extreme events and transitions in complex systems

STUDENT: Dario Zappala
START: June 2015

TOPIC: Incoherent light sources for speckle reduction in double pass ocular imaging
STUDENT: Donatus Halpaap
START: June 2016

TOPIC: Nonlinear dynamics of coupled excitable units under the influence of external forcing
STUDENT: Maria Masoliver
START: September 2016

TOPIC: Novel methods for the characterization and classification of complex images
STUDENT: Pablo Amil
START: September 2016

Supervised postdoctoral researchers

Cristian Bonatto (2011), Jordi Zamora (2013), Laura Carpi (2014) and Jose M. Aparicio Reinoso (2015).

Supervised undergraduate students

Nuria Martinez Alvarez and Carles Calafell García (final projects at ETSEIAT, 2015)

External PhD examiner

- Paulo Valente, Universidad de la República, Uruguay, 2004 (Supervisor: A. Lezama).
- Cristina Martinez Gonzalez, Universitat Politecnica de Catalunya, 2009 (Supervisors: J. García Ojalvo and M. C. Torrent).
- David Curtin, University College Cork, Ireland, 2009 (Supervisors: J. McInerney and G. Huyet).
- Jordi Tiana Alsina, Universitat Politecnica de Catalunya, 2011 (Supervisors: J. García Ojalvo and M. C. Torrent).
- Dhiraj Kumar, Universitat Politecnica de Catalunya, 2011 (Supervisor: Francesc Rocadenbosch).
- Werner Coomans, Vrije Universiteit Brussel, Belgium, 2012 (Supervisors: J. Danckaert and L. Gelens).
- Belen San Cristobal, Universitat Politecnica de Catalunya, 2013 (Supervisors: J. García Ojalvo and J. M. Sancho).
- Andrea Karsaklian dal Bosco, Supélec, Metz, France, 2013 (Supervisors: D. Wolfersberger and M. Sciamanna).
- Nicolas Rubido, University of Aberdeen, U.K., 2014 (Supervisors: M. S. Baptista and C. Grebogi).
- Alfredo Campos Mejia, Centro de Investigaciones en Optica, Mexico, 2015 (Supervisor: Alexander Pisarchik).
- Nada Kamel, Bangor University, U.K., 2015 (Supervisor: K. Alan Shore).
- Neus Oliver, Universitat de les Illes Balears, Spain, 2015 (Supervisor: Ingo Fischer).
- Enrico Ser Giacomi, Universitat de les Illes Balears, Spain, 2015 (Supervisor: Emilio Hernandez-García).
- Alessandro Barardi, Universitat Politecnica de Catalunya, 2016 (Supervisor: Jordi Garcia Ojalvo)
- Daniel Malagarriga i Guasch, Universitat Politecnica de Catalunya, 2016 (Supervisors: A. Pons, J. Garcia Ojalvo, A. E. P. Villa)

- Gaetan Friart, Universite Libre de Bruxelles, 2017 (Supervisors: T. Erneux and G. Verschaffeit)
- Maciej Jedynak, Universitat Politecnica de Catalunya, 2017 (Supervisors: J. Garcia Ojalvo, A. Pons)

Other juries

- Expert evaluator for W2 Professorship (Prof. Dr. K. Lüdge, TU Berlin, Germany, 2015).
- Member of the jury of Habilitation à Diriger des Recherches (HDR Prof. Sylvain Barbay, Université Paris Sud, France, June 2015)
- IUPAP C17 Young Scientists Prize: member of the Prize Committee (2013, 2015 & 2017).
- 2017 Adolph Lomb Medal Committee, Optical Society (OSA)

Member of program committees

- LAWNP 2007, Arica, Chile, October 2007; LAWNP 2011, San Luis Potosi, Mexico, October 2011; LAWNP 2013, Carlos Paz, Argentina, October 2013 and LAWNP 2015, Cartagena, Colombia, September 2015.
- Conference on Lasers and Electro-Optics (CLEO/EUROPE 2005, 2007, 2009 and 2011), Munich, Germany.
- International Semiconductor Laser Conference (ISLC 2008) Sorrento, Italy, September 2008; ISLC 2010, Kyoto, Japan, September 2010 and ISLC 2012, San Diego, US, October 2012.
- International Workshop on Physics and Applications of Semiconductor Lasers (PHASE), Metz, France, March 2007.
- 5th International Conference on Physics and Control (PhysCon), Leon, Spain, September 2011.
- Dynamics Days South America (2012, Cartagena, Colombia, and 2014, Viña del Mar, Chile).
- XVIII Conference on Non equilibrium Statistical Mechanics and Nonlinear Physics (MEDYFINOL 2014), Maceió, Brazil, October 2014.
- European Semiconductor Laser Workshop, Madrid, September 2015.
- Extreme Events in Complex Optical Systems (EECOS), Buenos Aires, Argentina, December 2015.
- Conference on Semiconductor Lasers and Laser Dynamics VII, part of Photonics Europe, to be held in Brussels, Belgium, April 2016.
- 26th IUPAP International Conference on Statistical Physics, STATPHYS 26, held in Lyon, France, July 2016 (Topic Committee on Nonlinear Physics).
- IUPAP C17 Commission on Laser Physics and Photonics (vice-chair since 2014).
- Spanish representative in the Management Committee of the COST MP 1403 Nanoscale Quantum Optics (2014-2018).
- Scientific Committee of complexitat.cat.

Reviewer of grant proposals for

- Research Executive Agency (REA), European Commission: Calls FP7-PEOPLE-2012-IEF-IIF-IOF, FP7-PEOPLE-2013-IEF-IIF-IOF, H2020-MSCA-IF-2015, H2020-MSCA-IF-2016 Panel MATENG.
- Deutsche Forschungsgemeinschaft (DFG, German Research Foundation): Research proposals Call 2013; Collaborative Research Centre, (CRC), proposal of the “Technische Universität Berlin” for further granting of CRC 910, Berlin 2014.

