CURRÍCULUM VÍTAE NORMALIZADO



MIGUEL CORNELLES SORIANO

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GOBIERNO DE ESPAÑA
MINISTERIO DE CIENCIA, INNOVACIÓN Y UNIVERSIDADES

FECYT INNOVACIÓN



MIGUEL CORNELLES SORIANO

Surname(s):	**CORNELLES SORIANO**
Name:	**MIGUEL**
DNI:	**20241268A**
ORCID:	**0000-0002-6140-8451**
ScopusID:	**7005888473**
ResearcherID:	**D-8480-2011**
Date of birth:	**14/12/1979**
Gender:	**Male**
Country of birth:	**Spain**
Aut. region/reg. of birth:	**Comunitat Valenciana**
City of birth:	**Benicarló**
Land line phone:	**971171314**
Email:	**miguel@ifisc.uib-csic.es**
Personal web page:	**https://ifisc.uib-csic.es/miguel/**

Current professional situation

Employing entity: Consejo Superior de Investigaciones Científicas

Type of entity: State agency

Department: IFISC (CSIC-UIB)

Professional category: Tenured scientist

Start date: 21/12/2023

Type of contract: Civil servant

Dedication regime: Full time

Primary (UNESCO code): 220913 - Non-linear optics

Secondary (UNESCO code): 220910 - Lasers

Tertiary (UNESCO code): 120304 - Artificial intelligence

Performed tasks: Miguel C. Soriano (Miguel Cornelles Soriano) is a tenured scientist (Científico Titular) at the Spanish Research Council, and he develops his research activity at the Instituto de Física Interdisciplinar y Sistemas Complejos (IFISC). His research career has been devoted to the study of the fundamental properties of complex dynamical systems, with a balanced interplay between theoretical and experimental work, and to the development of brain-inspired hardware devices. He has co-authored 99 scientific publications in JCR journals, with 7336 citations and H-index 36 in web of Science (please see http://www.researcherid.com/rid/D-8480-2011 for more details) and 11513 citations and H-index 43 according to Google scholar (please see https://scholar.google.com/citations?user=RMlYpeYAAAAJ for more details).

Previous positions and activities

	Employing entity	Professional category	Start date
1	Universidad de las Islas Baleares	Associate professor (Profesor Contratado Doctor)	01/12/2021
2	IFISC (CSIC-UIB)	Ramón y Cajal research associate	01/12/2016
3	University of the Balearic Islands	Postdoctoral research associate	01/02/2015
4	University of the Balearic Islands		01/01/2011

	Employing entity	Professional category	Start date
		Assistant Professor (Profesor Ayudante Doctor)	
5	IFISC (CSIC-UIB)	Juan de la Cierva research contract	01/01/2008
6	IMEDEA (UIB-CSIC)	Postdoctoral contract	08/01/2007
7	Vrije Universiteit Brussel	PhD research	01/10/2002

1 **Employing entity:** Universidad de las Islas Baleares **Type of entity:** University
Department: Physics, IFISC (CSIC-UIB)
Professional category: Associate professor (Profesor Contratado Doctor)
Start-End date: 01/12/2021 - 20/12/2023
Type of contract: Permanent employment contract

2 **Employing entity:** IFISC (CSIC-UIB)
Professional category: Ramón y Cajal research associate
Start-End date: 01/12/2016 - 30/11/2021 **Duration:** 5 years

3 **Employing entity:** University of the Balearic Islands
Professional category: Postdoctoral research associate
Start-End date: 01/02/2015 - 30/11/2016

4 **Employing entity:** University of the Balearic Islands
Professional category: Assistant Professor (Profesor Ayudante Doctor)
Start-End date: 01/01/2011 - 31/01/2015 **Duration:** 4 years

5 **Employing entity:** IFISC (CSIC-UIB)
Professional category: Juan de la Cierva research contract
Start date: 01/01/2008 **Duration:** 3 years

6 **Employing entity:** IMEDEA (UIB-CSIC)
Professional category: Postdoctoral contract
Start date: 08/01/2007 **Duration:** 8 months

7 **Employing entity:** Vrije Universiteit Brussel
Professional category: PhD research
Start date: 01/10/2002 **Duration:** 4 years - 2 months - 18 days

Education

University education

1st and 2nd cycle studies and pre-Bologna degrees

University degree: Higher degree
Name of qualification: Ingeniería Superior en Telecomunicaciones
Degree awarding entity: Universitat Politècnica de Catalunya
Date of qualification: 30/09/2002

Doctorates

Doctorate programme: Ph.D. in Applied Physics and Photonics
Degree awarding entity: Vrije Universiteit Brussel **Type of entity:** University
Date of degree: 18/12/2006
Thesis title: Aspects of feedback and noise in Vertical-Cavity Surface-Emitting Lasers
Thesis director: Jan Danckaert and Ingo Fischer
Obtained qualification: Greatest Distinction
Standardised degree: Yes **Date of standardisation:** 17/07/2007

Language skills

Language	Listening skills	Reading skills	Spoken interaction	Speaking skills	Writing skills
French	B1	B1	A1	A1	A1
Italian	B1	B1	A1	A1	A1
Catalan	C1	C1	C1	C1	C1
English	C1	C1	C1	C1	C1
Spanish	C1	C1	C1	C1	C1

Teaching experience

General teaching experience

1 **Type of teaching:** Official teaching
Name of the course: Machine Learning
University degree: Estudios de Master (Master in Physics of Complex Systems)
Start date: 2021 **End date:** 2025
Type of hours/ ECTS credits: Credits
Hours/ECTS credits: 3
Entity: Universidad de las Islas Baleares **Type of entity:** University
Subject language: English

2 **Type of teaching:** Official teaching
Name of the course: Complex Photonics
University degree: Estudios de Master (Master in Physics of Complex Systems)
Frequency of the activity: 6
Start date: 2013 **End date:** 2025
Type of hours/ ECTS credits: Credits
Hours/ECTS credits: 2
Entity: Universidad de las Islas Baleares **Type of entity:** University
Subject language: English

3 **Type of teaching:** Official teaching
Name of the course: Photonics: Lasers and Applications
University degree: Estudios de Grado (Física)
Frequency of the activity: 4
Start date: 2018 **End date:** 2022
Type of hours/ ECTS credits: Hours
Hours/ECTS credits: 20
Entity: Universidad de las Islas Baleares **Type of entity:** University

4 **Type of teaching:** Official teaching
Name of the course: Physics and Electromagnetism
University degree: Estudios de Grado (Química, Biología, Bioquímica, Ingeniería Informática)
Start date: 2010 **End date:** 2014
Type of hours/ ECTS credits: Hours
Hours/ECTS credits: 560
Entity: Universidad de las Islas Baleares **Type of entity:** University

Experience supervising doctoral thesis and/or final year projects

1 **Project title:** Machine Learning Using Quantum Light
Type of project: Doctoral thesis
Co-director of thesis: Roberta Zambrini; Gian Luca Giorgi; Miguel Cornelles Soriano
Entity: University of the Balearic Islands
Student: Jorge García Beni
Obtained qualification: Excelente
Date of reading: 16/01/2026

2 **Project title:** Synchronization in coupled laser networks
Type of project: Master's Thesis
Co-director of thesis: Apostolos Argyris; Miguel Cornelles Soriano
Entity: University of the Balearic Islands
Student: Adam César Maćkowiak Pellón
Obtained qualification: Excellent
Date of reading: 2025

3 **Project title:** Computing with Dynamical Systems: from implementations towards novel concepts
Type of project: Doctoral thesis
Co-director of thesis: Ingo Fischer; Claudio R. Mirasso; Miguel Cornelles Soriano
Entity: University of the Balearic Islands

Student: Mirko Goldmann
Obtained qualification: Excelente
Date of reading: 04/10/2024

4 **Project title:** Reservoir computing in quantum systems
Type of project: Doctoral thesis
Co-director of thesis: Roberta Zambrini; Miguel Cornelles Soriano
Entity: University of the Balearic Islands
Student: Rodrigo Martínez Peña
Obtained qualification: Excelente
Date of reading: 07/09/2023
Quality recognition: Yes

5 **Project title:** Artificial neural networks through the lens of dynamical systems theory
Type of project: Master's Thesis
Co-director of thesis: Lucas Lacasa; Miguel Cornelles Soriano
Entity: University of the Balearic Islands
Student: Kaloyan Danovski
Obtained qualification: Excellent
Date of reading: 2023

6 **Project title:** Time and wavelength multiplexing in photonic neural networks
Type of project: Master's Thesis
Co-director of thesis: Claudio R. Mirasso; Miguel Cornelles Soriano
Entity: University of the Balearic Islands
Student: Pedro Jiménez González
Obtained qualification: 8.9/10
Date of reading: 2023

7 **Project title:** Influence of Measurements on Continuous Variable Quantum Reservoir Computing
Type of project: Master's Thesis
Co-director of thesis: Roberta Zambrini; Miguel Cornelles Soriano
Entity: University of the Balearic Islands
Student: Jorge García Beni
Obtained qualification: Excellent
Date of reading: 2021

8 **Project title:** Fundamentals of Information Processing on an Analog Reservoir Computer
Type of project: Master's Thesis
Co-director of thesis: André Röhm; Miguel Cornelles Soriano
Entity: University of the Balearic Islands
Student: Benedikt Vettelschoss
Obtained qualification: Excellent
Date of reading: 2020

9 **Project title:** Constructive role of plasticity rules in reservoir computing
Type of project: Master's Thesis
Co-director of thesis: Claudio R. Mirasso; Miguel Cornelles Soriano
Entity: University of the Balearic Islands
Student: Guillermo Barrios
Obtained qualification: Excellent

Date of reading: 2019

10 **Project title:** Information processing using optoelectronic delayed systems: Influence of an additional delay
Type of project: Master's Thesis
Co-director of thesis: Miguel Cornelles Soriano
Entity: University of the Balearic Islands
Student: Jesús Yelo
Obtained qualification: Excellent
Date of reading: 2019

11 **Project title:** Multilayer reservoir computing to overcome the memory-nonlinearity trade-off
Type of project: Master's Thesis
Co-director of thesis: Miguel Cornelles Soriano
Entity: University of the Balearic Islands
Student: Samuel Jaume Suárez
Obtained qualification: Excellent
Date of reading: 2019

12 **Project title:** Phase space reconstruction of semiconductor laser dynamics using reservoir computing
Type of project: Master's Thesis
Co-director of thesis: Ingo Fischer; Miguel Cornelles Soriano
Entity: University of the Balearic Islands
Student: Alejandro Cunillera Pérez
Obtained qualification: Excellent
Date of reading: 2019

13 **Project title:** Autonomous dynamical systems based on hardware implementations of delay-reservoir computers
Type of project: Master's Thesis
Co-director of thesis: Ingo Fischer; Miguel Cornelles Soriano
Entity: University of the Balearic Islands
Student: Irene Estébanez
Obtained qualification: Excellent
Date of reading: 2018

14 **Project title:** Improved detection of collective rhythms in multi-channel electroencephalography signals
Type of project: Master's Thesis
Co-director of thesis: Miguel Cornelles Soriano
Entity: University of the Balearic Islands
Student: Alejandro Morán Costoya
Obtained qualification: Excellent
Date of reading: 2017

15 **Project title:** Análisis experimental de la sincronización de osciladores caóticos y su aplicación en la distribución segura de claves
Type of project: End of course project
Co-director of thesis: Miguel Cornelles Soriano
Entity: University of the Balearic Islands
Student: Yeray Vivó Valls
Obtained qualification: 8.6/10
Date of reading: 2016

16 **Project title:** Complex Dynamics of Delay-Coupled Semiconductor Lasers: Fundamentals and Applications
Type of project: Doctoral thesis
Co-director of thesis: Ingo Fischer; Miguel Cornelles Soriano
Entity: University of the Balearic Islands
Student: Xavier Porte Parera
Obtained qualification: Excelente
Date of reading: 30/11/2015
European doctorate: Yes

17 **Project title:** Computational Properties of Delay-Coupled Systems
Type of project: Doctoral thesis
Co-director of thesis: Claudio R. Mirasso; Miguel Cornelles Soriano
Entity: University of the Balearic Islands
Student: Miguel Angel Escalona Moran
Obtained qualification: Excelente
Date of reading: 18/09/2015

18 **Project title:** Photonic Reservoir Computing: The role of the Mach-Zehnder modulator
Type of project: Master's Thesis
Co-director of thesis: Ingo Fischer; Miguel Cornelles Soriano
Entity: University of the Balearic Islands
Student: Miquel Alfaras Espinàs
Obtained qualification: Excellent
Date of reading: 2015

19 **Project title:** Semiconductor laser dynamics under polarized rotated optical delay feedback and frequency detuning
Type of project: Master's Thesis
Co-director of thesis: Claudio R. Mirasso; Miguel Cornelles Soriano
Entity: University of the Balearic Islands
Student: Julián Bueno
Obtained qualification: 8/10
Date of reading: 2013

20 **Project title:** Random number generation utilizing chaotic semiconductor lasers
Type of project: Master's Thesis
Co-director of thesis: Ingo Fischer; Miguel Cornelles Soriano
Entity: University of the Balearic Islands
Student: Neus Oliver
Obtained qualification: Excellent
Date of reading: 2012

21 **Project title:** Synchronization characteristics of fiber delay-coupled semiconductor lasers
Type of project: Master's Thesis
Co-director of thesis: Ingo Fischer; Miguel Cornelles Soriano
Entity: University of the Balearic Islands
Student: Xavier Porte Parera
Obtained qualification: Excellent
Date of reading: 2011

Scientific and technological experience

Scientific or technological activities

R&D projects funded through competitive calls of public or private entities

1 **Name of the project:** POST-DIGITAL Plus
Entity where project took place: IFISC
Name principal investigator (PI, Co-PI....): Miguel C. Soriano
Funding entity or bodies:
European Commission

Type of participation: Principal investigator
Name of the programme: Doctoral Networks (DN)
Code according to the funding entity: HORIZON-TMA-MSCA-DN (101169118)
Start-End date: 2025 - 2029
Total amount: 500.000 €

2 **Name of the project:** NEHIL: Neuromorphic-enhanced heterogeneously-integrated FMCW LiDAR
Entity where project took place: Consejo Superior de Investigaciones Científicas **Type of entity:** State agency
Name principal investigator (PI, Co-PI....): Miguel C. Soriano
Funding entity or bodies:
Horizon Europe

