



**Eva Llabrés Llambías**

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## Summary of CV

This section describes briefly a summary of your career in science, academic and research; the main scientific and technological achievements and goals in your line of research in the medium -and long- term. It also includes other important aspects or peculiarities.

In Nov 2018, I received a Ph.D. in theoretical high energy physics from the University of Amsterdam on the subject of **quantum gravity**. Afterwards, I was a postdoctoral researcher at CEA Paris-Saclay for two years (2019-2020), working in the String theory group in the Institute of Theoretical Physics. During these years, I studied a broad range of topics, such as black holes, quantum chaos in gravitational systems, and the emergence of space-time, on which I have highly cited contributions. I have been involved in different types of research projects, working in collaboration with world-class researchers in the field, as well as initiating my own independent scientific activity, resulting in a single-authored paper.

My passion for science, which guided me into my academic career in quantum gravity, also drew me towards problems of applied science. Mainly driven by my curiosity towards biological and ecological problems, I became interested in the fields of **complex systems and non-linear physics**. Since Sept 2020, I am a post-doctoral researcher at the Institute for Cross-Disciplinary Physics and Complex Systems (IFISC). The IFISC has a strong reputation for its cutting-edge research at the frontiers of physics with other scientific areas. My solid analytical skills and diversified research experience perfectly fit the interdisciplinary character of the institute.

At the IFISC, I am part of the research project Ecosystemic Services in Posidonia Oceanica Meadows, led by Tomas Sintés. I develop **mathematical models** that provide a theoretical framework to study the dynamics of **seagrass meadows** and other clonal plants. Seagrasses, such as *Posidonia oceanica*, are a key element in the Mediterranean sea, and the demise of its population has complex implications, not only for marine ecosystems, also for society. My research is done in collaboration with the marine ecologists from IMEDEA (UIB-CSIC), who provide field experiments and observations that are essential to tune the model parameters, as well as to monitor ecosystem changes. Our results are expected to contribute to take better and informed decisions related to the sustainable management of coastal zones.

The models we construct use techniques of out-of-equilibrium physics and quantitatively reproduce the main features in the dynamics of seagrasses. During my time at the IFISC, I have constructed a model that includes local interactions among species. After properly tuning the parameters, the model reproduces experimental data for coexisting species. This work is currently undergoing the revision process in Ecology Letters. Currently, one of my main goals is to advance in the development of these mathematical models to predict the response of seagrasses to different **global warming** scenarios. I aim to analyze the resilience of existing seagrass patterns to changes in the water temperature. I will do this considering **long-range competitive interactions** among native and exotic seagrasses, since each species have different thermal thresholds indicating vulnerability to climate warming. I will also study the **adaptability mechanisms** that play a role when seagrass meadows are challenged by harsh environmental conditions, such as different clonal growth strategies, and gene diversity due to cell mutation and sexual reproduction.



## General quality indicators of scientific research

This section describes briefly the main quality indicators of scientific production (periods of research activity, experience in supervising doctoral theses, total citations, articles in journals of the first quartile, H index...). It also includes other important aspects or peculiarities.

Total publishing period: 2015-2021

Publications: **6** (5 in Q1)

Citations: 174

h-index: 5

Citations/paper (avg.): 29

<https://inspirehep.net/authors/1702410>

## Eva Llabrés Llambías

Surname(s): **Llabrés Llambías**  
Name: **Eva**  
ORCID: **0000-0001-9850-313X**  
ScopusID: **57188423000**  
INSPIRE hep: **1702410**  
Contact aut. region/reg.: **Balearic Islands**

### Current professional situation

**Employing entity:** Universidad de las Islas Baleares      **Type of entity:** University  
**Department:** Institute of Interdisciplinary Physics and Complex Systems (IFISC)  
**Professional category:** Post-doctoral researcher  
**Start date:** 01/09/2020  
**Type of contract:** Temporary employment contract      **Dedication regime:** Full time  
**Identify key words:** Non linear dynamics; Physics - Complex systems; Ecology