- Agencia Nacional de Evaluación y Prospectiva (ANEP, Spain): Ramon and Cajal and Juan de la Cierva, Madrid 2009; Plan Nacional R&D 2009, 2010 and 2011; Postdoctoral fellowships, Madrid 2014; Juan de la Cierva, Madrid 2015.
- Consejo Superior de Investigaciones Científicas (CSIC, Spain) JAE Posdoctoral Call 2010 and 2011.
- Israel Science Foundation (ISF, Israel): Individual Track FIRST Program (Focal Initiatives in Research in Science and Technology), 2011.
- The German-Israeli Foundation for Scientific Research and Development (GIF): Research Proposals 2011; Young Scientists Program, 2014.
- City University of Hong Kong: Strategic Research Funding, 2011.
- Hercules Foundation (Belgium): Call for Medium-Sized Research Infrastructure, 2011.
- The Royal Society (UK): International Exchanges Scheme applications, 2012 and 2014.
- Research Foundation Flanders (Fonds Wetenschappelijk Onderzoek, FWO): postdoctoral fellows (2013, 2014) and research proposals, 2013 and 2015.
- Superior Council of the National Fund for Scientific & Technological Development (FONDECYT, Chile): Regular Funding Competition 2011, 2014 and 2015.
- Agencia Nacional de Promoción Científica y Tecnológica, Argentina: Proyectos de Investigación, Científica y Tecnológica, PICT 2013.
- CNPq, Brazil, INCT Program (Programa Institutos Nacionais de Ciência e Tecnologia) 2015.

Referee for Scientific Journals

Nature Physics, Physical Review Letters, Plos One, EPL, New Journal of Physics, Physical Review A, Physical Review E, Physics Letters A, Physica D, Optics Letters, Journal of the Optical Society of America B, Journal of Optics B, Optics Communications, Photonics Journal, IEEE Journal of Quantum Electron., IEEE Journal of Selected Topics in Quantum Electronics, Photonics Technology Letters, Optics Express, etc.

Conference Presentations (recent presentations available here)

- International Workshop on Delayed Complex Systems, Dresden, Germany, October 2009, **invited talk**.
- XII Workshop on Instabilities and Nonequilibrium Structures, Viña del Mar, Chile, December 2009, **invited talk**.
- Dynamics Days South America, São José dos Campos, Brazil, July 2010, **invited talk**
- Laser Physics Conference (LPHYS'10, symposium on Nonlinear Optics), Foz de Iguazu, Brazil, July 2010, **invited talk**.
- International Conference on Statistical Physics (SigmaPhi 2011), Larnaca, Cyprus, July 2011, **invited talk**.
- 7th European Nonlinear Dynamics Conference (ENOC 2011), symposium on time delayed systems, Rome, Italy, July 2011, **invited talk**.
- Nonlinear Physics and Applications (NOLPA 2011), Joao Pessoa, Brazil, September 2011, **invited talk**.
- International Conference on Delayed Complex Systems DCS12, Palma de Mallorca, Spain, June 2012, **invited talk**.
- Workshop on nonlinear dynamics in semiconductor lasers, Berlin, Germany, September 2012, **invited talk**.
- SIAM Conference on Dynamical Systems, minisymposium on delayed stochastic systems, Snowbird, Utah, USA, May 2013, **invited talk**.
- XXXIII Dynamics Days Europe Madrid, Spain, June 2013, **plenary invited talk**.

- 14th Workshop on Instabilities and Non-equilibrium Structures, Viña del Mar, Chile, December 2013, **invited talk**.
- Workshop on Abnormal Wave Events, Nice, France, June 2014, **invited talk**.
- Dynamics Days Asia Pacific 08 (DDAP 08), Chennai, India, July 2014, **invited talk**.
- Dynamics Days Europe 2014, Bayreuth, symposium on extreme events, Germany, September 2014, **invited talk**.
- Short Thematic Program on Delay Differential Equations, The Fields Institute, Toronto, Canada, May 2015, **invited talk**.
- SIAM Conference on Dynamical Systems, minisymposium on rare events in stochastic systems, Snowbird, Utah, USA, May 2015, **invited talk**.
- CLEO/EQEC EUROPE 2015, Munich, Germany, June 2015, contributed talk.
- Advanced computational and experimental techniques in nonlinear dynamics, Cusco, Peru, August 2015, **invited talk.**
- European semiconductor laser workshop, Madrid, Spain, September 2015, contributed talk.
- Analysis of dynamic networks and data driven modeling of the climate (DyNeMo-Clim), Potsdam, Germany, October 2015, **invited talk**.
- Extreme events in complex optical systems (EECOS), Buenos Aires, Argentina, December 2015, contributed talk
- XV International Workshop on Instabilities and Nonequilibrium Structures, Valparaiso, Chile, December 2015, **invited talk**.
- 4th International Conference on Complex Dynamical Systems and Applications (CDSA 2016), Durgapur, India, February 2016, **invited talk**.
- International Workshop on Nonlinear Complex Dynamical Systems, Kolkata, India, February 2016, **invited talk**.
- Workshop on Generalized Network Structures and Dynamics, Columbus, Ohio, USA, March 2016, **invited talk**.
- Workshop on Critical and Collective Effects in Graphs and Networks (CCEGN), Moscow Institute of Physics and Technology, April 2016, **invited talk**.
- Workshop on Extreme Events and Rogue Waves, Bad Honnef, Germany, May 2016, **invited talk**.
- Dynamics Days Europe 2016, Corfu, Greece, June 2016, contributed talk.
- Workshop on Nonlinear Dynamics in Semiconductor Lasers (NDSL 2016), WIAS Institute, Berlin, Germany, June 2016, **invited talk**.
- 30 Years of Nonlinear Dynamics in Geosciences, Rhodes, Greece, July 2016, contributed talk.
- Volga Neuroscience Meeting 2016, St. Petersburg-Nizhny Novgorod, Russia, July 2016, **invited talk**.
- Workshop on Pattern Dynamics in Nonlinear Optical Cavities, Max Planck Institute for the Physics of Complex Systems, Dresden, Germany, August 2016, **invited talk**.
- Workshop on Advances in the collective behaviour of complex systems (in honor of the 60th Anniversary of Prof. Pikovsky), University of Potsdam, Germany, September 2016, **invited talk**.
- Workshop on Network Techniques to Look at Transition Phenomena (TransNet), Satellite at Conference in Complex Systems 2016 (CCS 2016), Amsterdam, The Netherlands, September 2016, **invited talk**.
- Workshop on Multistability and Tipping: From Mathematics and Physics to Climate and Brain, Max Planck Institute for the Physics of Complex Systems, Dresden, Germany, October 2016, **invited talk**.
- Frontiers in Optics / Laser Science 2016, Rochester, USA, October 2016, contributed talk.
- Dynamics Days Latin America and the Caribbean, Puebla, Mexico, October 2016, **invited talk**.