Type of participation: Principal investigator
Code according to the funding entity: HORIZON-JU-Chips-2024-3-RIA (101194363)
Start-End date: 2024 - 2027 **Duration:** 3 years
Total amount: 284.388 €

3 **Name of the project:** Information processing using laser networks (INFOLANET)
Entity where project took place: IFISC
Name principal investigator (PI, Co-PI....): Miguel C. Soriano; Apostolos Argyris
Nº of researchers: 4
Funding entity or bodies:
MCIUN - Ministerio de Ciencia, Innovación y Universidades

Code according to the funding entity: PID2022-139409NB-I00
Start-End date: 01/09/2023 - 30/08/2026
Total amount: 127.500 €

4 **Name of the project:** ADOPD: Adaptive Optical Dendrites
Entity where project took place: Universidad de las Islas Baleares
Name principal investigator (PI, Co-PI....): Claudio Mirasso
Funding entity or bodies:
Horizon 2020

Type of participation: Team member
Code according to the funding entity: FET-Open Challenging Current Thinking (899265)

Start-End date: 2020 - 2024 **Duration:** 3 years - 6 months
Total amount: 387.000 €

5 **Name of the project:** POST-DIGITAL
Entity where project took place: IFISC
Name principal investigator (PI, Co-PI....): Ingo Fischer
Funding entity or bodies:
European Commission

Type of participation: Team member
Name of the programme: Innovative Training Networks (ITN)
Code according to the funding entity: H2020-MSCA-ITN-2019
Start-End date: 2020 - 2024
Total amount: 500.000 €

6 **Name of the project:** QuaResC: Quantum Reservoir Computing and Nonlinear Dynamical Systems
Entity where project took place: IFISC
Name principal investigator (PI, Co-PI....): Miguel C. Soriano
Nº of researchers: 6
Funding entity or bodies:
MCIUN - Ministerio de Ciencia, Innovación y Universidades

Code according to the funding entity: PID2019- 109094GB-C22
Start-End date: 01/06/2020 - 31/05/2023
Total amount: 45.980 €

7 **Name of the project:** QuaReC: Machine learning with quantum reservoir computing
Entity where project took place: IFISC
Name principal investigator (PI, Co-PI....): Zambrini, R.
Nº of researchers: 8
Funding entity or bodies:
Balear Government

Type of participation: Team member
Code according to the funding entity: PRD2018/47
Start-End date: 2020 - 2023
Total amount: 99.750 €

8 **Name of the project:** Unidad de excelencia María de Maeztu
Entity where project took place: IFISC
Name principal investigator (PI, Co-PI....): Claudio R. Mirasso
Funding entity or bodies:
Agencia Estatal de Investigación

Type of participation: Team member
Name of the programme: Subprograma Estatal de Fortalecimiento Institucional
Code according to the funding entity: MDM-2017-0711
Start-End date: 2018 - 2022
Total amount: 2.000.000 €

9 **Name of the project:** Ibersinc3: Red sobre Dinámica y Sincronización en Redes Complejas
Geographical area: National
Degree of contribution: Local Principal Investigator

Entity where project took place: Universitat Rovira i Virgili **Type of entity:** University
Name principal investigator (PI, Co-PI....): Alejandro Arenas Moreno
Nº of researchers: 50
Name of the programme: Ministerio de Economía y Competitividad (Acciones de Dinamización “Redes de Excelencia”)
Code according to the funding entity: FIS2017-90782-REDT
Start-End date: 01/01/2019 - 31/12/2020
Participating entity/entities: INSTITUTO DE FISICA INTERDISCIPLINAR Y SISTEMAS COMPLEJOS
Total amount: 17.000 €

10 **Name of the project:** IDEA: Improving data DEcoding in optical communication networks All-optically using neuro-inspired photonic systems
Entity where project took place: IFISC
Name principal investigator (PI, Co-PI....): Claudio R. Mirasso; Miguel C. Soriano
Nº of researchers: 4
Funding entity or bodies:
Ministerio de Economía y Competitividad

Code according to the funding entity: TEC2016-80063-C3
Start-End date: 2016 - 2019
Total amount: 46.585 €

11 **Name of the project:** Ibersinc2: Red sobre Dinámica y Sincronización en Redes Complejas
Geographical area: National
Degree of contribution: Local Principal Investigator
Entity where project took place: Universitat Rovira i Virgili **Type of entity:** University
Name principal investigator (PI, Co-PI....): Alejandro Arenas Moreno
Nº of researchers: 50
Name of the programme: Ministerio de Economía y Competitividad (Acciones de Dinamización “Redes de Excelencia”)
Code according to the funding entity: FIS2015-71929-REDT
Start-End date: 01/01/2016 - 31/12/2017
Participating entity/entities: INSTITUTO DE FISICA INTERDISCIPLINAR Y SISTEMAS COMPLEJOS
Total amount: 35.000 €

12 **Name of the project:** Towards brain-inspired efficient photonic information processing (TRIPHOP)
Entity where project took place: IFISC
Name principal investigator (PI, Co-PI....): Ingo Fischer
Nº of researchers: 10
Funding entity or bodies:
Ministerio de Economía y Competitividad

Code according to the funding entity: TEC2012-36335
Start-End date: 2013 - 2015
Total amount: 278.460 €

13 **Name of the project:** Ibersinc: Red sobre Dinámica y Sincronización en Redes
Geographical area: National
Degree of contribution: Local Principal Investigator
Entity where project took place: Universidad Rey Juan Carlos **Type of entity:** University

Name principal investigator (PI, Co-PI....): Javier Martín Buldú
Nº of researchers: 71
Name of the programme: Ministerio de Ciencia e Innovación ("Subprograma de Acciones complementarias a los proyectos de investigación fundamental no orientada")
Start-End date: 01/01/2010 - 31/12/2012
Participating entity/entities: INSTITUTO DE FISICA INTERDISCIPLINAR Y SISTEMAS COMPLEJOS
Total amount: 27.600 €

14 **Name of the project:** DeCoDicA: 'Delay-Coupled Diode Lasers for Photonic Applications'
Entity where project took place: IFISC
Name principal investigator (PI, Co-PI....): Ingo Fischer
Funding entity or bodies:
Ministerio de Ciencia e Innovación **Type of entity:** Body, others

Code according to the funding entity: TEC2009-14101
Start date: 2010 **Duration:** 3 years
Total amount: 236.313 €

15 **Name of the project:** PHOCUS: 'Towards a PHOtonic liquid state machine based on delay-CoUpled Systems'
Entity where project took place: Universidad de las Islas Baleares
Name principal investigator (PI, Co-PI....): Claudio Mirasso
Funding entity or bodies:
VII Programa Marco de la Unión Europea

Code according to the funding entity: FP7-ICT-2009-C No. 240763
Start date: 2010 **Duration:** 3 years
Total amount: 1.808.566 €

16 **Name of the project:** PICASSO: 'Photonic Integrated Components Applied to Secure Chaos Encoded Optical communication systems"
Entity where project took place: Universidad de las Islas Baleares
Name principal investigator (PI, Co-PI....): Claudio Mirasso
Funding entity or bodies:
VI Programa Marco I+D Comisión Europea

Code according to the funding entity: IST-2005-34551
Start date: 2006 **Duration:** 4 years
Total amount: 250.000 €

17 **Name of the project:** 'CONOCE2: Cooperación y fenómenos no lineales en sistemas complejos extendidos'
Degree of contribution: Researcher
Entity where project took place: Universidad de las Islas Baleares
Name principal investigator (PI, Co-PI....): M. San Miguel
Funding entity or bodies:
Ministerio de Educación y Ciencia

Code according to the funding entity: FIS2004-00953
Start date: 2004 **Duration:** 5 years
Total amount: 302.500 €

18 **Name of the project:** COST Action 288: Nanoscale and ultrafast Photonics
Entity where project took place: Vrije Universiteit Brussel
Name principal investigator (PI, Co-PI....): Jan Danckaert
Funding entity or bodies:
European Science Foundation (ESF)

Start date: 2003

19 **Name of the project:** Interuniversity Attraction Pole (IAP) Photon Network: 'Photons and photonics: From basic physics to new system concepts'
Entity where project took place: Vrije Universiteit Brussel
Name principal investigator (PI, Co-PI....): Irina Veretennicoff
Funding entity or bodies:
Belgian Federal Science Policy Office

Start date: 2002

20 **Name of the project:** Training in Amsterdam: interdisciplinary laser-oriented research
Entity where project took place: University of Amsterdam
Name principal investigator (PI, Co-PI....): Willem Hogervost
Funding entity or bodies:
European Commission

Start date: 2000
Total amount: 250.000 €

21 **Name of the project:** VCSELs for Information Society Technology Applications (VISTA)
Entity where project took place: Vrije Universiteit Brussel
Name principal investigator (PI, Co-PI....): Jan Danckaert
Funding entity or bodies:
Comunidad Económica Europea

Start date: 2000
Total amount: 233.360 €

R&D non-competitive contracts, agreements or projects with public or private entities

1 **Name of the project:** Research Cooperation Agreement between Smart Solutions Technologies S.L. (Spain) and the University of the Balearic Islands (UIB, Spain)
Degree of contribution: Scientific coordinator
Name principal investigator (PI, Co-PI....): Soriano, M. C.; Mirasso, Claudio R.
Nº of researchers: 4
Start date: 2015 **Duration:** 1 year
Total amount: 90.750 €

2 **Name of the project:** Research Cooperation Agreement between XARION Laser Acoustics GmbH (Austria) and the University of the Balearic Islands (UIB, Spain)
Degree of contribution: Researcher
Name principal investigator (PI, Co-PI....): Fischer, Ingo; Mirasso, Claudio R.
Nº of researchers: 4
Participating entity/entities: XARION Laser Acoustics GmbH
Start date: 2014 **Duration:** 1 year

Total amount: 31.250 €

Results

Industrial and intellectual property

1 **Title registered industrial property:** Sistema y Métodos para la Clasificación de Latidos Cardiacos Relacionados con Arritmia
Inventors/authors/obtainers: X. Ibáñez Català; S. Ortín González; M. Cornelles Soriano; C. R. Mirasso Santos
Entity holder of rights: Smart Solutions Technologies, S.L.
Nº of application: 201730826
Country of inscription: Spain
Date of register: 2017

2 **Title registered industrial property:** System And Methods For Classifying Arrhythmia-Related Heartbeats
Inventors/authors/obtainers: X. Ibáñez Català; S. Ortín González; M. Cornelles Soriano; C. R. Mirasso Santos
Entity holder of rights: Smart Solutions Technologies, S.L.
Nº of application: US15/638,263
Country of inscription: United States of America
Date of register: 2017

Scientific and technological activities

Scientific production

Publications, scientific and technical documents

1 R. Martínez-Peña; G. L. Giorgi; J. Nokkala; M. C. Soriano; R. Zambrini. Dynamical Phase Transitions in Quantum Reservoir Computing. Physical Review Letters. 127, pp. 100502. American Physical Society, 08/2021. Available on-line at: <https://link.aps.org/doi/10.1103/PhysRevLett.127.100502>.
Type of production: Scientific paper **Format:** Journal
Position of signature: 4
Total no. authors: 5
Source of citations: WOS **Citations:** 80
Relevant publication: Yes

2 Van der Sande, G.; Brunner, D.; Soriano, M.C.. Advances in photonic reservoir computing. Nanophotonics. 6 - 3, pp. 561 - 576. 2017. Available on-line at: <https://www.degruyter.com/view/j/nanoph.2017.6.issue-3/nanoph-2016-0132/nanoph-2016-0132.xml?format=INT>.
Type of production: Scientific paper **Format:** Journal
Position of signature: 3
Total no. authors: 3
Impact source: WOS (JCR) **Category:** Science Edition - OPTICS
Impact index in year of publication: 6.014 **Journal in the top 25%:** Yes

Position of publication: 8 **No. of journals in the cat.:** 94

Source of citations: WOS **Citations:** 453

Relevant publication: Yes

3 Soriano, M.C.; Ortin, S.; Keuninckx, L.; Appeltant, L.; Danckaert, J.; Pesquera, L.; Van der Sande, G. Delay-based Reservoir Computing: Noise Effects in a Combined Analog and Digital Implementation. IEEE Transactions On Neural Networks And Learning Systems. 26 - 2, pp. 388 - 393. (United States of America): IEEE, 2015. Available on-line at: <10.1109/TNNLS.2014.2311855>. ISSN 2162-237X

Type of production: Scientific paper **Format:** Journal

Position of signature: 1

Total no. authors: 7

Impact source: WOS (JCR) **Category:** Science Edition - COMPUTER SCIENCE, HARDWARE & ARCHITECTURE

Impact index in year of publication: 4.85 **Journal in the top 25%:** Yes

Position of publication: 1 **No. of journals in the cat.:** 51

Source of citations: WOS **Citations:** 136

Relevant publication: Yes

4 Soriano, M.C.; Garcia-Ojalvo, J.; Mirasso, C.R.; Fischer, I. Complex photonics: Dynamics and applications of delay-coupled semiconductors lasers. Reviews of Modern Physics. 85 - 1, pp. 421 - 470. 2013. Available on-line at: <10.1103/RevModPhys.85.421>.

Type of production: Scientific paper **Format:** Journal

Position of signature: 1

Total no. authors: 4

Impact source: WOS (JCR) **Category:** Science Edition - PHYSICS, MULTIDISCIPLINARY

Impact index in year of publication: 42.86 **Journal in the top 25%:** Yes

Position of publication: 1 **No. of journals in the cat.:** 78

Source of citations: WOS **Citations:** 499

Relevant publication: Yes

5 Brunner, D.; Soriano, M.C.; Mirasso, C.R.; Fischer, I. Parallel photonic information processing at gigabyte per second data rates using transient states. Nature Communications. 4, pp. 1364. 2013. Available on-line at: <10.1038/ncomms2368>.

Type of production: Scientific paper **Format:** Journal

Position of signature: 2

Total no. authors: 4

Impact source: WOS (JCR) **Category:** Science Edition - MULTIDISCIPLINARY SCIENCES

Impact index in year of publication: 10.74 **Journal in the top 25%:** Yes

Position of publication: 3 **No. of journals in the cat.:** 55

Source of citations: WOS **Citations:** 733

Relevant publication: Yes

6 Larger, L.; Soriano, M.C.; Brunner, D.; Appeltant, L.; Gutierrez, J.M.; Pesquera, L.; Mirasso, C.R.; Fischer, I. Photonic information processing beyond Turing: an optoelectronic implementation of reservoir computing. Optics Express. 20, pp. 3241 - 3249. 2012. Available on-line at: <http://www.opticsinfobase.org/oe/abstract.cfm?URI=oe-20-3-3241>.