### Previous positions and activities

	Employing entity	Professional category	Start date
1	CEA Paris-Saclay	Post-doctoral researcher	09/2018
2	University of Amsterdam	Pre-doctoral researcher	09/2014
3	University of Amsterdam	Teaching assistant	01/2013

- 1** **Employing entity:** CEA Paris-Saclay  
**Professional category:** Post-doctoral researcher  
**Start-End date:** 09/2018 - 08/2020      **Duration:** 2 years  
**Type of contract:** Temporary employment contract  
**Dedication regime:** Full time
- 2** **Employing entity:** University of Amsterdam  
**Professional category:** Pre-doctoral researcher  
**Start-End date:** 09/2014 - 09/2018      **Duration:** 4 years  
**Type of contract:** Temporary employment contract  
**Dedication regime:** Full time
- 3** **Employing entity:** University of Amsterdam  
**Professional category:** Teaching assistant  
**Start-End date:** 01/2013 - 05/2014      **Duration:** 1 year - 5 months  
**Type of contract:** Temporary employment contract  
**Dedication regime:** Part time



## Education

### University education

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

- 1 University degree:** Official Master  
**Name of qualification:** Master of Science in Theoretical Physics  
**Degree awarding entity:** Vrije Universiteit Amsterdam  
**Date of qualification:** 01/08/2014  
**Average mark:** Outstanding  
**Prize:** CUM LAUDE
- 2 University degree:** Higher degree  
**Name of qualification:** Licenciado en Física Especialidad Física Fundamental  
**Degree awarding entity:** Universitat de Barcelona **Type of entity:** University  
**Date of qualification:** 01/09/2012  
**Average mark:** Excellent

### Doctorates

**Doctorate programme:** PhD in Theoretical Physics  
**Degree awarding entity:** University of Amsterdam  
**Date of degree:** 06/11/2018  
**Thesis title:** The holographic correspondence: probing bulk gravitational physics with Wilson lines and geodesic Witten diagrams  
**Thesis director:** Alejandra Castro  
**Obtained qualification:** CUM LAUDE

### Specialised, lifelong, technical, professional and refresher training (other than formal academic and healthcare studies)

- 1 Training title:** Advanced non-linear physics and pattern formation  
**City awarding entity:** Paris, France  
**Awarding entity:** Sorbonne University Paris  
**End date:** 12/2019 **Duration in hours:** 30 hours
- 2 Training title:** Cargèse Doctoral School in Quantum Gravity, Cosmology and Particle Physics  
**City awarding entity:** Corsica, France  
**Awarding entity:** L'Institut d'Etudes Scientifiques de Cargèse  
**End date:** 06/2016 **Duration in hours:** 60 hours
- 3 Training title:** DRSTP Doctoral School in High energy Physics  
**City awarding entity:** Utrecht, Holland  
**Awarding entity:** Dutch Research School of Theoretical Physics

**End date:** 02/2016**Duration in hours:** 70 hours

- 4 Training title:** Joint Brazilian-Dutch Doctoral School in Theoretical Physics  
**City awarding entity:** Sao Paulo, Brazil  
**Awarding entity:** ICTP South American Institute for Fundamental Research  
**End date:** 05/2015 **Duration in hours:** 60 hours
- 5 Training title:** Doctoral Solvay School in Quantum Field Theory, Strings and Gravity  
**Awarding entity:** ULB-VUB (Brussels), ENS (Paris), CERN (Switzerland), UvA (Amsterdam)  
**End date:** 12/2014 **Duration in hours:** 270 hours

## Language skills

Language	Listening skills	Reading skills	Spoken interaction	Speaking skills	Writing skills
French	A2	A2	A2	A2	A2
Dutch	B1	B1	B1	B1	B1
Catalan	C2	C2	C2	C2	C2
Spanish	C2	C2	C2	C2	C2
English	C2	C2	C2	C2	C2