Organization of Scientific Events

- XVI Non-Equilibrium Statistical Mechanics and Nonlinear Physics (MEDYFINOL'08), Punta del Este, Uruguay, December 2008.
- Fourth 'Rio de la Plata' Workshop on Laser Dynamics and Nonlinear Photonics, Piriapolis, Uruguay, December 2009.
- Fifth 'Rio de la Plata' Workshop on Laser Dynamics and Nonlinear Photonics, Colonia del Sacramento, Uruguay, December 2011.
- Two mini-symposia Nonlinear Dynamics in Lasers: Fundamental Issues and Novel Applications I and II, held within Dynamics Days Europe, Madrid, Spain, June 2013.
- Two-week School on Nonlinear Optics and Nanophotonics for PhDs and posdocs, held at ICTP-SAIFR, San Paulo, Brazil, November 2013.
- Sixth 'Rio de la Plata' Workshop on Laser Dynamics and Nonlinear Photonics, Montevideo, Uruguay, December 2013.
- Satellite workshop "LINC – learning about interacting networks in climate", within the European Conference on Complex Systems (ECCS'14), Lucca, Italy, September 2014.
- Conference on Complex Networks and Climate Variability, Vienna, Austria, April 2015.
- Minisymposium on Advanced time-series analysis: novel tools for the study of complex systems, Dynamics Days Europe, Corfu, Greece, June 2016
- Minisymposium on Synchronization and Extreme Events in Complex Systems, Dynamics Days Latin America and the Caribbean, Puebla, Mexico, October 2016

Editor of conference proceedings

- Proceedings of the XIII Conference on Non-Equilibrium Statistical Mechanics and NonLinear Physics, Physica A vol. 327, 2003.
- Topics on Non-equilibrium statistical mechanics and nonlinear physics, Philosophical Transactions of the Royal Society A, vol. 367, 2009.
- Proceedings of the XVI Conference on Non-Equilibrium Statistical Mechanics and Nonlinear Physics, International Journal of Bifurcations and Chaos, vol. 20, 2010.
- Topical Issue on Laser Dynamics and Nonlinear Photonics, European Physical Journal D, Vol. 28, No. 2, June 2010.
- Proceedings of the Fifth Workshop on Laser Dynamics and Nonlinear Photonics, IEEE Conference Publication 2012.
- Proceedings of the Sixth Workshop on Laser Dynamics and Nonlinear Photonics, IEEE Conference Publication 2014.

Member of Professional Societies

European Physical Society
The Optical Society (OSA)
complexitat.cat

Scientific Publications *(citations >2100, ISI h-index: 26)*

1. C. Masoller, A. Sicardi, and L. Romanelli, "*Regular and chaotic behavior in the new Lorenz system*", Phys. Lett. A **167**, 185-190 (1992). Download
2. C. Masoller, A. Sicardi, and C. Cabeza, "*Chaotic properties of the coherence collapsed state of laser diodes with optical feedback*", Opt. Commun. **100**, 331-340 (1993). Download
3. C. Masoller, "*Coexistence of attractors in a laser diode with optical feedback from a large external cavity*", Phys. Rev. A **50**, 2569-2578 (1994). Download

4. C. Masoller, A. Sicardi, and L. Romanelli, "*Characterization of strange attractors of Lorenz's model of general circulation of the atmosphere*", Chaos, Solitons & Fractals **6**, 357-366 (1995). Download
5. C. Masoller, A. Sicardi, and C. Cabeza, "*The nonlinear gain and the onset of chaos in a semiconductor laser with optical feedback*", Chaos, Solitons & Fractals **6**, 347-356 (1995). Download
6. C. Masoller, C. Cabeza, and A. C. Sicardi, "*Effect of the nonlinear gain in the visibility of a semiconductor laser with incoherent feedback in the coherence collapsed regime*", IEEE J. Quantum Electron. **31**, 1022-1028 (1995). Download
7. C. Masoller, "*Effect of the external cavity length in the dynamics of a semiconductor laser with optical feedback*", Opt. Commun. **128**, 363-376 (1996). Download
8. A. Figliola and C. Masoller, "*Feedback-induced destabilization of a laser diode using wavelets*", Phys. Rev. A **56**, 1492-1496 (1997). Download
9. C. Masoller, "*Implications of how the linewidth enhancement factor is introduced on the Lang and Kobayashi model*", IEEE J. Quantum Electron. **33**, 796-803 (1997). Download
10. C. Masoller, "*Comparison of the effects of nonlinear gain and weak optical feedback on the dynamics of semiconductor lasers*", IEEE J. Quantum Electron. **33**, 804-814 (1997). Download
11. C. Masoller, "*Spatio-temporal dynamics in the coherence collapsed regime of semiconductor lasers with optical feedback*", Chaos **7**, 455-462 (1997). Download
12. C. Masoller and N. B. Abraham, "*Stability and dynamical properties of the coexisting attractors of an external cavity semiconductor laser*", Phys. Rev. A **57**, 1313-1322 (1998). Download
13. C. Masoller and N. B. Abraham, "*Stability and modulation properties of a semiconductor laser with weak optical feedback from a distant reflector*", Quantum Semiclass. Opt. **10**, 519-534 (1998). Download
14. C. Masoller, A. Figliola, M. Giudici, J. R. Tredicce and N. B. Abraham, "*Wavelet analysis of low frequency fluctuations of a semiconductor laser*", Opt. Commun. **157**, 115-120 (1998). Download
15. C. Masoller and N. B. Abraham, "*Polarization dynamics in VCSELs with optical feedback through a quarter-wave plate*", Appl. Phys. Lett. **74**, 1078-1080 (1999). Download
16. C. Masoller, N. B. Abraham, "*Low frequency fluctuations in vertical-cavity surface-emitting semiconductor lasers with moderate optical feedback*", Phys. Rev. A **59**, 3021-3031 (1999). Download
17. S. Varela, C. Masoller, and A. C. Sicardi, "*Numerical simulations of the effect of noise on a delayed pitchfork bifurcation*", Physica A **283**, 228-232 (2000). Download
18. M. S. Torre, C. Masoller, N. B. Abraham, and H. F. Ranea Sandoval, "*Carrier dynamics in semiconductor lasers operating in the low-frequency fluctuations regime*". Quantum Semiclass. Opt. **2**, 563 (2000). Download
19. C. Masoller, "*Anticipation in the synchronization of chaotic semiconductor lasers with optical feedback*", Phys. Rev. Lett. **86**, 2782-2785 (2001). Download
20. C. Masoller, "*Anticipation in the synchronization of chaotic time-delay systems*", Physica A **295**, 301-304 (2001). Download
21. C. Masoller, H. L. D. de Souza Cavalcante, and J. R. Rios Leite, "*Delayed coupling of logistic maps*", Phys. Rev. E. **64**, 037202-1-4 (2001). Download
22. M. S. Torre and C. Masoller, "*Turn-on transient dynamics of a semiconductor laser with optical feedback*", Int. J. Numerical Modelling (special issue: Laser Device Modeling) **14**, 359-365 (2001).
23. C. Masoller and D. Zanette, "*Anticipated synchronization in coupled chaotic maps with delays*", Physica A **300,** 359-366 (2001). Download