Type of production: Scientific paper **Format:** Journal

Position of signature: 2
Total no. authors: 8

Impact source: WOS (JCR)
Category: Science Edition - OPTICS
Impact index in year of publication: 3.546
Journal in the top 25%: Yes
Position of publication: 5
No. of journals in the cat.: 80

Source of citations: WOS
Citations: 684

Relevant publication: Yes

7 Appeltant, L.; Soriano, M.C.; Van der Sande, G.; Danckaert, J.; Massar, S.; Dambre, J.; Schrauwen, B.; Mirasso, C.R.; Fischer, I.. Information processing using a single dynamical node as complex system. Nature Communications. 2, pp. 468. 2011.
Type of production: Scientific paper
Format: Journal
Position of signature: 2
Total no. authors: 9

Impact source: WOS (JCR)
Category: Science Edition - MULTIDISCIPLINARY SCIENCES
Impact index in year of publication: 7.396
Journal in the top 25%: Yes
Position of publication: 3
No. of journals in the cat.: 56

Source of citations: WOS
Citations: 1.313

Relevant publication: Yes

8 Soriano, M.C.; Zunino, L.; Rosso, O.A.; Fischer, I.; Mirasso, C.R. Time Scales of a Chaotic Semiconductor Laser With Optical Feedback Under the Lens of a Permutation Information Analysis. IEEE Journal of Quantum Electronics. 47, pp. 252 - 261. 2011. Available on-line at: <http://dx.doi.org/10.1109/JQE.2010.2078799>.
Type of production: Scientific paper
Format: Journal
Position of signature: 1
Total no. authors: 5

Impact source: WOS (JCR)
Category: Science Edition - ENGINEERING, ELECTRICAL & ELECTRONIC
Impact index in year of publication: 1.879
Journal in the top 25%: Yes
Position of publication: 54
No. of journals in the cat.: 245

Source of citations: WOS
Citations: 176

Relevant publication: Yes

9 Photonic Reservoir Computing: Optical Recurrent Neural Networks; Ed. by D. Brunner, M. C. Soriano, and G. Van der Sande. pp. 1 - 264. (Germany): De Gruyter, 2019. ISBN 978-3-11-058349-6
Type of production: Edited Book
Format: Book
Relevant publication: Yes

10 Gallicchio, C.; Soriano, M. C.. Hardware friendly deep reservoir computing. Neural Networks. 193, pp. 108079. 01/2026. Available on-line at: <https://doi.org/10.1016/j.neunet.2025.108079>.
Type of production: Scientific paper
Format: Journal
Position of signature: 2
Total no. authors: 2

11 Abdalla, M.; Van der Sande, G.; Argyris, A.; Pavanello, F.; Soriano, M. C.; Rontani, D.. Photonic reservoir computing: A thematic review. JPhys Photonics. 01/2026. Available on-line at: <https://iopscience.iop.org/article/10.1088/2515-7647/ae2e67>.
Type of production: Scientific paper
Format: Journal

Position of signature: 5
Total no. authors: 6

12 Goldmann, M.; Estébanez, I.; Mirasso, C. R.; Fischer, I.; Argyris, A.; Soriano, M. C.. Speedup of an all-optical delay-based reservoir computer via input rate increase and bandwidth enhancement. Chaos. 35, pp. 073131. 07/2025. Available on-line at: <https://doi.org/10.1063/5.0273485>.
Type of production: Scientific paper **Format:** Journal
Position of signature: 6
Total no. authors: 6

13 García-Beni, J.; Paparelle, I.; Parigi, V.; Giorgi, G. L.; Soriano, M. C.; Zambrini, R.. Quantum machine learning via continuous-variable cluster states and teleportation. EPJ Quantum Technology. 12, pp. 63. 06/2025. Available on-line at: <https://doi.org/10.1140/epjqt/s40507-025-00352-3>.
Type of production: Scientific paper **Format:** Journal
Position of signature: 5
Total no. authors: 6

14 Abreu, S.; Boikov, I.; Goldmann, M.; Jonuzi, T.; Lupo, A.; Masaad, S.; Nguyen, L.; Picco, E.; Pourcel, G.; Skalli, A.; Talandier, L.; Vettelschoss, B.; Vlieg, E. A.; Argyris, A.; Bienstman, P.; Brunner, D.; Dambre, J.; Daudet, L.; Domenech, J. D.; Fischer, I.; Horst, F.; Massar, S.; Mirasso, C. R.; Offrein, B. J.; Rossi, A.; Soriano, M. C.; Sygletos, S.; Turitsyn, S. K.. A photonics perspective on computing with physical substrates. Reviews in Physics. 12, pp. 100093. 12/2024. Available on-line at: <https://doi.org/10.1016/j.revip.2024.100093>.
Type of production: Scientific paper **Format:** Journal
Corresponding author: Yes

15 Labay-Mora, A.; García-Beni, J.; Giorgi, G. L.; Soriano, M. C.; Zambrini, R.. Neural networks with quantum states of light. Philosophical Transactions of the Royal Society A. 382, pp. 20230346. 12/2024. Available on-line at: <https://royalsocietypublishing.org/doi/abs/10.1098/rsta.2023.0346>.
Type of production: Scientific paper **Format:** Journal
Position of signature: 4
Total no. authors: 5

16 L. Zunino; Porte, X.; M. C. Soriano. Identifying Ordinal Similarities at Different Temporal Scales. Entropy. 26 - 12, pp. 1016. 11/2024. Available on-line at: <https://www.mdpi.com/1099-4300/26/12/1016>. ISSN 1099-4300
Type of production: Scientific paper **Format:** Journal
Position of signature: 3
Total no. authors: 3

17 Palacios, A.; Martínez-Peña, R.; Soriano, M. C.; Giorgi, G. L.; Zambrini, R.. Role of coherence in many-body Quantum Reservoir Computing. Communications Physics. 7, pp. 369. 11/2024. Available on-line at: <https://doi.org/10.1038/s42005-024-01859-4>.
Type of production: Scientific paper **Format:** Journal
Position of signature: 3
Total no. authors: 5

18 Pourcel, G.; Goldmann, M.; Fischer, I.; Soriano, M. C.. Adaptive control of recurrent neural networks using conceptors. Chaos. 10, pp. 103127. 10/2024. Available on-line at: <https://doi.org/10.1063/5.0211692>.
Type of production: Scientific paper **Format:** Journal
Position of signature: 4
Total no. authors: 4

19 Danovski, K.; Soriano, M. C.; Lacasa, L.. Dynamical stability and chaos in artificial neural network trajectories along training. Frontiers in Complex Systems. 2, pp. 1367957. 05/2024. Available on-line at: <https://www.frontiersin.org/articles/10.3389/fcpxs.2024.1367957>.
Type of production: Scientific paper **Format:** Journal

20 Henaff, J.; Ansquer, M.; Soriano, M. C.; Zambrini, R.; Treps, N.; Parigi, V.. Optical phase encoding in a pulsed approach to reservoir computing. Optics Letters. 49, pp. 2097 - 2100. 04/2024. Available on-line at: <https://opg.optica.org/ol/abstract.cfm?uri=ol-49-8-2097>.
Type of production: Scientific paper **Format:** Journal

21 Martínez-Peña, R.; Soriano, M. C.; Zambrini, R.. Quantum fidelity kernel with a trapped-ion simulation platform. Physical Review A. 109, pp. 042612. 04/2024. Available on-line at: <https://link.aps.org/doi/10.1103/PhysRevA.109.042612>.
Type of production: Scientific paper **Format:** Journal

22 Sannia, A.; Martínez-Peña, R.; Soriano, M. C.; Giorgi, G. L.; Zambrini, R.. Dissipation as a resource for Quantum Reservoir Computing. Quantum. 8, pp. 1291. 03/2024. Available on-line at: <https://doi.org/10.22331/q-2024-03-20-1291>.
Type of production: Scientific paper **Format:** Journal

23 García-Beni, J.; Giorgi, G. L.; Soriano, M. C.; Zambrini, R.. Squeezing as a resource for time series processing in quantum reservoir computing. Optics Express. 32, pp. 6733 - 6747. 02/2024. Available on-line at: <https://doi.org/10.1364/OE.507684>.
Type of production: Scientific paper **Format:** Journal

24 Zunino, L.; Soriano, M. C.. Quantifying the diversity of multiple time series with an ordinal symbolic approach. Physical Review E. 108, pp. 065302. 12/2023. Available on-line at: <https://doi.org/10.1103/PhysRevE.108.065302>.
Type of production: Scientific paper **Format:** Journal

25 Goldmann, M.; Fischer, I.; Mirasso, C. R.; Soriano, M. C.. Exploiting oscillatory dynamics of delay systems for reservoir computing. Chaos. 33, pp. 093139. 09/2023. Available on-line at: <https://doi.org/10.1063/5.0156494>.
Type of production: Scientific paper **Format:** Journal

26 S. Scardapane; C. Gallicchio; A. Micheli; M. C. Soriano. Guest Editorial: Trends in Reservoir Computing. Cognitive Computation. 15, pp. 1407 - 1408. 09/2023. Available on-line at: <https://doi.org/10.1007/s12559-021-09890-1>. ISSN 1866-9964
Type of production: Scientific paper **Format:** Journal

27 R. Martínez-Peña; J. Nokkala; G. L. Giorgi; R. Zambrini; M. C. Soriano. Information Processing Capacity of Spin-Based Quantum Reservoir Computing Systems. Cognitive Computation. 15, pp. 1440 - 1451. 09/2023. Available on-line at: <https://doi.org/10.1007/s12559-020-09772-y>. ISSN 1866-9964
Type of production: Scientific paper **Format:** Journal
Position of signature: 5
Total no. authors: 5

28 García-Beni, J.; Giorgi, G. L.; Soriano, M. C.; Zambrini, R.. Scalable photonic platform for real-time quantum reservoir computing. Physical Review Applied. 20, pp. 014051. 07/2023. Available on-line at: <https://journals.aps.org/prapplied/abstract/10.1103/PhysRevApplied.20.014051>.
Type of production: Scientific paper **Format:** Journal

29 Jonuzi, T.; Lupo, A.; Soriano, M. C.; Massar, S.; Doménech, J.. Integrated programmable spectral filter for frequency-multiplexed neuromorphic computers. Optics Express. 31, pp. 19255 - 19265. 05/2023. Available on-line at: <https://opg.optica.org/oe/fulltext.cfm?uri=oe-31-12-19255&id=530934>.

Type of production: Scientific paper **Format:** Journal

30 Ortín, S.; Soriano, M.C.; Tetzlaff, C.; Wörgötter, F.; Fischer, I.; Mirasso, C.R.; Argyris, A.. Implementation of input correlation learning with an optoelectronic dendritic unit. Frontiers in Physics. 11, pp. 1112295. 03/2023. Available on-line at: <https://doi.org/10.3389/fphy.2023.1112295>.
Type of production: Scientific paper **Format:** Journal

31 Brunner, D.; Soriano, M. C.; Fan, S.. Neural network learning with photonics and for photonic circuit design. Nanophotonics. 12, pp. 773 - 775. 03/2023. Available on-line at: <https://doi.org/10.1515/nanoph-2023-0123>.
Type of production: Scientific paper **Format:** Journal

32 Mujal, P.; Martínez-Peña, R.; Giorgi, G. L.; Soriano, M. C.; Zambrini, R.. Time-series quantum reservoir computing with weak and projective measurements. npj Quantum Information. 9, pp. 16. 02/2023. Available on-line at: <https://doi.org/10.1038/s41534-023-00682-z>.
Type of production: Scientific paper **Format:** Journal

33 Goldmann, M.; Mirasso, C. R.; Fischer, I.; Soriano, M. C.. Learn one size to infer all: Exploiting translational symmetries in delay-dynamical and spatiotemporal systems using scalable neural networks. Physical Review E. 106, pp. 044211. 10/2022. Available on-line at: <https://link.aps.org/doi/10.1103/PhysRevE.106.044211>.
Type of production: Scientific paper **Format:** Journal

34 J. Nokkala; R. Martínez-Peña; R. Zambrini; M. C. Soriano. High-Performance Reservoir Computing With Fluctuations in Linear Networks. IEEE Transactions on Neural Networks and Learning Systems. 33 - 6, pp. 2664 - 2675. 06/2022. Available on-line at: <https://ieeexplore.ieee.org/document/9525045>.
Type of production: Scientific paper **Format:** Journal

35 B. Vettelschoss; A. Röhm; M. C. Soriano. Information processing capacity of a single-node reservoir computer: An experimental evaluation. IEEE Transactions on Neural Networks and Learning Systems. 33 - 6, pp. 2714 - 2725. 06/2022. Available on-line at: <https://ieeexplore.ieee.org/document/9578941>.
Type of production: Scientific paper **Format:** Journal

36 Ortín, S.; Soriano, M.C.; Fischer, I.; Mirasso, C.R.; Argyris, A.. Optical dendrites for spatio-temporal computing with few-mode fibers. Optical Materials Express. 12 - 5, pp. 1907 - 1919. 05/2022. Available on-line at: <http://opg.optica.org/ome/abstract.cfm?URI=ome-12-5-1907>.
Type of production: Scientific paper **Format:** Journal

37 X. Porte; D. Brunner; I. Fischer; M. C. Soriano. Nonlinear Dynamics of a Single-Mode Semiconductor Laser with Long Delayed Optical Feedback: A Modern Experimental Characterization Approach. Photonics. 9 - 1, pp. 47. 2022. Available on-line at: <https://www.mdpi.com/2304-6732/9/1/47>. ISSN 2304-6732
Type of production: Scientific paper **Format:** Journal

38 D. Brunner; L. Larger; M. C. Soriano. Nonlinear photonic dynamical systems for unconventional computing. Nonlinear Theory and Its Applications, IEICE. 13 - 1, pp. 26 - 35. 2022.
Type of production: Scientific paper **Format:** Journal

39 G. B. Morales; C. R. Mirasso; M. C. Soriano. Unveiling the role of plasticity rules in reservoir computing. Neurocomputing. 461, pp. 705 - 715. 10/2021.
Type of production: Scientific paper **Format:** Journal

