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Google scholar: <http://scholar.google.com/citations?user=esTS9GsAAAAJ>

Research Gate: https://www.researchgate.net/profile/Cristina_Masoller/?ev=hdr_xprf

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

Citizenship: Uruguayan and Italian

Research Interests

- Nonlinear photonics: dynamics of semiconductor lasers, optical instabilities and chaos.
- Nonlinear dynamics: excitability, multi-stability, stochastic phenomena, applications.
- Complex systems: dynamics of interacting nonlinear units (lasers, neurons), delay-induced phenomena, complex networks, climate networks.
- Data analysis: nonlinear time-series analysis, symbolic analysis, big data, extreme events, information theory, entropy and complexity measures.

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 Politècnica de Catalunya.

2004 – 2009 “Ramon i Cajal” Researcher, Universitat Politècnica 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

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.

Teaching Experience

At Universitat Politècnica 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)*.

Research Executive Agency

Reference number: H2020-675517.

ITN Coordinator: Cristina Masoller

b) Participation in research grants

2009–2011: *Ondas de luz en medios lineales y no lineales 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 Engineering Transformative Technologies (NETT)*.

Research Executive Agency, Reference number: FP7-PEOPLE-2011-ITN-289146.

Principal Investigator: Jordi García Ojalvo, ITN coordinator: S. Coombes (Nottingham, UK)

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 Aragonese
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: Nonlinear dynamics of optically coupled semiconductor lasers.

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

Supervised postdoctoral researchers

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

Supervised undergraduate students

Nuria Martinez and Carles Calafel (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 Politècnica de Catalunya, 2011 (Supervisors: J. García Ojalvo and M. C. Torrent).
- Dhiraj Kumar, Universitat Politècnica de Catalunya, 2011 (Supervisor: Francesc Rocadenbosch).
- Werner Coomans, Vrije Universiteit Brussel, Belgium, 2012 (Supervisors: J. Danckaert and L. Gelens).
- Belen San Cristobal, Universitat Politècnica 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)

Other juries

- Prof. David Sukow: expert evaluator for candidacy for the rank of Professor (Washington and Lee University, USA, September 2010)
- Luis A. Builes Jaramillo: PhD qualification (Universidad Nacional de Colombia, 2013).
- Prof. Dr. K. Lüdge: expert evaluator for W2 Professorship (TU Berlin, Germany, 2015).
- Prof. Sylvain Barbay: member of the Habilitation à Diriger des Recherches (HDR) jury (Université Paris Sud, France, June 2015)
- IUPAP C17 Young Scientists Prize: member of the Prize Committee (2013 & 2015).

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, November 2012; 2014, Viña del Mar, Chile, November 2014).
- 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 \(EECOS\)](#), to be held in 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](#), to be held in Lyon, France, July 2016 (Topic Committee on Nonlinear Physics).

- [IUPAP C17 Commission on Quantum Electronics](#) (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](#).

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, Communications in Nonlinear Science and Numerical Simulation.

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**.

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.

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)
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Scientific Publications (*citations >2100, ISI h-index: 24*)

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](#)
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Research visits

1999 – 2004 Several extended research stays at the Institut Non-Lineaire de Nice, Université de Nice Sophia Antipolis (France), Departament de Física, 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). 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 Aragonese, 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 Aragonese, was [interviewed by TV Terrassa](#).