24. A. Locquet, C. Masoller, P. Mégret, and M. Blondel, "*Comparison of two types of synchronization of external-cavity semiconductor lasers*", Opt. Lett. **27**, 31-33 (2002). Download
25. C. Masoller, "*Noise-induced resonance in delayed feedback systems*", Phys. Rev. Lett. **88**, 034102 1-4 (2002). Download
26. M. S. Torre and C. Masoller, "*Effects of carrier transport on the transverse-mode selection of index-guided vertical-cavity surface-emitting lasers*", Opt. Commun. **202**, 311-318 (2002). Download
27. E. Hernández-García, C. Masoller, and C. R. Mirasso, "*Anticipating the dynamics of chaotic maps*", Phys. Lett. A **295**, 39-43 (2002). Download
28. A. Locquet, C. Masoller, C. R. Mirasso, "*Synchronization regimes of optical-feedback-induced chaos in unidirectionally coupled semiconductor lasers*", Phys. Rev. E **65**, 056205 1-12 (2002). Download
29. C. R. Mirasso, J. Mulet and C. Masoller, "*Chaos shift keying encryption in chaotic external-cavity semiconductor lasers using a single-receiver scheme*", IEEE Photon. Technol. Lett. **14**, 456-458 (2002). Download
30. J. Mulet, C. Masoller and C. R. Mirasso, "Modeling *bidirectionally coupled single-mode semiconductor lasers*", Phys. Rev. A. **65** 063815 1-12 (2002). Download
31. C. Masoller, "*Numerical investigation of noise-induced resonance in a semiconductor laser with optical feedback*", Physica D **168-169**, 171-176 (2002). Download
32. M. S. Torre, C. Masoller, and P. Mandel, "*Transverse mode dynamics in vertical-cavity surface-emitting lasers with optical feedback*", Phys. Rev. A **66**, 053817 1-9 (2002). Download
33. M. Sciamanna, C. Masoller, N.B. Abraham, F. Rogister, P. Mégret and M. Blondel "*Different regimes of low-frequency fluctuations in vertical-cavity surface-emitting lasers*", J. Opt. Soc. Am. B **20**, 37-44 (2003). Download
34. C. Masoller, "*Distribution of residence times of bistable systems with time-delayed feedback driven by noise*", Phys. Rev. Lett. **90**, 020601 (2003). Download
35. A. C. Marti and C. Masoller, "*Delay-induced synchronization phenomena in an array of globally coupled logistic maps*", Phys. Rev. E **67**, 056219 1-6 (2003). Download
36. C. Masoller, A. C. Marti and D. H. Zanette, "*Synchronization in an array of globally coupled maps with delayed interactions*", Physica A **325**, 186-191 (2003). Download
37. R. Toral, C. Masoller, C. R. Mirasso, M. Ciszak and O. Calvo, "*Characterization of the anticipated synchronization regime in the coupled FitzHugh-Nagumo model for neurons*", Physica A **325**, 192 – 198 (2003). Download
38. M. Ciszak, O. Calvo, C. Masoller, C. R. Mirasso, and R. Toral, "*Anticipating the response of excitable systems driven by random forcing*", Phys. Rev. Lett. **90**, 204102 1-4 (2003). Download
39. C. Masoller and D. H. Zanette, "*Different regimes of synchronization in nonidentical time-delayed maps*", Physica A **325**, 361-370 (2003). Download
40. M. Sciamanna, C. Masoller, F. Rogister, P. Megret, N. B. Abraham and M. Blondel, "*Fast pulsing dynamics of a vertical-cavity surface-emitting laser operating in the low-frequency fluctuation regime*", Phys. Rev. A. **68**, 015805 (2003). Download
41. P. Mandel, E.A. Viktorov, C. Masoller and M.S. Torre, "*Antiphase dynamics in a multimode Fabry-Perot semiconductor laser with external feedback*", Physica A **327**, 129 – 134 (2003). Download
42. M. S. Torre, C. Masoller, and K. A. Shore, "*Numerical study of optical injection dynamics of vertical-cavity surface-emitting lasers*", IEEE J. Quantum Electron. **40**, 25-30 (2004). Download