40 M. C. Soriano; L. Zunino. Time-Delay Identification Using Multiscale Ordinal Quantifiers. Entropy. 23 - 8, pp. 969 - 969. 07/2021. Available on-line at: <https://www.mdpi.com/1099-4300/23/8/969>. ISSN 1099-4300
Type of production: Scientific paper **Format:** Journal

41 P. Mujal; R. Martínez-Peña; J. Nokkala; J. García-Beni; G. L. Giorgi; M. C. Soriano; R. Zambrini. Opportunities in Quantum Reservoir Computing and Extreme Learning Machines. Advanced Quantum Technologies. pp. 2100027. 06/2021.
Type of production: Scientific paper **Format:** Journal

42 J. Nokkala; R. Martínez-Peña; G. L. Giorgi; V. Parigi; M. C. Soriano; R. Zambrini. Gaussian states of continuous-variable quantum systems provide universal and versatile reservoir computing. Communications Physics. 4, pp. 53. 03/2021. Available on-line at: <https://doi.org/10.1038/s42005-021-00556-w>. ISSN 2399-3650
Type of production: Scientific paper **Format:** Journal

43 P. Mujal; J. Nokkala; R. Martínez-Peña; G. L. Giorgi; M. C. Soriano; R. Zambrini. Analytical Evidence of Nonlinearity in Qubits and Continuous-Variable Quantum Reservoir Computing. Journal of Physics: Complexity. 2 - 4, pp. 045008. 2021. Available on-line at: <http://iopscience.iop.org/article/10.1088/2632-072X/ac340e>.
Type of production: Scientific paper **Format:** Journal

44 Argyris, A.; Cantero, J.; Galletero, M.; Pereda, E.; Mirasso, C.R.; Fischer, I.; Soriano, M.C.. Comparison of photonic reservoir computing systems for fiber transmission equalization. IEEE Journal of Selected Topics in Quantum Electronics. 26, pp. 5100309. 2020. Available on-line at: <https://doi.org/10.1109/JSTQE.2019.2936947>.
Type of production: Scientific paper **Format:** Journal

45 Alfaras, M.; Soriano, M.C.; Ortín, S.. A Fast Machine Learning Model for ECG-Based Heartbeat Classification and Arrhythmia Detection. Frontiers in Physics. 7, pp. 103. 2019. Available on-line at: <https://doi.org/10.3389/fphy.2019.00103>.
Type of production: Scientific paper **Format:** Journal

46 Garau Estarellas, G.; Giorgi, G. L.; Soriano, M.C.; Zambrini, R.. Machine Learning Applied to Quantum Synchronization-Assisted Probing. Advanced Quantum Technologies. pp. 1800085. 2019. Available on-line at: <http://dx.doi.org/10.1002/qute.201800085>.
Type of production: Scientific paper **Format:** Journal

47 Amil, P.; Soriano, M.C.; Masoller, C.. Machine learning algorithms for predicting the amplitude of chaotic laser pulses. Chaos. 29, pp. 113111. 2019. Available on-line at: <https://aip.scitation.org/doi/full/10.1063/1.5120755>.
Type of production: Scientific paper **Format:** Journal
Impact source: WOS (JCR) **Category:** Mathematical Physics
Impact index in year of publication: 2.832 **Journal in the top 25%:** Yes
Position of publication: 5 **No. of journals in the cat.:** 55
Source of citations: WOS **Citations:** 18

48 Olivares, F.; Zunino, L.; Soriano, M. C.; Pérez, D. G.. Unraveling the decay of the number of unobserved ordinal patterns in noisy chaotic dynamics. Physical Review E. 100, pp. 042215. 2019. Available on-line at: <https://journals.aps.org/pre/abstract/10.1103/PhysRevE.100.042215>.
Type of production: Scientific paper **Format:** Journal

49 Jüngling, T.; Porte, X.; Oliver, N.; Soriano, M. C; Fischer I. A unifying analysis of chaos synchronization and consistency in delay-coupled semiconductor lasers. IEEE Journal of Selected Topics in Quantum Electronics. 25 - 6, pp. 1501609. (United States of America): 2019.
Type of production: Scientific paper **Format:** Journal

50 Ortín, S.; Soriano, M.C.; Alfaras, M.; Mirasso, C. R.. Automated real-time method for ventricular heartbeat classification. Computer Methods and Programs in Biomedicine. 169, pp. 1 - 8. 2019. Available on-line at: <https://doi.org/10.1016/j.cmpb.2018.11.005>.
Type of production: Scientific paper **Format:** Journal

51 Estébanez, I.; Fischer, I.; Soriano, M.C.. Constructive Role of Noise for High-Quality Replication of Chaotic Attractor Dynamics Using a Hardware-Based Reservoir Computer. Physical Review Applied. 12, pp. 034058. 2019. Available on-line at: <https://doi.org/10.1103/PhysRevApplied.12.034058>.

Type of production: Scientific paper **Format:** Journal

52 Cunillera, A.; Soriano, M.C.; Fischer, I.. Cross-predicting the dynamics of an optically injected single-mode semiconductor laser using reservoir computing. Chaos. 29, pp. 113113. 2019. Available on-line at: <https://aip.scitation.org/doi/full/10.1063/1.5120822>.

Type of production: Scientific paper **Format:** Journal

53 Jüngling, T.; Soriano, M. C; Oliver, N.; Porte, X.; Fischer I. Consistency properties of chaotic systems driven by time-delayed feedback. Physical Review E. 97 - 4, pp. 042202. (United States of America): American Physical Society, 2018. ISSN 1539-3755

Type of production: Scientific paper **Format:** Journal

Impact source: WOS (JCR) **Category:** Science Edition - PHYSICS, MATHEMATICAL

Impact index in year of publication: 2.353 **Journal in the top 25%:** Yes

Position of publication: 7 **No. of journals in the cat.:** 55

Source of citations: WOS **Citations:** 4

54 Morán, A.; Soriano, M.C.. Improving the quality of a collective signal in a consumer EEG headset. Plos One. 13 - 5, pp. e0197597. 2018. Available on-line at: <https://doi.org/10.1371/journal.pone.0197597>.

Type of production: Scientific paper **Format:** Journal

Impact source: WOS (JCR) **Category:** Science Edition - MULTIDISCIPLINARY SCIENCES

Impact index in year of publication: 2.776 **Journal in the top 25%:** No

Position of publication: 24 **No. of journals in the cat.:** 69

55 Keuninckx, L.; Soriano, M.C.; Fischer, I.; Mirasso, C. R.; Nguimdo, R. M.; Van der Sande, G.. Encryption key distribution via chaos synchronization. Scientific Reports. 7, pp. 43428. 2017. Available on-line at: <http://www.nature.com/articles/srep43428>.

Type of production: Scientific paper **Format:** Journal

Impact source: WOS (JCR) **Category:** Science Edition - MULTIDISCIPLINARY SCIENCES

Impact index in year of publication: 4.122 **Journal in the top 25%:** Yes

Position of publication: 12 **No. of journals in the cat.:** 64

Source of citations: WOS **Citations:** 14

56 Hicke, K.; Brunner, D.; Soriano, M.C.; Fischer, I.. Role of dynamical injection locking and characteristic pulse events for low frequency fluctuations in semiconductor lasers. Chaos. 27 - 11, pp. 114307. 2017. Available on-line at: <http://dx.doi.org/10.1063/1.5006945>.

Type of production: Scientific paper **Format:** Journal

Impact source: WOS (JCR) **Category:** Science Edition - MATHEMATICS, APPLIED

Impact index in year of publication: 2.415 **Journal in the top 25%:** Yes

Position of publication: 17 **No. of journals in the cat.:** 252

Source of citations: WOS **Citations:** 2

57 Soriano, M.C.; Niso, G.; Clements, J.; Ortín, S.; Carrasco, S.; Gudín, M.; Mirasso, C. R.; Pereda, E.. Automated Detection of Epileptic Biomarkers in Resting-State Interictal MEG Data. Frontiers in Neuroinformatics. 11, pp. 43. 2017. Available on-line at: <http://journal.frontiersin.org/article/10.3389/fninf.2017.00043>.

Type of production: Scientific paper
Format: Journal
Impact source: WOS (JCR)
Category: Science Edition - MATHEMATICAL & COMPUTATIONAL BIOLOGY
Impact index in year of publication: 3.074
Journal in the top 25%: Yes
Position of publication: 8
No. of journals in the cat.: 59
Source of citations: WOS
Citations: 5

58 Bueno, J.; Brunner, D.; Soriano, M.C.; Fischer, I.. Conditions for reservoir computing performance using semiconductor lasers with delayed optical feedback. Optics Express. 25 - 3, pp. 2401 - 2412. 2017. Available on-line at: <https://www.osapublishing.org/oe/abstract.cfm?uri=oe-25-3-2401>.

Type of production: Scientific paper
Format: Journal
Impact source: WOS (JCR)
Category: Science Edition - OPTICS
Impact index in year of publication: 3.356
Journal in the top 25%: Yes
Position of publication: 19
No. of journals in the cat.: 94
Source of citations: WOS
Citations: 68

59 Porte, X.; Soriano, M.C.; Brunner, D.; Fischer, I.. Bidirectional private key exchange using delay-coupled semiconductor lasers. Optics Letters. 41, pp. 2871 - 2874. 2016. Available on-line at: <https://www.osapublishing.org/ol/abstract.cfm?uri=ol-41-12-2871>.

Type of production: Scientific paper
Format: Journal
Impact source: WOS (JCR)
Category: Science Edition - OPTICS
Impact index in year of publication: 3.416
Journal in the top 25%: Yes
Position of publication: 14
No. of journals in the cat.: 92
Source of citations: WOS
Citations: 13

60 Ortin, S; Soriano, M. C.; Pesquera, L.; Brunner, D.; San-Martin, D.; Fischer, I.; Mirasso, C. R.; Gutierrez, J. M. A unified framework for reservoir computing and extreme learning machines based on a single time-delayed neuron. Scientific Reports. 5, pp. 14945. 2015.

Type of production: Scientific paper
Format: Journal
Impact source: WOS (JCR)
Category: Science Edition - MULTIDISCIPLINARY SCIENCES
Impact index in year of publication: 5.23
Journal in the top 25%: Yes
Position of publication: 7
No. of journals in the cat.: 63
Source of citations: WOS
Citations: 72

61 Gómez-Herrero, G.; Wu, W.; Rutanen, K.; Soriano, M. C.; Pipa, G.; Vicente, R. Assessing coupling dynamics from an ensemble of time series. Entropy. 17, pp. 1958 - 1970. (Switzerland): 2015. Available on-line at: <http://www.mdpi.com/1099-4300/17/4/1958>. ISSN 1099-4300

Type of production: Scientific paper
Format: Journal
Impact source: WOS (JCR)
Category: Science Edition - PHYSICS, MULTIDISCIPLINARY
Impact index in year of publication: 1.74
Journal in the top 25%: No
Position of publication: 25
No. of journals in the cat.: 79
Source of citations: WOS
Citations: 23

62 Jüngling, T.; Soriano, M.C.; Fischer I. Determining the sub-Lyapunov exponent of delay systems from time series. Physical Review E. 91 - 6, pp. 062908. (United States of America): American Physical Society, 2015. ISSN 1539-3755

Type of production: Scientific paper
Format: Journal
Impact source: WOS (JCR)
Category: Science Edition - PHYSICS, MATHEMATICAL
Impact index in year of publication: 2.25
Journal in the top 25%: Yes
Position of publication: 6
No. of journals in the cat.: 53
Source of citations: WOS
Citations: 9

63 Alomar, M. L.; Soriano, M.C.; Escalona-Moran, M.; Canals, V.; Fischer, I.; Mirasso, C.; Rossello J. L. Digital implementation of a single dynamical node reservoir computer. IEEE Transactions On Circuits And Systems II-Express Briefs. 62 - 10, pp. 977 - 981. (United States of America): 2015. Available on-line at: <http://ieeexplore.ieee.org/xpl/abstractKeywords.jsp?arnumber=7161321&tag=1>. ISSN 1549-7747

Type of production: Scientific paper
Format: Journal
Impact source: WOS (JCR)
Category: Science Edition - ENGINEERING, ELECTRICAL & ELECTRONIC
Impact index in year of publication: 1.14
Journal in the top 25%: No
Position of publication: 141
No. of journals in the cat.: 255
Source of citations: WOS
Citations: 7

64 Martínez-Llinàs, J.; Porte, X.; Soriano, M.C.; Colet, P.; Fischer, I. Dynamical properties induced by state-dependent delays in photonic systems. Nature Communications. 6, pp. 7425. (United Kingdom): 2015. Available on-line at: <10.1038 ncomms8425>. ISSN 2041-1723

Type of production: Scientific paper
Format: Journal
Impact source: WOS (JCR)
Category: Science Edition - MULTIDISCIPLINARY SCIENCES
Impact index in year of publication: 11.33
Journal in the top 25%: Yes
Position of publication: 3
No. of journals in the cat.: 63
Source of citations: WOS
Citations: 6

65 Escalona-Moran, M.; Soriano, M.C.; Fischer, I.; Mirasso, C. R. Electrocardiogram classification using reservoir computing with logistic regression. IEEE Journal Of Biomedical And Health Informatics. 19 - 3, pp. 892 - 898. (United States of America): 2015. Available on-line at: <10.1109/JBHI.2014.2332001>. ISSN 2168-2194

Type of production: Scientific paper
Format: Journal
Impact source: WOS (JCR)
Category: Science Edition - COMPUTER SCIENCE, INFORMATION SYSTEMS
Impact index in year of publication: 2.1
Journal in the top 25%: Yes
Position of publication: 29
No. of journals in the cat.: 143
Source of citations: WOS
Citations: 35

66 Soriano, M. C.; Brunner, D.; Escalona-Moran, M. A.; Mirasso, C. R.; Fischer, I. Minimal approach to neuro-inspired information processing. Frontiers In Computational Neuroscience. 9, pp. 68. (Switzerland): 2015. Available on-line at: <http://journal.frontiersin.org/article/10.3389/fncom.2015.00068/abstract>. ISSN 1662-5188

Type of production: Scientific paper
Format: Journal
Impact source: WOS (JCR)
Category: Science Edition - MATHEMATICAL & COMPUTATIONAL BIOLOGY
Impact index in year of publication: 2.65
Journal in the top 25%: Yes

Position of publication: 7
No. of journals in the cat.: 56
Source of citations: WOS
Citations: 25