## Teaching experience

### General teaching experience

- 1 Name of the course:** Quantum Physics I  
**Professional category:** Assistant teacher  
**University degree:** BSc Physics and Astronomy  
**Start date:** 09/2015 **End date:** 12/2016  
**Entity:** University of Amsterdam
- 2 Name of the course:** Quantum Physics III  
**Professional category:** Assistant teacher  
**University degree:** BSc Physics and Astronomy  
**Start date:** 01/2013 **End date:** 05/2016  
**Entity:** University of Amsterdam
- 3 Name of the course:** General Relativity  
**Professional category:** Assistant teacher  
**University degree:** MSc Physics and Astronomy  
**Start date:** 01/2016 **End date:** 04/2016  
**Entity:** University of Amsterdam
- 4 Name of the course:** Condensed Matter  
**Professional category:** Assistant teacher  
**University degree:** BSc Physics and Astronomy  
**Start date:** 09/2013 **End date:** 12/2013  
**Entity:** University of Amsterdam



## Experience supervising doctoral thesis and/or final year projects

- 1 Project title:** Extremal higher spin black holes  
**Type of project:** Master thesis  
**Co-director of thesis:** Alejandra Castro; Eva Llabres  
**Entity:** University of Amsterdam  
**Student:** Maik Miltenburg  
**Date of reading:** 06/2019
- 2 Project title:** Higher Spin Wilson lines in AdS3/CFT2  
**Type of project:** Master thesis  
**Co-director of thesis:** Alejandra Castro; Eva Llabres  
**Entity:** University of Amsterdam  
**Student:** Gonzalo Contreras Aso  
**Date of reading:** 02/2019

## 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:** Ecosystemic Services in Posidonia oceanica Meadows  
**Entity where project took place:** University of Balearic Islands  
**Name principal investigator (PI, Co-PI...):** Tomas Sintes; Damia Gomila  
**Funding entity or bodies:**  
Govern de les Illes Balears **Type of entity:** Body, others  
**Type of participation:** Researcher  
**Name of the programme:** GOIB COORDINATED PROJECT  
**Code according to the funding entity:** PRD2018/18-2  
**Start-End date:** 01/07/2021 - 31/07/2023  
**Total amount:** 50.000 €
- 2 Name of the project:** Emergent spacetime and maximally spinning black holes  
**Entity where project took place:** CEA Paris-Saclay  
**Name principal investigator (PI, Co-PI...):** Monica Guica  
**Funding entity or bodies:**  
European Research Council (ERC)  
**Type of participation:** Researcher  
**Name of the programme:** ERC starting grant  
**Code according to the funding entity:** 679278  
**Start-End date:** 01/09/2016 - 31/08/2021  
**Total amount:** 1.495.476 €



- 3 Name of the project:** Gravity as a hologram  
**Entity where project took place:** University of Amsterdam  
**Name principal investigator (PI, Co-PI....):** Alejandra Castro  
**Funding entity or bodies:**  
 Netherlands Organisation for Scientific Research (NWO)  
**Type of participation:** Researcher  
**Name of the programme:** VIDI grant  
**Code according to the funding entity:** C.2329.0172  
**Start-End date:** 01/09/2014 - 31/08/2019  
**Total amount:** 800.000 €

## Scientific and technological activities

### Scientific production

#### Publications, scientific and technical documents

- 1** Eva Llabres; Elvira Mayol; Nuria Marba; Tomas Sintes. A mathematical model for inter-specific seagrass interactions: reproducing field observations for *C. nodosa* and *C. prolifera*. (submitted to Ecology Letters). 2021.  
**Type of production:** Scientific paper **Format:** Journal
- 2** E Llabrés. General solutions in Chern-Simons gravity and TTbar-deformations. Journal of High Energy Physics. 1 - 39, Springer Link, 2020.  
**Type of production:** Scientific paper **Format:** Journal
- 3** Jan de Boer; Eva Llabres; Juan Pedraza; David Vegh. Chaotic strings in AdS/CFT. Phys. Rev. Lett.120 (20) - 201604, American Physical Society, 2018.  
**Type of production:** Scientific paper **Format:** Journal
- 4** Alejandra Castro; Nabil Iqbal; Eva Llabres. Wilson Lines and Ishibashi States in AdS3/CFT2. Journal of High Energy Physics. 9 - 66, Springer Link, 2018.  
**Type of production:** Scientific paper **Format:** Journal
- 5** Alejandra Castro; Eva Llabres; Fernando Rejon Barrera. Geodesic Diagrams, Gravitational Interactions & OPE Structures. Journal of High Energy Physics. 6 - 99, Springer Link, 2017.  
**Type of production:** Scientific paper **Format:** Journal
- 6** Alejandra Castro; Nabil Iqbal; Eva Llabres. Eternal Higher Spin Black Holes: a Thermofield Interpretation. Journal of High Energy Physics. 8 - 22, Springer Link, 2016.  
**Type of production:** Scientific paper **Format:** Journal
- 7** Alejandra Castro; Eva Llabres. Unravelling Holographic Entanglement Entropy in Higher Spin Theories. Journal of High Energy Physics. 3 - 124, Springer Link, 2015.  
**Type of production:** Scientific paper **Format:** Journal
- 8** Eva Llabres. The holographic correspondence: Probing bulk gravitational physics with Wilson lines and Witten diagrams. Uva Dare, 2018.  
**Type of production:** Doctoral Thesis **Format:** Book