43. J. Houligan, D. Goulding, Th. Busch, C. Masoller and G. Huyet, "*Experimental investigation of a bistable system in the presence of noise and delay*", Phys. Rev. Lett. **92**, 050601 (2004). Download
44. M. S. Torre, C. Masoller, P. Mandel and K. A. Shore, "*Enhanced sensitivity to current modulation near dynamic instability in semiconductor lasers with optical feedback and optical injection*", J. Opt. Soc. Am. B **21**, 302-306 (2004). Download
45. M. S. Torre, C. Masoller, P. Mandel and K. A. Shore, "*Transverse-mode dynamics in directly modulated vertical-cavity surface-emitting lasers with optical feedback*", IEEE J. Quantum Electron. **40**, 620-627 (2004). Download
46. A. C. Marti and C. Masoller, "*Synchronization of globally coupled nonidentical maps with inhomogeneous delayed interactions*", Physica A **342**, 344-350 (2004). Download
47. M. S. Torre, C. Masoller and K. A. Shore, "*Synchronization of unidirectionally coupled multi-transverse-mode vertical-cavity surface-emitting lasers*", J. Opt. Soc. Am. B **21**, 1772-1780 (2004). Download
48. M. Sainz-Trapaga, C. Masoller, H. A. Braun and M. T. Huber, "*Influence of time-delayed feedback in the firing pattern of thermally sensitive neurons*", Phys. Rev. E **70**, 031904 (2004). Download
49. D. Curtin, S.P. Hegarty, D. Goulding, J. Houlihan, Th. Busch, C. Masoller and G. Huyet, "*Distribution of residence times in bistable noisy systems with time-delayed feedback*", Phys. Rev. E **70**, 031103 (2004). Download
50. C. Masoller, M. S. Torre and P. Mandel, "*Antiphase dynamics in multimode semiconductor lasers with optical feedback*", Phys. Rev. A. **71**, 013818 (2005). Download
51. C. Masoller and A. C. Marti, "*Random delays and the synchronization of chaotic maps*", Phys. Rev. Lett. **94**, 134102 (2005). Download
52. C. Masoller and M. S. Torre, "*Influence of optical feedback on the polarization switching of vertical-cavity surface-emitting lasers*", IEEE J. Quantum Electron. **41**, 483 (2005). Download
53. A. C. Marti, M. Ponce, and C. Masoller, "*Steady-state stabilization due to random delays in maps with self-feedback loops and in globally delayed-coupled maps*", Phys. Rev. E **72**, 066217 (2005). Download
54. C. Masoller, M. S. Torre, and P. Mandel, "*Influence of the injection current sweep rate on the polarization switching of vertical-cavity surface-emitting lasers*", J. Applied Phys. **99**, 026106 (2006). Download
55. J. Paul, C. Masoller, Y. Hong, P. S. Spencer and K. A. Shore "*Experimental study of polarization switching of vertical-cavity surface-emitting lasers as a dynamical bifurcation*", Opt. Lett. **31**, 748 (2006). Download
56. M. W. Lee, J. Paul, C. Masoller and K. A. Shore, "*Observation of cascade complete chaos synchronisation with zero time lag in laser diodes*", J. Opt. Soc. Am. B **23**, 846 (2006). Download
57. C. Serrat and C. Masoller, "*Modeling spatial effects in multi longitudinal mode semiconductor lasers*", Phys. Rev. A **73**, 043812 (2006). Download
58. M. S. Torre, C. Masoller and P. Mandel, "*Transverse and polarization effects in index-guided vertical-cavity surface-emitting lasers*", Phys. Rev. A **74**, 043808 (2006). Download
59. A. C. Martí, M. Ponce and C. Masoller, "*Chaotic maps coupled with random delays: Connectivity, topology, and network propensity for synchronization*", Physica A **371**, 104-107 (2006). Download
60. K. Staliunas and C. Masoller, "*Subdiffractive light in bi-periodic arrays of modulated fibers*", Optics Express **14**, 10669-10677 (2006). Download
61. C. Masoller, T. Sorrentino, M. Chevrollier, and M. Oria, "*Bistability in semiconductor lasers with polarization-rotated frequency-dependent optical feedback*", IEEE J. Quantum Electron. **43**, 261-268 (2007). Download