67 Hermans, M.; Soriano, M. C.; Dambre, J.; Bienstman, P.; Fischer, I. Photonic delay systems as machine learning implementations. Journal of Machine Learning Research. 16, pp. 2081 - 2097. 2015.
Type of production: Scientific paper
Format: Journal
Impact source: WOS (JCR)
Category: Science Edition - COMPUTER SCIENCE, ARTIFICIAL INTELLIGENCE
Impact index in year of publication: 2.45
Journal in the top 25%: Yes
Position of publication: 29
No. of journals in the cat.: 130
Source of citations: WOS
Citations: 19

68 Haynes, N. D.; Soriano, M. C.; Rosin, D. P.; Fischer, I.; Gauthier, D. J. Reservoir computing with a single time-delay autonomous boolean node. Physical Review E. 91, pp. 020801. (United States of America): American Physical Society, 2015. Available on-line at: <10.1103/PhysRevE.91.020801>. ISSN 1539-3755
Type of production: Scientific paper
Format: Journal
Impact source: WOS (JCR)
Category: Science Edition - PHYSICS, MATHEMATICAL
Impact index in year of publication: 2.25
Journal in the top 25%: Yes
Position of publication: 6
No. of journals in the cat.: 53
Source of citations: WOS
Citations: 54

69 Brunner, D.; Soriano, M.C.; Porte, X.; Fischer, I. Experimental phase-space tomography of semiconductor laser dynamics. Physical Review Letters. 115, pp. 053901. (United States of America): 2015. Available on-line at: <10.1103/PhysRevLett.115.053901>. ISSN 0031-9007
Type of production: Scientific paper
Format: Journal
Impact source: WOS (JCR)
Category: Science Edition - PHYSICS, MULTIDISCIPLINARY
Impact index in year of publication: 7.645
Journal in the top 25%: Yes
Position of publication: 6
No. of journals in the cat.: 79
Source of citations: WOS
Citations: 17
Relevant publication: No

70 Porte, X; D'Huys, O.; Jüngling, T.; Brunner, D.; Soriano, M. C.. Autocorrelation properties of chaotic delay dynamical systems: A study on semiconductor lasers. Physical Review E. 90, pp. 052911. 2014.
Type of production: Scientific paper
Format: Journal
Impact source: WOS (JCR)
Category: Science Edition - PHYSICS, MATHEMATICAL
Impact index in year of publication: 2.288
Journal in the top 25%: Yes
Position of publication: 5
No. of journals in the cat.: 54
Source of citations: WOS
Citations: 13

71 Escalona-Moran, M.; Soriano, M. C.; Garcia-Prieto, J.; Fischer, I; Mirasso, C. R.. Multivariate nonlinear time-series estimation using delay-based reservoir computing. European Physical Journal-Special Topics. 223 - 13, pp. 2903 - 2912. 2014.
Type of production: Scientific paper
Format: Journal
Impact source: WOS (JCR)

Category: Science Edition - PHYSICS, MULTIDISCIPLINARY
Impact index in year of publication: 1.399
Journal in the top 25%: No
Position of publication: 37
No. of journals in the cat.: 78
Source of citations: WOS
Citations: 2

72 Porte, X.; Soriano, M. C.; Fischer, I. Similarity properties in the dynamics of delayed-feedback semiconductor lasers. Physical Review A. 89, pp. 023822. 2014.
Type of production: Scientific paper
Format: Journal
Impact source: WOS (JCR)
Category: Science Edition - OPTICS
Impact index in year of publication: 2.808
Journal in the top 25%: Yes
Position of publication: 16
No. of journals in the cat.: 87
Source of citations: WOS
Citations: 23

73 Oliver, N.; Soriano, M.C.; Sukow, D.W.; Fischer, I. Fast random bit generation using a chaotic laser: approaching the information theoretic limit. IEEE Journal of Quantum Electronics. 49 - 11, pp. 910 - 918. 2013. Available on-line at: <10.1109/JQE.2013.2280917>.
Type of production: Scientific paper
Format: Journal
Impact source: WOS (JCR)
Category: Science Edition - ENGINEERING, ELECTRICAL & ELECTRONIC
Impact index in year of publication: 2.11
Journal in the top 25%: Yes
Position of publication: 56
No. of journals in the cat.: 248
Source of citations: WOS
Citations: 63

74 Brunner, D.; Soriano, M. C.; Fischer, I. High-Speed Optical Vector and Matrix Operations Using a Semiconductor Laser. IEEE Photonics Technology Letters. 25 - 17, pp. 1680. 2013. Available on-line at: <http://ieeexplore.ieee.org/xpl/articleDetails.jsp?arnumber=6558807>.
Type of production: Scientific paper
Format: Journal
Impact source: WOS (JCR)
Category: Science Edition - OPTICS
Impact index in year of publication: 2.18
Journal in the top 25%: Yes
Position of publication: 20
No. of journals in the cat.: 83
Source of citations: WOS
Citations: 12

75 Hicke, K.; Escalona, M.; Brunner, D.; Soriano, M.C.; Fischer, I.; Mirasso, C. R. Information Processing using transient Dynamics of semiconductor lasers subject to delayed feedback. IEEE Journal of Selected Topics in Quantum Electronics. 19 - 4, pp. 1501610. 2013. Available on-line at: <10.1109/JSTQE.2013.2241738>.
Type of production: Scientific paper
Format: Journal
Impact source: WOS (JCR)
Category: Science Edition - OPTICS
Impact index in year of publication: 3.46
Journal in the top 25%: Yes
Position of publication: 8
No. of journals in the cat.: 83
Source of citations: WOS
Citations: 48

76 Kato, H.; Soriano, M. C.; Pereda, E.; Fischer, I.; Mirasso, C. R. Limits to detection of generalized synchronization in delay-coupled chaotic oscillators. Physical Review E. 88, pp. 062924. 2013. Available on-line at: <10.1103/PhysRevE.88.062924>.
Type of production: Scientific paper
Format: Journal

Impact source: WOS (JCR)
Category: Science Edition - PHYSICS, MATHEMATICAL
Impact index in year of publication: 2.33
Journal in the top 25%: Yes
Position of publication: 6
No. of journals in the cat.: 55
Source of citations: WOS
Citations: 3

77 Mashal, L.; Nguimdo, R. M.; Van der Sande, G.; Soriano, M. C.; Danckaert, J.; Verschaffelt, G. Low-Frequency Fluctuations in Semiconductor Ring Lasers With Optical Feedback. IEEE Journal of Quantum Electronics. 49 - 9, pp. 790 - 797. 2013. Available on-line at: <10.1109/JQE.2013.2272477>.
Type of production: Scientific paper
Format: Journal
Impact source: WOS (JCR)
Category: Science Edition - ENGINEERING, ELECTRICAL & ELECTRONIC
Impact index in year of publication: 2.11
Journal in the top 25%: Yes
Position of publication: 56
No. of journals in the cat.: 248
Source of citations: WOS
Citations: 16

78 Soriano, M.C.; Ortin, S.; Brunner, D.; Larger, L.; Mirasso, C.R.; Fischer, I.; Pesquera, L. Optoelectronic reservoir computing: tackling noise-induced performance degradation. Optics Express. 21 - 1, pp. 12 - 20. 2013. Available on-line at: <10.1364/OE.21.000012>.
Type of production: Scientific paper
Format: Journal
Impact source: WOS (JCR)
Category: Science Edition - OPTICS
Impact index in year of publication: 3.52
Journal in the top 25%: Yes
Position of publication: 6
No. of journals in the cat.: 83
Source of citations: WOS
Citations: 91

79 Soriano, M. C.; Flunkert, V.; Fischer, I. Relation between delayed feedback and delay-coupled systems and its application to chaotic lasers. Chaos. 23, pp. 043133. 2013. Available on-line at: <10.1063/1.4844335>.
Type of production: Scientific paper
Format: Journal
Impact source: WOS (JCR)
Category: Science Edition - MATHEMATICS, APPLIED
Impact index in year of publication: 1.76
Journal in the top 25%: Yes
Position of publication: 25
No. of journals in the cat.: 251
Source of citations: WOS
Citations: 8

80 Arroyo-Almanza, D. A.; Pisarchik, A. N.; Fischer, I.; Mirasso, C. R.; Soriano, M. C. Spectral properties and synchronization scenarios of two mutually delay-coupled semiconductor lasers. Optics Communications. 301-302, pp. 67 - 73. 2013. Available on-line at: <http://dx.doi.org/10.1016/j.optcom.2013.03.040>.
Type of production: Scientific paper
Format: Journal
Impact source: WOS (JCR)
Category: Science Edition - OPTICS
Impact index in year of publication: 1.54
Journal in the top 25%: No
Position of publication: 34
No. of journals in the cat.: 83
Source of citations: WOS
Citations: 13

81 Heiligenthal, S.; Jüngling, T.; D'Huys, O.; Arroyo-Almanza, D. A.; Soriano, M. C.; Fischer, I.; Kanter, I.; Kinzel, W. Strong and weak chaos in networks of semiconductor lasers with time-delayed couplings. Physical Review E. 88, pp. 012902. 2013. Available on-line at: <10.1103/PhysRevE.88.012902>.
Type of production: Scientific paper
Format: Journal

Impact source: WOS (JCR)
Category: Science Edition - PHYSICS, MATHEMATICAL
Impact index in year of publication: 2.33
Journal in the top 25%: Yes
Position of publication: 6
No. of journals in the cat.: 55
Source of citations: WOS
Citations: 36

82 Zunino, L.; Soriano, M.C.; Rosso; O.A. Distinguishing chaotic and stochastic dynamics from time series by using a multiscale symbolic approach. Physical Review E. 86, pp. 046210. 2012. Available on-line at: <http://pre.aps.org/abstract/PRE/v86/i4/e046210>.
Type of production: Scientific paper
Format: Journal
Impact source: WOS (JCR)
Category: Science Edition - PHYSICS, MATHEMATICAL
Impact index in year of publication: 2.313
Journal in the top 25%: Yes
Position of publication: 6
No. of journals in the cat.: 55
Source of citations: WOS
Citations: 102

83 Brunner, D.; Porte, X.; Soriano, M.C.; Fischer, I. Real-time frequency dynamics and high-resolution spectra of a semiconductor laser with delayed feedback. Scientific Reports. 2, pp. 732. Nature Publishing Group, 2012. Available on-line at: <http://www.nature.com/srep/2012/121012/srep00732/full/srep00732.html>.
Type of production: Scientific paper
Format: Journal
Impact source: WOS (JCR)
Category: Science Edition - MULTIDISCIPLINARY SCIENCES
Impact index in year of publication: 2,93
Journal in the top 25%: Yes
Position of publication: 8
No. of journals in the cat.: 56
Source of citations: WOS
Citations: 23

84 Soriano, M.C.; Van der Sande, G.; Fischer, I.; Mirasso, C.R. Synchronization in simple network motifs with negligible correlation and mutual information measures. Physical Review Letters. 108, pp. 134101. 2012. Available on-line at: <http://prl.aps.org/abstract/PRL/v108/i13/e134101>.
Type of production: Scientific paper
Format: Journal
Position of signature: 1
Total no. authors: 4
Impact source: WOS (JCR)
Category: Science Edition - PHYSICS, MULTIDISCIPLINARY
Impact index in year of publication: 7.94
Journal in the top 25%: Yes
Position of publication: 5
No. of journals in the cat.: 83
Source of citations: WOS
Citations: 30

85 Tiana-Alsina, J.; Hicke, K.; Porte, X.; Soriano, M.C.; Torrent, M.C.; Garcia-Ojalvo, J.; Fischer, I. Zero-lag synchronization and bubbling in delay-coupled lasers. Physical Review E. 83, pp. 026209. 2012. Available on-line at: <http://pre.aps.org/abstract/PRE/v85/i2/e026209>.
Type of production: Scientific paper
Format: Journal
Impact source: WOS (JCR)
Category: Science Edition - PHYSICS, MATHEMATICAL
Impact index in year of publication: 2.313
Journal in the top 25%: Yes
Position of publication: 6
No. of journals in the cat.: 55
Source of citations: WOS
Citations: 24

86 Zunino, L.; Rosso, O.A.; Soriano, M.C. Characterizing the Hyperchaotic Dynamics of a Semiconductor Laser Subject to Optical Feedback Via Permutation Entropy. IEEE Journal of Selected Topics in Quantum Electronics. 17, pp. 1250 - 1257. 2011.

Type of production: Scientific paper
Format: Journal
Impact source: WOS (JCR)
Category: Science Edition - OPTICS
Impact index in year of publication: 3.780
Journal in the top 25%: Yes
Position of publication: 4
No. of journals in the cat.: 79
Source of citations: WOS
Citations: 46

87 Soriano, M.C.; Zunino, L.; Larger, L.; Fischer, I.; Mirasso, C.R. Distinguishing fingerprints of hyperchaotic and stochastic dynamics in optical chaos from a delayed opto-electronic oscillator. Optics Letters. 36, pp. 2212 - 2214. 2011. Available on-line at: <http://www.opticsinfobase.org/ol/abstract.cfm?uri=ol-36-12-2212>.

Type of production: Scientific paper
Format: Journal
Impact source: WOS (JCR)
Category: Science Edition - OPTICS
Impact index in year of publication: 3.399
Journal in the top 25%: Yes
Position of publication: 7
No. of journals in the cat.: 79
Source of citations: WOS
Citations: 21

88 Oliver, N.; Soriano, M.C.; Sukow, D.W.; Fischer, I.. Dynamics of a semiconductor laser with polarization rotated feedback and its utilization for random bit generation. Optics Letters. 36, pp. 4632 - 4634. 2011. Available on-line at: <http://www.opticsinfobase.org/ol/abstract.cfm?uri=ol-36-23-4632>.

Type of production: Scientific paper
Format: Journal
Impact source: WOS (JCR)
Category: Science Edition - OPTICS
Impact index in year of publication: 3.399
Journal in the top 25%: Yes
Position of publication: 7
No. of journals in the cat.: 79
Source of citations: WOS
Citations: 64

89 Soriano, M.C.; Berkvens, T.; Van der Sande, G.; Verschaffelt, G.; Danckaert, J.; Fischer, I. Interplay of current noise and delayed optical feedback on the dynamics of semiconductor lasers. IEEE Journal of Quantum Electronics. 47, pp. 368 - 374. 2011. Available on-line at: <http://dx.doi.org/10.1109/JQE.2010.2090511>.