## Works submitted to national or international conferences

- 1** **Title of the work:** Modelling spatial interactions among seagrasses using clonal networks  
**Name of the conference:** V Symposium on ecological networks  
**Type of event:** Conference  
**City of event:** Palma de Mallorca, Spain  
**Date of event:** 11/2021  
**Organising entity:** IMEDEA and IFISC  
Llabres; Mayol; Marba; Sintes. "A mathematical model for inter-specific seagrass interactions: reproducing field observations for *C. nodosa* and *C. prolifera*".
- 2** **Title of the work:** Inter-specific interactions in seagrass meadows: a microscopic numerical approach.  
**Name of the conference:** IFISC Seminar  
**Type of event:** Seminar  
**City of event:** Palma de Mallorca, Spain  
**Date of event:** 09/2021  
**Organising entity:** INSTITUTO DE FISICA INTERDISCIPLINAR Y SISTEMAS COMPLEJOS  
**Type of entity:** State agency  
Llabres; Mayol; Marba; Sintes. "A mathematical model for inter-specific seagrass interactions: reproducing field observations for *C. nodosa* and *C. prolifera*".
- 3** **Title of the work:** Wilson lines and Ishibashi states  
**Type of event:** Seminar  
**Type of participation:** Participatory - invited/keynote **Reasons for participation:** Upon invitation talk  
**City of event:** Leiden, Holland  
**Date of event:** 04/2019  
**Organising entity:** University of Leiden  
A. Castro; E. Llabres; N. Iqbal. "Wilson lines, and Ishibashi states in AdS3/CFT2".
- 4** **Title of the work:** Wilson lines, and Ishibashi states in AdS3/CFT2  
**Name of the conference:** Strings 2018 Conference  
**Type of participation:** 'Participatory - poster **Reasons for participation:** Upon invitation  
**City of event:** Okinawa, Japan  
**Date of event:** 06/2018  
**Organising entity:** The Okinawa Institute of Science and Technology (OIST)  
A. Castro; E. Llabres; N. Iqbal. "Wilson lines, and Ishibashi states in AdS3/CFT2".
- 5** **Title of the work:** Chaotic strings in AdS/CFT  
**Name of the conference:** Aspects of time-dependent holography  
**Type of participation:** Participatory - oral communication  
**City of event:** Amsterdam, Holland  
**Date of event:** 11/2017  
**Organising entity:** University of Amsterdam  
J. de Boer; E. Llabres; J. Pedraza; D. Vegh. "Chaotic strings in AdS/CFT".
- 6** **Title of the work:** Spinning Geodesic Witten Diagrams  
**Type of event:** Seminar  
**Type of participation:** Participatory - invited/keynote talk