62. J. Paul, C. Masoller, Y. Hong, P. S. Spencer and K. A. Shore, "*Impact of orthogonal optical feedback on the polarisation switching of vertical-cavity surface-emitting lasers*", J. Opt. Soc. Am. B **24**, 1987-1994 (2007). Download
63. C. M. Gonzalez, C. Masoller, C. Torrent and J. Garcia-Ojalvo, "*Synchronization via clustering in a small delay-coupled laser network*", EPL **79**, 64003 (2007). Download
64. C. Masoller, M. S. Torre, and K. A. Shore, "*Polarization dynamics of current-modulated vertical-cavity surface-emitting lasers*", IEEE J. Quantum Electron. **43**, 1074-1082 (2007). Download
65. C. Masoller, C. Serrat and R. Vilaseca, "*Modeling multi-longitudinal-mode semiconductor lasers with incoherent feedback*", Phys. Rev. A. **76**, 043814 1-8 (2007). Download
66. C. Masoller, M. C. Torrent and J. Garcia-Ojalvo, "*Neuronal multistability induced by delay*", Lecture Notes in Computer Science **4668**, 963-972 (2007). Download
67. A. C. Martí, M. Ponce, C. Masoller, "*Dynamics of delayed-coupled chaotic logistic maps: Influence of network topology, connectivity and delay times*", Pramana – journal of physics **70**, 1-6 (2008). Download
68. J. Paul, C. Masoller, P. Mandel, Y. Hong, P. S. Spencer, and K. A. Shore, "*Experimental and theoretical study of dynamical hysteresis and scaling laws in the polarisation switching of vertical-cavity surface-emitting lasers*", Phys. Rev. A. **77**, 043803 (2008). Download
69. C. Masoller, M. C. Torrent, J. Garcia-Ojalvo, "*Interplay of subthreshold activity, time-delayed feedback and noise on neuronal firing patterns*", Phys. Rev. E. **78**, 041907 1-8 (2008). Download
70. J. Zamora-Munt, C. Masoller, "*Generation of optical pulses in VCSELs below the static threshold using asymmetric current modulation*", Optics Express **16**, 17848-17853 (2008). Download
71. C. Masoller, M. S. Torre, "*Modeling thermal effects and polarization competition in vertical-cavity surface-emitting lasers*", Optics Express **16**, 21282-21296 (2008). Download
72. M. S. Torre, C. Masoller, "*Polarization-resolved modulation response of single-transverse-mode VCSELs*", IEEE J. Quantum Electron. **45**, 206-212 (2009). Download
73. M. Ponce, C. Masoller, A. C. Martí, "*Synchronizability of chaotic logistic maps in delayed complex networks*", Eur. Phys. J. B **67**, 83–93 (2009). Download
74. O. A. Rosso, C. Masoller, "*Detecting and quantifying stochastic and coherence resonances via information-theory complexity measurements*", Phys. Rev. E **79**, 040106(R) (2009). Download
75. O. A. Rosso, C. Masoller, "*Detecting and quantifying temporal correlations in stochastic resonance via information theory measures*", Eur. Phys. J. B **69**, 37–43 (2009). Download
76. O. Descalzi, A. C. Martí, C. Masoller, O. A. Rosso, "*Topics on non-equilibrium statistical mechanics and nonlinear physics*", Phil. Trans. R. Soc. A **367**, 3151-3156 (2009). Download
77. C. Masoller, M. C. Torrent, J. Garcia-Ojalvo, "*Dynamics of globally delay-coupled neurons displaying subthreshold oscillations*", Phil. Trans. R. Soc. A **367**, 3255-3266 (2009). Download
78. C. Masoller, M. Oria, and R. Vilaseca, "*Modeling a semiconductor laser with an intracavity atomic absorber*", Phys. Rev. A **80**, 013830 (2009). Download
79. J. Zamora-Munt, C. Masoller and J. Garcia-Ojalvo, "*Transient low-frequency fluctuations in semiconductor lasers with optical feedback*", Phys. Rev. A **81**, 033820 (2010). Download
80. O. Descalzi, A. Marti, C. Masoller and O. A. Rosso, "*Editorial: Proceedings of the XVI Conference on Nonequilibrium Statistical Mechanics and Nonlinear Physics*", Int. J. Bif. Chaos **20**, 195-196 (2010). Download
81. C. Masoller and I. Brener, "*Introduction to the Topical Issue on Laser Dynamics and Nonlinear Photonics*", Eur. Phys. J. D **58**, 153-159 (2010). Download
82. C. Masoller and M. Oria, "*Frequency dynamics of semiconductor lasers with atomic absorbers: theory and experiments*", Eur. Phys. J. D **58**, 191-196 (2010). Download

83. J. Tiana-Alsina, M. C. Torrent, O. A. Rosso, C. Masoller and J. Garcia-Ojalvo, "*Quantifying the statistical complexity of low-frequency fluctuations in semiconductor lasers with optical feedback*", Phys. Rev. A **82**, 013819 (2010). Download
84. J. Zamora-Munt and C. Masoller, "*Numerical implementation of a VCSEL-based stochastic logic gate via polarization bistability*" Opt. Express **18**, 16418-16429 (2010). Download
85. Y. Hong, C. Masoller, M. S. Torre, S. Priyadarshi, A. A. Qader, P. S. Spencer and K. A. Shore, "*Thermal effects and dynamical hysteresis in the turn-on and turn-off of vertical-cavity surface-emitting lasers*", Opts. Lett. **35**, 3688-3690 (2010). Download
86. M. S. Torre and C. Masoller, "*Dynamical hysteresis and thermal effects in vertical-cavity surface-emitting lasers*", IEEE J. Quantum Electron. **46**, 1788-1793 (2010). Download
87. J. Zamora-Munt, C. Masoller, J. García-Ojalvo and R. Roy, "*Crowd synchrony and quorum sensing in delay-coupled lasers"*, Phys. Rev. Lett. **105**, 264101 (2010). Download
88. C. Masoller and O. A. Rosso, "*Quantifying the complexity of the delayed logistic map"*, Phil. Trans. R. Soc. A **369**, 425-438 (2011). Download
89. M. Barreiro, A. C. Martí and C. Masoller, "*Inferring long memory processes in the climate network via ordinal pattern analysis"*, Chaos **21**, 013101 (2011). Download
90. C. Masoller and F.M. Atay, "*Complex transitions to synchronization in delay-coupled networks of logistic maps*", Eur. Phys. J. D **62**, 119–126 (2011). Download
91. C. Bonatto, M. Feyereisen, S. Barland, M. Giudici, C. Masoller, J. R. Rios Leite, and J. R. Tredicce, "*Deterministic optical rogue waves*", Phys. Rev. Lett. **107**, 053901 (2011). Featured in Research Highlights of *Nature Photonics* (Vol. 5, No. 10, Page 571 DOI:10.1038/nphoton.2011.240) and in Optics and Photonics News (Feb. 2012). Download
92. N. Rubido, J. Tiana-Alsina, M. C. Torrent, J. Garcia-Ojalvo, and C. Masoller, "*Language organization and temporal correlations in the spiking activity of an excitable laser: Experiments and model comparison*", Phys. Rev. E **84**, 026202 (2011). Download
93. C. Masoller, D. Sukow, A. Gavrielides, and M. Sciamanna, "*Bifurcation to square-wave switching in orthogonally delay-coupled semiconductor lasers: theory and experiment*", Phys. Rev. A **84** 023838 (2011). Download
94. M. S. Torre, A. Gavrielides, and C. Masoller, "*Numerical characterization of transient polarization square-wave switching in two orthogonally coupled VCSELs*", Opt. Express. **19**, 20269 (2011). Download
95. M. Sciamanna, M. Virte, C. Masoller, and A. Gavrielides, "*Hopf bifurcation to square-wave switching in mutually coupled semiconductor lasers*", Phys. Rev. E **86**, 016218 (2012). Download
96. D. W. Sukow, T. Gilfillan, B. Pope, M. S. Torre, A. Gavrielides, and C. Masoller, "*Square-wave switching in vertical-cavity surface-emitting lasers with polarization-rotated optical feedback: experiments and simulations*", Phys. Rev. A **86**, 033818 (2012). Download
97. S. Perrone, R. Vilaseca, and C. Masoller, "*Stochastic logic gate that exploits noise and polarization bistability in an optically injected VCSEL*", Opt. Express **20**, 22692 (2012). Download
98. J. Zamora-Munt, B. Garbin, S. Barland, M. Giudici, J. R. Rios Leite, C. Masoller, and J. R. Tredicce, "*Rogue waves in optically injected lasers: origin, predictability, and suppression*", Phys. Rev. A **87**, 035802 (2013). Download
99. A. Aragoneses, N. Rubido, J. Tiana-Alsina, M. C. Torrent, and C. Masoller, "*Distinguishing signatures of determinism and stochasticity in spiking complex systems*", Sci. Rep. **3**, 1778 (2013). Download
100. J. I. Deza, M. Barreiro and C. Masoller, "*Inferring interdependencies in climate networks constructed at inter-annual, intra-season and longer time scales*", Eur. Phys. J. Special Topics **222**, 511–523 (2013). Download