Type of production: Scientific paper
Format: Journal
Impact source: WOS (JCR)
Category: Science Edition - ENGINEERING, ELECTRICAL & ELECTRONIC
Impact index in year of publication: 1.879
Journal in the top 25%: Yes
Position of publication: 54
No. of journals in the cat.: 245
Source of citations: WOS
Citations: 11

90 Modeste Nguimdo, M.; Soriano, M.C.; Colet, P. Role of the phase in the identification of delay time in semiconductor lasers with optical feedback. Optics Letters. 36, pp. 4332 - 4334. 2011. Available on-line at: <http://www.opticsinfobase.org/ol/abstract.cfm?uri=ol-36-22-4332>.

Type of production: Scientific paper
Format: Journal
Impact source: WOS (JCR)
Category: Science Edition - OPTICS
Impact index in year of publication: 3.399
Journal in the top 25%: Yes
Position of publication: 7
No. of journals in the cat.: 79
Source of citations: WOS
Citations: 52

91 Jacobo, A.; Soriano, M.C.; Mirasso, C.R.; Colet, P. Chaos-Based Optical Communications: Encryption Versus Nonlinear Filtering. IEEE Journal of Quantum Electronics. 46, pp. 499 - 505. 2010. Available on-line at: <http://ieeexplore.ieee.org/xpls/abs_all.jsp?arnumber=5415800&tag=1>.

Type of production: Scientific paper
Format: Journal
Impact source: WOS (JCR)
Category: Science Edition - ENGINEERING, ELECTRICAL & ELECTRONIC
Impact index in year of publication: 2,48
Journal in the top 25%: Yes
Position of publication: 28
No. of journals in the cat.: 247
Source of citations: WOS
Citations: 11

92 Zunino, L.; Soriano, M. C.; Fischer, I.; Rosso, O. A.; Mirasso, C. R. Permutation information theory approach to unveil delay dynamics from time series analysis. Physical Review E. 82, pp. 046212. 2010.

Type of production: Scientific paper
Format: Journal
Impact source: WOS (JCR)
Category: Science Edition - PHYSICS, MATHEMATICAL
Impact index in year of publication: 2,352
Journal in the top 25%: Yes
Position of publication: 4
No. of journals in the cat.: 54
Source of citations: WOS
Citations: 122

93 Ruiz-Oliveras, F.; Soriano, M.C.; Colet, P.; Mirasso, C.R. Information Encoding and Decoding Using Unidirectionally Coupled Chaotic Semiconductor Lasers Subject to Filtered Optical Feedback. IEEE Journal of Quantum Electronics. 45, pp. 972 - 978. 2009. Available on-line at: <http://ieeexplore.ieee.org/search/wrapper.jsp?arnumber=5153580>.

Type of production: Scientific paper
Format: Journal
Impact source: WOS (JCR)
Category: Science Edition - ENGINEERING, ELECTRICAL & ELECTRONIC
Impact index in year of publication: 1,968
Journal in the top 25%: Yes
Position of publication: 44
No. of journals in the cat.: 246
Source of citations: WOS
Citations: 8

94 Zunino, L.; Soriano, M.C.; Figliola, A.; Perez, D.G.; Garavaglia, M.; Mirasso, C.R.; Rosso, O.A. Performance of encryption schemes in chaotic optical communication: A multifractal approach. Optics Communications. 282, pp. 4587 - 4594. 2009. Available on-line at: <http://dx.doi.org/10.1016/j.optcom.2009.08.047>.

Type of production: Scientific paper
Format: Journal
Impact source: WOS (JCR)
Category: Science Edition - OPTICS
Impact index in year of publication: 1,316
Journal in the top 25%: No
Position of publication: 23
No. of journals in the cat.: 64
Source of citations: WOS
Citations: 9

95 Soriano, M.C.; Colet, P.; Mirasso, C.R. Security Implications of Open- and Closed-Loop Receivers in All-Optical Chaos-Based Communications. IEEE Photonics Technology Letters. 21, pp. 426 - 428. 2009. Available on-line at: <http://ieeexplore.ieee.org/search/wrapper.jsp?arnumber=4773175>.

Type of production: Scientific paper
Format: Journal
Impact source: WOS (JCR)
Category: Science Edition - OPTICS
Impact index in year of publication: 1,815
Journal in the top 25%: Yes
Position of publication: 18
No. of journals in the cat.: 71
Source of citations: WOS
Citations: 48

Relevant publication: No

96 Guy Van der Sande; Miguel C. Soriano; Ingo Fischer; Claudio R. Mirasso. Dynamics, correlation scaling, and synchronization behavior in rings of delay-coupled oscillators. Physical Review E. 77, pp. 055202. 2008. Available on-line at: <http://link.aps.org/doi/10.1103/PhysRevE.77.055202>.

Type of production: Scientific paper
Format: Journal
Impact source: WOS (JCR)
Category: Science Edition - PHYSICS, MATHEMATICAL
Impact index in year of publication: 2,508
Journal in the top 25%: Yes
Position of publication: 6
No. of journals in the cat.: 46
Source of citations: WOS
Citations: 62

97 Soriano, M.C.; Ruiz-Oliveras, F.; Colet, P.; Mirasso, C.R. Synchronization properties of coupled semiconductor lasers subject to filtered optical feedback. Physical Review E. 78, pp. 046218. 2008. Available on-line at: <http://link.aps.org/doi/10.1103/PhysRevE.78.046218>.

Type of production: Scientific paper
Format: Journal
Impact source: WOS (JCR)
Category: Science Edition - PHYSICS, MATHEMATICAL
Impact index in year of publication: 2,508
Journal in the top 25%: Yes
Position of publication: 6
No. of journals in the cat.: 46
Source of citations: WOS
Citations: 30

98 G. Van der Sande; M. C. Soriano; M. Yousefi; M. Peeters; J. Danckaert; G. Verschaffelt; D. Lenstra. Influence of current noise on the relaxation oscillation dynamics of semiconductor lasers. Applied Physics Letters. 88, pp. 071107. 2006.

Type of production: Scientific paper
Format: Journal
Impact source: WOS (JCR)
Category: Science Edition - PHYSICS, APPLIED
Impact index in year of publication: 3,977
Journal in the top 25%: Yes
Position of publication: 6
No. of journals in the cat.: 84
Source of citations: WOS
Citations: 7

99 J. Albert; M. C. Soriano; I. Veretennicoff; K. Panajotov; J. Danckaert; P. A. Porta; D. P. Curtin; J. G. McInerney. Laser Doppler velocimetry with polarization-bistable VCSELs. IEEE Journal of Selected Topics in Quantum Electronics. 10, pp. 1006 - 1012. 2004.

Type of production: Scientific paper
Format: Journal
Impact source: WOS (JCR)
Category: Science Edition - OPTICS
Impact index in year of publication: 3,048
Journal in the top 25%: Yes
Position of publication: 9
No. of journals in the cat.: 64
Source of citations: WOS
Citations: 10

100 M. C. Soriano; M. Yousefi; J. Danckaert; S. Barland; M. Romanelli; G. Giacornelli; F. Marin. Low-frequency fluctuations in vertical-cavity surface-emitting lasers with polarization selective feedback: Experiment and theory. IEEE Journal of Selected Topics in Quantum Electronics. 10, pp. 998 - 1005. 2004.

Type of production: Scientific paper
Format: Journal
Impact source: WOS (JCR)
Category: Science Edition - OPTICS
Impact index in year of publication: 3,048
Journal in the top 25%: Yes
Position of publication: 9
No. of journals in the cat.: 64
Source of citations: WOS
Citations: 11

101 Soriano, M. C.; Aizpurua, J.. Advanced Photonics. CSIC 'white books' on Strategic Topics and challenges, Theme 10: Digital and complex information.pp. 36 - 55. Editorial CSIC, 2021.
Type of production: Book chapter

102 Van der Sande, G.; Soriano, M. C.. Semiconductor lasers as reservoir substrates. Photonic Reservoir Computing: Optical Recurrent Neural Networks. pp. 185 - 204. (Germany): De Gruyter, 2019. ISBN 978-3-11-058349-6
Type of production: Book chapter **Format:** Book

103 Ortín, S.; Pesquera, L.; Van der Sande, G.; Soriano, M. C.. Time delay systems for reservoir computing. Photonic Reservoir Computing: Optical Recurrent Neural Networks. pp. 117 - 152. (Germany): De Gruyter, 2019. ISBN 978-3-11-058349-6
Type of production: Book chapter **Format:** Book

104 C. M. Gonzalez; M. C. Soriano; M. C. Torrent; J. Garcia-Ojalvo; I. Fischer. Dynamical and Synchronization Properties of Delay-Coupled Lasers. Nonlinear Laser Dynamics: From Quantum Dots to Cryptography; Kathy Lüdge (Editor), Heinz Georg Schuster (Series Editor). pp. 217 - 244. (Germany): Wiley-Vch, 2011. ISBN 978-3-527-41100-9
Type of production: Book chapter **Format:** Book

Works submitted to national or international conferences

1 **Title of the work:** Deep and recurrent hardware neural networks folded in time
Name of the conference: European Conference on Machine Learning and PKDD 2025
Type of event: Conference
Type of participation: Participatory - invited / keynote talk
Corresponding author: Yes
City of event: Porto, Portugal
Date of event: 15/09/2025
End date: 19/09/2025
Soriano, M. C.; Gallicchio, C.

2 **Title of the work:** Fundamental Properties of Semiconductor Laser-Based Reservoir Computers
Name of the conference: Dynamics Days Europe 2025
Type of event: Conference
Type of participation: Participatory - oral communication
Corresponding author: Yes
City of event: Thessaloniki, Greece
Date of event: 23/05/2025
End date: 27/05/2025
Soriano, M. C.; Pflüger, M.; Mackowiak, A. C.; Argyris, A.

3 **Title of the work:** Identifying Ordinal Similarities at Different Temporal Scales with Permutation Jensen-Shannon Distance
Name of the conference: Dynamics Days Europe 2025
Type of event: Conference
Type of participation: Participatory - invited / keynote talk
Corresponding author: Yes
City of event: Thessaloniki, Greece
Date of event: 23/05/2025
End date: 27/05/2025
Soriano, M. C.; Porte, X.; Zunino, L.

4 **Title of the work:** Unconventional Computing with Nonlinear Photonic Systems
Name of the conference: Machine Learning Meets Photonics Workshop
Type of event: Conference
Type of participation: Participatory - invited / keynote talk
Corresponding author: Yes
City of event: Birmingham, United Kingdom
Date of event: 19/05/2025
End date: 21/05/2025
Soriano, M. C.

5 **Title of the work:** Optimisation of laser dynamics for information processing
Name of the conference: International Symposium on Physics and Applications of Laser Dynamics 2024 (IS-PALD 2024)
Type of event: Conference
Type of participation: Participatory - invited / keynote talk
Corresponding author: Yes
City of event: Saitama, Japan
Date of event: 05/11/2024
End date: 07/11/2024
Goldmann, M.; Soriano, M. C.

6 **Title of the work:** Minimalist Reservoir Computing: Implementation, Dynamics, and Future Directions
Name of the conference: Dynamics Days Europe
Type of event: Conference
Type of participation: Participatory - invited / keynote talk
Corresponding author: Yes
City of event: Bremen, Germany
Date of event: 29/07/2024
End date: 02/08/2024
Soriano, M. C.

7 **Title of the work:** Unconventional Computing with Photonic Substrates
Name of the conference: Unconventional Computing Workshop
Type of event: Traning Session
Type of participation: Participatory - oral communication
Corresponding author: Yes
City of event: Erice, Italy
Date of event: 06/07/2024
End date: 12/07/2024
Soriano, M. C.

8 **Title of the work:** Photonic Quantum Reservoir Computing: Role of Squeezing
Name of the conference: XIV Reunión Nacional de Óptica (RNO)
Type of event: Conference
Type of participation: Participatory - oral communication
Corresponding author: Yes
City of event: Murcia, Spain
Date of event: 03/07/2024
End date: 05/07/2024
Garcia-Beni, J.; Giorgi, G. L.; Soriano, M. C.; Zambrini, R.

9 **Title of the work:** Reservoir computing for the prediction of semiconductor laser dynamics
Name of the conference: SPIE Photonics Europe
Type of event: Conference
Type of participation: Participatory - oral communication
Corresponding author: Yes
City of event: Strasbourg, France
Date of event: 07/04/2024
End date: 11/04/2024
Goldmann, M.; Cunillera, A.; Mirasso, C. R.; Fischer, I.; Soriano, M. C.

10 **Title of the work:** Ultrafast Information Processing with Delay-Coupled Semiconductor Lasers
Name of the conference: International Symposium on Physics and Applications of Laser Dynamics 2023 (IS-PALD 2023)
Type of event: Conference
Type of participation: Participatory - invited / keynote talk
Corresponding author: Yes
City of event: Metz, France
Date of event: 28/11/2023
End date: 02/12/2023
Goldmann, M.; Soriano, M. C.

11 **Title of the work:** Physical implementation of a deep recurrent neural network folded in time
Name of the conference: Neuromorphic, Natural and Physical Computing: Interdisciplinary Foundations (NNPC 2023)
Type of event: Conference
Type of participation: Participatory - oral communication
Corresponding author: Yes
City of event: Hannover, Germany
Date of event: 24/10/2023
End date: 28/10/2023
Gallicchio, C.; Soriano, M. C.

12 **Title of the work:** Time-multiplexed photonic systems for information processing
Name of the conference: Artificial Intelligence Photonics 2023
Type of event: Conference
Type of participation: Participatory - invited / keynote talk
Corresponding author: Yes
City of event: San Sebastian, Spain
Date of event: 10/09/2023
End date: 14/09/2023
Soriano, M. C.

13 **Title of the work:** Photonic reservoir computing using time-multiplexed systems with classical and quantum resources
Name of the conference: Neuromorphic Photonics
Type of event: Traning Session
Type of participation: Participatory - invited / keynote talk
Corresponding author: Yes
City of event: Athens, Greece
Date of event: 13/07/2023

End date: 14/07/2023
Soriano, M. C.

14 **Title of the work:** Dendritic-like computation using single- and multi-mode optical fibres
Name of the conference: Rank Symposium on Neuromorphic Photonics
Type of event: Traning Session
Type of participation: Participatory - invited / keynote talk
Corresponding author: Yes
City of event: Grasmere, United Kingdom
Date of event: 06/02/2023
End date: 09/02/2023
Soriano, M. C.