**City of event:** Pisa, Italy

**Date of event:** 04/2017

**Organising entity:** Ecole Normale Pisa

A. Castro; E. Llabres; F. Rejon Barrera. "Geodesic diagrams, gravitational interactions & OPE structures".

**7 Title of the work:** (Spinning) Geodesic Witten Diagrams

**Name of the conference:** New Developments in AdS3/CFT2 Holography workshop

**Type of participation:** Participatory - invited/keynote **Reasons for participation:** Upon invitation talk

**City of event:** Florencia, Italy

**Date of event:** 03/2017

**Organising entity:** Galileo Galilei Institute (GGI) for Theoretical Physics

A. Castro; E. Llabres; F. Rejon Barrera. "Geodesic diagrams, gravitational interactions & OPE structures".

**8 Title of the work:** Eternal Higher Spin Black Holes

**Name of the conference:** Physics@FOM

**Type of participation:** Participatory - poster

**City of event:** Veldhoven, Holland

**Date of event:** 01/2016

**Organising entity:** Nederlands Organisation for Scientific Research (NWO)

A. Castro; E. Llabres; N. Iqbal. "Eternal Higher Spin Black Holes".

**9 Title of the work:** Entanglement Entropy in 3d Higher Spin Gravity

**Name of the conference:** Joint Brazilian-Dutch School in Theoretical Physics

**Type of participation:** Participatory - oral communication

**City of event:** Sao Paulo, Brazil

**Date of event:** 02/2015

**Organising entity:** International Centre for Theoretical Physics (ICTP)

A. Castro; E. Llabres. "Unravelling Holographic Entanglement Entropy in Higher Spin Theories".

## R&D management and participation in scientific committees

### Scientific, technical and/or assessment committees

**Committee title:** IFISC Gender Equality Committee

**Affiliation entity:** INSTITUTO DE FISICA INTERDISCIPLINAR Y SISTEMAS COMPLEJOS

**Start date:** 01/03/2021

**Type of entity:** State agency



## Other achievements

### Stays in public or private R&D centres

- 1** **Entity:** Queen Mary University of London  
**City of entity:** London, United Kingdom  
**Start-End date:** 25/06/2018 - 09/07/2018 **Duration:** 15 days  
**Goals of the stay:** Guest  
**Provable tasks:** research on chaotic strings with Prof. Dr. David Vegh
- 2** **Entity:** Galileo Galilei Institute (GGI) Institute for Theoretical Physics  
**City of entity:** Florencia, Italy  
**Start-End date:** 03/2017 - 04/2017 **Duration:** 1 month  
**Goals of the stay:** Guest  
**Provable tasks:** participating at the "GGI Young Investigator Training Program", speaking at the workshop "AdS3/CFT2", and collaborations
- 3** **Entity:** Perimeter Institute  
**City of entity:** Waterloo, Canada  
**Start-End date:** 04/2015 - 05/2015 **Duration:** 1 month  
**Goals of the stay:** Guest  
**Provable tasks:** invited by Alejandra Castro, with Emily Noether fellowship, for collaboration

### Obtained grants and scholarships

- 1** **Name of the grant:** 2018 Nordita Fellowship (rejected)  
**Aims:** Post-doctoral  
**Awarding entity:** Nordita, the Nordic Institute for Theoretical Physics  
**Amount of the grant:** 72.530 €  
**Conferral date:** 09/2018  
**End date:** 09/2020
- 2** **Name of the grant:** Vrije Universiteit Fellowship Programme  
**Aims:** Pre-doctoral  
**Awarding entity:** Vrije University Amsterdam  
**Amount of the grant:** 10.000 €  
**Conferral date:** 09/2014 **Duration:** 2 years  
**End date:** 09/2016
- 3** **Name of the grant:** Fellowship Agustí Pedro i Pons  
**Aims:** Pre-doctoral  
**Awarding entity:** Fundació Agustí Pedro i Pons  
**Amount of the grant:** 2.500 €  
**Conferral date:** 09/2013 **Duration:** 1 year  
**Entity where activity was carried out:** University of Amsterdam



## Prizes, mentions and distinctions

- 1** **Description:** Honorary mention in Strings 2018 (1200 €)  
**Awarding entity:** The Okinawa Institute of Science and Technology (OIST)  
**City awarding entity:** Japan  
**Conferral date:** 06/2018
- 2** **Description:** Young Investigator Training Program (3000 €)  
**Awarding entity:** Galileo Galilei Institute (GGI) Institute for Theoretical Physics  
**City awarding entity:** Florencia, Italy  
**Conferral date:** 03/2017