101. G. De Polsi, C. Cabeza, A. C. Marti and C. Masoller, "*Characterizing the dynamics of coupled pendulums via symbolic time series analysis*", Eur. Phys. J. Special Topics **222**, 501–510 (2013). Download
102. J. A. Reinoso, J. Zamora-Munt and C. Masoller, "*Extreme intensity pulses in a semiconductor laser with a short external cavity*", Phys. Rev. E **87**, 062913 (2013). Download
103. G. Tirabassi and C. Masoller, "*On the effects of lag-times in networks constructed from similarities of monthly fluctuations of climate fields*", EPL **102**, 59003 (2013). Download
104. C. Masoller, M. Sciamanna and A. Gavrielides, "*Two-parameter study of square-wave switching dynamics in orthogonally delay-coupled semiconductor lasers*", Phil. Trans. R. Soc. A **371**, 20120471 (2013). Download
105. M. Salvide, C. Masoller and M. S. Torre, "*All-optical stochastic logic gate based on a VCSEL with tunable optical injection*", IEEE J. Quantum Electron **49**, 886 (2013). Download
106. S. D. Cohen, A. Aragoneses, D. Rontani, M. C. Torrent, C. Masoller and D. J. Gauthier, "*Multidimensional subwavelength position sensing using a semiconductor laser with optical feedback*", Opt. Lett. **38**, 4331 (2013). Download
107. A. Aragoneses, T. Sorrentino, S. Perrone, D. J. Gauthier, M. C. Torrent and C. Masoller, "*Experimental and numerical study of the symbolic dynamics of a modulated external-cavity semiconductor laser*", Optics Express **22**, 4705 (2014). Download
108. S. Perrone, R. Vilaseca, J. Zamora-Munt, and C. Masoller, "*Controlling the likelihood of rogue waves in an optically injected semiconductor laser via direct current modulation*", Phys. Rev. A 89, 033804 (2014). Download
109. A. Aragoneses, S. Perrone, T. Sorrentino, M. C. Torrent and C. Masoller, "*Unveiling the complex organization of recurrent patterns in spiking dynamical systems*", Sci. Rep. **4**, 4696 (2014). Download
110. J. I. Deza, C. Masoller and M. Barreiro, "*Distinguishing the effects of internal and forced atmospheric variability in climate networks*", Nonlin. Processes Geophys. **21**, 617 (2014). Download
111. G. Tirabassi, J. Viebahn, V. Dakos, H. A. Dijkstra, C. Masoller, M. Rietkerk, and S.C. Dekker, "*Interaction network based early-warning indicators of vegetation transitions*", Ecological Complexity 19, 148 (2014). Download
112. N. Rubido, A. C. Marti, E. Bianco-Martinez, C. Grebogi, M. S. Baptista and C. Masoller, "*Exact detection of direct links in networks of coupled maps*", New Journal of Physics **16** 093010 (2014). Download
113. M. F. Salvide, C. Masoller and M. S. Torre, "*Polarization switching and hysteresis in vertical-cavity surface-emitting lasers subject to orthogonal optical injection*", IEEE J. Quantum Electron. 50, 248 (2014). Download
114. J. Ahuja, D. Bhiku Nalawade, J. Zamora-Munt, R. Vilaseca and C. Masoller, "*Rogue waves in injected semiconductor lasers with current modulation: role of the modulation phase*", Optics Express 22, 28377 (2014). Download
115. C. Masoller, Y. Hong, S. Ayad, F. Gustave, S. Barland, A. J. Pons, S. Gomez, and A. Arenas, "*Quantifying sudden changes in dynamical systems using symbolic networks*", New Journal of Physics **17**, 023068 (2015). Download
116. J. I. Deza, M. Barreiro, and C. Masoller, "*Assessing the direction of climate interactions by means of complex networks and information theoretic tools*", Chaos **25**, 033105 (2015). Download
117. T. Sorrentino, C. Quintero-Quiroz, A. Aragoneses, M. C. Torrent, and C. Masoller, "*The effects of periodic forcing on the temporally correlated spikes of a semiconductor laser with feedback*", Optics Express **23**, 5571 (2015). Download
118. P. Amil, C. Cabeza, C. Masoller, and A. C. Martí, "*Organization and identification of solutions in the time-delayed Mackey-Glass model*", Chaos **25**, 043112 (2015). Download