15 **Title of the work:** Inferring untrained dynamics of complex systems using adapted recurrent neural networks
Name of the conference: Dynamics Days Europe 2022
Type of event: Conference
Type of participation: Participatory - invited / keynote talk
Corresponding author: Yes
City of event: Aberdeen, North Eastern Scotland, United Kingdom
Date of event: 22/08/2022
End date: 26/08/2022
Organising entity: Universidad de Aberdeen
Goldmann, M.; Mirasso, C. R.; Fischer, I.; Soriano, M. C.

16 **Title of the work:** Dendritic-like computation using multimode optical fibers
Name of the conference: 5th International Conference on Applications of Optics and Photonics (AOP2022)
Type of event: Conference
Type of participation: Participatory - invited / keynote talk
Corresponding author: Yes
City of event: Guimaraes, Portugal
Date of event: 18/07/2022
End date: 22/07/2022
Ortin, S.; Soriano, M. C.; Fischer, I.; Mirasso, C. R.; Argyris, A.

17 **Title of the work:** Photonic reservoir computing using quantum resources
Name of the conference: XXXVIII Biennial of Physics of the Spanish Royal Physics Society
Type of event: Conference
Type of participation: Participatory - oral communication
Corresponding author: Yes
City of event: Murcia, Murcia, Región de, Spain
Date of event: 11/07/2022
End date: 15/07/2022
Garcia-Beni, J.; Giorgi, G. L.; Soriano, M. C.; Zambrini, R.

18 **Title of the work:** Dynamical Phase Transitions in Quantum Reservoir Computing
Name of the conference: Conference on Complex Systems CCS 2021
Type of event: Conference
Type of participation: Participatory - oral communication
City of event: Lyon, France
Date of event: 25/10/2021

End date: 29/10/2021
Giorgi, G. L.; Nokkala, J.; Soriano, M. C.; Zambrini, R.

19 **Title of the work:** Analog information processing with time-multiplexed optoelectronic systems
Name of the conference: Emerging Topics in Artificial Intelligence (ETAI)
Type of event: Conference
Type of participation: Participatory - oral communication
City of event: San Diego (online), United States of America
Date of event: 01/08/2021
End date: 05/08/2021
Goldmann, M.; Fischer, I.; Soriano, M. C.

20 **Title of the work:** Exploiting transient dynamics of a time-multiplexed reservoir to boost the system performance
Name of the conference: International Joint Conference on Neural Networks (IJCNN)
Type of event: Conference
Type of participation: Participatory - oral communication
City of event: Shenzhen (online), China
Date of event: 18/07/2021
End date: 22/07/2021
Goldmann, M.; Mirasso, C. R.; Fischer, I.; Soriano, M. C.

21 **Title of the work:** Optoelectronic reservoir computing using a mixed digital-analog hardware implementation
Name of the conference: 28th International Conference on Artificial Neural Networks (ICANN 2019)
Type of event: Conference
Type of participation: Participatory - oral communication
Corresponding author: Yes
City of event: Munich, Germany
Date of event: 2019
With external admission assessment committee: Yes
Soriano, M. C.; Massuti-Ballester, P.; Yelo, J.; Fischer, I.En: Tetko I., Kůrková V., Karpov P., Theis F. (eds) Artificial Neural Networks and Machine Learning – ICANN 2019: Workshop and Special Sessions. ICANN 2019. Lecture Notes in Computer Science, vol 11731. Springer. Available on-line at: <https://doi.org/10.1007/978-3-030-30493-5_18>.

22 **Title of the work:** Delay-based Photonic Reservoir Computing
Name of the conference: ERC International Workshop "Photonic Reservoir Computing and Information Processing in Complex Networks"
Type of event: Traning Session
Type of participation: Participatory - invited / keynote talk
City of event: Trento, Provincia Autonoma Trento, Italy
Date of event: 2019
Soriano, M. C.

23 **Title of the work:** Reservoir Computing for the inference of unobserved variables in chaotic systems
Name of the conference: Workshop Ibersinc3 2019
Type of event: Traning Session
Type of participation: Participatory - invited / keynote talk
City of event: La Laguna, Spain
Date of event: 2019
A. Cunillera; Fischer, I.; Soriano, M. C.

24 **Title of the work:** Autonomous operation of echo state networks
Name of the conference: 2018 International Symposium on Nonlinear Theory and Its Applications (NOLTA2018)
Type of event: Conference
Type of participation: Participatory - invited / keynote talk
City of event: Tarragona, Spain
Date of event: 2018
Soriano, M. C.; Fischer, I.

25 **Title of the work:** Information processing by complex systems: the case of a single nonlinear node with delay
Name of the conference: 15th Experimental Chaos and Complexity Conference
Type of event: Conference
Type of participation: Participatory - oral communication
City of event: Madrid, Spain
Date of event: 2018
Soriano, M. C.; Fischer, I.

26 **Title of the work:** Recent advances in photonic reservoir computers
Name of the conference: International Symposium on Physics and Applications of Laser Dynamics
Type of event: Conference
Type of participation: Participatory - invited / keynote talk
City of event: Hong Kong, Hong Kong
Date of event: 2018
Soriano, M. C.

27 **Title of the work:** On the use of functional connectivity patterns to distinguish healthy and epileptic patients from interictal MEG data
Name of the conference: Coupling and Causality in Complex Systems
Type of event: Conference
Type of participation: Participatory - oral communication
City of event: Cologne, Germany
Date of event: 2017
Soriano, M. C.; Pereda, E.

28 **Title of the work:** Recent advances in photonic reservoir computers: a brain-inspired computing paradigm
Name of the conference: II Ibersinc Meeting
Type of event: Conference
Type of participation: Participatory - invited / keynote talk
City of event: Madrid, Spain
Date of event: 2017
Soriano, M. C.

29 **Title of the work:** Dynamics and applications of delay-coupled semiconductor lasers
Name of the conference: International Symposium on Physics and Applications of Laser Dynamics
Type of event: Conference
Type of participation: Participatory - invited / keynote talk
City of event: Hsinchu, Taiwan
Date of event: 2016
Soriano, M. C.

30 **Title of the work:** Reservoir Computing with Photonic Delay Systems
Name of the conference: XXXVI Dynamics Days Europe
Type of event: Conference
Type of participation: Participatory - invited / keynote talk
City of event: Corfu, Greece
Date of event: 2016

31 **Title of the work:** Consistency and chaos synchronization in delay-coupled semiconductor lasers
Name of the conference: XXXV Dynamics Days Europe
Type of event: Conference
Type of participation: Participatory - invited / keynote talk
City of event: Exeter, United Kingdom
Date of event: 06/09/2015
Soriano, M. C.

32 **Title of the work:** External-cavity semiconductor laser with state-dependent delay
Name of the conference: CLEO Europe EQEC 2015
Type of event: Conference
Type of participation: Participatory - poster
Corresponding author: Yes
City of event: Munich, Germany
Date of event: 2015
Porte, X.; Martínez-LLinàs, J.; Soriano, M. C.; Colet, P.; Fischer, I.

33 **Title of the work:** Scaling Properties of the Dynamics of Semiconductor Lasers in External Cavities
Name of the conference: 2014 International Semiconductor Laser Conference (ISLC)
Type of event: Conference
Type of participation: Participatory - poster
City of event: Palma de Mallorca, Spain
Date of event: 09/09/2014
Porte, X.; Soriano, M. C.; Breuer, S.; Drzewietski, L.; Elsasser, W.; Fischer, I.

34 **Title of the work:** Dynamics of delayed-feedback semiconductor lasers revisited: Similarity properties and applications
Name of the conference: WIAS International Workshop on Nonlinear Dynamics in Semiconductor Lasers
Type of event: Traning Session
Type of participation: Participatory - oral communication
City of event: Berlin, Germany
Date of event: 12/05/2014
Fischer, I.; Porte, X.; Soriano, M. C.

35 **Title of the work:** Experimental distinction of weak and strong chaos in delay-coupled semiconductor lasers
Name of the conference: CLEO Europe EQEC 2013
Type of event: Conference
Type of participation: Participatory - oral communication
City of event: Múnich, Germany
Date of event: 2013
Soriano, M.C.; Porte, X.; Arroyo-Almanza, D.A.; Mirasso, C.R.; Fischer, I.

36 **Title of the work:** Identification of the delay time in semiconductor lasers with optical feedback
Name of the conference: CLEO Europe EQEC 2013
Type of event: Conference
Type of participation: Participatory - poster
City of event: Múnich, Germany
Date of event: 2013
Soriano, M. C.; Nguimdo, R. M.; Colet, P.

37 **Title of the work:** A Novel Photonics Approach to Unconventional Information Processing
Name of the conference: ECOC 2012 (CLEO Focus 2012 Meeting)
Type of event: Conference
Type of participation: Participatory - oral communication
City of event: Amsterdam, Holland
Date of event: 2012
Soriano, M.C.; Brunner, D.; Ortin, S.; Mirasso, C.R.; Larger, L.; Fischer, I.; Pesquera, L.

38 **Title of the work:** Delay identification in semiconductor lasers with optical feedback
Name of the conference: XVIII Congreso de Física Estadística FISES'12
Type of event: Conference
Type of participation: Participatory - poster
City of event: Palma de Mallorca, Spain
Date of event: 2012
Soriano, M.C.; Modeste Nguimdo, R.; Colet, P.

39 **Title of the work:** Synchronization Without Correlation
Name of the conference: 2012 International Symposium on Nonlinear Theory and its Applications (NOLTA 2012)
Type of event: Conference
Type of participation: Participatory - invited / keynote talk
City of event: Palma de Mallorca, Spain
Date of event: 2012
Soriano, M.C.; Van der Sande, G.; Fischer I.; Mirasso, C.R.

40 **Title of the work:** A Novel Experimental Approach for Information Processing in Photonics
Name of the conference: 2011 International Symposium on Nonlinear Theory and its Applications (NOLTA 2011)
Type of event: Conference
Type of participation: Participatory - invited / keynote talk
City of event: Kobe, Japan
Date of event: 2011
Soriano, M.C.; Brunner, D.; Appeltant, L.; Mirasso, C.R.; Fischer, I.; Larger, L.

41 **Title of the work:** Discriminating Chaotic and Stochastic Dynamics in an Optoelectronic Oscillator with Delayed Feedback
Name of the conference: CLEO Europe EQEC 2011
Type of event: Conference
Type of participation: Participatory - poster
City of event: Múnich, Germany
Date of event: 2011
Soriano, M.C.; Zunino, L.; Larger, L.; Fischer, I.; Mirasso, C.R.

42 **Title of the work:** Time delay identification using permutation information theory quantifiers
Name of the conference: XVII Congreso de Física Estadística FISES'11
Type of event: Conference
Type of participation: Participatory - poster
City of event: Barcelona, Spain
Date of event: 2011
Soriano, M.C.; Zunino, L.; Fischer, I.; Mirasso, C.R.

43 **Title of the work:** Delay-coupled semiconductor lasers: dynamics and applications
Name of the conference: VII Reunión Iberoamericana de Óptica (RIAO) X Encuentro Latinoamaericano de Óptica, Lásers y Aplicaciones (OPTILAS)
Type of event: Conference
Type of participation: Participatory - oral communication
City of event: Lima, Peru
Date of event: 2010
Cornelles Soriano, M.; Oliver, N.; Porte, X.; Vicente, R.; Fischer, I.; Mirasso, C.R."ABSTRACT BOOK of the RIAO-OPTILAS 2010, page 480, ISBN: 978-612-4057-21-2".

44 **Title of the work:** Electro-optic delay dynamics used as a reservoir for Liquid State Computing
Name of the conference: DYCOEC Workshop on Synchronization, control & Bio-dynamics
Type of event: Conference
Type of participation: Participatory - oral communication
City of event: Besançon, France
Date of event: 2010
Larger, L.; Cornelles Soriano, M.; Appeltant, L.; Danckaert, J.; Mirasso, C.R.; Fischer, I.

45 **Title of the work:** Quantifying complexity of the chaotic regime of a semiconductor laser subject to feedback via information theory measures
Name of the conference: SPIE Photonics Europe
Type of event: Conference
Type of participation: Participatory - poster
City of event: Bruselas, Belgium
Date of event: 2010
Soriano, M.C.; Zunino, L.; Rosso, O.A.; Mirasso, C.R."Semiconductor Lasers and Laser Dynamics IV. Proceedings of the SPIE., vol. 7720, article nr. 77202G (10 pages)".

46 **Title of the work:** Lyapunov analysis of the chaotic dynamics of rings of delay-coupled oscillators
Name of the conference: XVI Congreso de Física Estadística FISES'09
Type of event: Conference
Type of participation: Participatory - poster
City of event: Huelva, Spain
Date of event: 2009
Soriano, M.C.; Van der Sande, G.; Fischer, I.; Mirasso, C.R.; Colet, P.

47 **Title of the work:** Open vs closed loop receivers in all-optical chaos-based communication systems
Name of the conference: XVI Congreso de Física Estadística FISES"09
Type of event: Conference
Type of participation: Participatory - poster
City of event: Huelva, Spain
Date of event: 2009
Soriano, M.C.; Colet, P.; Mirasso, C.

48 **Title of the work:** Open vs closed loop receivers in all-optical chaos-based communication systems: message encoding and decoding
Name of the conference: CHAOS 2009 (CATS Workshop)
Type of event: Conference
Type of participation: Participatory - oral communication
City of event: Chania, Greece
Date of event: 2009
Soriano, M.C.; Colet, P.; Mirasso, C.

49 **Title of the work:** Open vs closed loop receivers in all-optical chaos-based communication systems: the final round
Name of the conference: CLEO Europe EQEC 2009
Type of event: Conference
Type of participation: Participatory - oral communication
City of event: Múnich, Germany
Date of event: 2009
Soriano, M.C.; Colet, P.; Mirasso, C.

50 **Title of the work:** Synchronization without correlation
Name of the conference: 4th International Scientific Conference on Physics and Control - PhysCon2009
Type of event: Conference
Type of participation: Participatory - oral communication
City of event: Catania, Italy
Date of event: 2009
Mirasso, C.R.; Soriano, M.C.; Van der Sande, G.; Fischer, I.

51 **Title of the work:** Sincronización de dos láseres de semiconductor sometidos a retroalimentación óptica filtrada y acoplados unidireccionalmente
Name of the conference: XV Congreso de Física Estadística
Type of event: Conference
Type of participation: Participatory - poster
City of event: Salamanca, Spain
Date of event: 2008
Cornelles Soriano, M.; Colet, P.; Mirasso, C.

52 **Title of the work:** Statistical Complexity Analysis of the Chaotic Response of a Semiconductor Laser subject to Optical Feedback
Name of the conference: CLEO Europe EQEC 2007
Type of event: Conference
Type of participation: Participatory - poster
City of event: Múnich, Germany
Date of event: 2007
M. Cornelles Soriano; C. Mirasso; P. Colet; O. A. Rosso.

53 **Title of the work:** The influence of current noise on polarization mode hopping in vertical cavity surface emitting lasers
Name of the conference: SPIE Photonics Europe
Type of event: Conference
Type of participation: Participatory - oral communication
City of event: Estrasburgo, France

Date of event: 2006
Soriano, M. C.; Verschaffelt, G.; Van Der Sande, G.; Peeters, M.; Lenstra, D.; Yousefi, M.; Danckaert, J."Semiconductor Lasers and Laser Dynamics II. Proceedings of the SPIE., 618412 (10 páginas)".

54 **Title of the work:** The influence of current noise on the polarisation properties of VCSELs
Name of the conference: IEEE/LEOS Benelux Chapter
Type of event: Conference
Type of participation: Participatory - poster
City of event: Mons, Belgium
Date of event: 2005
Soriano, M. C., Verschaffelt, G., Van Der Sande, G., Peeters, M., Lenstra, D., Yousefi, M.,; Danckaert, J."Proc. Symp. IEEE/LEOS Benelux Chapter, 257-260, 2005".

55 **Title of the work:** The influence of extra carrier noise on vertical-cavity surface-emitting lasers
Name of the conference: European Quantum Electronics Conference, EQEC'05.
Type of event: Conference
Type of participation: Participatory - oral communication
City of event: Múnich, Germany
Date of event: 2005
Danckaert, J., Soriano, M. C., Van der Sande, G., Peeters, M., Verschaffelt, G., Yousefi, M.,; Lenstra, D.

56 **Title of the work:** Single-mode low frequency fluctuations in vertical cavity surface emitting lasers with polarization-filtered feedback
Name of the conference: SPIE Photonics Europe
Type of event: Conference
Type of participation: Participatory - oral communication
City of event: Estrasburgo, France
Date of event: 2004
Cornelles Soriano, M., Yousefi, M., Romanelli, M., Giacomelli, G.,; Marin, F."Semiconductor Lasers and Laser Dynamics. Proceedings of the SPIE., 422-432".

57 **Title of the work:** The influence of extra carrier noise on vertical-cavity surface-emitting lasers
Name of the conference: IEEE/LEOS Benelux Chapter
Type of event: Conference
Type of participation: Participatory - oral communication
City of event: Gante, Belgium
Date of event: 2004
Soriano, M. C.; Verschaffelt, G.; Van Der Sande, G.; Peeters, M.; Lenstra, D.; Yousefi, M.; Danckaert, J."Proc. Symp. IEEE/LEOS Benelux Chapter, 49-52, 2004".

58 **Title of the work:** VCSEL with polarized optical feedback: experiment and model
Name of the conference: IEEE/LEOS Benelux Chapter
Type of event: Conference
Type of participation: Participatory - poster
City of event: Twente, Holland
Date of event: 2003
Cornelles Soriano, M.; Yousefi, M.; Barland, S.; Romanelli, M.; Giacomelli, G.; Marin, F."Proc. Symp. IEEE/LEOS Benelux Chapter, 225-228, 2003".

59 **Title of the work:** Theoretical analysis of a polarisation switching VCSEL used as a Doppler velocimeter
Name of the conference: IEEE/LEOS Benelux Chapter
Type of event: Conference
Type of participation: Participatory - poster
City of event: Amsterdam, Holland
Date of event: 2002
Soriano, M. C.; Albert, J.; Veretennicoff, I.; Panajotov, K. "Proc. Symp. IEEE/LEOS Benelux Chapter, 262-265, 2002".

Works submitted to national or international seminars, workshops and/or courses

1 **Title of the work:** Computing with Photonic Substrates
Name of the event: Invited lecturer at the Machine Learning Photonics III (Lake Como School of Advanced Studies)
Reasons for participation: Upon invitation
City of event: Como, Italy
Date of event: 02/09/2024
End date: 06/09/2024

2 **Title of the work:** Complex Dynamics of Delay Systems
Name of the event: Invited lecturer at the 11th Optoelectronics and Photonics Summer School on Neuromorphic Photonics (NMP2021)
Reasons for participation: Upon invitation
City of event: Trento, Italy
Date of event: 20/06/2021
End date: 26/06/2021

3 **Title of the work:** Quantum reservoir computing
Name of the event: Invited lecturer at the Cargese School of Quantum Information and Quantum Technology
Reasons for participation: Upon invitation
City of event: Cargese, France
Date of event: 06/2021

4 **Title of the work:** Ultrafast photonic reservoir computing: From fundamental properties to real-world applications.
Name of the event: Invited lecturer at the Machine Learning Photonics (Lake Como School of Advanced Studies)
Reasons for participation: Upon invitation
City of event: Italy
Date of event: 15/03/2021
End date: 19/03/2021

5 **Title of the work:** Dynamics and applications of delay-coupled semiconductor lasers
Name of the event: Invited course at ICTP-SAIFR School on Nonlinear Optics and Nanophotonics
Reasons for participation: Upon invitation
City of event: Sao Paulo, Brazil
Date of event: 23/11/2013

Other achievements

Stays in public or private R&D centres

1 **Entity:** Laboratoire Kastler Brossel, Sorbonne University
City of entity: Paris, France
Start date: 2023 **Duration:** 7 days
Goals of the stay: Guest
Provable tasks: Quantum Reservoir Computing

2 **Entity:** Department of Applied Physics and Photonics, Vrije Universiteit Brussel
City of entity: Brussels, Belgium
Start date: 2013 **Duration:** 15 days
Goals of the stay: Guest
Provable tasks: Low frequency fluctuations in semiconductor ring lasers with optical feedback.

3 **Entity:** Universidad de Cantabria
City of entity: Santander, Spain
Start date: 2011 **Duration:** 15 days
Goals of the stay: Guest
Provable tasks: Time-series analysis via permutation and statistical complexity

4 **Entity:** Department of Applied Physics and Photonics, Vrije Universiteit Brussel
City of entity: Brussels, Belgium
Start date: 2010 **Duration:** 15 days
Goals of the stay: Guest
Provable tasks: Information processing using a single nonlinear node with delay

5 **Entity:** Department of Applied Physics and Photonics, Vrije Universiteit Brussel
City of entity: Brussels, Belgium
Start date: 2009 **Duration:** 15 days
Goals of the stay: Guest
Provable tasks: Dynamics of delay-coupled oscillators

6 **Entity:** Laser Center, Vrije Universiteit Amsterdam
City of entity: Amsterdam, Holland
Start date: 2005 **Duration:** 3 months
Goals of the stay: Doctorate
Provable tasks: The influence of extra carrier noise on vertical-cavity surface-emitting lasers

7 **Entity:** Istituto Nazionale per la Fisica della Materia del CNR
City of entity: Florencia, Italy
Start date: 2003 **Duration:** 5 months
Goals of the stay: Contracted
Provable tasks: Semiconductor lasers subject to polarized optical feedback

Obtained accreditations/recognitions

1 **Description:** Profesor Titular de Universidad
Accrediting entity: Agencia Nacional de Evaluación de la Calidad y Acreditación **Type of entity:** Fundación estatal
Date of recognition: 2015

2 **Description:** Profesor Contratado Doctor
Accrediting entity: Agencia Nacional de Evaluación de la Calidad y Acreditación **Type of entity:** Fundación estatal
Date of recognition: 2012

3 **Description:** Profesor Ayudante Doctor
Accrediting entity: Agencia Nacional de Evaluación de la Calidad y Acreditación **Type of entity:** Fundación estatal
Date of recognition: 2010

Summary of other achievements

1 **Description of the achievement:** Co-organizer of the workshop on Deep Learning in Unconventional Neuromorphic Hardware, co-located with IJCNN (International Joint Conference on Neural Networks) 2021, online.
Conferral date: 2021

2 **Description of the achievement:** Co-organizer of The 1st International Workshop on Reservoir Computing, co-located with ICANN 2019 (Munich, Germany).
Accrediting entity: European Neural Network Society
Conferral date: 2019

3 **Description of the achievement:** Co-organizer of a special session on "Non-algorithmic computing by complex systems" at NOLTA 2018 (Tarragona, Spain).
Conferral date: 2018

4 **Description of the achievement:** Organizer of a mini-symposium on "Consistency and Chaos in Complex Photonic Systems" at Dynamics Days Europe 2016 (Corfu, Greece) and co-organizer of a mini-symposium on "Laser and Complex Dynamics" at Dynamics Days Europe 2015 (Exeter, UK).
Conferral date: 2016

5 **Description of the achievement:** Member of the Organizing and Scientific Committees of the International Conference on Delayed Complex Systems (DCS2012), Palma de Mallorca, Spain, June 2012.
Conferral date: 2012

6 **Description of the achievement:** Capability to lead an independent research line: I am the official responsible for the Non-linear Physics Laboratory at the IFISC institute since January 2009. Co-responsible of the Non-linear Photonics Laboratory at the IFISC institute, which I helped developing under the supervision of Prof. Ingo Fischer.
Conferral date: 2009

7 **Description of the achievement:** Awarded a Marie Curie Host Fellowships for Early Stage Research Training at the Laser Centre of the Vrije Universiteit Amsterdam.
Conferral date: 2005

8 **Description of the achievement:** Rewarded twice with a Nortel award for remarkable grades at the 'Escuela Técnica Superior de Ingeniería de Telecomunicación de Barcelona (ETSETB)', part of the collaboration agreement between Nortel Networks and the Politechnical University of Catalonia (UPC).

9 **Description of the achievement:** External evaluator for international funding bodies. Project evaluation for the “Agence Nationale de la Recherche” (ANR, France, 2014), the “Flemish Research Foundation” (FWO, Belgium, 2014-2017) and the "Spanish Research Agency" (AEI, Spain, 2018-2025).

10 **Description of the achievement:** Guest Editor for the journal Cognitive Computation for the Special Issue entitled "Trends in Reservoir Computing" together with Simone Scardapane (La Sapienza University of Rome, Italy), Claudio Gallicchio (University of Pisa, Italy), Alessio Micheli (University of Pisa, Italy) https://link.springer.com/journal/12559/topicalCollection/AC_8970212584cf7a93abee92d574eb36c7

11 **Description of the achievement:** Guest Editor for the journal Nanophotonics for the Special Issue entitled "Neural Network Learning With Photonics And For Photonic Circuit Design" together with Shanhui Fan (Stanford University, USA), and Daniel Brunner (Femto-ST, France) https://nanophotonics-journal.com/issues/volume12/volume12_issue05/

12 **Description of the achievement:** Member of the PhD juries of Ilya Ermakov (Vrije Universiteit Brussel, 2011), Lilia Mashal (Vrije Universiteit Brussel, 2013), Andrés Aragoneses (Universitat Politècnica de Catalunya, 2014), Lars Keuninckx (Vrije Universiteit Brussel, 2016), Émeric Mercier (CentraleSupélec, 2016), Bogdan Penkovskyi (Université Bourgogne-Franche-Comté, 2017), Fabio Galán Prado (University of the Balearic Islands, 2021), Nadezhda Semenova (Université Bourgogne-Franche-Comté, 2021), Krishan Harkhoe (Vrije Universiteit Brussel, 2022), Joshua Robertson (University of Strathclyde, 2022), María Duque Gijón (Universitat Politècnica de Catalunya, 2024), Bernard Jonathan Giron Castro (Technical University of Denmark, 2025), Ria Talukder (FEMTO-ST Institute, 2025), Bartosz Prokop (KU Leuven, 2025).

13 **Description of the achievement:** Member of the technical program committee of the International Symposium on Physics and Applications of Laser Dynamics, IS-PALD 2021, 2024.

14 **Description of the achievement:** President (2025-2026) and Committee Member (2021-2026) of the specialized group of quantum optics and nonlinear optics (QUONLOP) of the Royal Spanish Society of Physics and the Spanish Society of Optics.

15 **Description of the achievement:** Program Committee Member of the Conference on Emerging Topics in Artificial Intelligence (ETAI), 2021-2026.
Accrediting entity: SPIE

16 **Description of the achievement:** Reviewer for 36 journals indexed in the Journal Citation Reports, including the most relevant in the field of Non-linear Dynamics and Optics. List of selected journals: Nature Communications, Science Advances, Light: Science and Applications, Physical Review X, Physical Review Letters, Optics Express, Optics Letters, IEEE Journal of Selected Topics in Quantum Electronics, Physical Review E, Frontiers in Computational Neuroscience, Chaos, and Optics Communications (Outstanding Reviewer in 2015).

17 **Description of the achievement:** Science Outreach: Co-ordinator of Outreach at IFISC (2018-2025). Co-organizer of the outreach event "Navegando por la complejidad del siglo XXI", sponsored by Obra Social La Caixa (2018-2020). Co-organizer of IFISC's stand at the Balearic Islands Science Fair in 2008 (Palma de Mallorca and Ibiza), 2009 (Mahón), 2010 (Palma de Mallorca) and 2011 (Ibiza). This event was organized by the government of the Balearic Islands. Co-organizer of IFISC Open Days, November 2009 and February

2013. Scientific supervisor of the exposition "Ilumínate", which celebrated in Palma de Mallorca the 2015 International Year of Light.These activities promote science and research among the society in general and young students of the Balearic Islands.

18 **Description of the achievement:** Supervision of undergraduate students: Coordinator of the Summer Undergraduate Research Fellowships at IFISC (2017). Co-supervisor of 'trabajos académicamente dirigidos' (supervised academic activities) at IFISC (Institute for Cross-Disciplinary Physics and Complex Systems) of bachelor students Neus Oliver and Pilar Vindel Sans. Co-supervisor of "Summer Undergraduate Research Fellowships" students Alejandro Rodríguez (2013), Toni Ramos (2015), Cristian Cogollos (2016), Quim Llorenç (2017), Álvaro Moreno (2018) at IFISC.

19 **Description of the achievement:** Teaching experience: Theory and problems of Physics and Electromagnetism, with 560 teaching hours officially recognized at the University of the Balearic Islands at the bachelor level. I developed and supervised practical courses in Optoelectronics and Mechanics. I am also teaching the Machine Learning and Nonlinear Photonics courses of the Master in Complex Systems at IFISC.

20 **Description of the achievement:** Technical Program Committee member of the European Semiconductor Laser Workshop (2019-2020).