119. G. Tirabassi, R. Sevilla-Escoboza, J. M. Buldú and C. Masoller, "*Inferring the connectivity of coupled oscillators from time-series statistical similarity analysis*", Sci. Rep. **5** 10829 (2015). Download
120. T. Sorrentino, C. Quintero-Quiroz, M. C. Torrent, and C. Masoller, "*Analysis of the Spike Rate and Spike Correlations in Modulated Semiconductor Lasers With Optical Feedback*", IEEE J. Sel. Top. Quantum Electron. **21**, 1801107 (2015). Download
121. C. Quintero-Quiroz, S. Pigolotti, M. C. Torrent, and C. Masoller, "*Numerical and experimental study of the effects of noise on the permutation entropy*", New Journal of Physics **17**, 093002 (2015). Download
122. G. Tirabassi, C. Masoller and M. Barreiro, "*A study of the air-sea interaction in the South Atlantic Convergence Zone through Granger Causality*", Int. J. of Climatology, 35, 3440 (2015). Download
123. A. Aragoneses, L. Carpi, N. Tarasov, D. V. Churkin, M. C. Torrent, C. Masoller, and S. K. Turitsyn, "*Unveiling temporal correlations characteristic to phase transition in the intensity of fibre laser radiation*", Phys. Rev. Lett. **116**, 033902 (2016). Download
124. B. L. Lan and C. Masoller, "*Heavy-tailed fluctuations in the spiking output intensity of semiconductor lasers with optical feedback*", PLoS ONE 11, e0150027 (2016). Download
125. N. Akhmediev, B. Kibler, F. Baronio et al, "*Roadmap on optical rogue waves and extreme events*", J. of Opt. **18**, 063001 (2016). Download
126. G. Tirabassi and C. Masoller, "*Unravelling the community structure of the climate system by using lags and symbolic time-series analysis*", Sci. Rep. **6**, 29804 (2016). Download
127. J. A. Reinoso, M. C. Torrent, and C. Masoller, "*Emergence of spike correlations in periodically forced excitable systems*", Phys. Rev. E. **94**, 032218 (2016). Download
128. J. A. Reinoso, M. C. Torrent, and C. Masoller, "*Analysis of noise-induced temporal correlations in neuronal spike sequences*", Eur. Phys. J. Sel. Top. **225**, 2689 (2016). Download
129. D. A. Zappala, M. Barreiro, and C. Masoller, "*Global atmospheric dynamics investigated by using Hilbert frequency analysis*", Entropy **18**, UNSP 408 (2016). Download
130. C. Quintero-Quiroz, J. Tiana-Alsina, J. Roma, M. C. Torrent, and C. Masoller, "*Characterizing how complex optical signals emerge from noisy intensity fluctuations*", Sci. Rep. **6** 37510 (2016). Download
131. T. A. Schieber, L. Carpi, A. Diaz-Guilera, P. M. Pardalos, C. Masoller and M. G. Ravetti, "*Quantification of network structural dissimilarities*", Nat. Comm. **8**, 13928 (2017). Download
132. F. Arizmendi, M. Barreiro, C. Masoller, "*Identifying global patterns of stochasticity and nonlinearity in the Earth System*", Sci. Rep. in press (2017).
133. G. Tirabassi, L. Sommerlade and C. Masoller, "*Inferring directed climatic interactions with renormalized partial directed coherence and directed partial correlation*", Chaos in press (2017).
134. N. Martinez Alvarez, S. Borkar and C. Masoller, "*Predictability of extreme intensity pulses in optically injected semiconductor lasers*", Eur. Phys. J. Sel. Top. Submitted (2017).

Book Chapters

S. Sivaprakasam, C. Masoller, "*Chaos synchronization*", Chapter 6, pp 185-216, of "Unlocking dynamical diversity: optical feedback effects on semiconductor lasers". Editors: Deborah Kane and Alan Shore. Wiley and Sons, March 2005. ISBN: 0-470-85619-X.

C. Masoller, "*Resonances induced by delay in nonlinear autonomous oscillators with feedback*", Chapter 13, pp. 291-300 of "Handbook of Chaos Control, 2nd Edition". Eds: E. Scholl and H. G. Schuster. WILEY-VCH Verlag, Weinheim, Germany (2008). ISBN: 0-470-85619-X

J. Zamora-Munt, C. Masoller and J. García-Ojalvo, "*Multi-stability and transient chaotic dynamics in semiconductor lasers with time-delayed optical feedback*" (pp. 78-83). Book title: "From physics to control through an emergent view", World Scientific Series on Nonlinear Science, Series B Vol. 15. Editors: Luigi Fortuna, Alexander Fradkov and Mattia Frasca. World Scientific Publishing (2010). ISBN: 9789814313148

J. Zamora-Munt and C. Masoller, "*Exploiting noise and polarization bistability in vertical-cavity surface-emitting lasers for fast pulse generation and logic operations*". Book title: "Nonlinear Laser Dynamics: From Quantum Dots to Cryptography", Wiley-VCH Verlag GmbH & Co. KGaA. Editor: Kathy Ludge (2012). ISBN: 3527411003

Research visits

1999 – 2004 Several extended research stays at the Institut Non-Lineaire de Nice, Université de Nice Sophia Antipolis (France), Departament de Fìsica, Universitat de les Illes Balears (Spain) and at the School of Informatics, Bangor University (Wales, U.K.)

July 2014 Max Planck Institute for the Physics of Complex Systems: Advanced Study Group on "Optical rare events: a challenge in laser dynamics", Dresden, Germany.

Dissemination of research results in media

Our work on Optical Rogue Waves (PRL 2011) was featured in the Research Highlights of *Nature Photonics* (Vol. 5, No. 10, Page 571 DOI:10.1038/nphoton.2011.240) and in *Optics and Photonics News* (February 2012).

The Marie Curie Initial Training Network LINC was featured in Terrassa newspaper (June 2012 and November 2015). The first LINC school was featured in Mallorca newspaper (September 2012)

Our article in Scientific Reports (2013) was featured in the printed edition of Terrassa newspaper (June and July 2013) and in the digital edition of the national newspaper El Periodico. The first author, Andres Aragoneses, was interviewed by the radio and TV Terrassa.

Our article in Scientific Reports (2014) was featured in the printed edition of Terrassa newspaper (September 2014) and in the digital edition of Investigacion y Ciencia. The first author, Andres Aragoneses, was interviewed by TV Terrassa.

Our article in Scientific Reports (2016) was featured in the printed edition of the *Revista de la Real Sociedad Española de Fisica* (RdF Puntos de Interes, Octubre-diciembre 2016).

Our article on *Desastres naturals, multifractals i xarxes climàtiques:tres exemples de complexitat a geociència*, was published in *Revista de la Sociedad Catalana de Fisica*, focus en Complexitat (Vol. 15, Nro. 2, 2016).

H2020 ITN BE-OPTICAL was featured in national and local newspapers (November 2016): La Vanguardia, El Periodico, Diario de Terrassa

Our article publised in Nature Communications was features in national newspapers (February 2017): El Pais, La Vanguardia, El Periodico, Diario de Terrassa.